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Yiatrosofia yia ton Anthropo: Indigenous Knowledge of Medicinal, Aromatic and Cosmetic (MAC) Plants in the Utilisation of the Plural Medical System in Pirgos and Praitoria for Community Health Development in Rural Crete, Greece

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Yiatrosofia yia ton Anthropo:
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For I realise today that it is a mortal sin to violate the great laws of nature. We should not hurry, we should not be impatient, but we should confidently obey the eternal rhythm.

Nikos Kazantzakis
(Zorba the Greek 1946)

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This dissertation is dedicated to the people I have met in Pirgos and Praitoria,
who have shared their knowledge, support, passion, kindness, friendship and joy with me
and who have made this journey an unforgettable experience.

Preface

Since my late childhood, I have felt drawn to the people living in the South of Europe, particularly to the European countries bordering the Mediterranean Sea. Born and raised in the South of Austria, I first became acquainted with the people, culture and language of Italy, to which I undertook repeated visits with my family and later on my own. In addition to Italy, it was not until I left to study International Development at the University of Vienna when I increased my interest in the South of Europe to include Spain and Portugal. I have since deepened my understanding of Northern Spain on a rather personal level. Whilst studying in Vienna, my decision to join the Exchange Programme of Erasmus for a year, which was originally supposed to take me to Naples, Italy, eventually brought me to Leiden in The Netherlands. Hereafter, it was in the rather different northwestern part of Europe where I was offered the opportunity to deepen my interest in the cultural dimension of development and people's indigenous knowledge systems, as it had been stimulated during my studies in Vienna.

Of all the classes, which I took during my academic year in Leiden, it was the Post-Graduate Course 'Medical Anthropology and Sociology of Developing Countries 2005-2006', coordinated by Prof. Dr. L.J. Slikkerveer, which fascinated me beyond my insomniac life as an Erasmus-student. I have always been convinced that the key to development must lie in the hands of the participants, that is of the local people, and that any development strategy imposed on people from the outside was bound to fail. In this respect, I have also come to realise that working in the field of development involves much more learning rather than teaching.

The local strategies applied by people in a way to deal with the challenges of everyday-life in various sectors of the society, such as medicine or agriculture, which are embedded in the socio-cultural context of every community, provide the evidence that these people share an invaluable knowledge about how to ensure their survival, not at least under the most difficult circumstances. The Course, which I followed during my Erasmus-year in Leiden, really struck a chord with me and provoked me to come back to Leiden a year later in order to write my MA-thesis on '*Native versus Naïve - The Role of Indigenous Knowledge in Sustainable Water Resource Management in Bali, Indonesia*' under the supervision of Prof. Dr. L.J. Slikkerveer. Following my return to Leiden, I was lucky to become acquainted with the Members of the 'Leiden Ethnosystems and Development (LEAD) Programme', which had initially been established in 1986 at the Department of Anthropology, but as an International Programme on Ethnoscience was later relocated to the Faculty of Science of Leiden University to specialise in the ethnoscience field of *Indigenous Knowledge Systems and Development* (IKS&D).

The LEAD Programme has supported the provision of a substantial number of studies, which have been carried out in various subfields of ethnoscience, such as ethnomedicine, ethno-agriculture, traditional ecological knowledge systems, ethnobotany and integrated microfinance management. The basis for these innovative studies has been laid by the specifically in Leiden developed methodology for the study of IKS, known as the '*Leiden Ethnosystems Approach*'. To be more precise, ethnosystems encompass local people's indigenous knowledge and practices, as well as their generations' long experience in culture-specific concepts, beliefs and perceptions. In this way, the 'Ethnosystems Approach' broadens the perspective of culture and allows for a study of cognitive and behavioural concepts in a rather holistic way, in which the participants' view is crucial. Furthermore, the approach adopts a more dynamic historical perspective on local systems of knowledge, practice and belief, thereby analysing processes of transculturation and acculturation, as well as the interaction between local and international knowledge systems. In view of these phenomena, it is the overall aim of the 'Leiden Ethnosystems Approach' to design practical models, in which indigenous and cosmopolitan knowledge systems are integrated and upon which community development can successfully be advanced, namely from a 'bottom-up' rather than from a 'top-down' perspective.

In this way, the Members and Associates of the LEAD Programme have conducted research in fields such as traditional medicine, Traditional Ecological Knowledge (TEK) and Indigenous Agricultural Knowledge Systems (INDAKS), thereby elaborating a comparative analytical model for INDAKS. In the international debate on IKS, the LEAD Programme established together with the 'Centre for Indigenous Knowledge for Agriculture and Rural Development' (CIKARD) at Iowa State University in 1987 the *Global Network for Indigenous Knowledge Systems* and has contributed to the establishment of national IKS Research Centers in different countries, such as the Kenyan Resource-Centre for Indigenous Knowledge (KENRIK) of the National Museums of Kenya in Nairobi and the Indonesian Resource-Centre for Indigenous Knowledge (INRIK) of Padjadjaran University in Bandung. In partnership with CIKARD, the LEAD Programme has not only initiated a network of individuals and experts working in the fields of indigenous knowledge, but has also advocated the publication of the *IK Newsletter*, which provided a sound basis for the later publication of the *Indigenous Knowledge and Development (IK&D) Monitor* between 1993 and 2001 with the 'Centre for International Research and Advisory Networks' (CIRAN) in The Hague, The Netherlands. In cooperation with KENRIK, INRIK, the Department of Social and Family Medicine of the University of Crete (UoC) and the Mediterranean Agronomic Institute of Chania (MAICh) in Crete, Greece, the LEAD Programme moreover oversaw a series of publications in the *Indigenous Knowledge Systems Research and Development Studies* (*cf.* Slikkerveer 1989; Leakey & Slikkerveer 1991b; Slikkerveer 1995; Slikkerveer & Quah (2003).

Since 1987, the LEAD Programme has maintained a close collaboration with the University of Crete in Greece in an effort to enable students to receive post-graduate fieldwork training and to carry out research in rural Crete. As Slikkerveer (1997: 20) explains: '*In the field of research and fieldwork training in the Mediterranean region, LEAD initiated in 1987 a collaboration programme with the University of Crete and the Spili Health Centre in Crete, in which specific attention was given to medical anthropological research in the use of traditional herbal medicine in rural Crete*'. While the main counterpart in Crete was originally located at the Regional Health Centre of Spili in the Prefecture of Rethymnon, collaboration between the LEAD Programme and the University of Crete nowadays involves primarily the Department of Social and Family Medicine, located at the University of Crete in Iraklion (*cf.* Slikkerveer & Dechering 1995). On the basis of this collaboration, the area of rural Central Crete has been subject to community-based research on various topics, such as local medical knowledge systems, utilisation of Medicinal, Aromatic and Cosmetic (MAC) plants, the use of herbs in the local diet and for the treatment of specific diseases, the doctor-patient relationship, utilisation of over-the-counter medicines, the phenomenon of the illness-management groups, maternal and child health, aging and longevity, as well as local perceptions of health care delivery. This impressive body of community-oriented research has accumulated in about 20 MA-Theses over a period of time of about 25 years (*cf.* Map 0.1).

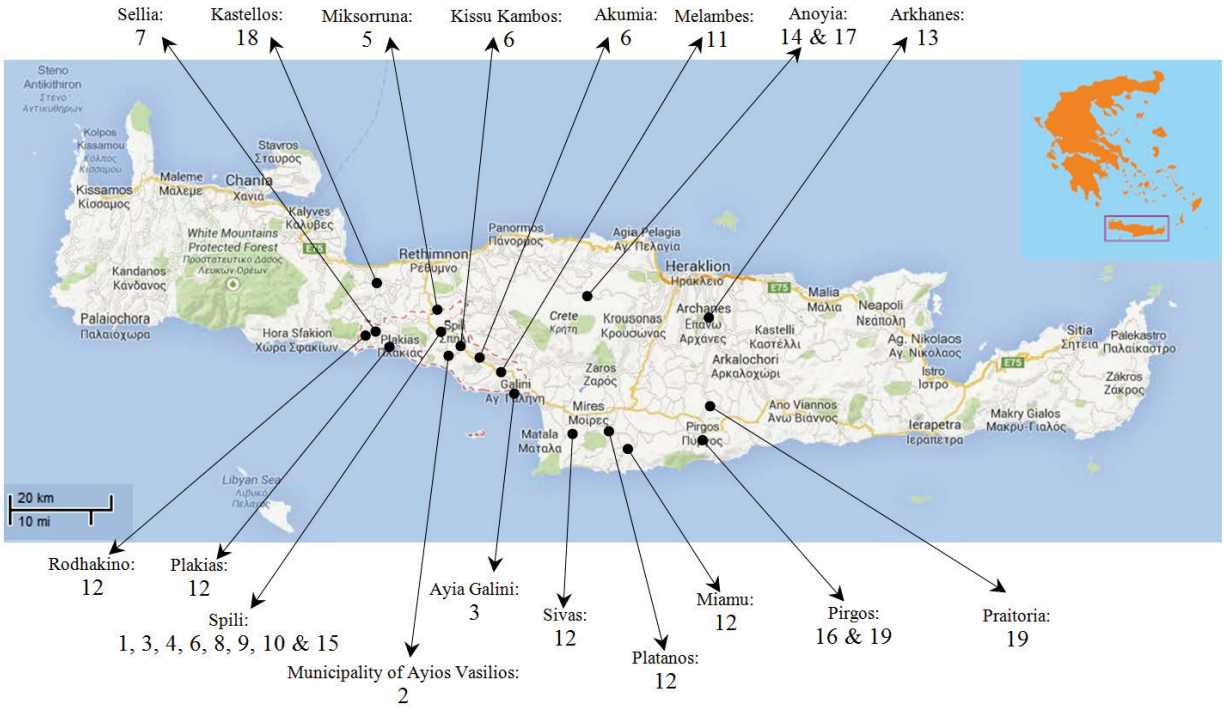
It is within the context of the collaboration between the LEAD Programme of Leiden University and the Department of Social and Family Medicine at the University of Crete that I as a Member of the LEAD Programme was offered the unique opportunity to conduct PhD-research on the topic of indigenous knowledge and practice of MAC plants within the process of health care utilisation by the local people in rural Crete. In this way, I have been able to not only pursue my interest in people's indigenous knowledge systems, but also to combine this interest with my passion for the Mediterranean Region.

With this research, I hope to make my own contribution to the aspect of development in terms of promoting community health among a population group living in rural Crete. The present study follows an alternative and more sustainable approach on the basis of advancing the concept of *Indigenous Knowledge Systems and Development* (IKS&D) within the field of medicine and hereby links up with the comprehensive strategy of community health development (*cf.* Slikkerveer 1995). My research took off around the time when Greece was faced with one of the biggest financial crises of its recent history, thereby providing a new impetus to the concept of

community development in this part of Europe. Moreover, with this study I hope to give a voice to the local people, who have recently had to deal with growing criticism from the outside about their traditional ways of life and cultural habits, and who have been asked to adapt to externally designed adjustment programmes. Instead of hearing the latest news, I chose to listen to the inhabitants of rural Crete, who have not only overwhelmed me with their knowledge and wisdom, but have also reinforced my belief that the key to development in fact lies in the hands of the participants. In this respect, I have come to realise that this part of the Mediterranean Region, albeit its relative scarce financial resources, is rich in indigenous knowledge and practices of bio-cultural diversity conservation.

Eventually, I had to ask myself whether a population group, which is rich in indigenous knowledge and bio-cultural diversity, may perhaps be better suited to deal with a major socio-economic crisis than a similar group, which lacks such great knowledge and diversity. In view of the fact that a financial crisis could hit any country at any moment, it is not unimaginable that one day, the experts will look at this part of Europe to find answers on how to deal with socio-economic crisis.

Once more, I have been reassured that development work is more successful when it applies a learning- rather than a teaching-approach. In conclusion, I herewith hope to inspire others and not the least myself to continue on this path towards the provision of an audience to those, who are rarely heard, but who have so much to say.



Legenda:

- - - The Municipality of Ayios Vasilios

(1) 'De Gezondheidszorg in Ontwikkeling op het Platteland van Kreta: Een descriptief en exploratief Medisch-Anthropologisch Onderzoek'(Visser 1986)

(2) 'Obstetrische Zorg voor Provincie Aghios Vassilios, Kreta'(Neus 1989)

(3) 'Het District Ag. Vasiliou: Een Beschrijving van de Gezondheidszorg en een Sociografisch Profiel van de Bevolking'(Smak Gregoor & Zwiep 1990)

(4) 'Aged People and Illnesses on Crete' (Van Beelen 1990)

(5) 'The Medical Knowledge System in Mixorouma (Crete): A Comparison between two Generations' (Van der Hoeven 1992)

(6) 'Maternal and Child Health in the Area Agios Vasilios, Crete: A descriptive Inquiry to the Beliefs and Practices of Young Mothers and Pregnant Women regarding Child Care' (Van Bommel 1993)

(7) '"Blood is Thicker than Water": The Role of the Illness-Management Group towards the Patient in the Village Sellia, Crete' (Van de Kerk 1993)

(8) *Research Proposal*: 'Indigenous Knowledge of Medicinal Plants of Crete, Greece: The Use of Medicinal Plants against Rheumatic Diseases' (Van der Steur 1993)

(9) 'Implementation of Primary Health Care in Agios Vasilios District' (Wondimu 1993)

(10) 'The Use of Over the Counter Drugs in Rural Crete' (Hanepen 1997)

(11) 'Changing Perspectives: The Doctor-Patient Relationship in Crete' (Hagoort 1998)

(12) 'Indigenous Medical Knowledge and Use of Medicinal Plants in Crete' (Legel 1998)

(13) 'Στην υγεία!!! Local Medical Knowledge and Practice in Rural Crete' (Molenaar 1999)

(14) 'Primary Health Care in Greece: A Focus on Hepatitis A in a Rural Area of Crete' (Bouma 2000)

(15) 'Health and Illness in Rural Crete' (Van den Akker 2002)

(16) 'The Use of Local Herbs in the Traditional Cretan Diet: Its Effect on Dyspepsia' (Palstra 2003)

(17) 'Herbs in Treating Dyspepsia: The Use of Herbs in the Overall Treatment of Dyspepsia in Anogeia (Crete)' (Dijkstra 2005)

(18) 'The Role of Socio-Cultural Factors in the Use of Medicinal and Aromatic Plants in Relation to Human Longevity' (De Vries 2007)

(19) present study

Map 0.1 Community-based Research carried out in Crete between 1986 and 2014.
Source: LEAD Archives; Map data ©2014 Google (*edited*).

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The present study would not have been possible without the wholehearted support of a number of individuals, who have assisted me during the different stages of my research, from the first acquaintance with this topic and field to the months of fieldwork, the analysis of data and the eventual writing-up of this dissertation.

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Contents

Preface xi

Acknowledgements xv

List of Tables xx

List of Figures xxii

List of Illustrations xxii

List of Maps xxiii

Transliteration xxiv

Chapter I INTRODUCTION 1
1.1 The Great Cretan Heritage of Herbal Medicine 4
1.1.1 Crete: The Cradle of European Civilisation 4
1.1.2 MAC Plants: The Fame of Cretan Dittany (*Origanum Dictamnus* L.) 8
1.1.3 *Stin Iyia Mas:* The Local Wish of Good Health 11
1.2 The Challenge of the Study of Medical Pluralism 12
1.2.1 The New Paradigm of Indigenous Knowledge Systems (IKS) 12
1.2.2 The Concept of Medical Pluralism in Rural Crete 14
1.2.3 The Importance of the Voice of the Community 15
1.3 A New Approach to Community Health Promotion 18
1.3.1 The Significance of the Study of MAC Plants in Crete 18
1.3.2 Advanced Research in Patterns of Health and Illness Behaviour 19
1.3.3 From Primary Health Care to Community Health Development 21
1.4 General Aim and Specific Objectives 24
1.5 Structure of the Study 25

Chapter II THEORETICAL ORIENTATION 29
2.1 Medical Traditions and Developments 29
2.1.1 Humoural Medicine and Healing in Ancient Greece 29
2.1.2 Between Indigenous and Cosmopolitan Medicine 33
2.1.3 The Revival of Herbal Medicine 37
2.2 The New Field of Ethnoscience 40
2.2.1 Ethnobotanical Knowledge Systems (EKS) 40
2.2.2 Ethnomedicine and Medical Anthropology 44
2.2.3 Medicinal, Aromatic and Cosmetic (MAC) Plants 46
2.3 Promotion of Community Health 49
2.3.1 Primary Health Care and Community Health 49
2.3.2 The Health Care Seeking Process 52
2.3.3 The Utilisation of Medical Systems 55
2.4 Components of Plural Medical Systems 57
2.4.1 The Traditional Medical System 57
2.4.2 The Transitional Medical System 59
2.4.3 The Modern Medical System 62

Chapter	**III**	**RESEARCH METHODOLOGY**	65
	3.1	**Choice of Research Strategies**	66
	3.1.1	The 'Leiden Ethnosystems Approach'	66
	3.1.2	The Multivariate Model of Transcultural Health Care Utilisation	67
	3.1.3	Operationalisation of the Conceptual Model	72
	3.2.	**Research Methods and Techniques**	78
	3.2.1	Selection of the Research Area	78
	3.2.2	Target and Sample Population	79
	3.2.3	Development of Research Instruments	80
	3.3	**Data Collection and Analysis**	81
	3.3.1	Qualitative Data Collection: Key-Informants	81
	3.3.2	Quantitative Data Collection: Household Surveys	83
	3.3.3	Data Analysis	84
Chapter	**IV**	**RESEARCH SETTING: GREECE AND CRETE**	89
	4.1	**Greece: Focus on the Mediterranean Region**	89
	4.1.1	The Geography of Greece in the Mediterranean Region	89
	4.1.2	Greece: History and Recent Developments	94
	4.1.3	Culture, Population and the Greek Orthodox Church	98
	4.2	**Crete: The Largest Island of Greece**	100
	4.2.1	Geography, Climate and Flora of Crete	100
	4.2.2	The Unique History of Crete	103
	4.2.3	Socio-Economic Developments and Cultural Icons	105
Chapter	**V**	**THE COMMUNITIES OF PIRGOS AND PRAITORIA**	109
	5.1	**Between the Asterousia Mountains and the Mesara Plain**	109
	5.1.1	Location of the Research Communities in South-Central Crete	109
	5.1.2	Administration, Surroundings and Size	113
	5.1.3	Patterns of Migration and Settlement	115
	5.2	**Characterisation of the Local Population**	119
	5.2.1	Age, Gender and Communal Networks	119
	5.2.2	Nationality, Religion and Cretan Character	126
	5.2.3	Education, Occupation and Socio-Economic Profile	128
	5.3	**Social Organisation of the Research Communities**	135
	5.3.1	Housing and Communal Institutions	135
	5.3.2	Adhering to the Religious Canon: A Selection of Rituals and Celebrations	138
	5.3.3	Spiritual Belief, Calendar and the Local Diet	143
Chapter	**VI**	**THE PLURAL MEDICAL SYSTEM IN CRETE**	149
	6.1	**A Historical Perspective on Medicine in Crete**	149
	6.1.1	Early Forms of Medical Practice	149
	6.1.2	The Development of the Plural Medical System	151
	6.2	**The Traditional Medical System**	152
	6.2.1	Traditional Medicine and *Yiatrosofia*	152
	6.2.2	Between *Votana* and *Yities*: The Traditional Medical System	156
	6.2.3	The Provision of Traditional Health Care	166
	6.3	**The Transitional Medical System**	170
	6.3.1	The Extension of the Transitional Medical System	170
	6.3.2	Local Examples of Commercial Pharmaceutical Medicines	172
	6.3.3	The Provision of Commercial Pharmaceutical Health Care	173

	6.4	**The Modern Medical System**	176
	6.4.1	The Greek National Health Care System	176
	6.4.2	The Availability of Modern Health Care in Rural Crete	181
	6.4.3	The Provision of Modern Health Care	186
Chapter	**VII**	**COMMUNITY HEALTH CARE IN CRETE**	191
	7.1	**Health and Illness in Rural Crete**	191
	7.1.1	General Profile of Health and Disease	191
	7.1.2	The Perception and Promotion of Health	195
	7.1.3	Local Concepts of Illness	199
	7.2	**Reported Illnesses and Patterns of Health Care Utilisation**	206
	7.2.1	Health and Illness in the Research Area	206
	7.2.2	Utilisation of the Plural Medical System	212
	7.2.3	Specific Patterns of Illness Behaviour	216
	7.3	**Utilisation of the Plural Medical System**	219
	7.3.1	Utilisation of the Traditional Medical System	219
	7.3.2	Utilisation of the Transitional Medical System	221
	7.3.3	Utilisation of the Modern Medical System	223
Chapter	**VIII**	**PATTERNS OF TRANSCULTURAL HEALTH CARE UTILISATION BEHAVIOUR**	227
	8.1	**Preparation of the Data Set**	227
	8.1.1	Factors and Variables	227
	8.1.2	Independent and Intervening Variables	230
	8.1.3	Dependent Variables	237
	8.2	**Quantitative Data Analysis**	239
	8.2.1	Bivariate and Mutual Relations Analysis	239
	8.2.2	Nonlinear Canonical Correlation Analysis: OVERALS	253
	8.2.3	Multiple Regression Analysis	260
	8.3	**Results of the Analysis and Interpretation of Findings**	263
	8.3.1	The Differential Utilisation of the Plural Medical System	263
	8.3.2	Determinants of Health Care Utilisation Behaviour	265
	8.3.3	Influence of Qualitative Factors on Behavioural Patterns	273
Chapter	**IX**	**CONCLUSION**	275
	9.1	**Conclusions**	275
	9.2	**Implications of the Research**	285
	9.2.1	Theoretical Implications of the Research	285
	9.2.2	Methodological Implications of the Research	286
	9.2.2	Practical Implications of the Research	287
Bibliography			289
Appendix			309
Summary			321
Samenvatting			328
Curriculum Vitae			336

List of Tables

3.1 Independent Predisposing Factors: Socio-Demographic Factors. 74
3.2 Independent Predisposing Factors: Psycho-Social Factors. 75
3.3 Independent Enabling Factors. 75
3.4 Independent Perceived Morbidity Factors. 76
3.5 Independent Institutional Factors. 76
3.6 Intervening Factors. 77
3.7 Dependent Health Care Utilisation Factors. 77
5.1 The Population of the former Municipality of Asterousia (2001). 114
5.2 The Sample or Study Population of the Two Research Communities of Pirgos and Praitoria (N=656). 114
5.3 Distribution of the Place of Birth of the Household Members of the Sample over the Two Research Communities (N=656). 115
5.4 Distribution of the Place of Birth of the Household Members of the Sample in the Municipality of Arkhanes-Asterousia over the Two Research Communities (N=656). 116
5.5 Distribution of the Age of the Household Members of the Sample over the Two Research Communities (N=656). 119
5.6 Distribution of the Gender of the Household Members of the Sample over the Two Research Communities (N=656). 120
5.7 Distribution of the Marital Status of the Household Members of the Sample over the Two Research Communities (N=656). 122
5.8 Distribution of the Size of the Household of the Sample over the Two Research Communities (N=656). 123
5.9 Distribution of the Relationship of the Household Members of the Sample to the Household Head over the Two Research Communities (N=656). 124
5.10 Distribution of the Nationality of the Household Members of the Sample over the Two Research Communities (N=656). 126
5.11 Distribution of the Religious Affiliation of the Household Members of the Sample over the Two Research Communities (N=656). 127
5.12 Distribution of the Level of Education Completed by the Household Members of the Sample over the Two Research Communities (N=656). 128
5.13 Distribution of the Main Occupation of the Household Members of the Sample over the Two Research Communities (N=656). 129
5.14 Distribution of the Estimated Annual Income of the Households of the Sample in Euro over the Two Research Communities (N=293). 134
5.15 Distribution of the Socio-Economic Status (SES) of the Household Members of the Sample over the Two Research Communities (N=656). 134
6.1 The Plural Medical System in Rural Crete. 151
6.2 Distribution of the Opinion on the Traditional Medical System of the Household Members of the Sample over the Two Research Communities (N=656). 155
6.3 Distribution of the Knowledge of the Traditional Medical System of the Household Members of the Sample over the Two Research Communities (N=656). 155
6.4 Emic Classification of MAC Plants and other Traditional Home Remedies. 157
6.5 List of Names of the 20 most frequently reported MAC Plants in the Research Area. 158
6.6 Distribution of the Accessibility of Institutions of the Traditional Medical System perceived by the Household Members of the Sample over the Two Research Communities (N=656). 169
6.7 Distribution of the Opinion of the Household Members of the Sample on the Transitional Medical System over the Two Research Communities (N=656). 172
6.8 Distribution of the Knowledge of the Transitional Medical System of the Household Members of the Sample over the Two Research Communities (N=656) 172

6.9 Distribution of the Accessibility of Institutions of the Transitional Medical System perceived by the Household Members of the Sample over the Two Research Communities (N=656). 176
6.10 Distribution of the Social Insurance Coverage of the Household Members of the Sample over the Two Research Communities (N=656). 179
6.11 Distribution of the Opinion of the Household Members of the Sample on the Modern Medical System over the Two Research Communities (N=656). 184
6.12 Distribution of the Knowledge of the Modern Medical System of the Household Members of the Sample over the Two Research Communities (N=656). 185
6.13 Distribution of the Accessibility of Institutions of the Modern Medical System perceived by the Household Members of the Sample over the Two Research Communities (N=656). 189
7.1 Main Causes of Death in Greece between 1990 and 2008 (standardised mortality rates/100 000 population). 192
7.2 Local Classification of Illnesses. 202
7.3 Distribution of the General Health Status of the Household Members of the Sample over the Two Research Communities (N=656). 206
7.4 List of reported Illnesses in the Research Area. 207
7.5 Rates of the Household Members' Utilisation of the Plural Medical System (N=452). 214
7.6 Frequency of the Utilisation of the Plural Medical System by the Household Members (N=452). 214
7.7 Distribution of the Utilisation of the Plural Medical System of all Patients of the Sample over the Two Research Communities (N=452). 215
8.1 Block of Factors, Names and Labels of all 30 Variables identified within the Multivariate Model of Transcultural Health Care Utilisation. 229
8.2 Distribution of the Socio-Demographic Variables of Respondents of the Sample over the Dependent Variables (N=452). 241
8.3 Distribution of the Psycho-Social Variables of Respondents of the Sample over the Dependent Variables (N=452). 245
8.4 Distribution of the Enabling Variables of Respondents of the Sample over the Dependent Variables (N=452). 246
8.5 Distribution of the Perceived Morbidity Variables of Respondents of the Sample over the Dependent Variables (N=452). 248
8.6 Distribution of the Institutional Variables of Respondents of the Sample over the Dependent Variables (N=452). 251
8.7 Distribution of the Intervening Variable of the Respondents of the Sample over the Dependent Variables (N=452). 252
8.8 Component Loadings of the two Sets of Variables with a Total of 30 Variables on two Dimensions (N=452). 257
8.9 List of Multiple Correlation Coefficients (ρ) calculated by means of a Multiple Regression Analysis of the Nine Blocks of Factors on two Dimensions (N=452). 261

List of Figures

3.1 '*Model of Stages in the Health Care Process*'. 68
3.2 Conceptual Model of Transcultural Health Care Utilisation. 72
4.1 Uses of Wild Plants throughout the Mediterranean Region (plants have been reported to the MEDUSA database and are all native to the Mediterranean Region). 91
5.1 Frequency of the Age of the Household Members of the sample divided by the Gender of the Household Members of the sample (N=656). 121
5.2 '*The Year for the Villagers of Magoulas*'. 145
6.1 Flows of Financing and Delivery of Modern Health Care in Greece. 181
7.1 Decision Tree Illustrating the Patterns of Health Care Utilisation of all Patients of the Sample (N=656). 213
8.1 Model of the Mutual Relation Analysis of the Blocks of Variables. 254
8.2 Graphic Representation of the Projection of the Component Loadings of the two Sets of Variables onto the Canonical Space with a Total of 30 Variables on two Dimensions (N=452). 258
8.3 The Final Model of Transcultural Health Care Utilisation indicating the Strength of the Correlations between the Blocks of Variables. 264

List of Illustrations

1.1 Illustration from the *Juliana Codex* showing the Greek herbalist Pedanius Dioscorides receiving the Mandrake plant (*Mandragora officinarum*) from Heurisis, the Goddess of Discovery. 2
1.2 The famous Snake Goddess from Knossos (circa. 1600-1550 B.C.), discovered in 1903 by the British archaeologist Arthur Evans on the site of the 'Palace' of Knossos in Crete. 5
1.3 Illustration of the famous ancient fresco 'Prince of Lilies' at Knossos (circa 1550 B.C.), underscoring the significance of lilies as decorative flowers in the Minoan civilisation. 6
1.4 Cretan Dittany (*Origanum dictamnus* L.) cultivated in a pot next to a drawing of the legendary goat on a wooden stem. 10
4.1 Church of the Holy Trinity in Praitoria. 100
4.2 Mount *Yiukhtas* seen from Iraklion. 102
4.3 The Minoan Palace in Malia. 104
4.4 Tourism and caves along the beach in Matala. 106
5.1 Anapodaris River in Praitoria. 112
5.2 View of the Community of Pirgos from the south-eastern hillside against the backdrop of the Mesara Plain with the row of Eucalyptus trees framing the road between Praitoria and Kharakas. In the front, there are the ruines of the Venetian Occupation with the '*Kaloyeriko*' on the western hillside on the left. 117
5.3 View of the Community of Praitoria from the South against the backdrop of the south-eastern foothills of the Psiloritis Mountain. 118
5.4 Olive Cultivation in Pirgos in Crete. 131
5.5 Rural Field House in South-Central Crete. 136
5.6 Icons and *Epitahphios* at the Church of Ayia Irini in Pirgos, Crete. 141
5.7 Traditional Egg Tapping on Easter Sunday. 141
6.1 Book on MAC Plants offered with an Edition of the TiVo Magazine. 154
6.2 Dried Chamomile (*Chamomilla recutita* (L.) Rauschert / *Matricaria chamomilla* L. / *Matricaria recutita* L.). 160

6.3 Votive Offerings in the Ayios Titos Cathedral in Iraklion. 165
6.4 The '*Liokurno*' flanked by two branches of Marjoram (*Origanum majorana* L. / *Origanum microphyllum* (Bentham) Boiss.). 166
6.5 Sale of MAC Plants at the weekly market in Iraklion. 170
6.6 The Pharmacy at the western edge of the Market Street in Pirgos. 174
6.7 A shop specialised in the sale of MAC Plants in Iraklion. 175
6.8 The waiting room at the Health Post in Pirgos. 182
6.9 The waiting room at the Health Post in Praitoria 183

List of Maps

0.1 Community-based Research carried out in Crete between 1986 and 2014. xiv
1.1 *Candia olim Creta*, hand coloured map of Crete (formerly Candia) and surrounding islands from the Latin edition of W.J. Blaeu's Atlas Novus (1642). 7
4.1 The Mediterranean Sea. 90
4.2 Map of Greece. 92
4.3 Map of Crete. 101
5.1 The Two Research Communities in South-Central Crete. 111
5.2 Map of the Community of Pirgos, Crete. 117
5.3 Map of the Community of Praitoria, Crete. 118

Transliteration

Throughout the present study, a number of Greek words are transliterated into English. To be more precise, transliteration is applied to those words, for which no appropriate English translation has been found in the relevant literature. In this way, the majority of Greek concepts, expressions and phrases as well as local names of people, places and plants are transliterated into English. Conversely, the official English word is used to refer to historical and mythological figures and events, as well as to certain geographical locations. In order to transliterate from Greek to English in an adequate fashion, this study adopts the style suggested by Kenna (2001), who follows the format recommended by the *Journal of Modern Greek Studies*, as follows:

α	a
β	v
γ	gh before a, o, u & consonants y before i, e
δ	dh
ε	e
ζ	z
η	i
θ	th
ι	i
κ	k
λ	l
μ	m
ν	n
ξ	ks
ο	o
π	p
ρ	r
σ, ς	s
τ	t
υ	i
φ	f
χ	kh before a, o, u, consonants & after s h before i, e (except after s)
ψ	ps
ω	o
αι	e
άι	ai
γγ	ng
γκ	g initially ng medially
γχ	nkh
αϊ	aï
ει	i
ευ	ef before voiceless consonants ev before vowels, voiced consonants
μπ	b initially mb medially
ντ	d initially nd medially
οι	i
οϊ	oï
ου	u
οϋ	oï
ωϊ	oï

Chapter I INTRODUCTION

Crete as the largest island of Greece is situated in the eastern region of the Mediterranean Sea, roughly equidistant from the Asian continent to the East, the African continent to the South and the European mainland to the Northwest. In Greek mythology, Crete is described as the 'Birthplace of Europe', which owes its origin and name to the legend of Princess Europa, who has been kidnapped by Zeus and brought to Crete. Accordingly, archaeological findings substantiate that the ancient civilisation, which developed in Crete between 3000 and 1100 B.C., has been the first civilisation of Europe at large. The age-long history of the Cretan culture with its Minoan, Byzantine, Venetian and Ottoman influences also reveals the richness of people's medical knowledge, practice and belief, which has come to form the basis of the present plural medical system available across the island, particularly in the rural areas. Following the early patterns of human settlement in Crete towards the end of the Neolithic Era, the Minoan people started to adopt naturalistic explanations for the relation between humans and the universe, subject to the laws of nature. In this part of the Mediterranean Region, centred around the Ionian Sea, the view emerged that the human body is composed of four humours - blood, phlegm, yellow bile and black bile - and that disorders in health have been caused by an imbalance among these humours. The most prominent representative if this theory was Hippocrates of Kos (460-370 B.C.), the Founding Father of Classical Greek Medicine.

In the classical Greek ethnomedical system, the human-plant relations played a significant role, as most medicines and treatments have been plant-based, providing the population with a growing body of indigenous knowledge, belief and practice of traditional medicinal plants of the Mediterranean Region. The famous Greek physician, herbalist and pharmacologist Pedanius Dioscorides (40-90 A.D.) wrote a book in five volumes entitled *De Materia Medica* (77 A.D.), which deals with approximately 1.000 simple medicines. For more than 16 centuries, his book has been the primary classical source of modern botanical terminology and the leading pharmacological text with outstanding descriptions of nearly 600 plant species, including Thyme (*Coridothymus capitatus* (L.) Rechenb. Fil. / *Thymus capitatus* (L.) Hoffmanns. & Link), Dill (*Anethum graveolens* L.) and Garlic (*Allium sativum* L.) (*cf.* Illustration 1.1).

Interestingly, this main theory of the classical Greek ethnomedical system has expanded as 'Unani Medicine' from the Greco-Arabic medical system to the East into Southeast Asia and East Africa as well as to the West into Middle- and South America, where it has established its strong position in traditional medicine today, in which local empirical knowledge and use of plants have successfully been integrated into the local medical system (*cf.* Foster 1987).

The related early forms of traditional medicine in the island have drawn heavily on the local people's knowledge and use of medicinal plants and home remedies, often in combination with religious and spiritual beliefs of health and disease. The development of local systems of knowledge, practice and belief regarding Medicinal, Aromatic and Cosmetic (MAC) plants in the island date back as far as prehistoric times of the Minoans, and have continued to provide the communities in the island with important practical, readily available natural sources of medicine up until today.

These MAC plants contain several phytochemicals, which have been used over many centuries for numerous therapeutic purposes and since the 20th century have served as precursors for pharmaceutical synthesis, substantiating the *Materia Medica* of the Cretan traditional medical system still frequently used throughout the island today. In addition to the historical transfer of such local medical knowledge over generations mainly through the oral tradition, a few written resources in the form of local handbooks encompassing compendia of formulas for medicines, known as '*Yiatrosofia*', which have been compiled by traditional specialists, such as '*Praktiki*', in the island, have further substantiated the 'great' medical tradition of Crete.

In spite of their practical usefulness and historical significance, these local resources of important knowledge and wisdom have so far hardly been studied, most likely in line with the general ignorance and ridiculisation of indigenous knowledge systems, which until recently was so characteristic for the colonial and post-colonial attitude of many scientists and scholars (*cf.* Clark 2011).

Illustration 1.1 Illustration from the *Juliana Codex* showing the Greek herbalist Pedanius Dioscorides receiving the Mandrake plant (*Mandragora officinarum*) from Heurisis, the Goddess of Discovery.
Source: Schultes *et al*. (2001: 87).

More recently, however, with the upsurge, which has taken place worldwide in the reassessment and utilisation of these traditional MAC plants, not only because of their relative low prices *vis-à-vis* modern medicines, but also because of their evidence-based cultural significance and their efficacy as 'natural products' against various chronic diseases, mental disorders and allergies, a growing interest and revaluation have taken place around the globe. As a result, the study and analysis of indigenous knowledge systems in many sectors of the society, such as medicine, environment, agriculture, bio-cultural diversity and community development, have increased (*cf.* Warren, Slikkerveer & Brokensha 1995; Posey 1999; Slikkerveer 1999b).

Concurrently, the demand for medicinal plants and their products on the global market have increased tremendously, especially in developing countries. Similarly in Crete, the continued utilisation of the plant-based medicines over the past centuries has recently experienced a popular increase in home remedies and traditional health and healing practices. Such resilience illustrates today the usefulness and vitality of Cretan traditional medical and botanical knowledge and practice.

The World Health Organisation (WHO) has not only recommended the integration of traditional medicine in formal health care systems around the globe, but has also promoted the accumulation of research-based knowledge on MAC plants and the related evaluation and tests of their efficacy and safety within the framework of Primary Health Care (PHC) (*cf.* WHO 1978).

The remarkable persistence of traditional medicine alongside the more recent pharmaceutical medicines - categorised as transitional medicine - and modern medicine in Crete have eventually established the current plural medical configuration of knowledge, practice and belief, which is reflected in the co-existence of the traditional, transitional and modern medical system. Such rich

heritage of bio-cultural diversity of MAC plants, which has been accumulated by the people of Crete since pre-historic times and which is not related to modern plant-based medicines, constitutes a unique historical and socio-medical environment for the study of the local people's medical knowledge systems as well as their related patterns of health care utilisation behaviour.

The continued existence and use of such traditional medical systems in the rural and mountainous areas of Crete has been well documented since 1986 in a series of pioneering fieldwork training projects of post-graduate students from Leiden University, co-supervised by Professors and Staff from Leiden University, the University of Crete and the National Health Institutions in Crete. Their work has substantially contributed to the selection of the subject and research area for the present study in the villages of Pirgos and Praitoria (1.1).

Although the general aim and specific objectives of this study will be elaborated below in Paragraph 1.4, it appears appropriate to indicate here, that basically, this research is focused on the study and analysis of the utilisation of different systems of medical knowledge, practice and belief by the population of rural Crete with special attention to the role of their indigenous knowledge of MAC Plants in the process.

The present research is placing special emphasis on the documentation and analysis of the traditional medical system, including the local people's special knowledge of MAC plants, their strong religious belief and their practices, against the background of their rich cultural heritage. In view of the increasing impact on the environment and its resources from outside processes, such as globalisation, mass tourism and the recent over-use and exploitation of natural plant resources, attention is also paid to the important contribution, which the local use of MAC plants provides to sustainable resources management, bio-cultural diversity conservation and community development (*cf.* Posey 1999).

In order to explore and understand the position of the traditional medical system within the overall plural medical configuration in the island, this study seeks to collect and document local medical knowledge, practice and belief in relation to the utilisation of not only traditional but also transitional and modern medical systems in the research area in a comparative way.

In line with the 'Ethnosystems Approach' of the 'Leiden School of Indigenous Knowledge Systems and Development (IKS&D)', specifically designed for the study of indigenous knowledge systems, such traditional medical knowledge systems and the underlying determinants of the related patterns of health care utilisation behaviour in the research area are studied and analysed from the local community members point of view, *i.e.* emic perspective.

In this way, this study also links up very well with the broader, successful approach of community health in the research area dealing with a number of health characteristics of population groups rather than of individuals. 'Community Health' has been defined by Sofoluwe & Bennett (1985: 3) as: '*that branch of health service which aims at achieving the highest level of physical, mental, social, moral and spiritual health for all citizens on community basis. It seeks to do this by first identifying the root causes of all prevalent diseases and health problems, and then dealing with them through a judicious utilization of governmental, private, and especially, communal resources*'.

Overall, this study is built upon rather interesting fieldwork in rural Crete, where in spite of a serious economic crisis at the time, all respondents from the two selected communities participated rather actively in the household surveys, facilitating the study and analysis of the people's knowledge, belief and practice in the complex medical configuration in this part of Crete. The comparative approach to the study of traditional, transitional and modern medical systems has been elaborated by Slikkerveer (1995) in his theoretical approach of *transcultural health care utilisation*. Thanks to the use of his advanced conceptual model and the related, rather complicated, stepwise analysis of a large number of collected quantitative data, the results have enabled the further understanding and explanation of the local process of health care utilisation, and gradually led to the formulation of some interesting theoretical, methodological and practical implications. In addition, the study also pertains to a number of policy-based recommendations for the improvement of community health care and the promotion of the

integration of traditional, transitional and modern medical systems in Crete in the near future. The following paragraphs of this introductory chapter start with an elaboration of the distinctiveness of the Island of Crete from a historical, geographical, cultural, medical and ethnobotanical point of view. After a brief description of the plural medical system, operating in the research area, the challenges, which are involved in the study of patterns of health care utilisation behaviour from a community perspective, are highlighted. Subsequently, the expected theoretical, methodological and practical implications are indicated for community health promotion in the local research area and beyond. Furthermore, specific important key-concepts, most appropriate for the present study, are defined in this section. Finally, a detailed description of the general aim and specific objectives of this research are presented, followed by an outline of the structure of the dissertation.

1.1 The Great Cretan Heritage of Herbal Medicine

1.1.1 Crete: The Cradle of European Civilisation

In view of its unique geographical location at the crossroads of three different continents and at a point of subduction of the African under the Eurasian tectonic plate, the surface of Crete is shaped by the extension of high mountain ranges, which enclose a number of caves, plains, basins, craters and gorges prompting scholars to define Crete as the 'Island of 100 Gorges' (*cf.* Rackham & Moody 1996). The White Mountains in the western part of the island encircle the famous Samaria Gorge, which extends over a length of 18 kilometres and forms the longest gorge of Europe, thereby offering a richly diverse flora and fauna, which attracts a large number of tourists every year. In the eastern part of Crete, the northern slopes of the Dikti Mountains surround the Lasithi Plateau, which is well known for its windmills used for irrigation. The southern slopes of the Psiloritis Mountain and the northern slopes of the Asterousia Mountains in South-Central Crete enclose the Mesara Plain, which forms the largest plain of Crete providing one of the most fertile soils of the island. Around 1.735 plant species and subspecies are found in Crete, of which approximately 159 (9.2%) are endemic to the island (*cf.* Fielding *et al*. 2005).

As a consequence of the central location of Crete at the junction of three different continents, the Cretan flora has been subject to extensive routes of plant migration, which have resulted in highly diverse types of local vegetation. Numerous plants have spread to Crete from regions as far as in Africa, Asia and the Balkan, as well as from Western Europe. The cypresses, which are growing along the forest boundary south of the White Mountains, not only form one the earliest cultivated forests in Europe, but are also regarded to belong to the oldest trees of Europe. In the island of Crete, not less than 67 different species of wild orchids have been identified (*cf.* Delanoë & Montmollin 1999; Fielding *et al*. 2005; Dailey & Gerrard 2008).

In addition to its geographical distinctiveness and natural richness, Crete has provided a special motif in the numerous mythological accounts and legends of Ancient Greece. Crete is widely acknowledged as the birthplace of Zeus, the Father of all Greek gods, who grew up in a cave in the island. The legend has it that his Mother Rhea hid Zeus in a cave on the Psiloritis Mountain in Central Crete in an attempt to protect him from his Father Cronus. Greek mythology, however, states that the nymph Amalthea, also known as Dikte, who is at times depicted as a goat, reared Zeus in the Psychro Cave on the Dikti Mountains in Eastern Crete and nurtured him with goat milk. Mythological accounts furthermore locate the origin of Europe in Crete, thereby relating it to the tale of the Phoenician Princess Europa, whose beauty inspired the love of Zeus and prompted the principal deity to develop a plan of seduction. Hereafter, Zeus approached Europa disguised as a tame, white bull of impressive stature on a day the princess has been picking flowers at the beach together with her friends. Unlike her companions, Europa remained fearless and rather fascinated by the figure of the white bull and agreed to climb on its back, after which she has been carried away from Phoenicia to Crete. There, she gave birth to her sons Minos, Rhadamanthus and Sarpedon. The legend of Princess Europa not only links the

origin of Europe to Crete, but also marks the beginning of the rise of the Minoan civilisation of Crete, named after King Minos, son of Europa and Zeus (*cf.* Delanoë & Montmollin 1999; Fielding *et al*. 2005; Dailey & Gerrard 2008).

Illustration 1.2 The famous Snake Goddess from Knossos (circa. 1600-1550 B.C.), discovered in 1903 by the British archaeologist Arthur Evans on the site of the 'Palace of Knossos' in Crete.
Source: Archaeological Museum Iraklion (2012).

In view of its strategic geographical location, Crete has been exposed to routes of migration, trading and warfare throughout history, which have crossed the island since the earliest days of human settlement in the island. The earliest population groups, which arrived in Crete, have developed the Minoan civilisation in the early centuries between 3000 B.C. and 1100 B.C. showing remarkable skills in architecture, trading, writing and artistry whereupon the Minoans have been identified as the builders of the first 'recognized' culture of Europe. Around 1400 B.C., an unprecedented catastrophe, which is generally ascribed to the eruption of a volcano on the neighbouring island of Thera (Santorini), destroyed the Minoan civilisation in all its material richness. It has been not until the end of the 19th century A.D. that archaeological excavations unveiled the glorious history of the Minoan culture. The discovery of the famous Minoan palaces in Knossos, Phaestus, Zakros and Malia along with other settlements and artefacts, which are nowadays well-preserved at numerous archaeological sites spread across the island as well as in archaeological museums, is shedding light on the impressive forms of architectural design and construction, elaborate pottery ware and colourful frescoes. The remains of the material culture of the Minoan civilisation include a number of well-known artefacts, such as the bull-leaping fresco found in Knossos depicting an athletic competition, which apparently attracted widespread interest among the Minoans. Also famous is the figurine of the Snake Goddess holding a snake in each of her raised hands, which has been discovered in 1903 by the British archaeologist Arthur Evans in the Temple Repositories on the site of the Palace of Knossos in Crete (*cf.* Illustration 1.2). The terracotta disk of *Phaestus,* a small disk showing pictographic

scripts reading from the centre outwards on both sides of has remained an archaeological mystery to this day (*cf.* Mackenzie 1995). Furthermore, it seems that the Minoan civilisation had developed a fairly elaborate system of knowledge, practice and belief of the use of plants in various social sectors, including medicine. For example, Opium (*Papaver somniferum*), has been already known and used among the Minoans for its pain-alleviating and sleep-inducing qualities (*cf.* Tzedakis & Martlew 1999). The significance of plants and flowers in the early Minoan culture is well represented in the famous fresco of the Prince of Lilies, which has been found in Knossos (*cf.* Illustration 1.3).

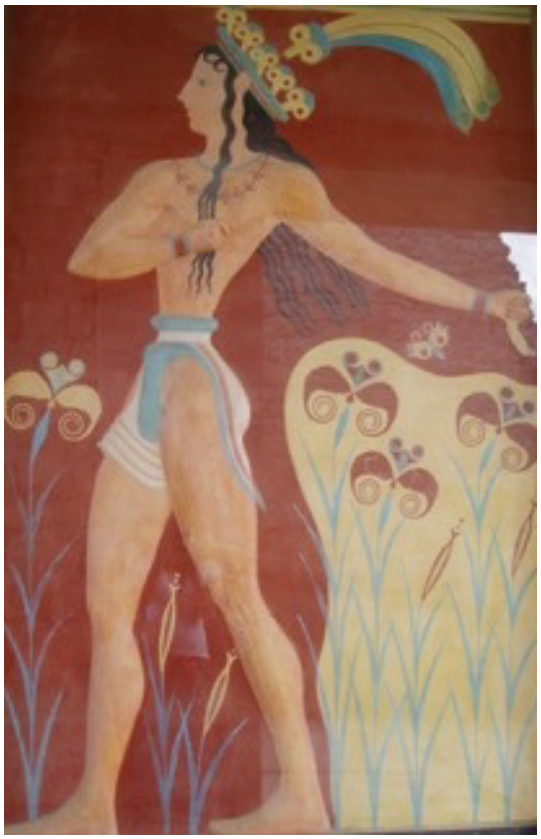
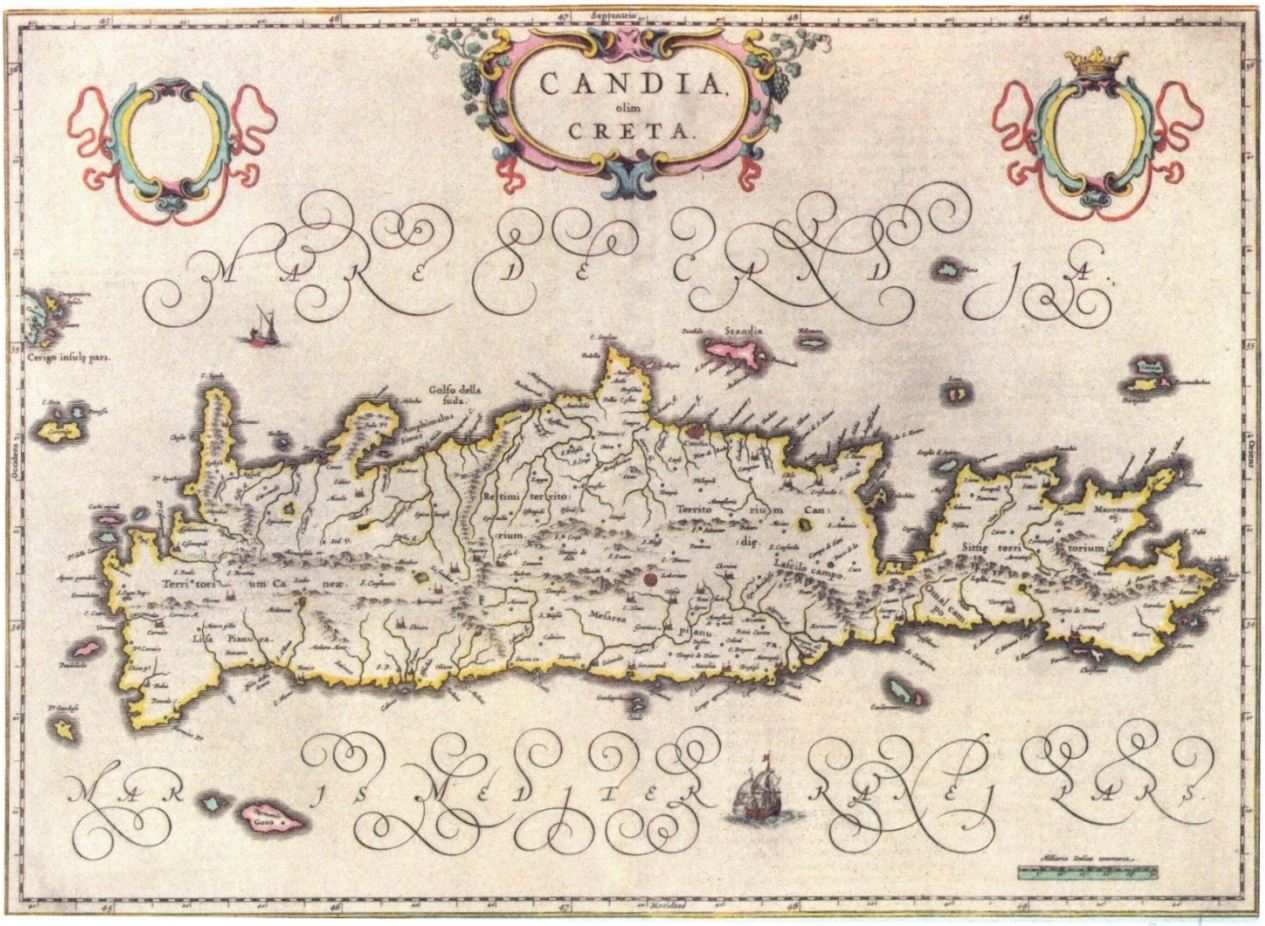


Illustration 1.3 Illustration of the famous ancient fresco 'Prince of Lilies' at Knossos (circa 1550 B.C.), underscoring the significance of lilies as decorative flowers in the Minoan civilisation.
Photograph by J. Aiglsperger (2009).

Archaeological remains of later periods of time discovered in Crete are disclosing *i.a.* 12 stone tablets, which illustrate the oldest code of the Greek law covering subjects such as inheritance, marriage, divorce, sexual violence, seduction and adoption. The code of law is written in an ancient form of the Dorian dialect related to an Indo-Germanic group, which had settled in Crete from around 1100 to 69 B.C. The stone tablets have been excavated in Gortyn in South-Central Crete, the capital of Crete during the Roman occupation of Crete, which lasted from 67 B.C. until the division of the Roman Empire in 395 A.D. and has been accompanied by the introduction of Christianity to the island. Over the subsequent years, Crete came under the control of respectively the Byzantine Empire, the Arabs, the Venetians and the Turks. After joining the Republic of Greece in 1913, Crete has been temporarily occupied by the German army during the Second World War. Since the eastern Mediterranean Basin has for many centuries been regarded as the center of the civilised European world, the rich cartographic descriptions of the region had been developed by the Byzantium administration, and later elaborated by European cartographers, such as W.J. Blaeu in the 17th Century. The *Greek Cartography* reflects a great interest in Greece, enhanced by the revival of Greek culture and

Classical studies since the Renaissance (*cf.* Map 1.1). Centuries of foreign invasions and rules have left their marks on the Cretan population. To this day, they remember and celebrate their active resistance against foreign invaders and their fierce battles for independence. Stories of warfare, in which the local population has been engaged during the periods of time of oppression by the Ottoman or German rule in Crete, shed light on the bravery and heroism of local warriors in defending the island and striving for freedom.

Religious institutions, such as churches and monasteries, in the island have also played a crucial role during the resistance, whereby even local priests and abbots have been identified among the mightiest warriors of Crete. On many occasions, the religious leaders - often risking their own life - offered their monasteries to serve as refuges not only to local resistance fighters but also to the British soldiers stationed in Crete during the Second World War (*cf.* Kokonas 1991).



Map 1.1 *Candia olim Creta*, hand coloured map of Crete (formerly Candia) and surrounding islands from the Latin edition of W. J. Blaeu's '*Atlas Novus*'.
Source: Blaeu & Blaeu (1649-1655).

Among the most famous accounts of such religious-backed resistance is the story of the abbot of the Arkadi Monastery located east of the city of Rethymnon. In 1866, Arkadi served as a refuge to 300 resistance fighters and 700 women and children during the Cretan revolt against the Ottoman rule. When the Ottoman troops attacked the gates of the monastery after three days of occupation, the abbot ordered to blow up all the barrels of gunpowder choosing to sacrifice themselves rather than surrender (*cf.* Detorakis 1994).

In general, the geographical location and historical background of Crete have favoured the development of an island population, which is torn between the extremes of isolation and exchange. In other words, the inhabitants of Crete appear to combine a persistent adherence to

traditional values and habits with a continuous exposure to foreign elements, which is nowadays reinforced by processes of globalisation, mass tourism and expanding building activities. The Cretan population continues to maintain a number of their cultural traditions, which distinguish the island from other areas in Greece and beyond. The traditions include *i.a.*: a generous hospitality, expressed in spontaneous gestures of giving, invitations to join a meal or treating someone with a drink; the firing of guns in the air during socio-religious feasts, such as Easter celebrations, baptisms or weddings; men, who gather in coffeehouses and play with their '*Komboloi*', worry beads; women dressed entirely in black; and families taking a daily evening stroll.

In addition to these cultural characteristics, the population has furthermore been renowned for its traditional Cretan diet, which includes the vast consumption of olives (*Olea europaea* L. *sylvestris* Brot. or *Olea europaea* L. *oleaster* (Hoffmanns. & Link) Negodi), cereals, legumes, fruits and vegetables accompanied by a high intake of homemade olive oil, wine and liquor, known as the healthy Mediterranean Diet. As Giugliano *et al*. (2000: 9) notice: '*The model for the Mediterranean diet* [*has been*] *born out of these considerations regarding the inhabitants of Crete and spread, almost like wildfire, to embrace the eating habits of other countries producing olive oil*'. The Cretan diet, rich in vitamins and proteins, has reportedly also contributed to the low prevalence of cancer and heart disease, which has been found among the population of Crete during scientific research conducted by the end of the 20th century. In this respect, Lionis *et al*. (1998b: 1987) observe that: '[*low*] *morbidity and mortality rates of coronary heart disease* […] *have been found in Crete*'.

1.1.2 MAC Plants: The Fame of Cretan Dittany (*Origanum dictamnus* L.)

Since the earliest days of human settlement, the population of Crete has heavily relied on the natural environment and its resources, which offered the basis not only for human livelihood but also for the creation of legends and myths and support during the fights of resistance.

The Cretan god Zeus, who bears a certain similarity to the Cretan god Dionysus - the son of Zeus - had evolved into the deity of love, fertility and vegetation symbolising the grass needed for the pastoralists, the fruit of wild and cultivated plants and trees as well as the spring flowers and the corn, thereby providing the essence of life of all living organisms. Interestingly, the belief in the Cretan deity Gaia, also known as 'Mother Earth', has been widespread since pre-Hellenic times and as a divine prophetess she has been the power behind the gods (*cf*. Mackenzie 1995).

The anthropomorphic form of the ancient Gaia is also recognized in the Snake Goddess of Crete, who provided grass for herds, caused trees to blossom and bear fruits (*cf.* Illustration 1.2). The common worship of Gaia, later also appearing as Demeter, the goddess, who has been most closely associated with plants and crops, indicates the close relationship and dependence of the early Cretan population with nature and its living plants and animals. This phenomenon is also manifest in peoples' use of Medicinal, Aromatic and Cosmetic (MAC) plants, which sustained from the historic times up until today. As Fielding *et al*. (2005: 58) note: '*People have been utilising wild plants in Crete since they first arrived on the island. Wild plants are used for food, seasoning, medicine, animal fodder, bee forage, timber, fencing, roofing, shade, walking sticks, firewood, charcoal, fishing, dyeing, lighting, ornament, or as religious or superstitious emblems*'. Even more so, recently an upsurge and reorientation towards the knowledge and use of these MAC plants has emerged, not only in Crete but also around the world. According to Slikkerveer (2006), the recent movement towards a re-discovery of the usefulness of such MAC plants is the result of not only the growing disappointment of patients with treatment by modern medicines but also of the growing positive experience of successful - and often cheaper - treatment of chronic and mental disorders and allergies by natural plant-based products, which also tend to show less side effects.

Embarking on such a centuries-long history of knowledge and use of MAC plants in Crete, this study is particularly interested in the present knowledge and use of plants for medical purposes by the population in the communities in the rural areas (1.2). The operationalisation of the study of the knowledge and use of plants for medical purposes are throughout this dissertation basically referred to as plant-based or herbal medicine (1.3). In order to distinguish between the various qualities and applications of medicinal plants, this study moreover adopts the general collective concept of Medicinal, Aromatic and Cosmetic (MAC) plants, which comprises all local people's conceptualisations and references to their knowledge of a variety of plants used either internally as beverage, spice or food or externally in the form of balms, compresses or baths. For instance, common plants, such as Chamomile (*Chamomilla recutita* (L.) Rauschert / *Matricaria chamomilla* L. / *Matricaria recutita* L.), Sage (*Salvia fruticosa* Miller / *Salvia triloba* L. or *Salvia pomifera* L.) and Spearmint (*Menta longifolia* (L.) Hudson / *Mentha spicata* L.), are primarily used internally in the form of teas and infusions.

Similarly, the stems and leaves of Fennel (*Foeniculum vulgare* Miller) are widely used in the culinary traditions of the Mediterranean Region and beyond, while it is also used for medical purposes, including the treatment of conditions of the eyes and the stimulation of the nervous system. Also, several different uses are locally known of the plant Dill (*Anethum graveolens* L.), which is consumed as a spice added to local dishes or is used as a medicinal plant in cases of vomiting and abdominal pain. In Ancient Greece, fragrance has been made from the leaves of Dill and athletes used to spread the essence of dill all over their body. Furthermore, plants, such as the introduced Eucalyptus tree (*Eucalyptus globulus* Labill.) and Aloe (*Aloe vera* (L.) Burm. fil.), are cultivated for various pharmaceutical purposes, whereby the components of these plants are largely applied externally in the form of balms or compresses (*cf.* Psilakis & Psilakis 2003; Alibertis 2009).

The fame of the many-sided Cretan Dittany (*Origanum dictamnus* L.), a member of the *Origanum* genus, which also includes Marjoram (*Origanum majorana* L. or *Origanum microphyllum* (Bentham) Boiss.) and Oregano (*Origanum onites* L. / *Marjorana onites* (L.) Bentham or *Origanum vulgare* L.), goes back to the early times of the previously mentioned physician Hippocrates of Kos, who used this plant already as an antiseptic to treat various ailments, including digestive and respiratory disorders, such as throat ache and cough, as well as spleen problems and rheumatism. Endemic to Crete, Dittany has since antiquity moreover been used to heal wounds, treat snakebites, soothe pain, facilitate childbirth and to induce abortion.

Apart from its beneficial effect on human health highlighted by an array of ancient scholars, such as Homer, Hippocrates, Aristotle, Theophrastus, Dioscorides and Galen, Cretan Dittany has also been known to stimulate the health of animals, as they would even eat Dittany to thrive out arrows (*cf.* Rackham & Moody 1996). The specific qualities of Dittany as veterinary medicine have been depicted by the Flemish travel-writer Dapper in his famous engraving of a wounded Cretan goat feeding on the plant for healing purposes, which has been derived from an account by Aristotle (1.4). As Liolios *et al*. (2010: 231) indicate: '*The most interesting reference to the medicinal power of O. dictamnus came from Aristotle* […]*, who stated that when wild goats of Mount Ida (Crete)* [*have been*] *struck by poisoned arrows, they ate aerial parts of O. dicatmnus, which had the effect of causing the arrows to leave their bodies and of healing their wounds*'. In Crete, Dittany is to this day widely used in the island as a medicinal plant, whereby the leaves of the plant, which can also be chewed separately, are commonly prepared as an infusion. The additional cosmetic use of Dittany is well documented by Cunningham (1985), who notes that: '[*the*] *juice of the dittany drives away venomous beasts, so smear some onto your body before venturing out where they live*'. The various specific properties of Cretan Dittany render the reference of the concept of Medicinal, Aromatic and Cosmetic (MAC) plants to this and other useful plants most appropriate for the subject matter of this study in rural Crete (*cf.* Illustration 1.4).

Generally known as '*diktamos*' in Greek, Dittany is occasionally referred to as '*stamatokhorto*', 'the stopping herb', which derives its name from the Greek word 'to stop', '*stamato*', and 'herb', '*khorto*', most probably in reference to its ability to stop bleeding. Concurrently, Dittany is known under the name of '*stomakhokhorto*', possibly an indication of its ability to treat ailments of the stomach, '*stomahi*', or to refresh the mouth, 'stoma' (*cf.* Liolios *et al*. 2010). In addition to its healing properties, Dittany has been associated with amorous as well as dangerous qualities whereupon it has become the subject of numerous local myths and legends. The Greek name of the plant '*diktamos'* has been linked to the Dikti Mountains in Eastern Crete and to the Greek word for shrub, '*thamnos*'.

The Dikti Mountains enclose the cave, in which the Nymph Amalthea, also known as Dikte, nurtured Zeus. In Greek mythology, Dittany derives its name from the Cretan goddess or nymph of the hunt, the mountains, the springs and the rivers, who inspired the love of King Minos but, in order to avoid his affections, threw herself into the sea. The goddess has been, however, saved by the nets of local fishermen and is hereafter named Diktynna after the Greek word for net, '*dikti*', a literal reference to '*diktamos*'. In this way, local inhabitants have not only made use of the plant for medical purposes, but have also prayed to the goddess for assistance in childbirth and for support in the treatment of wounds inflicted by arrows. Since the plant grows wild on steep, rocky places at high altitudes, the collection of Dittany has moreover long been regarded as a test of bravery, which has been frequently taken by young men in a way to express their love to the object of their affection. As Liolios *et al*. (2010: 233) observe: '[…] [*It*] [*has been*] *believed that someone had to be fully in love in order to climb and gather the plant to be offered*'.

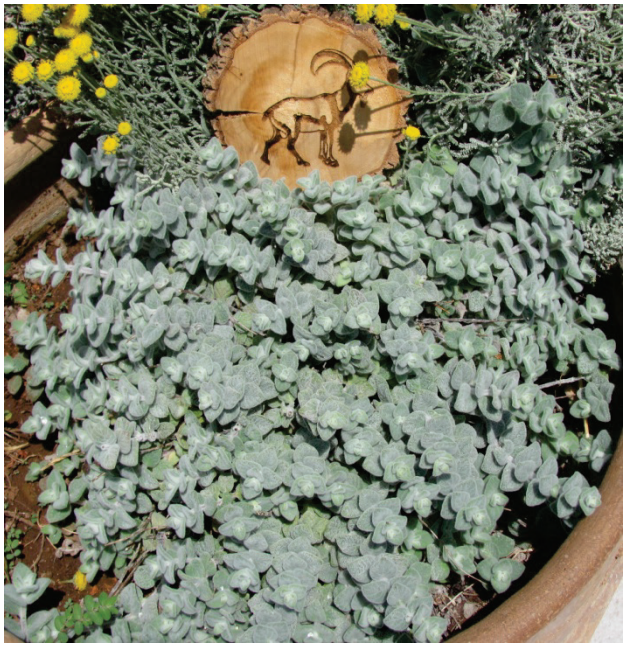


Illustration 1.4 Cretan Dittany (*Origanum dictamnus* L.) cultivated in a pot next to a drawing of the legendary goat on a wooden stem.
Source: *Lychnostatis* Museum in Hersonissos, Crete (2012).

Following a number of local legends and stories, in which the plant is used as an aphrodisiac and traditionally given to newly-wedded couples, the Cretan population generally refers to Dittany as '*erontas*', presumably a reference to the Greek word for love, '*erotas*'. Since the Middle Ages, Dittany has furthermore been used in monasteries for the production of liqueurs, whereby the plant to this day is used in distilleries worldwide, particularly for the flavouring of vermouth (*cf.* Dailey & Gerrard 2008; Liolios *et al*. 2010; We Love Crete 2013; *Yia tus Kritikus tu Kosmu* 2013).

1.1.3 *Stin Iyia Mas:* The Local Wish of Good Health

In addition to MAC plants, the population of rural Crete makes use of an array of traditional home remedies, namely of various homemade and partly plant-based products, such as olive oil, lamb's wool or honey, which are generally available in a rural Cretan household, in a way to treat illness and promote health. Furthermore, local inhabitants engage in a number of religious and spiritual prayers and practices, which address the healing powers of particular Saints within the canon of the Greek Orthodox Church or are directed at the alleviation of illnesses caused by malignant spirits, such as the 'evil eye'. For the purposes of the present study, MAC plants, traditional home remedies as well as religious and spiritual forms of medicine are identified with the generic term of 'traditional medicine'. In rural Crete, traditional medicine is closely linked to the ancient concept of '*Yiatrosofia*', 'Medical Wisdom', as it refers to people's traditional medical knowledge with regard to the utilisation of MAC plants and traditional home remedies.

On the whole, Clark (2002: 358) notes that: '*this combination of ancient and indigenous knowledge of the healing properties of plants, is best viewed as a living system, one that has functioned over the centuries with healers engaged in a long process of learning about, remembering, forgetting, and adjusting to their cultural heritage and their physical "therapeutic landscape"*'. Since '*Yiatrosofia*', however, carries a strong historical connotation, whereby different meanings have been attached to the concept throughout history and since '*Yiatrosofia*' widely excludes religious and spiritual forms of medicine, this study refrains from using the concept as a synonym for 'traditional medicine'. Until recently, the application of traditional medicine in rural Crete involved the intermediary of traditional health care providers and included the services provided by herbalists, bone-setters, midwives, wise women and religious healers. While the practice of traditional health care provision is nowadays largely limited to the services of wise women and religious healers, traditional medicine is to a greater extent applied in the form of self-care (*cf.* Blum & Blum 1965; Cotton 1996).

Following the introduction of a national health care system in Greece during the 1980s and the subsequent establishment of modern health care institutions in both urban and rural areas, the population of Crete came to seek medical treatment from a variety of modern health care providers. Throughout this study, any form of medical treatment, which is offered by modern health care providers at modern health care institutions, is referred to as 'modern medicine' (1.5). Overall, practices of modern medicine are rooted in the knowledge taught at Medical Schools and are herewith distinguished from the examples of traditional medicine described previously. The application of modern medicine generally involves the intermediary of a modern health care provider and relates to the services provided by physicians or medical doctors, nurses and midwives (1.6). Recent socio-economic developments in Greece have moreover stimulated the growing use of pharmaceutical medicines, namely of '*Farmaka*', which are purchased from community pharmacies. In view of its commercial connotations, which involve the economic interests of pharmaceutical companies, pharmacy employees and clients, the system of pharmaceutical medicines holds a somewhat intermediary position between traditional and modern medicine and is identified as components of the so-called 'transitional medical system' within the present study.

As described by Slikkerveer (1982: 1863): '*"Pharmaceutical medicine" represents a transition from traditional to* [*modern*] *medicine in the on-going process of change in medical belief and practice* […]'. Plant-based medicine, which is cultivated for sale and can be freely purchased from local pharmacies or herbal shops, is identified as a component of the transitional medical system. In order to differentiate between the various types of medicines available to the client, this study moreover distinguishes between medicines available on prescription, hereafter referred to as 'prescribed' or 'prescription' medicines, and medicines available without a prescription, hereafter identified as 'non-prescribed', 'non-prescription' or 'Over-the-Counter (OTC)' medicines. In general, the application of pharmaceutical medicines involves the intermediary of the staff employed at the community pharmacy, which offers clients the service

of filling prescriptions and selling medicines, as well as the assistance of the sales personnel at local supermarkets and herbal shops. To some extent, the use of medicines, particularly of medicines, which had been stored at home or have been received from a fellow community member, however, tend to encourage self-care. In view of multiple facets of medicine available to the population of rural Crete, local inhabitants generally develop transcultural patterns of health care utilisation, which are based on the patients' contact with the traditional, transitional and modern medical system.

While previous research conducted on patterns of health care utilisation behaviour in industrialised societies focussed mainly on the single medical system offering modern forms of health care, advanced studies in developing countries had to address the situation of plural medical systems, including modern and traditional forms of medicine at once. In order to study and analyse such complex medical configurations, Leslie (1976) introduced the concept of *medical pluralism* in his pioneering work in Asia. Later, Slikkerveer (1995) has been the first medical anthropologist, who operationalised the concept of medical pluralism in East Africa with his transcultural approach towards the multiple use of different traditional, transitional and modern medical systems in Ethiopia. The comparable complexity and distinctiveness of the different traditional, transitional and modern medical systems in the research area in Crete necessitates a similar transcultural approach, in which an answer is sought on the key-question: '*What kind of patients use what kind of medical systems for what kind of disorders?*

The present study focuses on the use of the plural medical system by a population group living in the neighbouring communities of Pirgos and Praitoria in South-Central Crete, with special attention to the related peoples' indigenous knowledge of MAC plants. Both research communities are part of the administration of the Municipality of Arkhanes-Asterousia, which belongs to the Prefecture of Iraklion. In view of its location on the northern slopes of the Asterousia Mountains and towards the eastern edge of the fertile Mesara, largely outside the scope of mass tourism, the research area offers a favourable and rather unique environment in which local systems of medical knowledge, practice and belief, as well as the patterns of health care utilisation behaviour can be studied and analysed.

Research conducted in this part of rural Crete on patterns of health care utilisation also benefits from the availability of traditional, transitional and modern health care institutions and as such enables in-depth research of local peoples' transcultural behavioural patterns, which are reported within the realm of medical pluralism in Crete. Furthermore, the particular situation in the research area, which forms part of the wider context of an island, enables the study of the follow-up contacts of patients with the plural medical system, as patients are mostly Cretan and tend to seek treatment within the confinement of the island. The advantages of this kind of research have been documented and explored by *i.a.* Arnold (1986), Lionis *et al*. (1993; 1996; 1997; 2005) and Anastasiou *et al*. (2006).

1.2 The Challenge of the Study of Medical Pluralism

1.2.1 The New Paradigm of Indigenous Knowledge Systems (IKS)

In general, the majority of communities worldwide have adapted to the challenges of illness by creating an extensive system of medical knowledge and by developing patterns of behaviour, which aim at the treatment and prevention of disease, as well as at the promotion of health. In order to document the local system of medical knowledge shared by the population of rural Crete, the present study is concerned with a specific system of traditional or indigenous knowledge. 'Indigenous Knowledge' has been defined by Warren, Slikkerveer & Brokensha (1995: xv) as: '*the local knowledge that is unique to a given culture or society* [*and*] *contrasts with the international knowledge system which is generated through the global network of universities and research institutes*'. Focussing on Indigenous Knowledge Systems (IKS), this research distinguishes between indigenous, traditional or local systems of knowledge and

international or modern systems of knowledge, whereby the latter have often been identified as scientific as opposed to traditional knowledge systems. Nevertheless, this study follows a line of reasoning, in which practices of science, coupled with belief and magic, form a universal characteristic of all human societies whereupon both indigenous and international knowledge systems can be considered scientific. Local classifications of illnesses or MAC plants, for example, are based on mutually understood concepts and for this reason qualify as scientific doctrines (*cf*. Slikkerveer 1995; Molenaar 1999).

As Slikkerveer (1995: 514) argues: '*The implication of such position pertains to the conclusion that both* [*international*] *and indigenous science are the result of the same general, intellectual process of creating order out of disorder*'. Primarily transferred orally from generation to generation, IKS are largely rooted in the experiences, which people gain from interaction with the natural, social and spiritual environment of their community. In general, IKS involve an intangible - invisible - socio-cultural aspect of knowledge, which relates to the particular worldview or cosmovision of a specific population group. As Slikkerveer (1999b: 171) highlights: '*Cosmovision refers specifically to the way in which the members of a particular culture perceive their world, cosmos or universe*'. In this way, the cosmovision guides the relationships, which people have with the human, the natural and the spiritual world. As the basis of local-level decision-making in various sectors of the society, including medicine, IKS have been identified as dynamic, continuous and adaptive systems of knowledge, practice and belief. Besides, IKS advocate patterns of behaviour, which are culturally adaptable to local settings and involve sustainable ways of human interaction with the natural, social and spiritual environment (*cf*. Slikkerveer 1997; 1998; 1999; 2003).

Since the second half of the 20th century, scholarly interest in the study of IKS in relation to various sectors of rural societies, including agriculture, natural resources management and medicine, has increased substantially. Academic research, which has been conducted across a variety of disciplines, including anthropology, ecology and medicine, has recently focussed on local systems of knowledge, practice and belief in view of the possible contribution IKS provide to community development, bio-cultural diversity conservation and health care delivery improvement. Research on IKS has been carried out among rural communities in primarily developing countries, particularly within the geographical regions of: Southeast Asia (*cf*. Agung 2005; Leurs 2010; Djen Amar 2010; Ambaretnani 2012); and East Africa (*cf*. Buschkens & Slikkerveer 1982; Slikkerveer 1982; Slikkerveer 1990; Ibui 2007; Chirangi 2013).

In this respect, studies of IKS have to some extent underestimated the presence of indigenous systems of knowledge in mainly remote areas of industrialised countries, such as Greece. As Kain Hart (1992: 7) claims: '*We can say that, in some respects, Christianity in Greece is an indigenous tradition. The imagery and symbolism of its rituals are, from the vantage point of the village, intimately familiar: drawn, it would seem, from the local landscape. This immediacy is part of what gives substance to the equation of national and religious identity in Greece*'. The current economic situation in Greece, which raises the question of new strategies towards community development, furthermore adds significance to an actualised study of IKS among rural population groups. The present research seeks to extend the focus of IKS geographically and to analyse local systems of knowledge, practice and belief among a population group living in rural Crete, where IKS have provided a sound basis for the formation of a traditional medical system. In order to gather information on the local systems of medical knowledge, practice and belief, this study embarks on a detailed literature survey and subsequently the application of a number of qualitative research methods in a way to conduct in-depth interviews in the selected research area of South-Central Crete. In particular, the present study adopts the specific 'Leiden Ethnosystems Approach', which has specially been designed for the analysis of local systems of knowledge, practice and belief from an insider's rather than from an outsider's perspective. In this way, substantial data have been collected on local classifications of MAC plants and home remedies and related illnesses as well as on religious and spiritual prayers and practices, thereby illustrating the rich content of IKS available in this part of Crete.

1.2.2 The Concept of Medical Pluralism in Rural Crete

The patterns of behaviour shown by communities in response to the challenges of illness, as well as to individual and social problems induced by events of illness have contributed to the formation of particular medical systems. The present research adopts the definition of a 'medical system', which has been proposed by Dunn (1976: 135) as: '*the pattern of social institutions and cultural traditions that evolves from deliberate behaviour to enhance health, whether or not the outcome of particular items of behaviour is ill health*'. Since medical systems are generally as complex as the cultural and social systems of the community involved, most population groups employ more than one medical system at the time.

Following the worldwide advance of modern and transitional forms of medicine over the past decades, communities have gained access to modern health care facilities as well as to pharmaceutical medicines, and have come to deal with different types of medicine and health care provision (*cf.* Landy 1977). As Slikkerveer (1990: 13) points out: '[…] [*The*] *co-existence and utilisation of a wide range of traditional and modern healing systems in many parts of Africa, Asia and Latin America has generally been regarded as a typical phenomenon in the developing world*'. Nevertheless, the rural population of Crete has similarly developed a number of socio-cultural and biological strategies over time in an attempt to deal with illness and has hereby developed a plural medical system, which is subdivided into traditional, transitional and modern medical systems.

Local patterns of health care utilisation behaviour shown by the inhabitants of rural Crete involve a variety of contacts between individuals and functionaries of the plural medical system and range from the self-use of plant-based medicine to consultation with pharmacists and medical doctors. In general, considerable research has been devoted to the study of individual medical systems available in rural Crete, namely to a documentation of: the traditional medical system (*cf.* Legel 1998; Molenaar 1999; Palstra 2003; Dijkstra 2005; De Vries 2007); the transitional medical system (*cf.* Hanepen 1997; Lionis & Philalithis 2008; Kontarakis *et al.* 2011); or the modern medical system (*cf.* Mossialos 1997).

The present study, however, dissociates itself from a single focus on one specific medical system and hereby advocates the concept of medical pluralism in order to represent a realistic picture of all medical systems operating in the research area of rural Crete. The concept of medical pluralism has been successfully implemented in various geographical settings and hereby offers a rather unique approach to the study of transcultural patterns of health care utilisation behaviour in rural Crete. In other words, the concept of transcultural health care utilisation, *i.e.* the use of different medical systems for the same illness or disorder, which has initially been introduced in the Horn of Africa by Slikkerveer (1990), has been operationalised and extended in order to meet the requirements of the rather complex plural medical configuration in the selected research area of rural Crete. Consequently, this study also provides a complementary follow-up to the classical study on health and healing in rural Greece by Blum & Blum (1967), which focused on the role of the traditional medical system in the health care of three rural communities in mainland Greece.

Moreover, the present research embarks on the results of previous studies carried out on health care utilisation in Crete. In this way, this research compares specific aspects of local systems of medical knowledge and health care delivery, which have been identified during previous research, with the information and results gained from the present study. In order to adequately identify and analyse the different medical systems available to a specific population group living in rural Crete, this research departed on a pilot survey, which eventually has shed light on the co-existence of traditional, transitional and modern medical systems.

Subsequently, data have been collected on a number of psycho-social factors, namely on factors related to the people's knowledge and opinion of each medical system. In the same fashion, information has been gathered on several institutional factors, which documented people's knowledge and opinion of the health care institutions available in the research area. In this way, an analysis of psycho-social and institutional factors allowed for an overall assessment of the rather unique characteristics of the plural medical system operating in rural Crete.

1.2.3 The Importance of the Voice of the Community

In view of the particular characteristics of the plural medical configuration in rural Crete, local inhabitants tend to use different forms of traditional, transitional and modern medicine and health care in a way to treat illness and promote health. As mentioned above, this study adopts the definition of 'Community Health' as defined by Sofoluwe & Bennett (1985: 3) to encompass: '*that branch of health service which aims at achieving the highest level of physical, mental, social, moral and spiritual health for all citizens on community basis*'.

While medicine and health care both aim at the restoration of health, the present research moreover defines 'Medicine' as all individual practices concerned with the diagnosis, alleviation, treatment and prevention of disease, as well as with the maintenance and promotion of health. 'Disease Prevention' relates to measures adopted in a way to prevent the occurrence of diseases such as the reduction of risk factors, and to arrest the progress of the condition and to reduce its consequences. In comparison, 'Health Promotion' refers to any practice, which is beneficial to human health and enables people to increase control over their health (*cf.* Nutbeam 1998). Although a substantial amount of particularly traditional forms of medicine are applied in a way to enhance disease prevention and health promotion, the present research focuses mainly on medicine in the context of the treatment of disease and highlights practices of disease prevention and health promotion only when describing particular forms of medicine, such as plants, in greater detail. On the other hand, 'health care' refers to the maintenance and restoration of health on a rather organisational level that is to the provision of medical care by trained professionals or related institutions to individuals or a community.

In the aftermath of the Second World War, scholarly interest in the development of international strategies towards the improvement of health care delivery in primarily developing countries increased considerably. In the course of time, researchers engaged in the study of what has become known in the medical anthropological literature as patterns of 'Health Care Utilisation Behaviour', 'Health Care Seeking Behaviour', 'Health-related Behaviour' or 'Illness Behaviour' (*cf.* Foster & Anderson 1978; Bannerman *et al*. 1983; Slikkerveer 1990; Agung 2005; Ibui 2007; Leurs 2010; Djen Amar 2010; Ambaretnani 2012; WHO 2012). As Slikkerveer (1990: 2) notes: '*Health behaviour, illness behaviour and the utilisation of health care as significant elements in this process have become main issues in the study of medicine, culture, and community*'.

More explicitly, 'health behaviour', refers to actions, which people undertake in the absence of illness in order to determine or strengthen one's health status and hereby refer to preventive and health promoting activities, as well as to the consultation of administrative services. Although examples of health behaviour are highlighted throughout this research when specific forms of medicine are described in greater detail, the present study focuses primarily on people's behaviour during events of illness, namely on patterns of illness and health care utilisation behaviour. In this respect, the present research distinguishes between the concepts of 'illness' and 'disease', which both refer to a state of ill-health, namely a disturbance of the normal functioning of the biological organism (1.7). 'Illness' refers to the subjective psycho-social experience of ill-health by the individual in the context of the socio-cultural meaning assigned to the state of ill-health by the wider community and relates to the steps taken by each individual in an attempt to treat illness.

In general, 'illness' forms a social entity, which incorporates the social responsibility and obligation of each individual to stay healthy and to cope with episodes of ill-health by making temporary personal and social adjustments.

Among a number of communities, events of illness are reportedly accompanied by a loss of grace, as well as by feelings of shame and pity, which are rooted in the inability of the individual to fulfil the social responsibility of being healthy. To some extent, illness has been interpreted as a state of suffering, which is stimulated by the commitment of a sin and thus often involves harmful methods of treatment. On the contrary, Helman (1981: 548) indicates that: '[*the*] *disease model cannot deal with such personal, cultural and social factors in ill-health, which are better viewed from the perspective of illness*'. 'Disease' refers to the technical, objective diagnosis of ill-health, namely to the bio-psychological meaning assigned to the state of ill-health by official doctrines, whereby symptoms are rather universal and diseases are similar regardless of the individual, culture or group, in which they occur. As noticed by Helman (1981: 548): '[…] [*Diseases*] *are seen as abstract "things" or independent entities which have specific properties and a recurring identity in whichever setting they appear*'.

In this way, 'disease' harbours a medical entity, which is concerned with the disorders of structures or functions of body organs or systems and hereby incorporates humanitarian, economic, social and psychological complexities (1.8). In view of the distinction made between 'illness' and 'disease', patterns of illness and health care utilisation behaviour are primarily based on the individual experience and perception as well as the social response to illness. In other words, health care utilisation behaviour involves any action undertaken by the individual in understanding with the wider community, which aims at the restoration of health (*cf.* Suchman 1963; Foster & Anderson 1978; Kleinman 1978; 1980; Helman 1981; Foster 1983; Slikkerveer 1990) (1.9).

On the whole, a substantial number of studies conducted on patterns of health care utilisation behaviour in rural Crete have embarked on institution-based research, thereby publishing official data on certain diseases or highlighting shortcomings related to the knowledge of physicians, the availability of technical equipment or the organisational structure of the national health care system at large (*cf.* Davaki & Mossialos 2005; Dijkstra 2005; Lionis *et al*. 2005; Symvoulakis *et al*. 2006; Lionis *et al*. 2009). In detail, a recent assessment of risk factors for ischemic heart disease among the population of rural Crete, for example, has ignored the assumingly beneficial influence of local dietary habits, including the consumption of aromatic plants, and the positive effect of social networks on the health of the local population. As Lionis *et al*. (2010: 2) notice: '*Although the link between psychosocial factors and* [*cardiovascular diseases*] *has increased in the literature in recent years, this subject still seems to be neglected in Greece*'. In spite of the widespread occurrence of risk factors, such as smoking, alcohol intake and obesity, a relatively low prevalence of cardiovascular diseases has been recorded for the rural population of Crete. To some extent, these findings can be related to a number of invisible factors, particularly cultural and traditional aspects of everyday life, which may positively contribute to the morbidity profile of the inhabitants (*cf.* Karalis *et al*. 2007; Lionis *et al*. 2010).

In an attempt to overcome such shortcomings, the present study seeks to analyse patterns of health care utilisation behaviour among a population group living in rural Crete from the perspective of the local community, adopting an approach, which has to this day been rather limited (*cf.* Slikkerveer 1990). According to Slikkerveer (1990: 27): '*Health care became increasingly intertwined with socio-economic and political considerations, whereby emphasis came to be placed on an integrated approach to development from within the community itself* […]'. In particular, this research emphasises the subjective interpretation as well as the social response to events of illness experienced by the local inhabitants and undertakes a detailed analysis of the forms of treatment sought. In addition to incorporating any form of contact between patients and the different medical systems available in the research area, the present analysis distinguishes between internal and external forms of treatment. Internal forms of treatment refer to practices of 'self-care', which are defined as actions, which patients generally

initiate themselves (*cf.* Slikkerveer 1990). Furthermore, internal care incorporates any form of contact between patients and non-professional health care providers, such as family members or friends, which has been established in a way to receive treatment.

In Crete, practices of internal care include the use of plant-based medicine, traditional home remedies, religious and spiritual medicine, as well as the use of pharmaceutical medicines, which have been obtained from a non-professional health care provider. In contrast, external forms of treatment refer to the practices of individuals, who, as noted by Slikkerveer (1990: 225): '*actually left their homes and sought some form of external medical care in one of the available medical systems*'.

External care relates to the intermediary of a professional health care provider, who has been defined by Eisenberg *et al*. (1993: 2) as: '*someone who provides care or gives advice and is paid for his or her services*'. The application of the concept of external care in rural Crete involves the consultation of patients with a representative of the traditional, transitional or modern medical system (*cf.* Buschkens 1990; Slikkerveer 1990; Kristoffersen *et al*. 2008). Therefore, this research links up with a number of studies, which have analysed patterns of health care utilisation behaviour shown in rural Crete from a community perspective (*cf.* Blum & Blum 1965; Visser 1986; Neus 1989; Smak Gregoor & Zwiep 1990; Van Beelen 1990; Van der Hoeven 1992; Van Bommel 1993; Van de Kerk 1993; Hanepen 1997; Hagoort 1998; Legel 1998; Molenaar 1999; Bouma 2000; Palstra 2003; De Vries 2007).

Nevertheless, these community-based research approaches have been limited to a certain extent, as they have mainly focussed on the prevalence of certain types of diseases among the rural population, on the patients' contact with a single medical system or on forms of external care. On several occasions, the community-based studies have moreover been confined to a relatively low number of respondents. The present study, however, extends its community-based research approach to include an indigenous classification of illnesses and to analyse the transcultural patterns of behaviour, which incorporate all forms of treatment sought from the plural medical system in an attempt to treat a particular illness episode. Accordingly, the concept of disease is throughout this study used for the purpose of the objective explanation of medical disorders in officially recognised terms. Since this research analyses the patterns of behaviour of a total of 656 respondents, it generates a substantial amount of data to support its findings.

In order to collect information on local patterns of health care utilisation behaviour in rural Crete from all households involved, this study implements two extensive, quantitative household surveys. Prior to the execution of the household surveys data have been collected during the pilot studies on a number of factors, which have been identified as possible significant determinants of people's health care utilisation behaviour. The identification of factors followed the specifications of the multivariate model of transcultural health care utilisation, which has successfully been applied to earlier analyses of local patterns of health care utilisation behaviour from a community perspective in other research settings and has been adapted to the present study (*cf.* Slikkerveer 1990; Hanepen 1997; Legel 1998; Molenaar 1999; Agung 2005; Dijkstra 2005; De Vries 2007; Ibui 2007; Leurs 2010; Djen Amar 2010; Ambaretnani 2012, Chirangi 2013).

The particular factors, which have been identified include: socio-demographic characteristics of all respondents involved; the psycho-social characteristics, namely the knowledge and opinion of the household members in relation to the plural medical system; the economic situation of each household; the main illness experienced by all respondents during the 12 months preceding the surveys; the knowledge and opinion of each household member in relation to the institutions associated with each medical system; the external influence of the current economic situation in Greece on patterns of health care utilisation behaviour; as well as the particular transcultural patterns of health care utilisation in terms of the patients' contact with the plural medical system available in rural Crete, which have been inserted as dependent variables into the multivariate model. Eventually, the results of the household surveys allowed for a classification of respondents as: 'non-patients', namely individuals, who have not experienced any illness over a

specific period of time; 'non-action patients' referring to individuals, who have experienced an illness over a specific period of time but refrained from seeking any form of treatment; and 'action patients' or 'patients', namely individuals, who have experienced an illness over a specific period of time and have contacted the plural medical system in order to seek treatment. Information has been primarily gathered on the group of 'patients', as they formed the basis for the subsequent statistical analysis of patterns of health care utilisation behaviour among the population group living in rural Crete.

1.3 A New Approach to Community Health Promotion

1.3.1 The Significance of the Study of MAC Plants in Crete

In view of the analysis of patterns of health care utilisation behaviour from a community perspective, the present study sheds light on the local traditions of plant-based medicine, which have been applied by the inhabitants of Crete since the earliest days of human settlement in a way to treat illness and to promote health. The biological diversity of the natural environment has stimulated the development of practices of the application of MAC plants, which reflect the cultural diversity of the community involved. As Leurs (2010: 17) highlights: '*A strong, undeniable relationship exists between the biological and cultural diversity which is constantly changed keeping pace with the interrelationships among and between them, continuously re-evaluating the parameters of human existence*'. The concept of bio-cultural diversity has recently received increased scholarly attention, not at least due to the alarming loss of bio-cultural diversity worldwide, which has been caused by processes of environmental degradation and globalisation and poses a challenge to the survival of humankind. By consequence, there is now a growing awareness of the need for designing strategies to advance bio-cultural diversity conservation. The application of plant-based medicine generally involves processes of collection, cultivation and classification as well as documentation of knowledge of locally available MAC plants. Furthermore, the often well-contemplated use of herbal medicine in itself advocates local patterns of bio-cultural diversity conservation. The inhabitants of rural communities generally recognise the link between the use of MAC plants and bio-cultural diversity conservation within the context of the sustainable management and use of the natural, social and spiritual environment of the community involved (*cf.* Bodeker 1999; Posey 1999; Agung 2005; Leurs 2010).

In this way, the present study offers a detailed description of the systems of knowledge, practice and belief in relation to the application of herbal medicine, which have been established among a population group living in rural Crete, and hereby contributes to the conservation of bio-cultural diversity in the research area. Nevertheless, the contribution, which this research provides to the conservation of bio-cultural resources in the area of South-Central Crete, can only be understood within the context of the natural, social and spiritual environment of the two research communities. The present analysis contributes to the conservation of bio-cultural diversity in the research area by means of identifying certain types of plants, which are locally used for medical purposes, as well as various local practices associated with the use of MAC plants. The collection of information on forms of plant-based medicine enables this study to gain continuous access to the bio-cultural resources available in rural Crete. In addition to illustrating the richness of biological and cultural resources available in the research area, the present study moreover highlights external threats of degradation of such diversity. Practices of inconsiderate garbage disposal, overgrazing and over-use of plant resources, as well as processes of mass tourism and globalisation coupled with a growing economic dependence on outside incentives, which has been brought forward by the current economic developments in Greece at large, have a rather deteriorating effect on both the bio-cultural diversity and the application of plant-based medicine in rural Crete. The collection of data on locally available MAC plants as well as practices of application of herbal medicine also provides further insight into examples of

sustainable resource management and bio-cultural diversity conservation. Since the early days of human settlement in the island, the population of Crete has made substantial use of plant-based medicine, where the natural resources have been used in a rather sustainable way to make them also available to future generations. Through the study of these local practices today, the present study may find possible locally-inspired solutions for reducing the threat of loss of the rich bio-cultural diversity in rural Crete.

Apart from contributing to the conservation of bio-cultural diversity in itself and from offering possible incentives to practices of conservation at large, this research moreover highlights the contribution, which plant-based medicine provides to the overall promotion of community health. In general, herbal medicine is renowned for its embeddedness in the natural, social and spiritual environment of rural communities as well as for its sustainability, local availability, low price, less complicated production and its relative safety. The use of MAC plants has recently experienced a gradual revival among population groups, which rely primarily on traditional forms of medicine, as well as among communities, of which the health care system is mainly based on modern forms of medicine. In this way, plant-based medicine has recently become a vivid component of Complementary and Alternative Medicine (CAM), encompassing a broad spectrum of treatment practices outside the scope of modern medicine. Although these practices are not unique to a given culture and cannot be identified as traditional medicine, they have recently spread rapidly across societies offering treatment methods complementary or alternative to mainstream medical practices (*cf.* Slikkerveer 2003; 2006; WHO 2012) (1.10). As Slikkerveer (2006: 8) observes: '*For some people, the use of natural products seems to fill in the gap of modern science regarding its inability to explain the cosmology of the balanced, holistic links between body and mind, the natural world and the spiritual world, and eventually between humans and their universe*'. The present study contributes to the promotion of community health by means of supporting the revival of plant-based medicine in rural Crete as well as by means of offering examples of CAM to population groups living elsewhere in Crete, in Greece and beyond.

To a certain extent, this study moreover advocates community health by means of providing incentives to the development of pharmaceutical medicines, for which there is a growing worldwide demand. Recent pharmaceutical research has focussed on the experimental evaluation of plant-based medicines, whereby a considerable number of medicines have been developed on the basis of local systems of medical knowledge and related practices of plant-use. At the same time, however, a number of studies have raised concern about the protection of natural resources and the human rights from exploitation by outsiders (*cf.* Holmstedt & Bruhn 1995; Cotton 1996; Slikkerveer 2006). Since the present research highlights forms of plant-based medicine within the context of a particular natural, social and spiritual environment, as well as in relation to the plural medical system available in the research area, it strengthens the importance of evaluating plants within the wider community involved. In general, it is only on the basis of a community-oriented research approach that the possible significance of MAC plants and their pharmaceutical potential can be identified and that community health can be promoted.

1.3.2 Advanced Research in Patterns of Health and Illness Behaviour

Apart from its rather practical contribution provided to the promotion of community health, this study advocates an advanced research approach to the analysis of patterns of health care utilisation behaviour. For this reason, the present research links up with the scientific interest of, particularly medical anthropological scholars in the analysis of processes of illness behaviour, which has increased since the second half of the 20th century. The early scholarly interest in patterns of illness behaviour placed increased emphasis on locally available traditional medical systems. As Blum & Blum (1965: 159) conclude: '[*Modern medicine*] *is a drab, humdrum tradesman's work that lies completely outside the dramatic, exiting, intimate sphere of religion and magic*'. Following this early attention for the study of traditional medical systems, this

research adopts the approach of medical pluralism, which has later been advocated by various researchers as a new and more realistic strategy towards the study of patterns of health care utilisation behaviour. Since the research area of rural Crete is characterised by the co-existence of a traditional, transitional and modern medical system, the advantages of applying the concept of medical pluralism are evident. By consequence, it is only on the basis of a comparative and pluralistic research approach that a rather realistic assessment of local patterns of health care utilisation behaviour can be made, which includes practices of self-care as well as contact with the 'unofficial' traditional medical system.

Since medical pluralism also provides a sound basis for comparative studies of medical systems worldwide, the present research embodies a source of information, which can be used to compare medical systems not only in Crete but also elsewhere around the globe. In this way, the pluralistic approach to the study of patterns of health care utilisation behaviour moreover counteracts the rather artificial separation between traditional and modern medical systems, which often characterises the medical environment of communities. The early scholarly attention for the study of traditional medical systems has created a dichotomy between communities, which rely primarily on traditional medical systems, and population groups, which contact predominantly modern medical systems (*cf.* Kohn & White 1976; Leslie 1976; Landy 1977; Slikkerveer 1990; 2006; Leurs 2010). In this respect, Slikkerveer (1990: 17) notices: '*The need to define the plural character of medical systems encompassing a wider variety of knowledge, perceptions, practices and behaviour related to health and disease has called for a holistic approach to the study of the socio-cultural context of both modern and alternative medical systems* […]'. By positioning the indigenous knowledge of MAC plants in relation to the utilisation of the plural medical system within the perspective of integrated community health development in Crete, the present study seeks to provide a contribution to closing the theoretical gap between traditional and modern medical systems.

The selection of the research methodology, which enables a detailed study of behavioural patterns and multiple configurations of medicine, adds significance to the theoretical as well as methodological implications of this research. The 'Leiden Ethnosystems Approach', which has been selected as an adequate instrument to study the local systems of knowledge, practice and belief from a community perspective, has so far not been applied in research of the plural medical system in rural Crete. Similarly, the multivariate model of transcultural health care utilisation has been adapted to the analysis in order to study the local patterns of health care utilisation in an adequate way. While the conceptual model has successfully been selected and applied to various research areas and analyses of behavioural patterns in different developing countries, namely in relation to different aspects of community life, the application of the analytical multivariate model of transcultural health care utilisation to the present research area is rather new for this part of the Mediterranean Region (*cf.* Slikkerveer 1990; Hanepen 1997; Legel 1998; Molenaar 1999; Agung 2005; Dijkstra 2005; De Vries 2007; Ibui 2007; Leurs 2010; Djen Amar 2010; Ambaretnani 2012, Chirangi 2013). The selection and use of the analytical multivariate model of transcultural health care utilisation in the study of patterns of illness behaviour in rural Crete also enables the present study to highlight the theoretical and methodological implications of the research findings. The factors, which have been identified and inserted as variables into the multivariate model, reflect the particularities of the local population whereupon the model has come to provide a sound basis for research conducted on patterns of health care utilisation behaviour in rural Crete. The successful adaptation of the multivariate model of transcultural health care utilisation to the present research area further supports the general applicability of the model to different geographical and cultural settings elsewhere around the globe.

On the basis of the conceptual model, the collected data have been analysed by means of selected statistical methods, whereby a number of factors, which have generally been described as determinants of the health care utilisation behaviour of the local population, could be identified and further substantiated. Consequently, the statistical results gained from this study

are also used to indicate possible shortcomings within the overall system of health care delivery. Although the present research focuses on the rural population of South-Central Crete, any recommendation for the improvement of strategies of health care delivery, which is formulated on the basis of the results, may also have implications for the rural population of Crete and Greece as a whole. As Lionis *et al*. (2009: 4) show: '*An equally significant issue is the application of scientific models to regulate health care use, eliminating waste, by supporting better utilisation and allocation of resources within a national strategic health care plan*'. On the whole, this research may also provide an incentive for future research to be conducted on patterns of health care utilisation behaviour in plural medical systems elsewhere in Crete or in Greece.

1.3.3 From Primary Health Care to Community Health Development

On the basis of the analytical model, as well as the specific research methods and techniques, a rather realistic description and analysis of local behavioural patterns of patients are presented, which form the basis for policy-oriented recommendations for the improvement of local health care delivery. In view of international policies, which have been designed to improve health care delivery on the community level and within the context of plural medical systems, the present study embarks on the concept of Primary Health Care (PHC). PHC has been defined by WHO (1978: 1) as: '*essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination*'. The strategy for PHC has been initiated at the International Conference on Primary Health Care held in Alma Ata in 1978 and convened by the World Health Organisation (WHO) and the United Nations International Children's Emergency Fund (UNICEF). The conference marked the beginning of a new approach to health planning, particularly with regard to: the redefinition of the concept of PHC. Interestingly, the concept of PHC provides equal access to modern health care facilities worldwide; and the rather crucial position of traditional health care providers and traditional birth attendants in the context of health care delivery.

WHO subsequently adopted the concept of PHC in 1981 in its aim to design a strategy for achieving an acceptable universal level of health by the year 2000, which became known as: '*Health for All by the Year 2000*'. Following the principles of PHC, WHO hereby adopted a more sustainable and participatory approach designed to incorporate both traditional and modern forms of medicine and to involve local communities in strategies of health care delivery and the development process at large (*cf*. WHO 1978; Bannerman *et al*. 1983; Slikkerveer 2003; 2006; WHO 2008b).

Recently, there has been a general recognition that equal access to health care services around the world has not yet been secured, a notion reminiscent of the driving force behind the Alma Ata declaration of 1978, whereupon the concept of PHC has received renewed attention (*cf*. WHO 2008b). WHO (2013c) currently advocates an achievement of better health for all on the basis of securing equal access to PHC facilities, which involves:

1. 'Reducing exclusion and social disparities in health (universal coverage reforms);
2. Organising health services around people's needs and expectations (service delivery reforms);
3. Integrating health into all sectors (public policy reforms);
4. Pursuing collaborative models of policy dialogue (leadership reforms); and
5. Increasing stakeholder participation'.

In Greece, the delivery of PHC has been hindered by differences in the availability of medical facilities and the quality of services provided between urban and rural areas, as well as between public and private health care providers. In this way, rural population groups are largely

confronted with a virtual absence of services directed at disease prevention and health promotion, as well as with a shortage of primary health care staff and equipment, which have moreover amounted to a low level of continuity and integration of care. Due to this fragmentation and discontinuity of services, strategies of primary health care delivery, particularly to rural population groups, have been rather limited, whereby remote areas have remained under-serviced (*cf*. Lionis *et al*. 2009; Sbarouni *et al*. 2012). As Lionis *et al*. (2009: 4) argue: '*Continuity of care through the management of common episodes of care by the same health team over time has remained an unmet need within primary care delivery in Greece*'. Consequently, '*national health planning has not been carried out in the context of evidence-based practice or a comprehensive health needs assessment*' (*ibid*.: 6). In other words, as Oikonomou & Mariolis (2010: 457) point out: '*Greece has not yet fully established an integrated, consistent, equitable, comprehensive, and patient-centred primary health care* [*system*]*, free at the point of use*'. In this respect, recent policies towards advancing PHC in Greece have urged the establishment of an efficient referral system, the identification of health care priorities, the allocation of resources in a cost-effective way, as well as the coordination of care between health care and social care providers within the patient's environment (*cf*. Lionis *et al*. 2009). Souliotis & Lionis (2004: 647) argue that integrated PHC in Greece needs to focus on the following principles: '*(a) Continuity of care, allowing for the management of acute and chronic health problems by the same physician or health team across time; (b) Integrated and coordinated care that is management of the most common diseases and health problems as well as major risk factors, in the patient's own social, cultural, and psychological environment, through the intersectional collaboration meeting the patient's care needs at local level; (c) Patient, and their families, focused care coordinated with appropriate referral and movement or patients through the system*'.

The present research, which adopts a community-oriented approach to the study of patterns of health care utilisation behaviour showed by a particular population group living in rural Crete, embarks on the notion to strengthen PHC in the area, but rather seeks to promote the provision of community health care. This study identifies possible shortcomings within the local system of health care delivery from a community perspective and shows considerable potential for eliminating social disparities, while shedding light on the needs and expectations of the people in the communities involved. The present analysis of transcultural patterns of health care utilisation behaviour illustrates particular patterns of over- and under-utilisation of medical systems available in rural Crete. Likewise, this research allows for a detailed assessment of indigenous knowledge of MAC plants and practices of self-care, which include the use of traditional, plant-based medicine as well as the use of non-prescribed medicines. The study also deepens the understanding of the effects and organisation of the plural medical system available in the research area and provides an incentive to the development of community health strategies, which aim at achieving a balance between medical demands and supplies. Furthermore, it is on the basis of this analysis of health care utilisation patterns that policies of integration, collaboration and participation can be pursued. In other words, this study seeks to provide a contribution to the advance of an integrated approach to community health development in the research area.

Basically, there are two main directions in the current international debate on the concept of integration in health care. Gröne & Garcia-Barbero (2001) conceptualise integrated care in general as: '*the integration of services to encourage and facilitate changes in health care services in order to promote health and improve management and patient satisfaction by working for quality, accessibility, cost-effectiveness and participation*'. Similarly, Lionis *et al*. (2009: 2) indicate that in their conception: '*Community-based integrated care' is a strategic vision that promotes more joined and consistent action of the health care workforce towards improved performance, thus maximizing population health*'.

In this way, integration refers to the appropriate provision of services in a way to meet the patient's needs at the right time, occurs on the functional, organisational, professional and clinical level (*cf.* Lionis *et al*. 2009). In short, this approach seeks to apply the concept of integration mainly to the organisational structure and staff of one modern medical system, dominant in most Western countries.

Another direction in the development of the concept of integrated health care has emerged within the context of international public health, focused on the situation of health care delivery in developing countries, where WHO (2002a) estimates that about 85% of the population are largely dependent on traditional medicine. In this approach, the concept of Complementary and Alternative Medicine (CAM) in Western countries is also playing a role as it has been defined largely in relation to modern medicine. CAM therapies, which are used instead of conventional medicine, are often termed 'alternative', and, as it is often also used alongside conventional medicine, are also 'complementary'.

The evolving process of integration between traditional medicine, CAM and conventional medicine has necessitated the development of a new conceptual framework as well as a new terminology. Still, substantive barriers, including economic, organisational and scientific differences, as well as an apparent widespread lack of understanding, continue to obstruct attempts at integration (*cf.* Barrett *et al.* 2003). In line with such conceptualisation, several scholars have further developed the concept of integrated health care to indicate and promote the integration of traditional, transitional and modern medical systems in order to respond to the growing demand for traditional medicine and CAM from the side of the patients and clients, particularly in developing countries (*cf.* Slikkerveer 1990; Warren, Slikkerveer & Brokensha 1995; Slikkerveer 2003; WHO 2007, 2008; Ambaretnani 2012; Chirangi 2013).

Following the integrative orientation of the 'Leiden Ethnosystems Approach', which has been rather successfully implemented in several sectors of largely developing countries, this study similarly conceptualises integrative health care as a process to integrate traditional, transitional and modern medicine at the community level, whereby the concept of community health is regarded as a key-concept. Indeed, the definition of community health as described by Sofoluwe & Bennett (1985: 3) as: '*that branch of health service, which aims at achieving the highest level of physical, mental, social, moral and spiritual health for all citizens on community basis*' not only clearly responds to the local peoples' health needs and demands in the research area, but also provides the methodological framework for the documentation and analysis of the various factors involved in the process of utilisation of the plural medical system in Crete. The significance of the concept of 'Integrative Medicine' results from the thoughtful incorporation of concepts, values, knowledge and practices from traditional, alternative, complementary and conventional medicines.

By adopting the concept of medical pluralism, this study is able to describe the particular plural medical system in rural Crete and provides a solid foundation for the integration of different, *i.e.* traditional, transitional and modern medical systems. On the basis of a community-based approach, the present analysis of transcultural patterns of health care utilisation behaviour sheds light on practices of over- and under-utilisation, as well as on multiple utilisation of different medical systems, which serve as indicators for developing strategies on how medical systems can best be integrated in order to meet the needs of the rural population. Furthermore, this research continues to emphasise the important role, which indigenous knowledge of MAC plants as the major component of the traditional medical system plays in the context of health care delivery in rural Crete and as such extends the view of previous studies, which advocate the inclusion of traditional and transitional medical systems in the official health care system (*cf.* Van de Kerk 1993; Slikkerveer 1995; Ambaretnani 2012; Chirangi 2013).

In providing incentives to the advancement of community health and the integration of different medical systems, this research may moreover illustrate a number of specific subjects, which are relevant in the current discussion on health care delivery improvement in Greece. Although this study abstains from drawing a comparison between rural and urban or between

local, regional and national features of medicine and health care delivery, the research analyses patterns of health care behaviour shown by a particular population group in rural Crete at the time of an all-embracing economic crisis. Consequently, any strategy designed in a way to promote community health is proposed on the basis of research data, which have been collected at a time of economic instability and political unrest. Overall, the implications drawn from the present study are expected to be relevant beyond the Island of Crete to include population groups in Europe and the rest of the world, which reside in similar rural areas, rely on a similar plural medical system and have to cope with similar pressures of economic insecurity.

1.4 General Aim and Specific Objectives

In the light of the preceding paragraphs, it is the general aim of this research to study, document and analyse from a community perspective the behaviour of community members in rural Crete with regard to their utilisation of different systems of medical knowledge, practice and belief with special attention to the role of their indigenous knowledge of MAC plants in the process. In other words, the present study seeks to answer the following general research question: '*What kind of people with what kind of knowledge of MAC plants use what kind of medicine for what kind of disease?*' In order to achieve this general aim, a number of factors, which may determine such patterns of health care utilisation behaviour, are identified on the basis of the multivariate model of transcultural health care utilisation. The multivariate model has been designed for the analysis of behavioural patterns from a local point of view and has as such been applied to various research areas. The factors, which are identified on the basis of the model, relate to the demographic, social and cultural characteristics of the local population, as well as to the institutional and organisational aspects of the medical system operating in rural Crete. With regard to the local point of view, particular attention is paid to the so-called 'invisible' factors, namely to local systems of knowledge, practice and belief, in particular indigenous knowledge of MAC plants. Subsequently, all factors are inserted as variables into the multivariate model of transcultural health care utilisation, which provides a sound basis for running a statistical analysis on the collected data and to ultimately present a completed model of utilisation behaviour as reported by a particular population group living in Crete (*cf.* Slikkerveer 1990; Leurs 2010; Ambaretnani 2012; Chirangi 2013).

In addition to the collection of a rather substantial amount of research data on local patterns of health care utilisation, and related factors, the present research places particular emphasis on the general understanding of local systems of knowledge, practice and belief associated with indigenous knowledge of MAC plants as part of the traditional medical system. Previous studies conducted on the utilisation of medicine in rural Crete have suggested that certain forms of traditional, plant-based medicines provide an important source of local health care. Based on such initial findings, the present study embarks on the formulation of several assumptions, which are related to the transcultural patterns of health care utilisation behaviour shown by the population of rural Crete. In this way, the present research not only contributes to the conservation of cultural diversity of local systems of knowledge, practice and belief, but it also explores alternative strategies for the conservation of biological diversity of the MAC plants in the research area.

The present study moreover adds to the general interest of scholars, particularly of medical anthropologists, in the analysis of processes of illness behaviour and transcultural patterns of health care utilisation within the realm of a plural medical system, as it is found in rural Crete. Furthermore, this research advocates a community-oriented research approach to the study of behavioural patterns and hereby presents a rather realistic image of the health needs, demands and expectations of the local population. Accordingly, this study not only promotes the concept of community health for the population of rural Crete, but it also links up with international policies on community health care delivery, particularly on comprehensive health care coverage and integrative health (*cf.* Slikkerveer 1990; Ambaretnani 2012; Chirangi 2013).

In order to find an answer to the above mentioned central research question of this study, the general aim is operationalised into the following specific objectives:

- *firstly*: to present a description of Crete as the largest Greek island in the Mediterranean Region and a sociography of the research communities of Pirgos and Praitoria in the research area of South-Central Crete;
- *secondly*: to document the plural medical system available in the research area, as it comprises a traditional, a transitional and a modern medical system;
- *thirdly*: to describe the indigenous system of traditional medicine and its components, with special attention for indigenous knowledge of MAC plants, traditional home remedies as well as spiritual and religious forms of traditional medicine;
- *fourthly*: to present an indigenous classification of Medicinal, Aromatic and Cosmetic (MAC) plants, as well as a local priority plant species list for the research area;
- *fifthly*: to present an indigenous illness classification, which is based on local people's perceptions and ideas of illness and disorder;
- *sixthly*: to describe people's health care utilisation behaviour from a community perspective and highlight the different stages of illness behaviour, leading up to the distribution of the reported utilisation rates of patients over the plural medical system;
- *seventhly*: to present the stepwise bivariate, mutual relation, multivariate and multiple regression analyses of transcultural health care utilisation in rural Crete and to explain the significant interactions between various groups of factors, which act as determinants of the reported patterns of utilisation behaviour;
- *eighthly*: to describe the theoretical implications of the study of patterns of transcultural health care utilisation behaviour and to assess the contribution of this study of local systems of knowledge, belief and practice of MAC plants to the improvement of community health and the conservation of bio-cultural diversity in Crete;
- *ninthly*: to describe the methodological implications of this research and to indicate the importance of the research methods and techniques applied to transcultural behavioural patterns
- *tenthly*: to describe the practical implications of the study for the integration of traditional medicine into the formal health care system with special attention for the indigenous knowledge of MAC plants for the improvement of community health and the conservation of bio-cultural plant diversity for the people of Crete in the future.

1.5 Structure of the Study

Chapter I introduces the research area of the present study by means of highlighting the geographical, historical, cultural and ethnobotanical distinctiveness of Crete on the basis of specific examples. The uniqueness of Crete is related to the plural medical system operating in the research area, as it provides the basis for the community-oriented research approach to the analysis of patterns of health care utilisation behaviour applied to this study. Thereafter, a number of theoretical, methodological and practical implications of this research are presented, which promote community health development and as such link up with strategies of bio-cultural diversity conservation, multidisciplinary research on patterns of health care utilisation behaviour and international policies of community health.

In Chapter II, the theoretical background of the present study is introduced and the most relevant principles and theories are reviewed, which are related to the topic of this study. Apart from the literature, important research concepts are addressed from a historical perspective and relevant disciplines are described. The theoretical orientation embarks on a general overview of the concepts of humoural, traditional, modern and herbal medicine and continues with a discussion on the concepts of indigenous knowledge systems and ethnobotanical knowledge systems. In addition, the disciplines of ethnomedicine and medical anthropology and the related key-concept of MAC plants are described. Subsequently, a detailed description of the theory of community health, the health care seeking process and the concept of medical pluralism is presented. Finally, the traditional, transitional and modern medical system are defined and highlighted in relation to the characteristics of the research area.

Chapter III elaborates on the selected research methodology, as well as the methods of data collection and statistical analysis, applied to this study. Following a description of the appropriate 'Leiden Ethnosystems Approach', the multivariate model of transcultural health care utilisation is introduced, which forms the analytical basis of this study. Thereafter, the procedure of adapting the model to the present research is further explained. After the identification of the research methodology, the processes, which have been involved in the selection of the research area and the population as well as in the development of qualitative and quantitative research instruments, are further described. Finally, the chapter concludes with an outline of the practical application of the research instruments used during the fieldwork as well as during the following phase of the statistical data analysis.

Chapter IV assesses the geographical, ethnobotanical, historical, cultural, educational, religious, socio-economic and linguistic characteristics of Greece and Crete as the background to the selected research area.

Chapter V presents a sociography of the research area of South-Central Crete as well as of the research communities of Pirgos and Praitoria. These two communities are described in terms of landscape, history, location, size, as well as migration and settlement patterns. Hereafter, the study population is described in terms of age, gender, social networks, nationality, religion, education, occupation, socio-economic structures, housing, local institutions, as well as adherence to an annual religious canon and to traditional practices and social festivities.

Chapter VI describes in more detail the indigenous systems of knowledge, practice and belief in relation to the plural medical system available in the research area of rural Crete. The traditional medical system is further described on the basis of its components, which include indigenous knowledge and practice of MAC plants and traditional home remedies as well as religious and spiritual forms of medicine. This chapter also provides an overview on the transitional and modern medical system operating in the research area by means of describing the national health care system as well as the practices of distribution of prescribed and non-prescribed medicine. Furthermore, the characteristics of the professions of traditional, transitional and modern health care providers are presented.

Chapter VII assesses local ideas of health, illness and healing on the basis of the plural medical system described, thereby presenting an indigenous illness classification. Furthermore, transcultural patterns of health care utilisation shown by the study population are illustrated and details of internal and external forms of health care utilisation reported as the respondents' contacts with the plural medical system are described.

Chapter VIII introduces the statistical analysis of the patterns of health care utilisation behaviour by describing the processes of data preparation on the basis of the multivariate model of transcultural health care utilisation. Subsequently, the selected methods of bivariate, mutual relations, multivariate and multiple regression analysis, which have been applied to the collected data are explained. This chapter further provides a detailed overview of the results gained from the statistical analysis and presents the final model of health care utilisation for the selected population group. Thereafter, the results are placed within a wider socio-cultural context and in relation to other studies conducted in Crete or on similar topics elsewhere around the world.

Finally, Chapter IX presents the conclusions of the present study and formulates a number of recommendations, as well as theoretical, methodological and practical implications of this research on local patterns of health care utilisation behaviour in rural Crete.

Notes

(1.1) For an overview of the stages of fieldwork conducted in Crete since 1986 *cf.* Map 0.1.

(1.2) In particular, this study focuses on people's knowledge and use of herbs, shrubs and trees as well as fungi for medical purposes. In general, 'Herbs' are botanically defined as seed-bearing plants without a woody stem. For the purposes of the present study, the definition of herbs is extended to include '*any plant with leaves, seeds, or flowers used for flavouring, food, medicine, or perfume*' (Oxford Dictionaries 2013). The definition of herbs applied throughout this study refers to any plant species used for medical purposes and includes herbs in the botanical sense, shrubs and trees. In this respect, a more thorough distinction between the different types of plant species is only made in the context of describing certain medicinal plants in greater detail. In view of the rather minimal occurrence of fungi used for medical purposes, the present study abstains from making explicit reference to the category of fungi but fungal species are, if applicable, highlighted separately throughout this research.

(1.3) In view of the foregoing definition of 'herbs', the terms 'Plant-based Medicine' and 'Herbal Medicine' are used interchangeably throughout this study.

(1.4) *cf.* Appendix VI for an impression of the engraving of the goat feeding on Dittany by Dapper.

(1.5) The present study abstains from using the term 'Western' to refer to systems of medicine or knowledge. In view of the setting of the present study in Crete, Greece, which overlaps with an area many would identify as 'Western', the usage of the term would be rather misleading.

(1.6) Throughout this study, the terms 'physician' and 'medical doctor' are used interchangeably.

(1.7) Although not used in this study, 'sickness' has been referred to by Suchman (1963: 65) as: '*personal reactions of the individual, defined in terms of his own feeling state and the reactions of others towards this illness*'.

(1.8) In this way, illnesses and diseases generally occur simultaneously, as the same episode of ill-health is commonly diagnosed both subjectively by the individual as well as objectively by official medical doctrines. Nevertheless, illness may occasionally be diagnosed in the absence of disease, while diseases may at times occur in the absence of illness, particularly in cases, in which there is no time to develop a psychological, social or cultural reaction to the state of ill-health (*cf.* Helman 1982).

(1.9) While this study distinguishes between 'medicine' and 'health care', the concept of 'health care utilisation behaviour' is not restricted to forms of health care but incorporates people's use of both medicine and health care, as offered by the respective medical system.

(1.10) In rural Crete, examples of CAM include homeopathy, aromatherapy and physiotherapy as well as Bach flower remedies. In view of their rather commercial nature, forms of CAM have been categorised as components of the transitional medical system throughout the present study.

Chapter II THEORETICAL ORIENTATION

The following Paragraphs aim at describing the concept of transcultural health care utilisation behaviour within the wider context of historical, conceptual and strategic theories with reference to scholars of a variety of disciplines. Paragraph 2.1 in detail introduces the concept of humoural medicine, which originated in Ancient Greece around the 5th century B.C. and has since come to constitute a major ethnomedical system, of which certain useful components have to this day remained visible in various forms of medical practise around the world. The doctrines of scholars of medicine practising in Ancient Greece, such as Hippocrates, Theophrastus and Dioscorides, have largely had a crucial impact on later concepts of health, illness and medicine. As Vokou *et al*. (1993: 187) notice: '[…] *Greece gave birth to Hippocrates and Dioscorides who formed the basis of modern medicine by recognising and using the therapeutic qualities of plants*'. In order to highlight different contemporary forms of medicine, a distinction is made between traditional, transitional and modern medical systems, as they vary in terms of historical development and present-day configurations. The concept of herbal medicine is coined in an attempt to embrace any form of plant-based medicine, which not only forms a rather significant subcategory of traditional, as well as complementary and alternative medicine, but also pays tribute to modern medicine in the form of providing a sound basis for the development of pharmaceutical medicines.

Following an elaboration of the historical development and present conceptualisation of different forms of medicine, Paragraph 2.2 highlights the importance of Indigenous Knowledge Systems (IKS) within the overall context of medicine. In general, forms of traditional and herbal medicine are rooted in systems of ethnobotanical and indigenous medical knowledge, both of which are specific examples of IKS. Concepts and strategies related to the study of indigenous systems of knowledge, practice and belief are emphasised within the realm of the disciplines of ethnobotany and ethnomedicine as well as medical anthropology. In view of research conducted on herbal medicine, which generally involves a combination of ethnobotanical and ethnomedical strategies alike, the concept of Medicinal, Aromatic and Cosmetic (MAC) plants is introduced as a crucial aspect within the study of medicine at large. Paragraph 2.3 subsequently accentuates the potential contribution, which IKS make to the promotion of community health development by means of bridging the gap between traditional and modern medical systems at the community level (*cf*. Slikkerveer 2006).

The 'Ethnoscientific Approach' is discussed in the light of the following concepts: Primary Health Care and Community Health Development; the Stages of Illness Behaviour and Medical Care; and Medical Pluralism. Finally, Paragraph 2.4 presents an example of medical pluralism in relation to the present research area of Crete by identifying traditional, transitional and modern medical systems.

2.1 Medical Traditions and Development

2.1.1 Humoural Medicine and Healing in Ancient Greece

'*I swear by Apollo the physician, and* [*Asclepius*]*, Hygeia and Panacea and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this covenant*' (Tan 2002: 006) (2.1). Forming a well-known medical text created in Ancient Greece, the 'Hippocratic Oath' is to this day sworn by students of medicine worldwide in a form adapted to current medical doctrines. In general, the Hippocratic Oath refers to the ethical conduct of physicians towards the teaching and practice of medicine, as well as towards the patients involved (*cf*. Hahn 1995). Born on the Greek island of Kos around 460 B.C., Hippocrates is regarded as the 'Founding Father of Medicine' as an empirical science by various scholars across disciplines (*cf*. Foster & Anderson 1978; Tan 2002; United States National Library of Medicine 2012). Schiefsky (2005: 1) interprets Hippocratic doctrines as: '*the first evidence in the history of*

Greek medicine of a sustained reaction against the attempt to base medical practice on theories drawn from natural philosophy'. In this way, Hippocratic doctrines provide a sound basis for the development of a medical science based on observation and experience (*cf.* Schiefsky 2005). Prior to this application of natural theories, the healing practices in Ancient Greece wre largely based on the supernatural, the mythical and the ritual calling for divine powers and miraculous cures (*cf.* DeHart 1999; Duffin 1999; Tan 2002). Eventually, the doctrines of Hippocratic medicine, based on rural and popular beliefs, separated the observation-based approach from supernatural perceptions about health and illness and came to explain the complexity of human disorders on the basis of natural instead of supernatural causes. As DeHart (1999: 350) reports: '*It is this period, roughly the eighth through the fifth centuries* [*B.C.*]*, that saw the move from a cultural perception of the cosmos as ritually and mythically accessible, to one that envisioned the human presence as a contemplative partaking of the phenomenal cosmic order*'. The development of Hippocratic medicine has been enhanced by the emergence of the new individualised and less communal citizen resident in the Greek city-state and has been accompanied by other cultural developments, such as the introduction of philosophy, law and historiography (*cf.* DeHart 1999). In spite of the general transition from supernatural to natural conceptions of health and illness, Tan (2002) argues that traces of the mythical as well as the mythological did not disappear entirely, as is shown by the reference to the god of health Apollo in the opening phrase of the Hippocratic Oath (2.2).

Emphasising the distinction between supernatural and natural conceptions of health and illness, Foster & Anderson (1978) and Foster (1983) differentiate between personalistic forms of illness caused by the rather multi-faceted, aggressive interference of a human or supernatural agent and naturalistic forms of illness, which link the cause of ill-health to a rather single-faceted imbalance of insensate body humours. Dependent on causality beliefs, the treatment of personalistic disorders is hereby commonly administered within the scope of spiritual and religious belief systems, while naturalistic conditions are generally treated by means of non-spiritual and non-religious practices. Treatment of personalistic forms of illness is usually directed at identifying the causing agent and involves those types of healers, who are generally able to respond to multiple levels of illness causality. On the other hand, treatment of naturalistic forms of illness involves consultation between the patient and the medicine provider and is commonly administered on a single level of illness causality (*cf.* Foster & Anderson 1987). '[…] [*With*] *a good understanding of causality beliefs the nature and role of curers and the logic of their therapies become readily apparent*' (Foster 1983: 21). Nevertheless, Foster & Anderson (1978) moreover argue that religious beliefs not only contribute to the explanation of causes of personalistic illnesses, but are also involved in the treatment of naturalistic illnesses. In view of this distinction between personalistic and naturalistic perceptions of health and illness, Duffin (1999: 70) explains that: '[*the*] *Greco-Roman world had a pantheon of gods and an extensive mythology, but it also recognized a natural world of four elements and a healthy balance in the human body of four humours*'.

The naturalistic perception of health and illness advocated within the doctrines of Hippocratic medicine introduced the concept of humoural medicine, which developed on the basis of a notion of four body elements or humours identified as 'black bile', 'yellow bile', 'phlegm' and 'blood'. Based on a hot-cold dichotomy, body humours are linked to a number of qualities, which produce the following concepts: 'blood' (hot an moist), 'phlegm' (cold and moist), 'black bile' (cold and dry) and 'yellow bile' (hot and dry). In this respect, a state of health is related to the equilibrium of body humours, while any disturbance of this equilibrium results in a state of ill-health (*cf.* Foster & Anderson 1978; Duffin 1999). Duffin (1999) and Tan (2002) suggest that the notion of body humours is rooted in the Greek theory of the four elements 'earth', 'air', 'fire' and 'water'. Leslie (1976) and Foster & Anderson (1978) explain that the distribution of body humours depends on the age, gender, temperament, general condition and habits of food consumption of each individual, as well as on climate and weather conditions. Consequently, the distribution of body humours can be influenced by metaphoric insults in terms of food or drinks

as well as by thermal insults derived from environmental exposure (*cf*. Foster 1987). In this way, Pollio *et al*. (2008) argue that a balanced diet and limited exposure to environmental extremes promote a state of health. Since treatment of illness is largely based on the principle of opposition, the balance of humours is restored by means of counteracting the nature of the medical condition (*cf*. Pollio *et al*. 2008). As noticed by Foster (1983; 1987), Duffin (1999) and Molenaar (1999), treatment methods of humoural medicine are classified according to their opposing qualities and include: practices of cupping, leeching and purging; the use of suppositories and plasters; a variety of herbal, animal and mineral medicines; special diets based on the opposing heating and cooling qualities of food; as well as exercises, baths and rest in general. As Foster & Anderson (1978: 58) claim: '*Good medical practice thus consisted of knowing the natural complexion of the patient, in establishing which humour or humours were momentarily excessive or deficient in quantity, in matching these findings with the dominant humour of the season, and in deciding how the normal* [*humoural*] *balance could best be reestablished*'. Humoural doctrines emphasise the necessity of the physician's knowledge of nature and of '*what the human being is in relation to foods and drinks, and what it is in relation to other practices, and what will be the effect of each thing on each individual*' (Schiefsky 2005: 103).

Apart from the notion of body humours, Foster (1983) and Duffin (1999) observe that humoural medicine moreover incorporates the belief in an essence or life force, '*pnevma*', sustaining the body elements. Overall, this idea has been closely elaborated by the Greek medical researcher Galen (crica 130-260 A.D.), who refined the early concept of humoural medicine and assured its supremacy as a medical theory until the 15th and 16th century (*cf*. Foster & Anderson 1978; Duffin 1999). According to Leslie (1976) and Tan (2002), humoural medicine furthermore places human anatomy and physiology in relation to other physical systems advocating not only the equilibrium of body elements but also a balance in nature, society and the universe at large. As Leslie (1976: 4) observes: '*This conception rationalized the relation of men to their environment by making preventive and curative medicine efforts to maintain or to restore cosmic equilibrium*'. In this way, humoural treatment methods focus on the patient as a whole rather than on the type of illness alone, urging physicians to combine devotion to their profession with a general devotion to humanity, while promoting a rather holistic and patient-oriented approach to healing (*cf*. Tan 2002) (2.3).

Placed in a larger context, humoural medicine of Ancient Greece is one of three major, Old World humoural traditions established in medical history. In addition to Greek humoural medicine, also known as the Mediterranean or Hippocratic-Galenic tradition, a considerable number of scholars argue that Traditional Chinese Medicine (TCM) and the Ayurvedic Tradition of India are similarly based on humoural theories and include the notion of an essence or life force (*cf*. Leslie 1976; Lewis & Elvin-Lewis 1977; Foster 1987; Farnsworth & Soejarto 1991; Plotkin 1991; Tan 2002). Redfield (1956) characterises the Mediterranean, the South-Asian and the Chinese medical traditions as 'great traditions', thereby contrasting them to the numerous 'little traditions', which developed following the separation of culture into hierarchic and lay structures. In particular, Redfield (1956) distinguishes between autonomous societies in which all members follow the 'great tradition' of one and the same community and peasant societies in which an elite community emerged resulting in the division of 'great' and 'little traditions', which are nevertheless interacting and interdependent. Highlighting the interrelationship between 'great' and 'little traditions', 'great traditions' have frequently originated in 'little' communities, which in turn may have contributed to the development and subsequent hegemony of the 'great tradition' (*cf*. Redfield 1956). As Slikkerveer (1990: 58) concludes: '*Great and little medical traditions function alongside and in conjunction with one another and there is a certain amount of interdependence between them*'. As noticed by Redfield (1956), 'great traditions' are maintained by a reflective few and are cultivated in institutions, such as schools by philosophers, theologians or literary men. On the other hand, 'little traditions' are preserved by the unreflective, uneducated many and are largely taken for granted instead of being subject to

cultivation (*cf.* Redfield 1965). Foster & Anderson (1978) and Foster (1983) elaborate that the 'great traditions' of humoural medicine are primarily characterised by a naturalistic perception of health and illness, whereas 'little traditions' widely adopt a personalistic perception of health and illness, thereby stressing the overlap of both conceptualisations.

While the origin of humoural medicine according to Foster (1987) cannot precisely be identified, Leslie (1976) claims that the three humoural traditions - the Hipppocratic-Galenic Tradition, Traditional Chinese Medicine (TCM) and the Ayurvedic Tradition - have been in contact with each other throughout history and share general features of social organisation and theory albeit maintaining their individuality. Through the studies of Galen, Greek humoural medicine, for example, has been translated into Arabic and transmitted to oriental Christians and Moslems, thereby providing a sound basis for the subsequent development of Arabic humoural medicine. Following historical movements of warfare and migration, Greek humoural medicine eventually came in contact with the Ayurvedic Tradition of India. Leslie (1976) argues that Ayurveda had been known in the Mediterranean Region long before the translation of Greek texts into Arabic at the time of Galen. Cited in Schiefsky (2005: 75), Hippocrates himself observed that: '[…] *medicine has long since had everything it needs, both a principle and a discovered method, by which many admirable discoveries have been made over a long period of time and those that remain will be discovered, if one who is adequate to the task and knows what has been discovered sets out from these things in his investigation*'.

Greek humoural medicine expanded widely following the spread of Islam and attracted the interest of many scholars, such as Avicenna (circa 980-1037 A.D.). Translations of the original and Arabic texts came to form the basis for medieval Christian medicine (*cf.* Foster 1987). As Foster (1987: 361) describes: '*From the writings of Christian physicians during this half millennium we see that Hippocrates, Aristotle, Galen and Avicenna and other Moslem physicians were the principal sources of medical theory and practice, with* [*humoural*] *doctrine remaining essentially unchanged*'. By consequence, Foster (1987) also observes that traces of humoural medicine, transferred from the elite to the popular culture and often wrongfully dismissed as part of local traditions, are also found among medical practices employed in present-day Latin America. Parallels between classical and contemporary forms of humoural medicine include the principle of opposites, the intensity of humoural values in terms of degrees of hot and cold qualities, as well as names of illnesses and therapies (*cf.* Foster 1987). Known as Greco-Arabic or *Unani-Tibb* medicine, whereby '*Unani*' describes the Arabic word for Ionian referring to the region of Ionia in Asia Minor, the medical tradition later spread from Asis Minor as far as into Malaysia, India, Indonesia and the Philippines and is also practiced to this day on the Indo-Pakistan subcontinent (*cf.* Leslie 1976; Foster & Anderson 1978; Said 1983; Farnsworth & Soejarto 1991).

In this respect, Leslie (1976) stresses that medical theories of Southern Asia have had a limited impact on the development of Arabic medicine, which in turn reveals a strong Galenic character. Claiming that the doctrines of humoural medicine played a dominant role in Europe until the 17th century, Foster & Anderson (1978: 59) highlight that the texts remained: '*influential at the popular level until well into the nineteenth century in the form of herbals and home remedy books*'. Although humoural medicine has since been enthroned by a worldwide expansion of modern medical science coupled with professional associations, remnants of the ancient theory can to this day be found among the medical practices of various communities worldwide (*cf.* Leslie 1976; Foster & Anderson 1978). As noticed by Foster & Anderson (1976: 56): '*Contemporary* [*medical*] *systems resemble each other in an important historical sense: the bulk of their explanations and practices represent simplified and popularized legacies from the "Great Tradition" medicine of ancient classical civilizations, particularly those of Greece, India, and China*'. Leslie (1976: 8) similarly argues that: '[*although*] *cosmopolitan medical institutions exist in every country, most people alive today continue to depend on* [*humoural*] *theories and practices*'.

In view of the development and spread of humoural medicine throughout history, Leslie (1976) finds that practitioners of humoural medicine have, however, continuously practised alongside local, non-humoural healers, such as bone-setters, surgeons, midwives or shamans, who advocate a primarily personalistic conceptualisation of health and illness. As noticed by Foster & Anderson (1978), personalistic and naturalistic perceptions of illness are never mutually exclusive but provide an array of possible explanations for the causes of illness based on supernatural as well as natural ideas. While historical records on primarily naturalistic conceptualisations of health and illness can be traced back to the time of Hippocrates, recent anthropological studies have revealed a similar long-term existence of predominantly personalistic ideas about health and illness (*cf.* Foster & Anderson 1978). DeHart (1999: 379) claims that the survival or traces of 'great', humoural as well as 'little traditions': '[…] *could only be expected in a realm of human activity, namely the healing craft and medicine, which unlike philosophy or speculative cosmology, has deep roots in human praxis and ritual*'. Foster (1987) observes that contemporary remnants of humoural medicine are largely based on naturalistic concepts of health and illness but do not account for culturally diverse perceptions and worldviews. Hereafter, Foster (1987: 382) notes that: '[…] *all classical* [*humoural*] *medical systems - Graeco-Persian, Ayurvedic, and Chinese alike - have followed a common pattern of simplification from a complex literate to a less complex nonliterate cultural domain that has largely and usually entirely eliminated the Wet-Dry dichotomy*'. Distinguishing between the theory and content of medical doctrines, contemporary forms of humoural medicine refer primarily to specific remedies and practices instead of medical theories at large (*cf.* Foster 1987). Leslie (1976) observes that in contemporary Asia, for instance, 'great traditions', which resemble each other in terms of organisation of practices formulated on the basis of physiological and cosmological concepts, co-exist with 'little traditions' as well as with modern forms of medicine. In view of the origin of humoural medicine in Ancient Greece, it is to be expected that contemporary concepts of health and illness, which have initially been developed in Greece, still incorporate remnants of the 'great' and 'little tradition' of humoural medicine.

2.1.2 Between Indigenous and Cosmopolitan Medicine

In order to identify the interplay between 'great' and 'little medical traditions' and forms of medicine based on modern scientific research, the present study builds on a distinction made between the concepts of traditional and modern medicine. Following its recent Traditional Medicine Strategy 2002-2005, the World Health Organisation (WHO) (2002) proposes a working definition for 'traditional medicine', described as a comprehensive entity, which covers diverse knowledge systems, practices, approaches and beliefs. As WHO (2012) explains more recently: '*Traditional medicine is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness*'. Incorporating various therapies directed at the treatment and prevention of disease, as well as at the promotion of health, WHO (2002a) makes a distinction between: traditional medication therapies, such as plant-, animal- and mineral-based medicines; and traditional non-medication therapies, including spiritual therapies, manual techniques and exercises.

On the whole, the concept of traditional medicine is closely linked to the idea of Indigenous Knowledge Systems (IKS), which follows the definition of 'indigenous' by Warren, Slikkerveer & Brokensha (1995) as a distinct body of knowledge unique to a given culture or society and stands in contrast to the system of international knowledge generated through a network of research institutes. In particular, IKS in the health sector have been referred to as *Indigenous Medical Knowledge Systems* and have been defined as empirical and sacred frameworks for understanding health and healing, which include a specific cosmovision as well as a perceived order in nature (*cf.* WHO *et al.* 1993; Warren, Slikkerveer & Brokensha 1995; Balick & Cox

1996; Hanepen 1997; Bodeker 1999; WHO 2002a). Bannerman *et al*. (1978; 1983) explain how most medicine until the beginning of the 19th century can be defined as traditional medicine referring to practices, which are largely culture-specific and existed long before the application of modern scientific experiment and statistical validation to medical theories. According to Slikkerveer (2006: 2): '*Traditional medicine in terms of a culture-bound body of indigenous medical knowledge, belief and practices has provided the primarily plant-based foundation for many ethnomedical systems which already existed long before the development of "scientific" or cosmopolitan medicine*'. Overall, traditional medicine is embedded in the history, personal attitudes and philosophy of a specific community and incorporates both systems of humoural and indigenous medicine (*cf*. WHO 2002a).

In contrast to traditional medicine, various scholars relate the development of modern medicine to various historical processes, including: the scientific revolution and subsequent expansion of modern science; the development of new medical specifications and techniques questioning ancient doctrines; the formation of professional practitioner associations and government agencies in relation to health care; and the introduction of licensed education and the establishment of research institutions (*cf*. Leslie 1976; Canary 1983; Duffin 1999). As noticed by Warren, Slikkerveer & Brokensha (1995), processes of medical professionalization have resulted in the formation of an international knowledge system, which stands in contrast to the concept of IKS. Leslie (1976), Lewis & Elvin-Lewis (1977) and Duffin (1999) argue that modern medicine has been formally separated from religion during the 16th century whereupon great advances in new therapeutic effectiveness have been made not only through the introduction of germ theory and new surgical techniques in the 19th century but also through the introduction of chemotherapy in the 20th century. Bannerman *et al*. (1978; 1983) observe that the introduction of medical techniques, which subjected all assumptions to experiment and statistical validation, have resulted in certain - costly - health care improvements in mainly industrialised countries, particularly regarding the treatment of infections, poisonings and injuries and the promotion of nutritional and hygiene standards. Canary (1983) notes that the doctor-patient relationship experienced a general shift towards patterns of interaction between patients and groups of professional physicians and pharmacists, which are dominated by the general availability of pharmaceutical medicines.

Because of its close relationship with modern scientific discoveries and the expansion of modern science with an initial geographical concentration in Western Europe, the concept of modern medicine has elsewhere been referred to as scientific, cosmopolitan, Western, allopathic, biomedical or conventional medicine (*cf*. Warren, Slikkerveer & Brokensha 1995). Leslie (1976) argues that the concept of scientific medicine can be rather misleading, since certain aspects of medical professionalisation, such as research funding, hospital administration or improved doctor-patient relationships, are not rooted in scientific theory. The author moreover criticizes the tendency of dismissing all medical doctrines outside the scope of modern medicine as 'unscientific'. As Leslie (1976: 7) claims: '*They involve the rational use of naturalistic theories to organize and interpret systematic empirical observation*'. While agreeing on the concept of 'cosmopolitan medicine' to describe medical theories based on scientific research and professional associations, as they have been established in Europe by the end of the Middle Ages, Leslie (1976) moreover renounces the concept of Western medicine, which relies on a rather neo-colonial worldview, which excludes highly industrialised countries, such as Japan. The author also argues that the term 'modern medicine' involves a negative dichotomy between modernism and traditionalism whereupon the latter is perceived as a static and unchanging concept although traditional forms of medicine have largely been subject to change throughout history. Nevertheless, since 'modern medicine' - also known as 'cosmopolitan medicine' - presents the most appropriate antonym to the concept of traditional medicine, the term is used in this study to describe the universal medical system, which is based on an international knowledge system as well as on the roots of the 'great tradition' of humoural medicine, some of which have been absorbed by universal medical doctrines.

In view of the distinction made between the concepts of traditional and modern medicine, various scholars argue that the relationship between traditional and modern medicine has been rather uneven (*cf.* Buschkens & Slikkerveer 1982; Bannerman *et al*. 1983). In general, Bannerman *et al*. (1983) and WHO (2002a) indicate that the relationship between modern and traditional medicine usually takes one of the following forms: (1) *monopolistic*: largely dominated by modern medicine; (2) *tolerant*: dominated by modern medicine but some traditional practices are tolerated by law; (3) *parallel* or inclusive: dominated by both forms of medicine without interaction or integration; (4) *integrative*: dominated by both forms of medicine, as they interact and merge in medical education.

Throughout history, the relationship between traditional and modern forms of medicine has been characterised by minimal interaction and a general dominance of modern medical doctrines. Closely linked to socio-economic developments, modern medicine came to partly replace traditional practices and to enjoy a high status as ideal medical science across various industrialised societies, specifically until the mid-20th century. Highlighting the situation of communities, which have continued to rely on traditional forms of medicine, Bannerman *et al*. (1983) argue that modern forms of medicine have often been imposed on population groups by colonial administrators or by individuals educated abroad and have hereafter been restricted to a certain level of the society. Buschkens & Slikkerveer (1982) similarly observe that the introduction of modern medicine to indigenous communities have frequently resulted in a general ban of traditional forms of medicine in urban areas and a subsequent restriction of modern forms of medicine to the local elite. Consequently, the majority of rural population groups mostly living in developing countries have continued to rely heavily on traditional forms of medicine (*cf.* Buschkens & Slikkerveer 1982).

Despite the general dominance of modern medicine, those societies, which have primarily been relying on modern forms of medicine, however, soon had to cope with certain limitations of the modern medical system. The modern medicine's apparent failure to cure new cultural diseases, such as chronic diseases, allergies, mental or emotional disorders, often associated with the growing costs of modern forms of treatment, the experience of adverse effects of pharmaceutical medicines, the recently increased public access to health information and a general change of social values have triggered a general search for alternative solutions as well as a popular movement of 'back to the nature' in health and healing (*cf.* Bannerman *et al*. 1978; 1983; Brelet *et al*. 1983; Zhang 1998; WHO 2002a; Slikkerveer 2006). Astin (1998: 1548) identifies three possible theories in order to explain the increased use of alternative forms of medicine:

1. '*Dissatisfaction: Patients are dissatisfied with conventional treatment because it has been ineffective, has produced adverse effects, or is seen as impersonal, too technologically oriented, and/or too costly*.'
2. '*Need for personal control: Patients seek alternative therapies because they see them as less authoritarian and more empowering and as offering them more personal autonomy and control over their health care decisions*.'
3. '*Philosophical congruence: Alternative therapies are attractive because they are seen as more compatible with patients' values, worldview, spiritual/religious philosophy, or beliefs regarding the nature and meaning of health and illness*.'

As the result of changes in attitude towards the credibility and use of alternative forms of medicine, the concept of 'Complementary and Alternative Medicine (CAM)' has gained increased recognition by a growing number of publications on the topic in various North American medical journals by the end of the 1990s, which highlighted the fall of the 'Bamboo Curtain' between modern, conventional medicine and CAM in the United States (*cf.* Weeks 2001; Quah & Slikkerveer 2003; Slikkerveer 2006). As Slikkerveer (1990: 13) notices: '[*In*] *Western Europe and the United States - mainly because of unease about technocratic,*

"impersonal" treatment, over-medicalisation and the staggering cost of the biomedical system - people have resorted to "alternative" therapies such as homeopathy, herbalism, natural healing and holism of the "new era" […]'.

Although the official outline of WHO (2002a) reveals a general tendency towards merging the concept of CAM with the concept of traditional medicine, the term largely disagrees with both traditional and modern medicine, as it generally refers to medical practices lying outside the scope of indigenous and international knowledge systems. WHO (2002a) argues that the term CAM is: '*used to refer to a broad set of health care practices that are not part of a country's own tradition, or not integrated into its dominant health care system*'. In the same fashion, Slikkerveer (2003) notes that CAM incorporates foreign philosophies of health and healing, therapies and professionals, which provide alternatives to modern medical doctrines. Ernst & Dixon (2004: 308) similarly define 'complementary medicine' as: '*diagnosis, treatment and/or prevention which complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodoxy or by diversifying the conceptual frameworks of medicine*'. WHO (2002a) claims that CAM is largely based on a holistic approach to medicine, which emphasises a person's health at large, rather than illness alone. Eisenberg *et al*. (1993) and Astin (1998) describe the concept of unconventional, alternative medicine in the United States as medical practices, which are not in conformity with the official standards of a country's medical community and are generally not taught at Medical Schools or available at hospitals. In particular, complementary and alternative forms of medicine incorporate a wide spectrum of self-help therapies, such as acupuncture, homeopathy or chiropractice, as they are indigenous to certain cultures but have spread across other countries to varying degrees. By consequence, they lie outside the scope of orthodox medical doctrines (*cf.* WHO 2002a; Slikkerveer 2003; Ernst & Dixon 2004). According to Astin (1998: 1549), the concept of CAM in the United States includes: '*acupuncture, homeopathy, herbal therapies, chiropractic, massage, exercise/ movement, high-dose megavitamins, spiritual healing, lifestyle diet, relaxation, imagery, energy healing folk remedies, biofeedback, hypnosis, psychotherapy and art/music therapy*'.

Following the growing interest in CAM towards the end of the 20th century, Weeks (2001) observes that physicians, as well as health care and research institutions have since begun to integrate certain forms of CAM into their services in an attempt to increase the accessibility of alternative therapies and to create more effective and cost-effective health care. Forms of CAM have been appreciated for the quality of care offered by providers of CAM and for the relatively low perceived risks, which are associated with CAM-therapies (*cf.* WHO 2002a). As Slikkerveer (2006: 10) explains: '*As such,* [*CAM*] *refers basically to the integration of alternative therapies (herbal medicine, chiropractic, acupuncture, homeopathy and massage), alternative professionals practising these disciplines, complementary self-help strategies, as well as alternative philosophies of health and healing such as energetics, spirituality and distant healing*'.

In addition to the search for alternative solutions among societies, which largely rely on modern medicine, Slikkerveer (2006) observes a general, worldwide development towards the integration of modern and traditional medicine. Likewise, Cotton (1996) highlights that academic interest and research into traditional forms of medicine have emerged during the 1970s whereupon organisations, such as WHO, have begun to support the integration of traditional and modern medicine. Overall, a more recent focus on this new concept of integrative medicine can be explained as a result of a number of phenomena, which have been summarised by Slikkerveer (2006: 7) as: '*green consumerism and the resurgence of interest in the use of "naturals" in developed countries*; *the free market economy bringing in more openness and expanding markets and demand for new resources and products*; *growing acceptability of the social responsibility of minimizing socio-economic inequalities in favour of rural people*; *poor economic conditions in developing countries rendering an increased reliance on local plant-based medicines*; *increasing awareness regarding biodiversity conservation and sustainable and protective use of plant resources*; *and the search for new phytopharmaceuticals for the prevention and cure of deadly*

disease such as Cancer and HIV/AIDS'. In this respect, 'phytopharmaceuticals' have been defined as plant-based remedies, of which the safety has been proven by experimental science (*cf.* Slikkerveer 2003). Within the realm of integrative medicine, modern scientific research has also been applied to traditional forms of medicine in terms of, for example, providing information on the description, ethnopharmacology, usage and dosage as well as toxicity and side effects of plant-based medicine. Since research into traditional plant-based medicine has continued to provide a considerable impetus towards the development of industrial pharmaceutical medicines, forms of collaboration and information exchange between the concepts of traditional and modern medicine have been proven rather indispensible (*cf.* Canary 1983; Plotkin 1991; Cotton 1996; Slikkerveer 2006).

As mentioned in Chapter I, the interpretation of the concept of integration in health care as to encompass the integration of traditional, transitional and modern medical systems is postulated by several scholars, including Leslie (1976), Bannerman *et al.* (1983), Slikkerveer (1990), Warren, Slikkerveer & Brokensha (1995), Cotton (1996), Barlett *et al.* (2003), Slikkerveer (2003), Ambaretnani (2012) and Chirangi (2013), and as such provides the leitmotif for the present study. In line with such conceptualisation, WHO (2002a: 5) recently developed its *WHO Traditional Medicine Strategy 2002–2005* in which this meaning of the concept of integration is operationalised by: '*facilitating integration of TM/CAM into national health care systems by helping Member States to develop their own national policies on TM/CAM.*'

As indicated above, this interpretation of integrated health care in a situation of medical pluralism is different from the views of a number of scholars, such as Gröne & Garcia-Barbero (2001), Lloyd & Wait (2005) and Lionis *et al*. (2009), who focus on the integration of various components in the organisational structure and staff of the modern medical system in order to promote health and improve management and patient satisfaction by aiming at the optimal level of quality, accessibility, cost-effectiveness and participation in modern health care. This approach is similarly promoted by WHO (2008a), whereby integrated service delivery is defined as: '*the organization and management of health services so that people get the care they need, when they need it, in ways that are user-friendly, achieve the desired results and provide value for money.*'

2.1.3 The Revival of Herbal Medicine

In general, plant-based forms of medicine have provided an essential component of medical treatment to population groups since the earliest days of human settlement. While medicinal plants have been subject to international trade networks and markets since the Renaissance, plant-based or herbal medicine has recently become a renewed element in modern scientific research, which is conducted on the medical properties of plants (*cf.* Farnsworth & Soejarto 1991; WHO *et al*. 1993; Balick & Cox 1996; Slikkerveer 1999b; Zhang 1998)

Cited in Slikkerveer (2006), De Padua *et al*. (1999) differentiate between the following types of herbal medicine: (1) traditional medicine, which refers to the utilisation of indigenous medicinal plants in their country of origin; (2) herbal medicine, which refers to the cultivation and preparation of indigenous medicinal plants for external sale; and (3) pharmaceutical medicines, which refer to medicinal plants forming active components in pharmaceutical products. On the other hand, Zhang (1998) defines 'plant-based' or 'herbal medicine' as any plant, namely herb, shrub, tree or fungus, which is used alone or in combination with other plants for the purposes of health restoration and maintenance. In general, the concept of herbal medicine includes raw and processed plant materials with therapeutic or other human health benefits, as well as specific medicinal herbal products. The concept, however, excludes plant materials, which have already been identified as active components through modern scientific techniques and have been isolated or synthesized as chemical ingredients (*cf.* Zhang 1998; WHO 2002a).

According to WHO (2012), active components refer to ingredients with therapeutic activity, whereby, provided that a particular ingredient cannot be identified, the whole plant is seen as an active component. Skoula & Johnson (2006) argue that at times the active component remains unknown the medicinal significance of plants is ascribed to something larger than the active components, namely to a synergy of components, which may have a stronger effect than the sum of individual components of the plant.

As regards the use of herbal medicine as part of traditional medicine, *i.e.* in the form of indigenous medicinal plants, Strataridaki (1988) observes that sources, which reveal the practices of divination and healing employed by Asclepius, include an account on the application of plant roots as medicine. In this way, it is suggested that the tradition of healing in Ancient Greece was based on the utilisation of plants. Hoffmann (1983) and Zhang (1998) similarly argue that indigenous communities and scholars of humoural medicine alike have used plants on the basis of their healing properties. Duffin (1999) documents that Hippocratic doctrines describe more than 300 mainly plant-based remedies for internal and external as well as dietary applications, whereby the healing power of nature is embraced as a means to support the human body in its attempt to heal itself. The Greek philosopher Theophrastus (circa 371-287 B.C.), presumably the author of at least 13 medical treatises and other medical-physiological works, highlights the medical properties of plants within his work (*cf.* Fortenbaugh *et al*. 2003). Despite the limited initial success and a small number of surviving texts, Fortenbaugh *et al*. (2003) underscore the importance of Theophrastus' studies on topics, such as sweat, dizziness, fatigue, fainting and paralysis, which have been discussed in the Hippocratic texts and have had a considerable influence on later doctrines, such as the writings of Galen. Similarly influential to the work of Galen, Pedanius Dioscorides (circa 40-90 A.D.) has accentuated the medical properties of plants in his extensive, five volumes publication on medicinal substances (*cf.* Duffin 1999). As Iatrou & Kokkalou (1997: 67) confirm: '*It is to Theophrastus that we owe the classical theories on the medicinal uses of the wild plants, and it is also well known that Dioscorides had studied, recognised, and classified more than 500 wild plants that had effects on several different illnesses of the human body*'. Lewis & Elvin-Lewis (1977) similarly maintain that Hippocrates, Galen and Dioscorides alike have made significant contributions to the study of the utilisation of plants for medical purposes.

Among the scholars of Ancient Greece, Dioscorides is to this day widely regarded as the 'Master of Ancient Herbalism and Contemporary Pharmacology'. Scarborough (2005: xiii) calls Dioscorides' publication on medical substances: '*the most influential work in the history of the medical sciences to emerge from the early days of the Roman Empire*'. Practising the profession of a physician, pharmacist and botanist, Dioscorides travelled extensively in the Roman Empire with the army of emperor Nero collecting samples and information on medicinal plants along the way. On the whole, Dioscorides identified more than 600 plants, animals, minerals and other derivatives, which he organised on the basis of their physical qualities by categorising them as oils, animals, cereals, herbs, roots and wines. He also described the way in which these remedies act in the human body and documented their specific manufacturing processes (*cf.* Duffin 1999; Beck 2005; Scarborough 2005). According to Beck (2005: xxiii), Dioscorides described each plant thoroughly in terms of: '[*Morphology*]*, habitat(s), relative qualities, methods of preparation, general properties and specific therapeutic applications, adulteration, compounding and directions of storage*'. Pollio *et al*. (2008) confirm that the famous work of Dioscorides *Materia Medica* forms an entire encyclopaedia of natural, particularly vegetal, mineral and animal products. Beck (2005) notes that, since the properties of plants are essential to the treatment and prevention of illness, the grouping of substances on the basis of their therapeutic properties instead of presenting them in alphabetical order renders it easier to remember the remedies and to find possible substitutes for a particular plant.

Within his writings, Dioscorides moreover emphasised the crucial role played by the professional physician, who is expected to acquire knowledge of medicinal plants in all variations from the sources of ethnobotany as well as from personal experience, and criticised

the fact that numerous medicinal plants remain unnoticed by herbalists and physicians alike (*cf.* Dioscorides & Beck 2005; United States National Library of Medicine 2012). Cited in Dioscorides and Beck (2005: 3), Dioscorides claims that: '[*it*] *is perhaps clear to everyone that there is a great need for a treatise on pharmacology, which, coupled with the entire art of healing, provides by itself in every section an invincible ally*'. As Scarborough (2005: xiv) confirms: '*Dioscorides establishes a pharmacology firmly resting on empirical data, but suggesting that such facts could change as the practitioner added his own experiences in the field and with patients*'. In his publications, Dioscorides elaborated whether he had tested or simply heard about the remedy in question, whereby he recorded a considerable amount of traditional, popular knowledge (*cf.* Dioscorides & Beck 2005). Gunther (1959), Duffin (1999) and Scarborough (2005) observe that the writings of Dioscorides have not only been translated from Greek into Latin and several other languages, but have also remained a living source of information for herbalists well until the 19th century. Duffin (1999) notes that research into the writings of Dioscorides continues to this day, as interest in his work has survived for many centuries not at least because of what Beck (2005: xxii) summarizes as: '*new discoveries in phytochemistry*'; '*modern studies in ethnobotany*'; '*researches into the curative practices of people all over the globe*'; '*the rise in the attention given to the ancient pathologies*' and '*the ever increasing appeal of natural remedies*'.

As a result of pre-Renaissance contacts of European scholars with indigenous communities as well as the revalidation of the classical Greek medical texts during the Renaissance, herbal medicine received growing scholarly attention, which ultimately resulted in the development of academic disciplines, such as ethnobotany and pharmacology (*cf.* Slikkerveer 2006). Balick & Cox (1996), Beck (2005) and Scarborough (2005) relate a growing scholarly interest in plant-based medicine to the rediscovery of Dioscorides' work during the Renaissance, which resulted in the publication of 'herbals', being often illustrated manuals, which describe the names and uses of medicinal plants. These herbals marked the beginning of the empirical study of traditional medicine as they include significant information on traditional remedies and a botanical description of medicinal plants (*cf.* Lewis & Elvin-Lewis 1977; Cotton 1996). Lewis & Elvin-Lewis (1977) and Duffin (1999) observe that these herbals continued to form an integral part of medical education, which lasted well until the 19th century. As a result, physicians, universities and hospitals started to design botanical gardens for the purpose of research as much as for the use and development of remedies.

The fascination for medicinal plants declined at the beginning of the 19th century following the spread of modern scientific discoveries made in medical theory and technology. Nevertheless, the use of plant-based medicine has remained increasingly popular, particularly in rural areas and in developing countries, largely because of their affordability, easy accessibility and cultural embeddedness. Furthermore, the growing disappointment of the failure of modern medicine to provide adequate and affordable treatment for specific diseases has also generated a renewed interest in herbal medicine, not only in developing countries but also in countries, which primarily rely on modern medical treatment. Herbal medicine, which is widely perceived as a safe form of medical treatment, has been identified as an integral and rapidly growing element of CAM, which has recently acquired a strong dimension on the world market (*cf.* Eisenberg 1993; WHO *et al*. 1993; Zhang 1998; WHO 2002a; Slikkerveer 2006; Lynch & Berry 2007; WHO 2012).

Slikkerveer (2003; 2006) also mentions that alternative philosophies of nature and the environment as well as the indigenous health and healing practices, which generally underlie the application of herbal medicine, have also contributed to the growing worldwide popularity of plant-based medicine today. Known as 'holistic herbalism', the use of herbal medicine re-establishes the relationship between humans and the natural environment, as it has long provided a basis for medical treatment and allows for treatment methods within the framework of the patient's social and spiritual environment (*cf.* Slikkerveer 2006). Hoffman (1983) argues that humans are exposed not only to the natural, external environment but also to the physiological,

internal environment, whereby herbal medicine can function as a mediator between ecology and physiology, while keeping both environments in harmony. As Hoffmann (1983: 18) explains: '[*Herbal*] *medicine in its holistic sense recognizes humanity as an expression of life, enlivened with life force, and herbs can work with this whole being, not just specific symptoms*'. Zhang (1998) and WHO (2012) indicate that the recent interest in herbal medicines is based on an overall demand for: crude plants; herbal materials, such as essential oils; herbal preparations in the form of extracts and tinctures; as well as herbal products, which are not composed of chemically defined substances. In view of the continuing quest for alternative forms of medical treatment, the contemporary enthusiasm about herbal medicine is generated by the widely recognised necessity for pharmaceutical research conducted on plant-based remedies (*cf.* Zhang 1998; WHO 2012). Cotton (1996) and Duffin (1999) observe that a growing worldwide request for alternative forms of medicine and a general demand for new pharmaceutical medicines have further promoted the need for scientific research on plant-based medicines.

2.2 The New Field of Ethnoscience

2.2.1 Ethnobotanical Knowledge Systems (EKS)

In general, modern scientific research into IKS developed on the basis of an early scholarly interest in the exotic and unknown, was followed by a colonial and post-colonial concern about 'primitive' people and resulted in the rediscovery of IKS for romantic reasons, not at least because of a growing disappointment in modern science during the second half of the 20th century (*cf.* Ellen & Harris 1999; Slikkerveer 1999b). In particular, Slikkerveer (1989; 1999) observes that early research on IKS has been conducted during the 1950s and 1960s within the realm of the disciplines of *ethnoscience* and *cognitive anthropology* and produced detailed accounts in fields such as *ethnolinguistics* and *ethnopsychology*. In this respect, Martin (2004) explains that the prefix 'ethno-' has been attached to a variety of disciplines in an attempt to highlight the scholarly focus on the study of local people's perceptions of indigenous and international knowledge systems in various sectors of the society. Nevertheless, early ethnoscientific studies focussed largely on an idealised image of communities described by local informants, but tended to overlook the practical aspects of the community members' daily struggle for life. In order to overcome certain shortcomings and to enable a value-free form of evaluation of IKS in scientific terms, ethnoscience has since acquired a new dimension of research, which goes beyond a mere qualitative interpretation of IKS but includes quantitative, comparable data. Later onwards, IKS became the subject of research conducted to develop a new direction towards a new discipline, known as *new* or *neo-ethnoscience,* sometimes also called the '*new ethnography*'. (2.4). The second generation of ethnoscientists advocate an 'Ethnosystems Approach' to the study of IKS, which centres on the study of principles and ideas underlying human behaviour, rather than on empirical observation, thereby relating IKS to the dynamic process of socio-economic development (*cf.* Slikkerveer 1989; Slikkerveer & Dechering 1995; Slikkerveer 1999b).

Slikkerveer (1989:19) defines 'ethnosystems' as: '[…] *those sets of conceptions and practices which are specific to an ethnic group and generally localized in rural peripheries, as opposed to centralized, urban systems often origination in* [*modern societies*]'. In this way, Slikkerveer (1989) and Slikkerveer & Dechering (1995) moreover explain that 'ethnosystems', as opposed to cosmopolitan systems or 'cosmosystems', go beyond the general understanding of indigenous knowledge systems to encompass indigenous, culture-specific concepts, beliefs, perceptions and practices, as well as local channels of communication and decision-making patterns. Rooted in people's long-term experience and wisdom, ethnosystems provide a sound basis for establishing particular patterns of behaviour in relation to various sectors of the society, such as linguistics, education, medicine, agriculture, artisan skills, as well as kinship and social structures, while promoting indigenous technology development and innovation. In this way, the 'Ethnosystems

Approach' broadens the earlier perspective on IKS to include cognitive and behavioural components and to conduct research in a rather holistic manner. The approach allows for a more dynamic assessment of IKS in terms of including: historical processes of transculturation and acculturation; forms of interaction between local and international knowledge systems as well as ethno- and cosmosystems; and processes of socio-economic development (*cf.* Slikkerveer 1989; Slikkerveer & Dechering 1995; Slikkerveer 1999a; 1999b; 2003). Slikkerveer (1989), Ellen & Harris (1999), Slikkerveer & Dechering (1995) and Slikkerveer (1999b) argue that the rather behaviouristic 'Ethnosystems Approach' to the study of IKS adopts a bottom-up approach, which is largely based on participation among the population under study and focuses on the cultural dimension of development in the context of international cooperation, thereby advocating a strategy of 'development from below'. Slikkerveer & Dechering (1995: 436) identify the following five principles behind the study of ethnosystems:

1. '*the (pre)historical assessment of a particular community or society in its natural and cultural setting;*
2. *the culture-specific or culture-bound reference of the term;*
3. *the holistic approach towards the inclusion of a range of sub-systems of knowledge and technology in sectors such as medicine, agriculture, environment, education, and so on;*
4. *the more dynamic assessment of the concept of "culture" in terms of a configuration of interacting* [*international*] *and* [*indigenous*] *knowledge systems;*
5. *the comparative - instead of a normative* […] *- orientation towards the development process in certain regions or "culture areas"*'.

In addition, Slikkerveer (1989; 1999) claims that the 'Ethnosystems Approach' to the study of IKS also prompts researchers to adopt an *emic*, *i.e.* an insider's, as opposed to an *etic* or outsider's perspective.

Within the framework of the neo-ethnoscience, various scholars have specialised on the study of IKS in relation to people's rather dynamic and flexible knowledge of the natural environment, thereby introducing concepts such as *Ethnobotanical Knowledge Systems* (EKS) and *Traditional Ecological Knowledge* (TEK) as specific forms of IKS (*cf.* Alcorn 1995; Balick & Cox 1996; Cotton 1996; Slikkerveer 1995; 1998; 1999). Balick & Cox (1996) and Slikkerveer (1999b) report that scholarly interest shown prior to contemporary research in the relationship between humans and nature largely focussed on the exotic and economic values of plants. Cotton (1996) suggests that academic concern about the use of plants in relation to IKS developed in conjunction with research, which has been carried out in indigenous linguistics and communities in general at the beginning of the 20th century. Eventually, studies of the reciprocal relationship between communities and their natural environment have joined with the discipline of *ethnobiology* forming a subfield of *ethnoscience*. Research on EKS and TEK is carried out as part of the field of *ethnobotany*, which is *also regarded* as a subdiscipline of *ethnobiology* (*cf.* Plotkin 1991; WHO *et al*. 1993; Balick & Cox 1996; Cotton 1996; Slikkerveer 1999b; 2003; Martin 2004; Slikkerveer 2006). As Balick & Cox (1996: 33) explain: '*The field of study that analyses the results of indigenous manipulations of plant materials together with the cultural context in which the plants are used is called ethnobotany*'. According to Slikkerveer (2006: 21), the ethnobotanical research approach: '*focuses on the knowledge and use of plant resources within and among different cultures and communities within a particular field of anthropological study*'. Cotton (1996: 2) similarly specifies '*ethnobotany*' as: '*all studies, which concern the mutual relationships between plants and traditional peoples*'. In particular, Balick & Cox (1996) and Slikkerveer (1999b) point out that *ethnobotany* relates to the study of people's use of plant species, particularly in such fields as medicine, food or textile and highlights forms of interaction and mutual dependency between humans and their natural environment. Overall, the field of *ethnobotany* incorporates a variety of subfields, such as: *economic botany*, which refers to the study of the economic value of plants; *applied ethnobotany*, which focuses on the identification

and application of new medicines, which are identified on the basis of IKS; or *ethno-ecology*, which describes people's interactions with their natural environment in a more theoretical and practical sense (*cf.* Balick & Cox 1996; Cotton 1996; Slikkerveer 1999b; 2003; Marin 2004; Slikkerveer 2006). As Slikkerveer (1999b: 170) indicates, ethno-ecology: '*focuses primarily on the ideas, perceptions and classifications of the environmental relationships of members of a particular community or culture*'. In this respect, Cotton (1996: 17) identifies the following primary areas of ethnobotanical research:

1. '*Ethnoecology:* [*indigenous*] *knowledge of plant phenology, adaptations and interactions with other organisms; nature and environmental impact of traditional vegetation management;*
2. *Traditional Agriculture:* [*indigenous*] *knowledge of crop varieties and agricultural resources; nature and environmental impact of crop selection and crop management;*
3. *Cognitive Ethnobotany: traditional perceptions of the natural world (through the analysis of symbolism in ritual and myth) and their ecological consequences; organization of knowledge systems (through ethnotaxonomic study);*
4. *Material Culture:* [*indigenous*] *knowledge and use of plants and plant product in art and technology;*
5. *Traditional Phytochemistry:* [*indigenous*] *knowledge and use of plants for plant chemicals for example in pest control and traditional medicine;*
6. *Pelaeoethnobotany: past interactions of human populations and plants based on the interpretation of archaeobotanical remains*'.

Studies carried out in the field of *ethnobotany* towards the end of the 20th century have frequently shed light on the rather marginal role, which was played by IKS, particularly EKS, across mainly rural population groups in developing countries. Leakey & Slikkerveer (1991a) and Slikkerveer (1999b) argue that the expansion of 'scientific' environmental knowledge and the introduction of new crops in many areas have eventually led to decreasing yields and economic loss, as well as to a deadlock in the development of local techniques and practices. As Leakey & Slikkerveer (1991a: 2) note: '*The rather normative proposition towards developing countries to adopt the ideal* [*modern*] *standards of life such as cash economy, mechanization and urbanization not only tends to result in a loss of cultural identity of certain "target populations" but eventually could lead to a strong, renewed dependence on the* [*industrialised*] *world*'.

Furthermore, Balick & Cox (1996), Posey (1999) and Skoula *et al*. (2003) observe that recent forms of over-investment and over-exploitation of natural resources, primarily caused by increased demand, rapid population growth and habitat destruction, as well as processes of globalisation and cultural erosion aggravated by climate change have contributed to the loss of bio-cultural diversity worldwide. Composed of, on the one hand, the biological diversity of genes, species and ecosystems, and on the other hand, the cultural diversity referring to local, regional and global forms of EKS, bio-cultural diversity is increasingly faced with extinction.

Naturally, these processes highlight the immediate need for solutions in the form of, for example, small-scale agricultural production, sustainable resource management and conservation oriented practices (*cf.* Leakey & Slikkerveer 1991a; Skoula *et al*. 1997; Bodeker 1999; Posey 1999; Slikkerveer 1999a; 1999b). In response to the growing concern about the loss of bio-cultural diversity, ethnobotanists have begun to apply the results of their research to concepts of sustainability, bio-cultural diversity conservation and community development by means of advocating the importance of local EKS and traditional forms of agriculture, the indigenous knowledge and practice of useful plants and the commitment of returning benefits from research to the communities involved. While numerous anthropologists and ethnoscientists expressed the need for immediate action, international organisations, such as the Food and Agriculture Organisation (FAO) or the United Nations Environment Programme (UNEP), have similarly added concerns about sustainability, conservation and community development to their agenda (*cf.* WHO *et al*. 1993; Balick & Cox 1996; Griffee 1997; Heywood 1997a; Skoula *et al*. 1997;

Slikkerveer 1999a; Martin 2004). In view of these developments, various researchers argue that EKS provide a sound basis for the introduction of sustainable forms of ecosystems management and practices of bio-cultural diversity conservation (*cf.* Alcorn 1995; Cotton 1996; Bodeker 1999; Posey 1999; Slikkerveer 1999b; 2003). EKS largely comply with the principles of sustainability, as they are ecologically sound, economically viable, socially just, humane and adaptable (*cf.* Slikkerveer 1999a). As Slikkerveer (1999a: 41) claims: '[…] *Small-scale agricultural systems largely based on the indigenous practices and methods do more or less comply to most of these five criteria of sustainability* […]'. Likewise, Balick & Cox (1996) document that indigenous communities have continuously relied on local forms of EKS, thereby mastering conservation-oriented practices, namely harmonious interventions in nature, not at least out of the necessity to preserve the natural environment as a continuous source of life. Stating that indigenous ecological principles are commonly related to human subsistence and survival, Slikkerveer (1999b: 174) moreover observes that these principles: '[…] *include values, norms and beliefs regarding the maintenance of the "balance of nature" which have evolved over generations and which encapsulate specific conservation methods and practices*'.

Reijntjes *et al*. (1992) conclude that indigenous farming systems make a contribution to the conservation of bio-cultural diversity, as they typically share: (1) a holistic worldview, which views farmers as part of nature and involves rituals directed at maintaining the quality of natural resources; (2) practices of community-based farming in which the community preserves the local culture and knowledge, organises labour, designs and controls the use of land and manages change; (3) an optimal use of local resources, which is based on a detailed understanding of the local environment; (4) a reliance on genetic and physical diversity reinforced by the production of natural resources for self-sufficiency instead of market sale; (5) practices of soil protection, water conservation and recycling of natural nutrients; (6) risk minimisation, which is directed at minimising risk rather than at maximising economic output; and (7) site-specific techniques, as they have developed within the respective community. Subsequently, Posey (1999) notes that the *First International Congress on Ethnobiology* held in 1988 in Belém, Brazil, which culminated in the *Declaration of Belém*, strengthened the importance of EKS within the context of bio-cultural diversity conservation (2.5). Griffee (1997) observes that various international programmes and activities directed at the sustainable use of natural resources and at the conservation of bio-cultural diversity have focused on geographical regions, which are particularly rich in bio-cultural diversity (2.6).

As a result of the joint collaboration between Mediterranean Agronomic Institute of Chania (MAICh), the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), the Leiden Ethnosystems and Development (LEAD) Programme of Leiden University and the Directorate General 1 of the European Union, a regional network on the Identification, Conservation and Use of Wild Plants in the Mediterranean Region called MEDUSA has been established by the Department of Natural Products at MAICh in Crete, Greece, during a workshop on the Identification of Wild Food and Non-Food Plants of the Mediterranean Region held in 1996. In view of the long-term use of plants in mythology, tradition and science in the region, the MEDUSA Network has been established on the basis of a general interest in natural products and a growing awareness of the threat of the destruction of the bio-cultural diversity of the region. Skoula *et al*. (2003) explain that the MEDUSA Network aims at recognising, improving and protecting the significance of plants in the Mediterranean Region in sectors such as agriculture, industry and human health. In particular, the objectives of the network include the identification of natural and naturalised plants, the transformation of indigenous knowledge into a scientific database, the establishment of a regional information system and the evaluation of the conservation status and potential agricultural utilisation of plants (*cf.* Skoula *et al*. 2003; Skoula & Johnson 2006). As Skoula *et al*. (1997: 2) note: '*The eventual aim of the Network is to propose methods for the economic and social development of rural areas of the Mediterranean Region, using ecologically-based management systems that will ensure the sustainable use and conservation of plant resources of the area*'.

According to Slikkerveer (1999b), the search for solutions directed at reducing the loss of bio-cultural diversity has frequently been linked to the economic and social development of rural communities. Alcorn (1995: 1) argues that EKS have the potential for designing locally adapted, sustainable agricultural systems, while meeting the following rural development goals: '[*Improved*] *rural livelihoods*'; '*sustainable use of the natural resource base*'; '*improved well-being, health and nutrition*'; '*strengthened institutional capacity to meet the needs of rural people*'; '*generation of capital surplus for financing industrialization*'. In order to promote sustainable and conservation-oriented strategies of development, Alcorn (1995) and Slikkerveer (1999b) highlight the impetus, which EKS give to participatory research strategies and strengthen the importance of interaction between the holders of EKS and development specialists. Martin (2004) moreover argues that ethnobotanical research is rather interdisciplinary, as it generally involves the combined effort of representatives of various academic fields, such as botanists, linguists and anthropologists. As Balick & Cox (1996: 7) point out: '*Given this twin focus on plants and indigenous peoples, the ideal ethnobotanist is a combination of anthropologist, archaeologist, botanist, chemist, psychologist, ecologist, explorer, folklorist, pharmacologist and diplomat*'. In the same fashion, Leakey & Slikkerveer (1991a) observe that the study of relationships between agriculture, culture and society involves a number of disciplines of which anthropology provides an effective means to study subsistence systems across cultures. As Slikkerveer (1999b: 177) reports: '*In this way, the role of anthropology and the related "new" perspectives of TEK could assist in multi-disciplinary research of not only the indigenous knowledge systems, but also of the adaptive processes and behavioural patterns which pertain to the sustainable management and conservation of biodiversity*'.

2.2.2 Ethnomedicine and Medical Anthropology

Besides ethnobotany, the traditional practices of health and healing, which have been recorded as part of early ethnographic records on IKS, experienced a revitalisation during the second half of the 20th century in the newly-emerging field of *ethnomedicine*, a subfield of *ethnoscience*. Cited in Foster & Anderson (1978: 5), Hughes (1968) defines 'ethnomedicine' as: '*those beliefs and practices relating to disease which are the products of indigenous cultural development and are not explicitly derived from the conceptual framework of modern medicine*'. Similarly, Hahn (1995: 77) defines 'ethnomedicine' as the '*society's cultural reality concerned with sickness and healing*'. Slikkerveer (1990) argues that ethnomedical studies largely centre on traditional forms of medicine and systems of indigenous knowledge, practice and belief with regard to health and illness, as they have often been interpreted as 'illegitimate' and 'non-professional' forms of medicine. In general, *ethnomedicine* has been closely linked to the domain of *medical anthropology*, which similarly originates from an early scholarly interest in traditional forms of medicine (*cf.* Foster & Anderson 1978). Cotton (1996) notes that *medical anthropology* focuses on the study of the cultural perception, symbolic meaning and social context of illness and also includes the studies of the dissemination of medical knowledge and the role played by traditional health care providers. As Foster & Anderson (1978: 2) comment: '*In short, medical anthropology is viewed by its practitioners as a biocultural discipline concerned with both the biological and socio-cultural aspects of human behaviour, and particularly with the ways in which the two interact and have interacted throughout human history to influence health and disease*'. Foster & Anderson (1978) and Slikkerveer (2003) observe that scholars of *medical anthropology* commonly conduct research on a variety of topics, such as human growth and development; the concept of illness in history and evolution; traditional medicine; health and illness behaviour; the doctor-patient relationship; sustainable community development; as well as integration of traditional and modern medical systems. Indicating the close relationship between *ethnomedicine* and *medical anthropology*, Foster & Anderson (1978) relate the origin of the latter to the early interest of physical anthropologists in topics such as evolution, adaptation,

comparative anatomy, racial types, genetics and serology. In a comparable way, *ethnomedicine* became part of the 'culture and personality' movement of the late 1930s and 1940s; and the international public health movement, which occurred after the Second World War (2.7).

According to Foster & Anderson (1978), Foster (1983) and Slikkerveer (1990), ethnomedical research and medical anthropology both engage in comparative, particularly cross-cultural and cross-temporal, studies of bio-ecological and socio-cultural factors, which influence concepts of health and illness. Furthermore, these studies aim at understanding patterns of behaviour related to illness treatment and at improving health care delivery across population groups. In this respect, Slikkerveer (1982; 1990) observes that early research conducted on socio-cultural determinants of concepts of health and illness, which emerged during the 1950s and 1960s, have resulted in an initial over-emphasis on traditional forms of medicine. In line with the establishment of bi- and multilateral public health programmes and organisations, such as WHO, in the aftermath of the Second World War, medical anthropologists and sociologists have frequently been consulted about their knowledge of socio-cultural factors influencing health and illness with a view to design strategies for the improvement of health care delivery services. According to Foster & Anderson (1978), it had become clear that solutions to counteract the inefficiency of health care services, primarily in developing countries, had to be found within the wider socio-cultural context of health and illness of the population groups concerned, rather than on the basis of modern medical doctrines. Thereafter, ethnomedical studies started to pay increased attention to institution-based patterns of the health care seeking processes (*cf.* Foster & Anderson 1978; Slikkerveer 1990; WHO 2012). As Slikkerveer (1982: 1860) indicates: '*Within this context, it is worth noting that despite decades of frequent and productive fieldwork, applied anthropologists in developing countries as well as health planners and administrators have gradually become aware of the fact that the rather isolationistic interest in either traditional medicine, or* […] *in cosmopolitan medicine has not yet resulted in a balanced health development process*'. Slikkerveer (1990) moreover claims that the phenomenon of dual use of both traditional and modern forms of medicine promotes a dichotomy between traditional and modern concepts, whereby the possible existence of other medical configurations are overlooked.

Recent ethnomedical research has focussed on the transcultural utilisation of different, socio-culturally shaped, medical systems in a particular culture area and on the utilisation of specific forms of medicine, such as medicinal plants, among different culture areas (*cf.* Slikkerveer 1990; 2003). Slikkerveer (1982; 1990) argues that recently, more approaches in ethnomedical research have largely centred on the utilisation of modern medicine by different population groups in industrialised societies, as well as on the utilisation of traditional and modern medicine by different population groups in developing societies, thereby attempting to bridge the gap between ethnomedical and modern biomedical doctrines. Ethnomedical studies conducted during the 1970s have moreover focussed on local disease aetiologies and other aspects of IKS in an attempt to understand processes of health care utilisation behaviour, as they are directly linked to causal relationships within the respective community (*ibid.*). As noticed by Slikkerveer (1990: 11): '[…] [*They*] *have made a direct link between medical knowledge systems and illness behaviour, which provides a more realistic base for health planning*'.

Subsequently, scholars of ethnomedicine and medical anthropology have started to study the socio-cultural aspects of health and illness in conjunction with patterns of behaviour, as well as with the organisational and administrative aspects of health care delivery within the realm of *neo-ethnoscience*. Slikkerveer (1990) argues that the practical aspect related to the utilisation of health care services is differentiated not only by social inequalities and unequal delivery but also by distinct patterns of health and illness behaviour, known as 'differential health care consumption', as well as by the availability of different medical systems in the community. In this way, a new ethnomedical approach to the study of health care consumption, which includes cognitive and behavioural as well as system-related aspects, contributes to the bridging of the artificial gap between ethno- and biomedicine (*cf.* Slikkerveer 1990; 2006). As Slikkerveer

(1990: 3) concludes: '*Such perspective on the pluralistic character of systems of health care delivery has provided ample scope for the development of a comparative study of the socio-cultural context of biomedical as well as other medical systems, nowadays referred to as the new or neo-ethnomedical systems approach.* Kleinman (1978) argues that medical research directed at cross-cultural comparisons involves a quantifiable concept of culture in the context of health, a direct relation to clinical questions, substantial field research, an interdisciplinary translation between anthropology and health sciences, as well as a terminology, which includes ethnomedical and biomedical concepts alike.

In the ethnomedical studies carried out in the realm of *neo-ethnoscience*, the utilisation of plants for medical purposes has been identified as a significant component of health care consumption patterns across different communities. Consequently, scholars of *ethnoscience* frequently combine ethnobotanical and ethnomedical strategies in an attempt to adequately study indigenous concepts of health and illness (*cf.* Slikkerveer 1999b; 2006). Cotton (1996) and Bodeker (1999) confirm that, in view of the close links between *ethnobotany* and *ethnomedicine*, as subfields of *ethnoscience*, ethnobotanical research has come to include anthropological components, whereas ethnomedical studies have incorporated botanical aspects. In other words, the study of *ethnomedicine* is closely linked to the following concepts: (1) medical anthropology referring to the cultural aspects of health and illness; (2) medical ethnobotany referring to the identification of natural species used as medicine as well as to the analysis of indigenous systems of species classification; and (3) ethnopharmacology referring to the discovery and validation of plant-based remedies (*cf.* Cotton 1996). According to Cotton (1996), the study of *ethnomedicine* consequently receives a major impetus from a variety of professions, such as medical anthropologists, ethnotaxonomists, ethnobotanists, phytochemists, pharmacologists and medical doctors.

2.2.3 Medicinal, Aromatic and Cosmetic (MAC) Plants

Within the field of *ethnoscience*, a significant amount of academic research has been devoted to the study of plants used for medical purposes, one of the oldest forms of ethnobotanical and ethnomedical research known (*cf.* Balick & Cox 1996; Cotton 1996; Bodeker 1999; Slikkerveer 2006). Balick & Cox (1996) demonstrate that approximately 3.5 billion people continue to rely on the medical properties of plant components. In particular, medicinal plants form one of several categories related to human plant-use, as identified by Cook (1995). In an attempt to present a general identification of wild plants growing in the Mediterranean Region, which is known to maintain a 'great tradition' of the wspecific use of medicinal plants, the MEDUSA Network (2002) presents the following classification of human plant-uses:

- food (food and beverages for humans);
- food additives (processing agents and additive ingredients used in food preparations);
- animal food (forage and fodder eaten by vertebrates);
- bee plants (sources for honey production, including pollen and nectar);
- invertebrate food (plants eaten by invertebrates useful to humans, such as silkworms);
- materials (woods except for wood used as fuel, fibres, cork, cane, tannins, latex, resins, gums, waxes, essential oils etc. and their derived products);
- fuels (including fuel-wood, charcoal, fuel alcohol);
- social uses (plants not definable as food or medicines, such as masticatories, smoking materials, narcotics, hallucinogens and psychoactive drugs, contraceptives, abortifacients and plants with ritual or religious significance);
- vertebrate poisons (plants accidentally and usefully poisonous to vertebrates);
- non-vertebrate poisons (plants accidentally and usefully poisonous to non-vertebrates, plants, bacteria and fungi);
- medicines (for human and veterinary uses);

- environmental uses/habitat and landscape modification (including plants used for erosion, control, shade, shelter, restoration and rehabilitation, ornamentals, soil improvers, boundaries, firebreaks and pollution control);
- gene sources (wild relatives of major crops).

(*cf*. Cook 1995; Skoula *et al*. 1997; 2003; Slikkerveer 1999b; MEDUSA 2002).

The categories of human plant-uses are by no means exclusive and as a single plant can moreover be used for multiple purposes, it may fall into the category of more than one use (*cf*. De Vries 2007). On the basis of the classification of useful plants provided by the MEDUSA Network, the category of medicines can be extended further in an attempt to conceptualise all plants, which have been identified as beneficial to human health. In this respect, a number of scholars advocate the concept of Medicinal, Aromatic and Cosmetic (MAC) Plants as a means to incorporate all plants known for their interrelated medicinal, aromatic and cosmetic health-promoting effects (*cf*. Quah & Slikkerveer 2003; Agung 2005; Ibui 2007; Leurs 2010). In this way, the beneficial effects of perfumery plants, spices, food additives, foods as well as fragrances and essential oils have been grouped under the category of aromatic plants. The concept of Medicinal and Aromatic Plants (MAP) has been employed by some international organisations concerned with the conservation and human use of natural resources to refer to plants applied as medicines, cosmetics, herbal teas, spices, liqueurs and bitters, insecticides and fungicides as well as domestic cleaning products (*cf*. TRAFFIC 2008; IUCN 2012). Heywood (1997b) observes that a growing interest in the uses of medicinal and aromatic plants led to the establishment of the *International Council for Medicinal and Aromatic Plants* (ICMAP) during the first World Congress on Medicinal and Aromatic Plants (WOCMAP) held in 1991. In addition to medicinal and aromatic plants, Slikkerveer (2006) argues that cosmetic plants have already been used in ancient Egypt and among the early Mediterranean aristocracy for their cosmetic effects. Moreover, from an ethnobotanical point of view, the term 'MAC plants' reflects the indigenous inclusive classification of useful plants for not only medicinal and aromatic but also for cosmetic practices. Additionally, as the concept seeks to compensate the significant neglect of the large volume of plants used for cosmetic purposes worldwide, Slikkerveer and Baçer re-defined the concept of Medicinal and Aromatic Plants (MAP) into Medicinal, Aromatic and Cosmetic (MAC) Plants for the identification of these useful plants for the MEDUSA Network (*cf.* MEDUSA 2002).

In general, Slikkerveer (2006) observes that scholarly interest in the uses of medicinal and poisonous plants has expanded across disciplines since the first discoveries, which had been made in ethnobotany. Stressing the involvement of local communities, Balick (1994), Cotton (1996), Bodeker (1999), Skoula *et al*. (2003) and Slikkerveer (2006) argue that an ethnoscientific approach to the study of MAC plants significantly contributes to: a general understanding of forms of medical treatment; health care delivery improvements; knowledge recovery; plant documentation and classification as well as cultivation; a sustainable use of natural resources; and bio-cultural diversity conservation. As Slikkerveer (1999b: 42) stresses: '*The study of the category of underlying perceptions and cosmovisions of the different cultures* […] *is extremely important as it would not only foster the local use and possible exploitation of alternative plants which may be economically viable, but it could also learn us more about the related, alternative philosophies of nature and the environment that exist in the region*'.

Recently, studies on the medicinal properties of plants have focussed on the scientific evaluation of medicinal plants in the search for new pharmaceutical medicines. Farnsworth (1994: 44) explains that MAC plants: '[…] *are currently serving the primary health care needs of most of the world's population and this source must not be ignored in any programme of rational drug development starting with plant materials*'. Providing a rather cost-effective study method, research into MAC plants has been undertaken in order to screen plants for their medical components, particularly within the realm of a discipline known as Ethnopharmacology (*cf*. Plotkin 1991; WHO *et al*. 1993; Balick 1994; Farnsworth 1994; Alcorn 1995; Holmstedt &

Bruhn 1995; Balick & Cox 1996; Cotton 1996; Iatrou & Kokkalou 1997; Bodeker 1999; Slikkerveer 2003; 2006). Cotton (1996: 236) defines *ethnopharmacology* as: '*conventional analysis of traditional remedies including those based on plants*'. Holmstedt & Bruhn (1995: 338) theorise that ethnopharmacology relates to the '*observation, identification, description and experimental investigation of the ingredients and the effects of indigenous drugs*'. In this respect, Balick & Cox (1996) find that although modern scientific research conducted on the medical properties of plants has been scarce during the 1960s and 1970s as the result of financial limitations and a rather negative attitude among pharmacists towards plant-based medicine, a general reorientation based on an ethnoscientific approach generated a renewed interest in medicinal plants. Balick & Cox (1996: 36) moreover show that: '[…] *since the beginning of modern pharmacology, less than half of one percent of the species of flowering plants have been exhaustively studied to determine their chemical composition and medical potential*'. Although a relatively small number of plant species has yet been subject to scientific research on medical properties, MAC plants have also made rather significant contributions to modern pharmacological studies and as such continue to be analysed for their biochemical components (*cf.* Farnsworth 1983; Hoffmann 1983; Farnsworth & Soejarto 1991; WHO *et al*. 1993; Zhang 1998).

Nevertheless, patterns of over-exploitation of natural resources in conjunction with the predominantly ex-situ production of pant-based medicines have in many places culminated in a growing scarcity of available medicinal plants as well as in increasingly costly, time-consuming and hazardous processes of the development of new medicines. Slikkerveer (2003; 2006) claims that an ethnoscientific, cross-cultural research approach, which is primarily based on non-experimental validation techniques, advocates an analysis of plant effects on an individual level by means of analysing human factors, such as energy, activity, sleeping and eating behaviour, as well as symptoms of illness. The ethnoscientific research approach involves ethno-directed sampling techniques by which plants are collected on the basis of recommendations given by local healers, birth attendants or patients (*ibid*.). Moreover, as this approach is less costly and culturally appropriate, it adds a human dimension to otherwise rather species- and biochemical activity-oriented validation processes, which, in turn, favour the overall outcome. Farnsworth (1983) and Cotton (1996) similarly emphasise the beneficial effects for health of indigenous beliefs and practices, which are associated with the application of MAC plants, and as such increase the overall value of plant-based medicines. Farnsworth (1983: 184) points out that: '*it must be emphasized that in vitro and in vivo test results need not necessarily correlate with effects in humans*' (2.8).

Recent patterns of over-exploitation of natural resources and bio-cultural diversity loss, not at least caused by the continuing search for new pharmaceutical medicines, however, tend to deprive the local population of the potential benefits of MAC plants (*cf.* Ayensu 1983; Balick 1994; Farnsworth 1994; Bodeker 1999; Slikkerveer 2003; 2006). As Ayensu (1983: 175) highlights: '*The unfortunate reality is that every acre of natural vegetation that is indiscriminately destroyed before it is explored, may rob mankind of yet another medicinal plant that could be the key to the cure of one of the ailments that still elude our skills*'. In this respect, Balick (1994), Alcorn (1995), Balick & Cox (1996), Cotton (1996) and Bodeker (1999) observe that research conducted on MAC plants in relation to IKS has made valuable contributions to bio-cultural diversity conservation. As Bodeker (1999: 266) indicates: '*Indigenous practices offer new directions in planning for medicinal plant biodiversity conservation*'. Furthermore, an ethnoscientific approach to the study of the use of MAC plants advances the general understanding of indigenous concepts of health and illness, contributes to an improvement of health care structures and people's well being, and strengthens the position of indigenous communities at large (*cf.* Alcorn 1995; Balick & Cox 1996; Cotton 1996; Slikkerveer 2006).

In this way, Balick & Cox (1996) suggest that ethnoscientific research into the application of MAC plants provides a sound basis for the successful integration of traditional and modern medicine. In view of the rather significant contribution which studies on MAC plants provide to

the field of MAC plant validation, bio-cultural diversity conservation, health care improvement and the integration of traditional and modern medicine, numerous scholars stress the need for: protection of MAC plants and related IKS, particularly regarding the application, efficacy and safety of plants; collaboration between local medicinal plant experts, national and international herbal industries, as well as the international pharmaceutical industry based on the principles of sustainability; and a justified distribution of benefits within the realm ofthe protection of the indigenous peoples' intellectual property rights (*cf.* Balick 1994; Alcorn 1995; Balick & Cox 1996; Cotton 1996; Skoula *et al*. 2003; Slikkerveer 2006). In this respect, WHO (2002a) underscores that in view of the growing worldwide demand for plant-based medicine, individual countries are urgently required to introduce regulations regarding patterns of distribution and utilisation of useful plants. As Zhang (1998: 1) states: '*Developing countries* […] *often have a great number of traditionally used herbal medicines and much folk-knowledge about them, but have hardly any legislative criteria to establish these traditionally used herbal medicines as part of the drug legislation*'. On the whole, Slikkerveer (2006) argues that the overall economic value of MAC plants has to be set on the basis of sales, declines in morbidity and mortality and the contributions made to the health profile the the general public.

2.3 Promotion of Community Health

2.3.1 Primary Health Care and Community Health

In view of worldwide movements of political reorientation and democratisation created in the aftermath of the Second World War, programmes of international development largely focussed on the need for improvement of modern health care delivery, particularly among rural communities in developing countries. As Bannerman *et al*. (1978: 9) mention: '*How countries can make health and medical care available to all their citizens and communities has been one of the major preoccupations of politicians, administrators, the community and health workers* […]'. In general, a state of health is identified as a fundamental human right, whereby all people should have equal access to basic health resources (*cf.* Nutbeam 1998). Walt & Rifkin (1990) observe that a number of modern health care facilities have hereafter been established in various newly-industrialised countries during the 1950s. Subsequently, health care has been identified as a fundamental human need among other related factors, such as shelter, food, clothing, safe water and education, within the wider context of community development (*cf.* Walt & Rifkin 1990).

Buschkens & Slikkerveer (1982), Walt & Rifkin (1990), Buschkens (1990) and Slikkerveer (1990) note that subsequent strategies of health care delivery improvement adopted during the 1970s, which were increasingly concerned with the future of health care, came to embrace a new concept known as 'Basic Health Services' (BHS). The new approach to advancing BHS has largely been directed at improving the delivery of curative and preventive health care to rural population groups in an attempt to diminish the spread of epidemics, particularly by means of advocating preventive health care. In general, the strategies to improve BHS involved the establishment of modern health care facilities in rural areas and the development of a referral system operating between rural and urban facilities offering modern health care (*cf.* Buschkens & Slikkerveer 1982; Walt & Rifkin 1990; Buschkens 1990; Slikkerveer 1990). King (1966: 2:5) argues that: '[…] *patients are to be treated as close to their homes as possible in the smallest, cheapest, most simply equipped, and most humbly staffed unit that will look after them adequately. Only when a particular unit cannot care for the patient adequately is he to be referred to a unit higher up in the chain* […]'. Streefland & Chabot (1990a) explain that the strategies designed for the improvement of modern health care delivery at the basic, community level entail the following, interrelated activities: (1) local practices of self-care, traditional healing, midwifery and the sale of modern medicines; (2) commitment of the village health workers, village health committees and villagers supporting the enhancement of community

health; and (3) outreach campaigns launched by modern health workers, such as immunisation. Activities grouped under the first and second category have been identified as community-based health care services (*cf.* Streefland & Chabot 1990a).

Buschkens & Slikkerveer (1982) and Buschkens (1990) observe, however, that the BHS approach largely failed to meet its objectives, since the activities of modern physicians remained largely restricted to urban areas, while their involvement with modern health care delivery in rural communities remained minimal. Since the BHS approach has been rather unsuccessful at meeting the actual health care needs, the majority of the population living in rural areas continued to rely on traditional medicine and on often costly, modern medicines (*cf.* Buschkens & Slikkerveer 1982; Buschkens 1990).

In an attempt to overcome the previous shortcomings and to strengthen universal access to modern health care services for the entire population, the concept of Primary Health Care (PHC) has been introduced at the 'International Conference on Primary Health Care' convened by WHO and UNICEF in Alma Ata (1978) (*cf.* Buschkens 1990; Walt & Rifkin 1990; WHO *et al.* 1993; Slikkerveer 1995; 1998; 1999; 2003; WHO 2008b; 2009) (2.9). As Nutbeam (1998: 352) states: '*Primary health care is essential health care made accessible at a cost a country and community can afford, with methods that are practical, scientifically sound and socially acceptable*'. In particular, the concept of PHC is based on the following 5 principles:

1. equity (equal accessibility, acceptability and affordability of health services, including the provision of essential medicines);
2. prevention (cost-effectiveness; establishment of rural health centres; development of mass awareness and health education; organisation of immunisation campaigns; health education)
3. appropriate technology (provision of more funds for the care and prevention of the most prevalent diseases);
4. intersectoral action (allocation of resources from sectors such as health, nutrition, water management, education or family planning);
5. community participation (involvement of beneficiaries in the decision-making process regarding health care priorities and resource allocation);

(*cf.* Walt & Rifkin 1990; Slikkerveer 1995; Nutbeam 1998; Slikkerveer 2006; WHO 2008b; 2009).

Bannerman *et al.* (1983: 10) observe that the concept of PHC has been introduced on the basis that: '[…] *all citizens have a right to health and to medical care of their choice, and* […] *this right should embrace save maternity, the healthy growth and development of children, maintenance of health in adult life, the protection of individuals and the community from environmental hazards, and the provision of medical care for the sick*'. WHO (2008b) notes that PHC is rooted in social justice, participation, solidarity and the general right to better health for all and herewith places people at the centre of any strategy designed to improve modern health care delivery. As Slikkerveer (1990: 29) observes: '*It is only through the main objective of the Primary Health Care Approach of community involvement that essential health care indeed can be made universally available to the entire population*'. Slikkerveer (1999a) moreover finds that the PHC-approach enables the integration of the great potential of IKS in modern health care delivery, as it adopts rather participatory and sustainable strategies towards the distribution of services. In this way, WHO *et al.* (1993) argue that the principle of PHC advocates, for example, the accommodation of traditional healers and their remedies in national health policies. Overall, various scholars acknowledge that the concept of PHC encourages interaction between community members, traditional health care providers including traditional birth attendants, local medicine vendors and modern health workers, who are trained by locally appointed representatives of the community (*cf.* Bannerman *et al.* 1983; Buschkens 1990; Slikkerveer 1990; 1998; Zhang 1998; WHO 2002a; Slikkerveer 2003).

As Slikkerveer (1982: 1861) observes: '[*The*] *full use of all available human resources is regarded as a prerequisite for health care improvement*'. Belos *et al*. (2005: 2) similarly note that PHC involves: '*providing comprehensive care to ambulatory patients; taking account of the family circumstances of the patients; providing home care; and integrating with the community*'. Accordingly, an advancement of PHC depends not only on the availability of modern medical services but also on the wider context of the social, economic and political order created within the community (*cf*. Slikkerveer 1990; Walt & Rifkin 1990).

As Walt & Rifkin (1990: 17) indicate: '*Participation not only challenged the medical professionals' role, but also attempted to empower people to take political and individual control over their own lives. Its advocacy particularly focused on the poor and oppressed, using health as an entry point for gaining social justice*'. Since its introduction in 1978, the concept of PHC has been adopted by a variety of international organisations, including WHO, particularly in its global strategy directed at the achievement of '*Health for All*', which, as Nutbeam (1998: 352) mentions, refers to: '[*the*] *attainment by all the people of the world of a level of health that will permit them to lead a socially and economically productive life*'. The strategy of '*Health for All*' has been introduced as part of the Alma Ata Declaration for the year 2000, but has since been continuously revised (*cf*. Slikkerveer 2003; 2006; WHO 2009).

Buschkens (1990) observes that financial problems, as the result of a widespread dependency on external financial inputs and low communal resources, as well as a general lack of manpower and trained personnel in rural areas, have complicated the implementation of PHC. Slikkerveer (1982; 1990) shows that during the 1980s, the majority of nations in Sub-Saharan Africa had to cope with a limited accessibility to PHC facilities and an unequal distribution of PHC services. In this way, Buschkens & Slikkerveer (1982) explain that restricted access to PHC facilities and services is caused by a variety of factors pertaining to *geographical, economic* or *socio-cultural* distance. In particular, the economic distance may hinder the patient's ability to pay for services and transportation or to leave work in order to seek treatment, which often leads to the loss of income. Furterhmore, the socio-cultural distance may continue to remain because of different perception of illness; a general unawareness of the availability of modern health care services; negative previous experiences gained from interaction with modern health care services; and a general fear of modern technologies and personnel (*cf*. Buschkens & Slikkerveer 1982).

Foster & Anderson (1978) document that a number of indigenous communities tend to recognise illness primarily on the basis of visible symptoms of ill-health and fail to see the necessity of preventive forms of health care, such as laboratory tests and medical check-ups. Blum & Blum (1965) similarly observe that access to PHC services and facilities in Greece can be limited as the result of physical barriers, such as geographical distance and high expenses, as well as emotional barriers of feelings of shame or fear. Consequently, Foster (1983) concludes that the experience of disease is related to humanitarian, psychological, social and economic complexities alike.

King (1966) and Kleinman (1980) note that channels of health care delivery have to be adapted to the characteristics of the target population and have to be assessed in a holistic manner, whereby physicians are required to adopt a cross-cultural perspective (2.10). In view of the unequal distribution and accessibility of services and facilities and a continuation of the top-down strategies of health care delivery, Buschkens & Slikkerveer (1982), Buschkens (1990) and Slikkerveer (1982; 1990; 2003; 2006) promote the view that subsequent strategies for the improvement of the delivery of modern health care services should embark on a more participatory, bottom-up perspective from the communities concerned. Moreover, the new strateg yof community health should encompass not only the physical, mental and social well-being of the entire population, as advocated by the PHC approach, but also include the cultural health and well-being of the people in the communities. As mentioned above, Sofoluwe & Bennett (1985: 3) define 'community health' most appropriately as: '*that branch of health service which aims at achieving the highest level of physical, mental, social, moral and spiritual health for all citizens on community basis. It seeks to do this by first identifying the root causes*

of all prevalent diseases and health problems, and then dealing with them through a judicious utilization of governmental, private, and especially, communal resources'. In his conceptualisation of community-based health care, Slikkerveer (1995) strongly promotes the inclusion of the IKS-perspective in the improvement of health care delivery, aimed at the integration of traditional, transitional and modern medical systems. His approach is based on the analysis of the patterns of health care utilisation behaviour in the research area, where the indigenous knowledge and practices form the key for alternative strategies for health care improvement at the community level.

As Buschkens (1990: 10) observes: '*It has been more and more recognized that the main issue in health training has been not only to transmit technical skills and knowledge but also to transmit information regarding the patient's belief and behaviour*'. According the Voorhoeve (2003), a strategy towards the integration of traditional and modern medicine involves collaboration between traditional and modern health care providers in terms of knowledge exchange and mutual treatment advice. On the whole, Slikkerveer (1982: 1861) observes that the new, ethnoscientific-oriented approach to the improvement of community health has a positive effect: '*on the micro-level, where socio-demographic variables play an important role in health and illness behaviour, and on the macro-level, where national health policies need to be reformulated in terms of a more functional approach to the concept of "health for all".*' In view of these recent positive developments with the new community health approach, the inclusion of local peoples knowledge and practice in health and healing in its community-based approach, which adopts a 'bottom-up' orientation, can be regarded as a key-concept for health care improvement.

2.3.2 The Health Care Seeking Process

More recent approaches to the promotion of community health have generated renewed interest in patterns of health and illness behaviour shown by the target population, as they have recently atttracted growing interest from researchers in various settings. The basis for such renewed interest has previously been laid by mainly medical anthropological studies on concepts of health and healing across cultures (*cf.* Blum & Blum 1965; Suchman 1965; Foster & Anderson 1978; Slikkerveer 1990). Blum & Blum (1965) and Slikkerveer (1990) define 'health-related behaviour' as adaptive practices followed in the absence of illness, which are designed to prevent illness and to promote health as well as to ensure the survival of the members of a specific community.

Mahler (1978: v) argues that: '[*we*] *view health behaviour* […] *as a rational response (given the world view or cognitive orientation of the members of every group) to the perceived causes of illness*'. In this respect, Foster & Anderson (1987) and Foster (1983) further elaborate that practices of disease prevention and health promotion refer to a series of factors: sanitation; the cleaning of living environments; frequent bathing in order to avoid germs; a healthy and balanced nutrition; the avoidance of extreme cold and extreme heat; the application of protecting charms; and the adherence to communal rituals, particularly directed at the control of harmful spirits. In the same fashion, Brotons *et al*. (2005) argue that practices of disease prevention and health promotion include physical examinations, laboratory tests, as well as risk-specific and lifestyle counselling. Slikkerveer (1990) similarly observes that examples of health behaviour relate to administrative consultations, regular health check-ups and vaccination campaigns.

Cited in Suchman (1965: 114), Mechanic & Volkart define 'illness behaviour' as: '*the way in which symptoms are perceived, evaluated, and acted upon by a person who recognizes some pain, discomfort, or other signs of organic malfunction*'. In his classical study, Suchman (1963; 1965) makes between five stages of illness behaviour and medical care, still relevant today:

1 the symptom experience stage;
2 the assumption of the sick role stage;
3 the medical care contact stage;
4 the dependent-patient role stage;
5 the recovery or rehabilitation stage.

In general, the individual enters the first stage of symptom experience upon an encounter of physical discomfort, pain or a general change of appearance. Subsequently, the individual responds to the experience of physical change by means of making a cognitive interpretation of symptoms, namely by examining their interference with the social environment, which is commonly coupled with an expression of emotions such as fear or anxiety (*cf.* Suchman 1965; Foster & Anderson 1978). In this way, Suchman (1965) argues that forms of illness denial and hypochondriasis, as well as a general delay in seeking treatment emerge during this stage. Van den Akker (2002) observes that although individuals naturally enter the stage of symptom experience, they do not necessarily run through all subsequent stages of illness behaviour. Foster & Anderson (1978) similarly state that the recovery of health is not always a priority, whereby certain illness may be welcomed as a temporary break from daily routines.

Subsequently, the assumption of the sick role stage relates to the reaction and subsequent acceptance of symptoms by the so-called 'lay referral system' or 'illness management group', which usually includes the individual's family, friends, neighbours and colleagues and may occasionally also include fellow community members, village elders or religious representatives (*cf.* Suchman 1965; Foster & Anderson 1978; Kleinman 1978; Helman 1981; Van der Hoeven 1992; Van de Kerk 1993). Kleinman (1978) refers to this stage as the 'popular arena of illness experience' in which decisions are made in accordance with the family context, the social network and communal activities involved. White *et al.* (1976) similarly observe that the experience of ill-health causes a disturbance in both the individual and the social system whereupon one type of illness can result in different aspects of social response. Arnold (1986), who refers to the 'illness management group' as the 'therapy managing group', notes that the particular type of illness generally determines the behaviour of the members of the group. Suchman (1965) and Van de Kerk (1993) note that it is the consent to suspend social obligations and activities due to the illness, mostly given to the individual by the 'lay referral system', which ultimately results in the individual assuming the sick role. As Foster & Anderson (1978: 159) note: '[…] [*An*] *individual is not socially defined as a sick person until his claim is "validated" by his associates*'. During this stage, the 'illness management group' furthermore provides the individual with moral support, information, assistance and treatment, particularly in the form of home remedies and advice on decisions regarding future medical conduct (Suchman 1965; Van de Kerk 1993).

As Suchman (1963: 64) notes: '*The values and customs of a community or a social group strongly influence their perception of the symptoms of disease, their interpretation of these symptoms, and their techniques for treatment*'. In case that the symptoms are familiar, Blum & Blum (1965), Foster & Anderson (1978) and Van de Kerk (1993) furthermore show that during the assumption of the sick role stage, a self-diagnosis is made on the basis of ideas and perceptions, generated by the 'lay referral group', which determines and at times facilitates the subsequent course of treatment. At this point, the individual may, however, abandon the stages of illness behaviour and follow patterns of self-care, also known as 'self-help', 'self-treatment' or 'self-medication' (*cf.* Helman 1981; Dhillon *et al.* 2007; Kristoffersen *et al.* 2008). As WHO (2009: 4) explains: '*Self-care includes all health decisions people make for themselves and their families to become and remain physically and mentally fit such as eating healthy food, exercising regularly, practising good hygiene, and avoiding health hazards*'. Embedded in local systems of knowledge, practice and belief, self-care actions generally include a wide range of practices, such as the utilisation of MAC plants and home remedies as well as of spiritual and religious forms of medicine. Furthermore, self-care incorporates patterns of self-administration of

pharmaceutical medicines, which have been obtained from a lay specialist, such as a family member, friend or fellow community member (*cf.* Dhillon *et al*. 2007; Kristoffersen *et al*. 2008; WHO 2009). As Helman (1981: 549) states: '*Lay use of self-prescribed medicines - whether modern or traditional remedies - follows logically from patients' beliefs about the nature of these preparations and the conditions in which they are useful*'. In this respect, WHO (2009) identifies practices of self-care as a crucial starting point for the promotion of PHC and as a key-strategy for advocating illness treatment and disease prevention as well as health promotion.

In case that the sick individual and the 'illness management group' are unable to treat the illness, a professional health care provider is consulted and *illness* is converted into *disease* during the subsequent medical care contact stage. Hereafter, the health care provider makes a medical diagnosis, confirms the incidence of disease by writing a sick note or prescription and administers an appropriate course of treatment. On rare occasions, the individual may at this point reject the diagnosis and seek advice and treatment from another source of health care (*cf.* Suchman 1965; Kleinman 1978; Helman 1981). Van de Kerk (1993) explains that the 'illness management' group continues to advice the individual on forms of treatment during this stage and may moreover assist the individual in arranging medical consultations. In this way, the forms of diagnosis and subsequent treatment commonly acquire a wider social dimension, particularly among indigenous communities, as illness is interpreted in terms of a social crisis and requires readjustment of the society at large. The diagnosis of certain conditions, such as mental illness or leprosy, which have long been associated with social stigma, can ultimately result in the individual's exclusion from the community (*cf.* Foster & Anderson 1978; Van de Kerk 1993; Molenaar 1999).

During the dependent-patient role stage, the individual establishes a dependency relationship with the health care provider in terms of assuming the role of the patient, transferring control to the provider and following the prescribed treatment (*cf.* Suchman 1965; Foster & Anderson 1978). According to Helman (1981) and Van de Kerk (1993), the illness management group continues to offer advice and support to the individual during this stage and may hereby influence the patient's attitude towards and compliance with the instructions for treatment. As Helman (1981: 550) notes: '*Both the diagnosis and the prescribed treatment must make sense in terms of the patient's lay models of illness or they will not be accepted*'. Finally, the patient enters the recovery or rehabilitation stage in which individuals resume their previous social roles - a transition, which may at times be accompanied by the performance of certain rituals (*cf.* Suchman 1965; Foster & Anderson 1978). Foster & Anderson (1978) claim that it is during this last stage of illness behaviour that the individual may adopt the new social role of a chronic patient and herewith pose a challenge to the health care system as well as to the community at large. According to Van de Kerk (1993), the 'illness management group' either accepts the patient's recovery and resumption of social roles or acknowledges the individual's new role as a chronically ill patient or long-term rehabilitee, coupled with a concurrent change in the social tasks of the individual, during this stage.

Slikkerveer (1990: 40) argues that a distinction between the different stages of illness behaviour allows for: '*rendering illness capable of being described as a dynamic process of successive choices from alternative forms of behaviour*'. Forms of illness behaviour are primarily characterised by differential patterns of sick and patient role performance, namely by diverse forms of medical treatment sought by the members of a specific community (*cf.* Slikkerveer 1990). In this way, Foster & Anderson (1978) and Slikkerveer (1990) observe that the sick and patient role is influenced by a number of personal, namely demographic, cultural and socio-economic factors. Individuals may choose between practices of internal and external care during the assumption of the sick role stage. Concurrently, people may seek treatment from different types of health care providers at once during the medical care contact stage, where they adopt a practice, which Slikkerveer (1990; 2003; 2006) defines as 'healer shopping'. As Blum & Blum (1965: 90) argue: '*In a culture where there are several independent systems available for explaining the causes of illness, one does well, in seeking a cure, to cover one's bets*'. In rural

Greece, for example, '[*the*] *cheap and local remedies are tried first, before an illness has become a serious threat to comfort or performance. Once a condition has progressed, other treatment means will be applied, usually several at once, so that treatments involving several different concepts of illness causation are at work at the same time*' (*ibid*.: 167). Slikkerveer (1990) explains that a detailed analysis of patterns of illness behaviour highlights the steps involved in the search for alternative forms of medical treatment, namely the contacts between the individual and a representative of any medical system available in the community.

2.3.3 The Utilisation of Medical Systems

Studies on patterns of illness behaviour are shedding light on the availability of different medical traditions within a specific community. As Slikkerveer (1990: 164*f*.) observes: '*Broadly speaking, the social, cultural ethnic and historical aspects of health, illness and healing constitute a complex system of various medical traditions within the community.* […] [*The*] *pattern of medicine* […] *will be regarded as a complex network of social and cultural traditions and institutions which for generations have enabled the community to deal with crises of illness and death, variously expressed in beliefs and practices among both medical specialists and the local population*'. In order to distinguish between different medical s maintained by the members of a community, Leslie (1976) introduced the concept of *medical systems*, as they evolve out of people's response to the biological and social consequences accompanying an episode of illness. While the concept of medical systems has been originally developed in order to analyse the pluralistic medical configurations of societies across Asia, it has since been applied by a variety of scholars to different settings (*cf*. Dunn 1976; Kohn & White 1976; Landy 1977; Foster & Anderson 1978; Bannerman *et al*. 1983; Slikkerveer 1990; 1995; 2003; 2006).

Following the concept of medical systems, illness is interpreted as a cultural construction, which determines certain forms of health-enhancing behaviour, beliefs about illness causation, the experience of symptoms, patterns of illness behaviour, decisions about treatment and the evaluation of treatment outcomes (*cf*. Kleinman 1978). Slikkerveer (1990: 18) argues that medical systems embrace: '*all medical knowledge and practices within a given socio-cultural context, including self-treatment, traditional medicine and biomedical health care*'. Furthermore, Landy (1977) and Kleinman (1978) observe that each medical system incorporates both a cultural system composed of local concepts, theories and perceptions, as well as a social system, which refers to the organisation of social roles and institutional structures within the community.

In the same fashion, Foster & Anderson (1978) conclude that medical systems refer to the totality of culture-specific medical knowledge, practice and belief, as well as to aetiological theories, social institutions and therapeutic techniques available in the community. Every medical system can be divided into: a disease theory system, which relates to local ideas about health and illness, including the causes, symptoms, effects and treatment of illness as they are embedded in the socio-cultural context of the community; and a health care system, which refers to flexible types of social interaction and resource mobilisation encouraged within the community in order to restore health (*cf*. Foster & Anderson 1978). Dunn (1976: 135) similarly defines each 'medical system' as: '*the pattern of social institutions and cultural traditions that evolves from deliberate behaviour to enhance health, whether or not the outcome of particular items of behaviour is ill health*'. On the whole, medical systems incorporate: local systems of knowledge, practice and belief, which aim at the restoration and promotion of health; any form of clinical and non-clinical activity, including social norms, which govern the choice and evaluation of illness treatment; and any type of formal and non-formal institutions offering health care personnel and resources (*cf*. Kohn & White 1976; Foster & Anderson 1978; Kleinman 1980).

White *et al*. (1976: 4) find that: '[*the*] *evolution of each system is the unique, complex result of historical and cultural trends and of political, economic and social tensions*'. In this respect, Slikkerveer (2003; 2006) notes that communities are usually characterised by the co-existence of

different, namely local, regional and cosmopolitan, medical systems. Overall, medical systems are based on a pluralistic and flexible structure composed of different types of medical knowledge, practice and belief as well as practitioners and institutions, which resemble the overall pluralistic character of the community concerned (*cf.* Leslie 1976; Landy 1977; Slikkerveer 1990; 2006). As Slikkerveer (1990: 14) observes: '[…] [*Medical*] *pluralism refers to the historically grounded co-existence of more than one medical system which in a more or less interconnected way seeks to maintain the health status within the community*'. In fact, '[*this*] *approach allows for plurism in terms of the diversity of knowledge and perceptions regarding illness, diagnosis and therapy, lay and professional healers, institutions and services* […]' (*ibid.*: 166). The concept of medical pluralism, which embraces the co-existence of different medical systems within a specific community, allows for a more realistic assessment of people's illness behaviour (*cf.* Slikkerveer 1982; 2006). As Slikkerveer (1990: 62) claims: '*Analysis of the illness behaviour which has been studied will confirm the significance of pluralism at the level of utilisation of various medical systems*'.

In this respect, Leslie (1976) argues that the introduction of medicine as an academic discipline coupled with the widespread bureaucratic organisation of physicians and the supervisory role assumed by the state have, however, resulted in a rather hierarchical organisation of medical systems across societies. In other words, modern medical systems, which are rooted in an international knowledge system, have frequently subordinated traditional medical systems based on local systems of knowledge, practice and belief. Furthermore, the hierarchical structure of the plural medical system has frequently entailed unequal access to medical services offered to the members of a community (*cf.* Leslie 1976; Hanepen 1997). Nevertheless, White *et al.* (1976) and Slikkerveer (1990) argue that the components of each medical system are rather interactive and dynamic, as they are under the continuous influence of socio-historical changes, economic developments and scientific progress.

In view of the different components and the hierarchical position generally ascribed to each medical system, Leslie (1976) argues that forms of subordination and access to health care services provide a sound basis for comparing medical systems across communities. White *et al.* (1976) observe that medical systems naturally differ across communities, primarily on the basis of diverse social philosophies and institutional conditions. In spite of this general diversity, Foster & Anderson (1978) identify the following universal characteristics among medical systems across communities: (1) the embeddedness of the medical system in the socio-cultural context, namely the history, cosmovision, jurisdiction and local economy of the community; (2) a general distinction between illness and disease; (3) the concurrent availability of preventive and curative forms of medicine; and (4) the functioning of the medical system as a rational system, which supports social norms, controls aggression and reinforces practices of health promotion. In this context, Foster & Anderson (1978: 43) notice that: '[…] *the threat of illness as a consequence of socially unacceptable behaviour plays a major role in many societies in maintaining the moral order*'.

On the whole, the medical systems approach allows for a detailed analysis of patterns of illness behaviour as well as health care delivery by means of studying people's health care utilisation behaviour, *i.e.* the contacts between individuals and the plural medical system operating within a specific community (*cf.* Kohn & White 1976; Slikkerveer 1982; 1990). Slikkerveer (1990) elaborates that comparison between different medical systems enhances the understanding of the influence of certain socio-cultural factors on patterns of people's health care utilisation behaviour. Foster & Anderson (1978), for example, observe that processes of under-utilisation of a particular medical system are frequently caused by a discrepancy in local perceptions of illness and official health care services. Slikkerveer (1982: 1860) stresses: '*the importance of understanding the influence of the structure of services as well as the attitude of the medical staff on the patterns of utilisation by the population*'.

Overall, it is likely that any reorientation towards alternative forms of medicine during the stages of people's health care utilisation behaviour is mainly based on a feeling of dissatisfaction with the health care services rather than with local perceptions of illness (*cf.* Foster & Anderson 1978).

As will be further elaborated in the next chapter, the study and analysis of peoples' patterns of health care utilisation demand not only an IKS-oriented approach but also a specific analytical model in which all relevant factors, including local peoples' indigenous knowledge of MAC plants, are being studied in their mutual relationship *vis-a-vis* the factors of the utilisation of the plural medical system.

2.4 Components of Plural Medical Systems

2.4.1 The Traditional Medical System

Following the distinction between traditional and modern medicine, as well as the concept of medical pluralism, the availability of a substantial amount of ethnomedical data, which have been collected across communities, has in many places resulted in the identification of a so-called traditional medical system (*cf.* Redfield 1956; Foster & Anderson 1978; Foster 1983; Bodeker 1999; Agung 2005; Leurs 2010; Ambaretnani 2012). Redfield (1956) explains that traditional medical systems generally evolve out of continuous processes of interaction between 'great' and 'little traditions'. Consequently, Foster & Anderson (1978: 46) argue that: '[*the traditional medical system*] *often plays an important role in the development of nationalistic pride, since it may symbolize the antiquity of the country concerned, and the high levels to which culture had evolved in ancient times*'. Redfield (1956) and Foster (1983) theorise that the spread of 'great traditions', such as humoural medicine, for example, can emerge in the similarities among traditional medical systems across different population groups. Consequently, traditional medical systems operating across communities can show a certain resemblance in terms of concepts of health and illness, as well as explanations for the cause, diagnosis and treatment of illness (*cf.* Foster & Anderson 1978; Foster 1983; Balick & Cox 1996). Balick & Cox (1996) explain that albeit individual differences, traditional medical systems generally show the following similarities: (1) the explanation of the cause, diagnosis and treatment of illness within the context of a particular cosmovision; (2) the provision of health care within the context of a particular culture; and (3) a repertoire of pharmaceutical substances.

Overall, Foster & Anderson (1987), Bodeker (1999), Agung (2005) and Leurs (2010) observe that traditional medical systems commonly employ a holistic concept of health, which refers to the balanced relationship between individuals and their natural, social and spiritual e nvironment whereupon illness is regarded as the result of an imbalance in the relationships. Hereafter, positive health is not only related to the organs and tissues of the human body, but also involves a state of physical, mental, emotional, social, moral and spiritual well-being (*cf.* Foster & Anderson 1978; Foster 1983; Hoffmann 1983; Sofoluwe & Bennett 1985). Similarly, Bannerman *et al*. (1978: 9) explain that: '*traditional practitioners define life as "the union of body, senses, mind and souls" and describe positive health as "the blending of physical, mental, social, moral and spiritual welfare*'. Furthermore, Foster (1983), Hoffmann (1983) and Bodeker (1999) claim that the following phenomena have been identified as typical causes of illness across traditional medical systems: angry deities; ancestors and other ghosts; sorcerers and witches; unease of the soul infiltrating the human body; loss of the soul in terms of detachment from the body; spirit possession or the intrusion of an object into the body; loss of the basic body equilibrium; and the 'evil eye'. Hereafter, Foster (1983) and Hoffmann (1983) show that any method of illness treatment usually applied within the traditional medical system focuses on the individual as part of a greater whole and appeals to a change in the patient's consciousness and attitude towards life.

Medical treatment is generally directed at supporting the human body in its attempt to heal itself, whereby recovery is achieved upon the release of inner powers rather than through an outside agent (*cf.* Foster 1983; Hoffmann 1983).

The traditional medical system has moreover been identified on the grounds of particular material and non-material forms of treatment, which refer to the combined application of plant, animal and mineral remedies, as well as spiritual and religious forms of medicine (*cf.* Foster & Anderson 1987; Ayensu 1983; Bodeker 1999). In this respect, Bodeker (1999: 264) observes that: '[*the*] *cosmologies of traditional* [*medical*] *systems, then, ascribe life, spiritual value and interconnectedness among all life-forms to the aspects of the natural world used in the process of promoting human health and well-being*'. Furthermore, Brelet *et al*. (1983) argue that traditional medical systems commonly incorporate forms of self-treatment or forms of treatment, which are administered by non-professional members of the community. Furthermore, traditional medical systems embody the treatment activities of a variety of traditional health care providers, such as traditional healers, herbalists, bone-setters and divine healers (*cf.* Foster & Anderson 1987; WHO 2002a). Foster & Anderson (1978), Foster (1983) and WHO (2002a) differentiate between: (1) herbalists and other practitioners, who acquire their medical expertise through interaction with the natural environment, accept the patient's self-diagnosis and provide the appropriate remedy; and (2) divine healers, who acquire their medical expertise on the basis of interaction with the supernatural environment and summon supernatural powers in order to establish a diagnosis and provide the appropriate treatment. In the same fashion, Cotton (1996) distinguishes between traditional herbalists, who treat mostly common illnesses of natural origin on the basis of their knowledge of traditional remedies and the availability of MAC plants and shamans, who treat mainly inexplicable, internal ailments of religious or spiritual origin on the basis of their religious and spiritual beliefs, as well as their knowledge of psychoactive substances. In view of the general characteristics of traditional health care providers, Leslie (1976) highlights that practitioners of the traditional medical system are generally receptive to innovations and continuously adopt useful elements of different medical doctrines, thereby extending their repertoire of medical knowledge, practice and belief. As Cotton (1996: 235) highlights: '*One important aspect of many traditional medical systems is that they are characterised by the coexistence of several diverse and often competing healing traditions within a single community*'.

Considering their common features in terms of concepts of health and illness, as well as their explanations for the cause, diagnosis and treatment of illness, traditional medical systems form a valuable source of health care to primarily rural population groups worldwide. At least 80% of the African population, for example, rely on traditional medical systems as a means to address their health care needs (*cf.* Koumaré 1983; WHO *et al*. 1993; Cotton 1996; Zhang 1998; Bodeker 1999; WHO 2002a). Bannerman *et al*. (1983), Slikkerveer (1990) and WHO (2002a) observe that mostly in developing countries, the traditional medical system is held in high esteem and accepted for its diversity, flexibility, accessibility, affordability, low level of technological input and growing economic importance, as well as for the trustworthiness and sincerity of its medicine providers. Nevertheless, traditional medical systems are by no means a phenomenon exclusive to rural areas or developing countries. Brelet *et al*. (1983) and Ellen & Harris (1999) claim that traditional medical systems are also available in the more industrialised societies of Europe in the form of surviving traces of folk or popular medicine, which have provided the primary source of health care to societies prior to industrialisation. Although traditional medical systems since that period of timel have largely been dominated by modern medicine, not at least following experimental research into the natural world which has been conducted during the 18th and 19th century, local systems of knowledge, practice and belief of the traditional medical systems have persisted among numerous communities in Europe and North America, in particuler in the rural areas. Moreover, a growing dissatisfaction with official, namely modern, health care doctrines has recently resulted in a renewed interest in practices of self-care and care provided by traditional medicine providers, as they form part of a greater traditional medical

system (*cf.* Blum & Blum 1965; Brelet *et al*. 1983; Slikkerveer 2006). As Ellen & Harris (1999: 180) note: '*But Western folk-knowledge - non-professional, experimental, uncodified, ad hoc, often orally transmitted - is arguably just as important as it has been*'. Supported by archaeological discoveries, Brelet *et al*. (1983) explain that the utilisation of MAC plants, which have mainly been applied during practices of self-treatment as well as during treatment administered by local herbalists, has over the centuries also constituted an integral element of traditional medical systems operating in a number of European communities. Although the primary use of MAC plants in contemporary Europe refers to their sale in pharmacies, supermarkets and special health stores, indigenous knowledge of plants used for medical purposes in many places, including the rural areas of Greece, has been preserved - or even revitalised - among population groups and herbalists following their profession to this day (*cf.* Brelet *et al*. 1983). As Brelet *et al*. (1983: 244) note: '*Herbalism persisted in all parts of Europe with more or less intensity and even today there is hardly any household without some knowledge of at least a few plants used for teas, compresses, inhalations, etc.*'.

In the same fashion, Brelet *et al*. (1983) argue that population groups continue to adopt traditional healing practices, such as balneotherapy, which has been practised in the healing temples of Ancient Greece, as well as cupping or bleeding, which became part of the official, modern medical doctrines of various countries in Eastern Europe. Finally, traditional medical systems operating in Europe have acquired an essential religious and spiritual dimension through the introduction of Christianity, as despite the absorption of pagan magical and spiritual elements, it embraces a religion and mysticism, which generates a substantial amount of medical knowledge, practice and belief (*cf.* Brelet *et al*. 1983). In general, traditional medical systems available among population groups in Europe incorporate particular systems of indigenous knowledge, practice and belief, which typically involve the utilisation of MAC plants, other traditional remedies and therapies as well as religious and spiritual forms of medicine. In Chapter VI, the actual situation of the traditional medical system in the research area of Pirgos and Praitoria will be further described.

2.4.2 The Transitional Medical System

In general, academic research into patterns of health care utilisation behaviour and medical pluralism has primarily been characterised by the classic distinction between traditional and modern medical systems. Nevertheless, this separation has at times been interpreted as an oversimplification of matters, which overlooks the existence of elements, which are not incorporated in either system (*cf.* Buschkens & Slikkerveer 1982; Slikkerveer 1990; Dijkstra 2005). Buschkens & Slikkerveer (1982) and Slikkerveer (1990) argue that the activities of vendors of pharmaceutical medicines, for example, belong to a rather unofficial system of medical treatment, which operates independently between and among traditional and modern medical systems. In attempt to capture the characteristics of this intermediate system, Slikkerveer (1982, 1990) introduces the concept of the *transitional medical system,* which describes a medical system in transition from a traditional to a modern medical system. As Slikkerveer (1982: 1863) elaborates: '*The transitional medical system may be defined as involving the large-scale commercial production and sale of indigenous and* [*modern*] *pharmaceutical medicines*'. In particular, Buschkens & Slikkerveer (1982) explain that the transitional medical system originally referred to the activities of medicine vendors in developing countries, who practice, often illegally, between urban centres in which contact with the modern medical system has become standard practice, and rural communities, which continue to rely primarily on the traditional medical system. Following the sale of MAC plants as well as pharmaceutical and CAM medicines in more industrialised societies today, the useful concept of the transitional medical system can be adapted as to circumscribe the commercially-oriented sale of any type of medicine in local institutions, such as pharmacies or supermarkets, through the intermediary of transitional health care providers, including pharmacists, pharmacy

assistants or sales people. Moreover, the transitional medical system incorporates the sale and subsequent application of any medicine, which has been produced commercially for the purpose of sale, thereby including non-processed plant-based as well as pharmaceutically processed medicines (*cf.* Slikkerveer 1982; 1990). As Slikkerveer (1990: 211) observes: '*Important considerations here are the economic and financial interests of the major pharmaceutical industries and the position of intermediaries, together with the* [*virtual*] *absence of any government control*'.

The transitional medical system often combines the sale of Over-the-Counter (OTC) medicines, *i.e.* medicines without prescription, and the sale of medicines on prescription issued by a modern health care provider. With regard to prescribed medicines, the commercial dimension, as it characterises the transitional medical system, usually encompasses the payment of health insurance or physician services. According to Kohn & White (1976), the payment of insurance or physician services to a certain extent equalises the purchase of OTC medicines, so that prescribed and non-prescribed medicines can function as exchangeable components of the transitional medical system, and by consequence should be studied in relation to each other. Such comparative approach to the study of prescribed and non-prescribed medicines has been applied by Slikkerveer & Lionis (2011). Since the application of medicines moreover embraces practices of self-care as well as the intermediary of a modern health care provider, the transitional medical system opposes to the characteristics of both the traditional and the modern medical system (*cf.* Mačukanović *et al*. 1976; Kennedy 1996).

Mačukanović *et al*. (1976) observe that the consumption of medicines in the form of application, injection, insertion or digestion has come to form one of the most common forms of medical treatment. Figueiras *et al*. (2001: 223) confirm that: '[*drug*] *therapy is one of the most widely used methods of treatment in primary care*'. In this respect, practices of utilisation of pharmaceutical medicines are closely related to patterns of prescribing (*cf.* Kohn & White 1976). In view of the widespread practice of issuing medicines on prescription, Canary (1983: 95) explains that: '[*the*] *selection of drugs in the allopathic system of health care delivery depends on the experience of the doctor and the availability of the drug*'. The common habit of applying prescribed medicines has, however, caused a number of complications, which emerge from practices of misuse, such as the patients' intake of medicines, which are, for instance, left over, stored at home, issued for a different complaint or prescribed in the name of somebody else (*cf.* Hanepen 1997). In this respect, Figueiras *et al*. (2001) observe that prescribing patterns have recently come under the influence of cost restrictions, constraints on the efficiency of care, patient expectations, advertisement by the pharmaceutical industry and a lack of adequate physician education. Although Stevenson *et al*. (1999) and Filipetto *et al*. (2008) find that physicians commonly misperceive and overestimate the expectations of patients towards receiving antibiotic treatment, Bradley & Bond (1995), Britten & Ukoumunne (1997) and Lionis & Philalithis (2008) argue that practices of prescribing are largely dependent on the high expectations of patients seeking a prescription for certain medicines, which results in patient-induced prescribing patterns. In order to improve the quality of the administration and application of prescribed medicines, Figueiras *et al*. (2001) suggest face-to-face conversations between the modern health care provider and the patient, as well as the use of printed information material. Nevertheless, the prescription and subsequent application of medicines have recently been significantly influenced by a substantial increase in the patients' knowledge and general use of pharmaceutical medicines, which has moreover been favoured by processes of deregulation rendering prescribed medicine available over the counter.

Kennedy (1996) elaborates that OTC medicines incorporate both non-prescribed medicines, of which the OTC status had been established, as well as medicines, which, formerly prescribed, have recently been deregulated as non-prescribed pharmaceuticals. On the whole, deregulation processes have been supported by: patients gaining a more convenient and economic access to medicines, while enjoying active involvement with health care matters; governments experiencing a relief from financial pressures following a shift of costs onto the consumers;

pharmaceutical companies finding new customers as well as possibilities to promote new prescribed medicines; and pharmacists assuming increased responsibility in recommending and supervising OTC medicine use (*cf.* Bradley & Bond 1995; Blenkinsopp & Bradley 1996; Kennedy 1996; Sleath *et al*. 2001; Harrington & Shepherd 2002; Berry *et al*. 2004; Bond *et al*. 2004; Wazaify *et al*. 2005). In this respect, Kotecki (2002) reports that the formulation and composition of the medicine, self-use of the product, scientific evidence and consumer feedback are the most crucial factors, which influence the pharmacist's recommendation of OTC medicine. The greater availability of OTC medicines has been accompanied by an advance in practices of 'self-medication' hereafter defined by Hughes (2003: 1): '*as the management of a minor ailment using a pharmaceutical product that is available without a prescription*'. As Sleath *et al*. (2001: 358) notice: '*Use of over-the-counter* [*medicines*] *is one of the self-care activities most often undertaken by patients*'. Mačukanović *et al*. (1976), Bradley & Bond (1995), Harrington & Shepherd (2002), Ferris *et al*. (2002), Hughes (2003), Berry *et al*. (2004), Bond *et al*. (2004), Wazaify *et al*. (2005) and Lynch & Berry (2007) highlight that the greater availability of OTC medicine has, however, fostered an improper use of medicines not at least advocated by the clients' wrongful assumption that OTC medicines are readily available and hereby safe or that there is 'a pill for every ill'.

The misuse of OTC medicines can relate to non-compliance with instructions, to inappropriate dosing or usage over an extended period of time as well as to the simultaneous intake of more than one medicine (*cf.* Mačukanović *et al*. 1976; Tzimis & Kafatos 1999; Hughes 2003; Berry *et al*. 2004; Bond *et al*. 2004; Filipetto *et al*. 2008). MacFayden *et al*. (2001) and Hughes (2003) furthermore observe that greater access to non-prescribed medicine can result in patterns of abuse, namely the use of medicine for non-medical purposes, such as mind-altering effects or weight loss. By consequence, Mačukanović *et al*. (1976), Slikkerveer (1990), Bradley & Bond (1995), Molenaar (1999), Sleath *et al*. (2001), Hughes (2003), Berry *et al*. (2004), Bond *et al*. (2004), Mossialos *et al*. (2004b), Slikkerveer (2006), Watson *et al*. (2006), Wilson *et al*. (2007) and Filipetto *et al*. (2008) argue that improper medicine use may: mask disease symptoms, promote misdiagnosis or cause a delay in treating a serious medical condition; increase the risk of adverse drug reactions and diseases induced by medicine; result in bacterial resistance and parasitic immunity; provoke feelings of 'chemophobia' due to negative side effects among clients; and impose a financial burden on community members lacking the ability to pay for medicines as well as on the society at large. As Tzimis & Kafatos (1999: 113) claim: '*Evidence indicates that the cost of* [*medicines*] *for patients is very high, and the over-use of* [*medicines*] *is both scientifically unjustified and economically wasteful*'. Bradley & Bond (1995) and Sleath *et al*. (2001) moreover express concern about the decline in patterns of communication between patients and physicians, as well as in patient control in view of the common practice of self-medicine. In particular, Eisenberg *et al*. (1993) indicate that a considerable number of patients in the United States tend to use certain unconventional, commercially purchased medicines in absence of any physician recommendation and without informing their physician about such practices although these forms of medicine are largely used complementary instead of alternative to conventional medicine. While Hughes (2003) warns that the number of OTC medicines purchased or pharmacies visited is generally not subject to any form of restriction, Kennedy (1996) challenges the fact that regulations regarding the use of non-prescribed medicines differ enormously between countries.

In response to such developments, Bradley & Bond (1995), Blenkinsopp & Bradley (1996), Bond & Bradley (1996), Kennedy (1996), Bouldin *et al*. (1999), Stevenson *et al*. (1999), Tzimis & Kafatos (1999), Hughes (2003), Berry *et al*. (2004) and Shi *et al*. (2009) stress the importance of appropriate drug information and adequate patient education, particularly in order to avoid forms of under- and overestimation of side effects among clients. According to Shi *et al*. (2009: 244), OTC medicine should: '*(1) have low potential for misuse, (2) treat an easily self-diagnosed condition, and (3) contain a package label with easily understood indications, contraindications, and use instructions*'. In this respect, patients are encouraged to report practices of self-treatment

with non-prescribed medicine, while physicians are urged to expand their knowledge of OTC medicine, to report any application of non-prescribed pharmaceuticals among their patients, to inform patients about the proper use of medicines and to inquire and record any form of adverse drug reaction (*cf.* Bradley & Bond 1995; Blenkinsopp & Bradley 1996; Bond & Bradley 1996; Kennedy 1996; Stevenson *et al*. 1999; Hughes 2003; Berry *et al*. 2004; Watson *et al*. 2006; Lynch & Berry 2007; Lionis & Philalithis 2008; Simoens *et al*. 2009). As Bond *et al*. (2004: 275) stress: '[…] [*Patients*] *and professionals should be educated about appropriate use of self-medicine to reduce unnecessary health care consultations, and to ensure symptoms requiring professional input are managed accordingly*'. In this way, the position of pharmacists and pharmacy assistants acting as expert advisors and informants to clients, physicians and pharmaceutical representatives has received special attention (*cf.* Bradley & Bond 1995; Blenkinsopp & Bradley 1996; Bond & Bradley 1996; Kennedy 1996; Bouldin *et al*. 1999; Hughes 2003; Berry *et al*. 2004; Mossialos *et al*. 2004b; Zehnder *et al*. 2004). Bouldin *et al*. (1999: 288) note that: '*pharmacists have an opportunity to* […] *provide information to the health care team, enabling integration of this aspect of patient self-care into the patient's overall care plan*'. Doloresco & Vermeulen (2009) explain that pharmacists are actively involved in the procurement, prescription, preparation, distribution and administration as well as outcome monitoring of medicines. Hughes (2003) and Zehnder *et al*. (2004) argue that pharmacists need to be provided with proper education and appropriate technology. In this respect, Zehnder *et al*. (2004: 201) comment that: '*future drug information for pharmacists needs to be short, easily accessible, up to date and trustworthy in order to address the needs of the patients*'. Wazaify *et al*. (2005: 175) similarly report that: '[*it*] *is recommended that by monitoring usage of certain OTC products, in addition to data recording and education, safe and effective use of such medicines can be promoted*'. As Bond *et al*. (2004: 267) suggest: '*Thus the role of the pharmacist is to ensure compliance with the OTC licence at the point of sale, either through direct involvement at the point of sale or through supervising non-pharmacy staff involved in the transaction*'. Similarly, Bradley & Bond (1995), Blenkinsopp & Bradley (1996), Kennedy (1996), Harrington & Shepherd (2002), Bond *et al*. (2004) and Shi *et al*. (2009) highlight the need for clinical guidelines, for safety and policy regulations and for computerised prescribing systems, which integrate the use of prescribed and non-prescribed medicines.

With regard to the position and use of the transitional medical system in Crete, two interesting studies have recently been carried out: The MA-thesis on '*Over the Counter Drugs in Rural Crete*' by Hanepen (1997) and the '*Report Assessing the Over-the-Counter Medications in Primary Care and Translating the Theory of Planned Behaviour into Internventions*' by Slikkerveer & Lionis (2011). These studies underscore *i.a.* that in order to improve the quality of administration and utilisation of medicines in the transitional medical system there is a need for collaboration between patients, clients, pharmacists and physicians, as well as for the integration of the local peoples' expectations at the community level. In view of the processes and complications involved, as well as the substantial number of studies conducted on patterns of administration and application of medicines across communities, the transitional medical system has come to form an additional and largely indispensable component of the plural medical system operating in societies worldwide. In Chapter VI, the actual situation of the transitional medical system in the research area of Pirgos and Praitoria will be further described.

2.4.3 The Modern Medical System

In addition to the traditional and transitional medical systems, the spread of modern medicine has created a situation in which for the first time in human history, medical systems have been established, which are rooted in a rather universal conceptualisation of health and healing (*cf.* Hahn 1995). The modern medical system is also known as 'scientific', 'Western' or 'cosmopolitan' medical system, which as a transplant from the West in most countries is global in orientation based on scientific principals, scholarly education and training, as well as the

development and application of modern pharmaceutical medicines, which are largely deveoped in experimental research in laboratorioes and research insritutes. It should be noted, that the formative period of time of cosmopolitan medicine dates back to the Renaissance of the 17th century, when in Europe, and in particular in Leiden, The Netherlands, a reassessment took place of the Classsical Greek Ethnomedical system of scholars such as Hippocrates and Galen. The empirical principles, combined with the conceptualisation of the strong relationship between body and mind were re-discovered to become the basis for the later development of the cosmopolitan or modern medical system. The growth and expansion of modern medicine accellerated during the 19th century, when experimental studies ih laborarories and research centers led to the development of anti-bacterial medicines, which provided an effective remedy against some major public health problems, including tubercolosis and related infectious diseasaes, around the globe. As Slikkerveer (1982: 1863) explains: '[…] [*The*] *modern medical system includes those elements of scientific medicine which originated in Europe at the end of the Middle Ages and eventually constituted the worldwide cosmopolitan medical system*'. Hahn (1995) further explains that the modern medical systems, which have been established across communities as the result of the expansion of modern medicine, commonly share the same characteristics. Indeed, modern medical systems typically employ concepts of objective evidence, logical interference and rationality and place a strong significance on the achievement of certainties as well as on the control of uncertainties. In this way, health is primarily viewed as a physiological functioning where healing practices describe a physical process in which disease, namely any physiological malfunctioning, is diagnosed and treated by means of applying the best available technical medical methods (*cf.* Hahn 1995).

In contrast to traditional medical systems, modern medical systems are predominantly characterised by forms of medical treatment, which involve consultation with a modern health care provider. The modern medical system is based on an objective system of knowledge, which is shared among modern practitioners in a hierarchical fashion, as the knowledge of physicians is generally given greater validity than the knowledge of other medical personnel, such as nurses or auxillary medical staff, as well as the subjective knowledge shared by patients (*cf.* Hahn 1995).

In this way, Hahn (1995) elaborates that modern healing practices commonly involve the following elements: a) a notion of pathogens referring to natural phenomena, which are the cause of disease; b) a pathology, which addresses the nature of the disease; c) a focus on curative care directed towards the control or elimination of pathological conditions; d) a nosology based on the International Classification of Diseases designed by WHO; and e) practices, which are divided in many specialities.

Since the WHO International Conference on Primary Health Care (PHC) in Alma Ata in 1978, the modern medical system has incorporated the concept of PHC as: '*essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community*'. Although many UN Member States adopted the PHC approach, the Alma Ata Declaration was critisised as being too idealistic and too unrealistics in its time table. Later on, specific PHC-approaches have developed in different contexts to deal with disparities in resources and prioritisation in health problems. These approaches have become known as the Selective Primary Health Care (SPHC) approaches (*cf.* Braveman & Tarimo 1994). Nevertheless, the selective PHC approach to concentrate on the solution of severe population health problems in developing countries, where a few diseases are causing high rates of infant and child mortality, did not address the social causes of disease.

Canary (1983) explains that forms of consultation, which are held in the modern medical system generally include a description of the medical history and morbidity data of the patient, a physical examination and statistical measurements to support the subsequent diagnosis and treatment. Methods of treatment employed in the modern medical system can, however, take the form of recommendations offered by the modern health care provider on the environmental and social activities of the patient (*cf.* Canary 1983). As noticed by Hahn (1995: 267): '*In* [*the*

modern medical system], *sickness and pathology are conceived of as cellular, biochemical, physical disturbances of normal functions; it is assumed that the presence or absence of sickness can be empirically defined and determined by laboratory or other biological or physical tests. At best, the accounts given by patients can be used as clues to underlying physiological process*'. Bannerman *et al*. (1983), Slikkerveer (1990) and WHO (2002a), however, observe that in spite of the worldwide presence of modern medical systems, practices followed by modern health care providers remain largely restricted to industrialised societies and urban centres of developing countries. In Chapter VI, the actual situation of the modern medical system in the research area of Pirgos and Praitoria will be further described based on the introduction of the PHC approach into Greece in the course of the 1980s.

Notes

(2.1) *cf.* Appendix I for the full text of the Hippocratic Oath.

(2.2) In addition to the god of health Apollo, his son Asclepius, who studied the art of healing from the wise Centaur Chiron, came to form the source of all divine medical knowledge in Ancient Greece. On the whole, Asclepsius idealised healing practices to such an extent that healing temples, so called Asclepions, have been erected in Ancient Greece in honour of his name. Similarly worshipped for their healing lore, Asclepius' daughters have been venerated in the following fashion: (1) Hygeia, goddess of health, sanitation and hygiene, which highlights an early accentuation of health maintenance and disease prevention; (2) Panacea, goddess of universal remedy in the form of medicines, salves and other remedies; (3) Iaso, goddess of cures, remedies and modes of healing; and (4) Aceso, goddess of healing and the process of curing (*cf.* Tan 2002; Theoi Greek Mythology 2011; United States National Library of Medicine 2012).

(2.3) The term 'holistic' originates from the Greek word for 'whole', 'olos'. Holistic healing practices are generally directed at the re-establishment of health in terms of a greater 'wholeness' (*cf.* Hoffmann 1983). As Hoffmann (1983: 14) argues: '*One must focus on the relationship between the individual and society, between organs and organisms*'.

(2.4) The new ethnoscientific approach to the study of IKS has been widely promoted on the basis of the extensive and ground-breaking works by Brokensha, Warren & Werner (1980) on '*Indigenous Knowledge Systems and Development*' and by Warren, Slikkerveer & Brokensha (1995) on '*Indigenous Knowledge System: The Cultural Dimension of Development*'. In their work, they adopt a more dynamic approach to the study of IKS relating local perceptions, practices and experience to sustainable community development.

(2.5) *cf.* Appendix II for the full text of the *Declaration of Belém*.

(2.6) Skoula *et al*. (2003) explain that the Mediterranean Basin, which contains approximately 25.000 species of which a considerable number are endemic to the region, has been defined as one of the world's major centres of plant diversity and one of the centres of diversity for crop plants. In this respect, the Mediterranean Action Plan has been developed in 1975 by the European Community and the countries bordering the Mediterranean Sea in an attempt to counteract habitat deterioration and diversity loss, which are largely the result of harmful agricultural techniques, as well as processes of industrialisation and mass tourism and to promote sustainable, conservation-oriented practices in the region (*cf.* Heywood 1999). Recognising the cultural significance, as well as the pharmaceutical, nutritional and industrial potential of plants, the Mediterranean Islands Plant Specialist Group (MIPSG) has been founded in the aftermath of an international conference held on the Knowledge and Conservation of the Mediterranean Island Flora in 1993. In conjunction with the MIPSG, the International Union for Conservation of Nature (IUCN) similarly adopted a strategy towards the Conservation of Mediterranean Island Plants (*cf.* Delanoë & Montmollin 1999).

(2.7) The 'culture and personality' movement refers to the increased interest among anthropologists and psychiatrists in adult personalities as well as human instinct and character across cultures, which, although it remained primarily theoretical, addressed certain factors related to the improvement of health care services (*cf.* Foster & Anderson 1978).

(2.8) Farnsworth (1983) acknowledges that, in an attempt to collect all information on medicinal plants available, the Natural Products Alert (NAPRALERT) database providing computerised records on the chemistry and pharmaceutical components of plants includes ethnomedical information on the respective medicinal plant, thereby promoting its traditional application (*cf.* Farnsworth 1983).

(2.9) *cf.* Appendix III for the full text of the Declaration of Alma-Ata.

(2.10) The work by Bannerman *et al*. on '*Traditional Medicine and Health Care Coverage*' published in 1983 marks a milestone in linking traditional medicine to the wider context of health care delivery (*cf.* WHO 1978; Quah & Slikkerveer 2003).

Chapter III RESEARCH METHODOLOGY

Although the ethnomedical approach forms an effective strategy towards the study of transcultural patterns of health care utilisation behaviour as well as towards the promotion of community health, particularly on the basis of a plural medical system operating in the research community, it has remained rather challenging to translate the theoretical implications involved into an appropriate research methodology. Indeed, patterns of health care utilisation behaviour are influenced by a number of individual, namely cultural, social and situational, characteristics of the local population as well as by the institutional features of the health care delivery apparatus at work within the community. The research methodology applied to the present study has been designed and selected in a way to relate the individual characteristics of the local population and the institutional features of the health care delivery system to patterns of health care utilisation (*cf.* Slikkerveer 1990; 2006).

Overall, this research follows the 'Leiden Ethnosystems Approach' to the study of people's behaviour, which allows for a rather detailed analysis of the point of view of the participants, the cultural characteristics of the research area and the historical processes involved in current behavioural patterns. The 'Leiden Ethnosystems Approach' relates to the multidimensionality of different models of health care utilisation, which have been developed and designed in an attempt to explain patterns of utilisation behaviour on the basis of individual, institutional or organisational factors. In this way, the present study adopts the so-called multivariate model of transcultural health care utilisation, which has been adapted from previous research conducted on patterns of behaviour in different sectors of the society and across a variety of geographical areas. According to Slikkerveer (1990: 7), the multivariate model of transcultural health care utilisation serves the purposes of both ; '*accommodating a number of predisposing and enabling factors together with perceived morbidity and, secondly, taking into account the role of the plural character of available forms of health care utilisation behaviour*'.

In order to gather data on the basis of the 'Leiden Ethnosystems Approach' and the multivariate model of transcultural health care utilisation, the present study employs a, demonstrably profitable, combination of qualitative and quantitative research methods. As Bernard (2002: 364) notes: '*Ethnography and survey data combined produce more insight than either one alone*'. Following the selection and construction of the research instruments, a pilot study has been carried out in October 2009, which served the identification of the research area or field, the selection of the sample population, the collection of in-depth information and the pre-testing of the quantitative questionnaire. The initial stages of fieldwork moreover included: the application for permission to conduct research at the authorities involved; acquaintance with the local language; the establishment of rapport with key-informants in the field; and the building of personal relationships with the respondents. Subsequently, large-scale qualitative research, which involved the methods of participant observation, spontaneous unstructured and semi-structured interviewing, as well as extensive note taking, has been conducted for a period of approximately ten weeks between October and December 2010.

The quantitative household surveys, which combined methods of formal interviewing on the basis of a questionnaire with the qualitative techniques, has been carried out over a period of three months between April and June 2011. Furthermore, a concluding period of six weeks spent in the field between May and June 2012 served the completion of both qualitative and quantitative research material (*cf.* Blum & Blum 1965; Balick & Cox 1996; Hahn & Inhorn 2009). Finally, the qualitative and quantitative collected data have been subject to specific processes of data analysis, whereby all quantitative information has been evaluated through the means of statistical data analysis, which ultimately generated a realistic assessment of people's health care utilisation behaviour.

3.1 Choice of Research Strategies

3.1.1 The 'Leiden Ethnosystems Approach'

The 'Ethnosystems Approach' presented in the previous chapter introduced a new strategy towards the study of Indigenous Knowledge Systems (IKS) by linking the cognitive aspect of investigating local systems of knowledge, practice and belief to the behavioural components involved in dynamic processes of culture and knowledge exchange, as well as in the development of indigenous technologies. In this way, it is the overall aim of the 'Leiden Ethnosystems Approach' to develop practical models, which are designed for the study of cognitive factors in relation to patterns of behaviour and provide a sound basis for the integration of indigenous and international knowledge systems. The research strategies implemented in the disciplines of Anthropology and Development Sociology at the Institute of Cultural and Social Studies at Leiden University in The Netherlands during the 1970s provided an increased focus on the practical implications involved in the study of IKS, thereby laying the foundation for an ethnoscience-based research approach. In other words, the 'Leiden Traditions' of Development Sociology and Structural Anthropology proved useful for ethnoscientific research methods and techniques based on an *emic* research approach, which eventually resulted in the application of the so-called 'Leiden Ethnosystems Approach' to the study of IKS (*cf.* Slikkerveer 1989; Slikkerveer & Dechering 1995). The 'Leiden Ethnosystems Approach' has hereafter been applied to research conducted at Leiden University, which studies various IKS in relation to different social sectors, such as human health, agriculture, ecology, ethnobotany, social forestry, and communication across distinctive geographical areas (*cf.* Agung 2005; Ibui 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012; Chirangi 2013).

In practice, the 'Leiden Ethnosystems Approach' follows three methodological principles: (1) the 'Participant's View' (PV); (2) the 'Field of Ethnological Study' (FES); and (3) the 'Historical Dimension' (HP). Firstly, the 'Participant's View' (PV) evolved from strategies adopted within the Leiden Tradition of Structural Anthropology and refers to the transformation of subjective perceptions and attitudes into an objective social system. The principle of the PV undertakes an assessment of local cosmovisions, philosophies of nature, attitudes, opinions, perceptions and decision-making systems within the greater context of a specific culture. The PV principle provides a non-normative, local assessment of indigenous systems of knowledge, practice and belief, thereby corresponding to an *emic* research approach from the standpoint of the participant. Secondly, the 'Field of Ethnological Study' (FES), similarly rooted in the Leiden Tradition of Structural Anthropology, evolved from field research carried out in Indonesia during the 1930s where pan-Indonesian elements have been identified throughout the Archipelago prompting researchers to adopt the concept of FES to refer to a particular geographical area with shared cultural features. The principle of FES can be compared to the notion of 'culture area', which allows for the comparison of cultural characteristics among different indigenous communities within the same region. This principle contributes to a rather realistic understanding of the research area in Crete. Thirdly, the 'Historical Perspective' (HP) has been adopted from the Leiden Tradition of Development Sociology, which studies the historical dimension of long-term developments and practical situations across societies. The principle of HP aims at the pre-contemporary analysis of recent phenomena in fields such as medicine, agriculture or natural resource management. Largely based on the close collaboration between anthropologists and historians, the HP facilitates the study of the origin and development as well as characteristics of dynamic processes such as migration, transculturation or acculturation (*cf.* Slikkerveer 1989; Slikkerveer & Dechering 1995; Slikkerveer 1999b). Overall, the 'Leiden Ethnosystems Approach' adopts both a vertical and a horizontal perspective and has demonstrated that it is a very useful instrument to study IKS in relation to patterns of behaviour in various sectors of the society, including human health.

For the purpose of the present research, the 'Leiden Ethnosystems Approach' has been applied to the study of IKS and to the subsequent analysis of behavioural patterns within the context of health care utilisation. Following the methodological principle of PV, the approach allows for a realistic assessment of local systems of knowledge, practice and belief related to concepts of health and healing within a particular community. Based on the ethnosystems methodology, it has been possible to quantify individual perceptions, cosmovisions, attitudes and opinions and to transform these into objective social factors, which can be studied for their influence on patterns of health care utilisation behaviour. The principle of FES highlights the extent to which common features of medical knowledge, practice and belief appear in the research area and indicate the borders of a culture area, which is determined by its common concepts of health and healing. Finally, HP forms an essential principle applied to the present study of patterns of health care utilisation, which have acquired a significant historical dimension following the long-established tradition of recorded medical practice, which has been influenced by numerous processes of transculturation in the research area (*cf.* Slikkerveer & Dechering 1995; Slikkerveer 1999b).

The 'Leiden Ethnosystems Approach' facilitates the particular study of patterns of health care utilisation by means of identifying a number of socio-cultural and historical factors, which can be analysed for their influence on people's behaviour. Since the approach furthermore contributes to the establishment of a common ground for comparison between indigenous and international knowledge systems, its principles can be extended to the concept of medical pluralism in which traditional, transitional and modern medical systems are identified and compared. Eventually, the comparison between different medical systems further enhances the understanding of particular determinants of people's health care utilisation behaviour. The ability to identify in a comparative way the possible factors, which influence local patterns of health care utilisation not only on an individual level but also on a system level, provides a sound basis to the 'Leiden Ethnosystems Approach' for the implementation of a practical model of health care utilisation (3.1).

3.1.2 The Multivariate Model of Transcultural Health Care Utilisation

The characteristics of the 'Leiden Ethnosystems Approach' correspond with the multidimensional approach to the study of determinants of health care utilisation, which has been advanced on the substantial evidence that people's behaviour is influenced *i.a.* by a number of socio-cultural, economic and situational background factors. As Suchman (1965: 115) explains: '*We hypothesize that the selection of the source of care will reflect the knowledge, availability, and convenience of such services and social group influences upon the individual*'. The individual has been identified as being related to both a physical and a social environment, whereby a state of illness and the subsequent patterns of illness behaviour provoke variations in both the physical and the social environment. Research has shown that the geographical distribution and aetiology of certain diseases, as well as the forms of health care delivery, including public health programmes, are determined by a select number of predisposing, contributing and precipitating social and socio-demographic factors (*cf.* Suchman 1963). Early approaches to the study of health care utilisation determinants have, however, have focused a rather isolated attention on the presumed influence of economic, socio-psychological, geographic and organisational factors (*cf.* Greenlick *et al.* 1968; McKinlay 1972; Slikkerveer 1990). Promoting a more comprehensive strategy, Greenlick *et al.* (1968) have combined social, attitudinal, economic and situational background characteristics as possible determinants of health care utilisation behaviour. As Greenlick *et al.* (1968: 298) theorise: '*It is posited that different sets of background characteristics (independent variables) are significant determinants of medical care utilization (dependent variables) in different disease situations (intervening variables)*'. Similarly favouring a comprehensive approach, McKinlay (1972) stresses the importance of socio-demographic information, particularly the area of residence and occupation of each individual, and social-psychological factors referring to the individual's knowledge,

opinion, attitudes, beliefs and cues as determinants of behavioural patterns. In this respect, Kleinman (1978) suggests that any model designed to compare medical systems needs to relate internal, namely psychophysiological, behavioural and communicative, factors to external, namely social, political, economic, historical, epidemiological and technological, factors.

Kohn & White (1976) in their elaborative research on '*Health Care: An International Study*' have similarly adopted a comprehensive approach to the study of health care utilisation behaviour in which individual determinants of behaviour are related to factors of the respective health care system in order to assess a wide range of possible behavioural patterns. Kohn & White (1976) have implemented a systems approach to the study of health care utilisation, whereby the individual is viewed as a psychobiological system, which interacts with a greater social system comprised of social roles. Consequently, people's response to ill-health is guided by individual perceptions and decisions, which combine experiences gained from the internal psychobiological system with the response received from the external social system (*cf.* Suchman 1965; Anderson *et al*. 1976; White *et al*. 1976). As Anderson *et al*. (1976: 11) indicate: '*Man's psychobiological system equips him to perceive and interpret information from his internal and external systems and to employ this information in decision making and the regulation of his behaviour*'. By consequence, the health care utilisation process has been interpreted as a series of interrelated stages, whereby the movement from one stage to the other is influenced by a number of factors (*cf.* Figure 3.1).

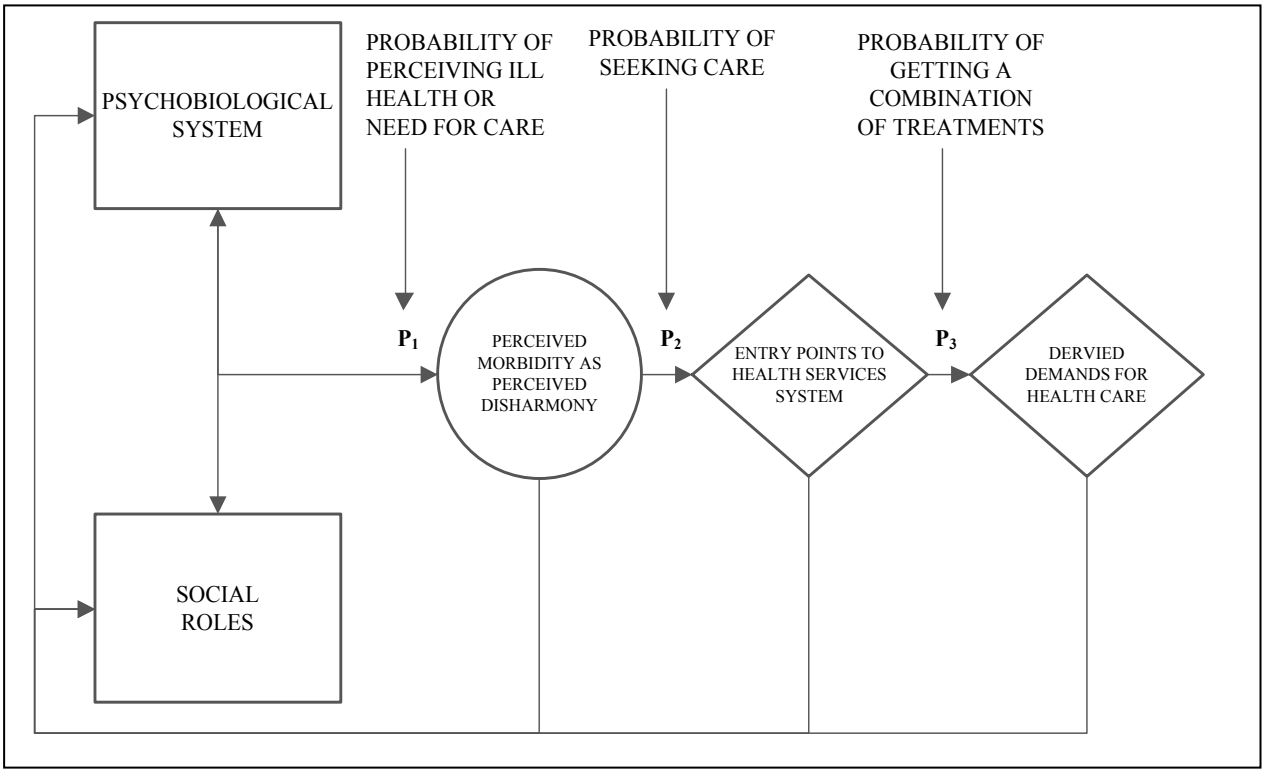


Figure 3.1 *Model of Stages in the Health Care Process*'.
Source: Kohn & White (1976: 12).

The recognition of a state of disharmony by the individual following the evaluation of psychobiological and social disturbances has been defined as 'Perceived Morbidity' (PM), particularly the perception or interpretation of symptoms, which motivates individuals to seek medical care in the form of health care services utilisation, and introduces a change in the individual's social role. Hereafter, harmony is re-established by means of medical treatment sought from the health care system and in the form of social support provided by social services, which are directed at the reintegration of the individual into the society. As noticed by Anderson

et al. (1976: 17): '[…] [*The*] *success of each health services system can be examined in terms of the correction of both deviance in social functioning and maladjustment in psychobiological functioning*'. Since the individual and the social response to illness, however, vary over time, harmony is generally achieved through a regular revision of the health care system. Such revision involves the improvement of both the delivery of health services as well as the social conditions (*cf*. Anderson *et al*. 1976).

In view of the interrelated stages of the health care utilisation process, a number of factors influencing people's decision-making behaviour during the process can be identified and subsequently introduced into a comprehensive model of health care utilisation. In most studies, 'perceived morbidity' shows to be a significant determinant of patterns of health care utilisation, as according to Anderson *et al*. (1976: 12) it provides: '*the force, which initiates decision making about whether or not care should be sought*'. The choice of treatment is furthermore influenced by a number of individual, socio-cultural determinants, which refer to a variety of cultural and attitudinal concepts, which are brought into the model as 'socio-demographic' and 'psycho-social variables' (Barnes *et al*. 1999). In his study on patterns of use of alternative forms of medicine, conducted in the United States, Astin (1998: 1551), shows that people's decision-making behaviour is influenced by: '*distrust of conventional physicians and hospitals*'; '*desire for control over health matters*'; '*dissatisfaction with conventional practitioners*'; and '*belief in the importance and value of one's inner life and experiences*'. Similarly, several cost-related determinants, including people's socio-economic status (SES), which indicates the financial tolerability of the health care system for each individual, are identified and included in the model as 'enabling variables' (*cf*. Panagiotakos *et al*. 2008) (3.2). As Anderson *et al*. (1976: 14) mention: '*In addition to the cash outlays required under some systems for services and for related expenditures such as transportation, enabling factors include expenditures of energy and effort and losses due to absence from work or from other profitable or desirable activities*'.

In addition, patterns of health care utilisation are influenced by factors related to the structure, supply and underlying philosophies of each health care system. The source of medical advice and treatment, as they are administered by either professional health care providers, such as pharmacists and physicians, or by non-professional health care providers, including family members and friends, as well as external agents, such as media, appears to influence people's choice of treatment (*cf*. Simoens *et al*. 2009). Since these factors tend to function for all individuals at the system level, they affect the process of health care utilisation not only of each individual but also of the population at large, thereby showing behavioural variations among the community members. The perceived morbidity, socio-demographic, psycho-social, enabling and systems factors are inserted into the model of health care utilisation as independent variables influencing people's utilisation behaviour (*cf*. White *et al*. 1976; Anderson *et al*. 1976). The factors of the outcome of the health care utilisation process refer to the dependent variables in the conceptual model. Anderson *et al*. (1976: 12), observe that these factors are: '*expressed for the most part in this study as rates, of entering or contacting specific components of health services systems and the factors which may account for these probabilities*'. Utilisation of medical services is generally recognised in all societies by both the individual and the health care system as an appropriate variable to measure patterns of health care utilisation and delivery (*cf*. White *et al*. 1976). As White *et al*. (1976: 2) indicate: '*Use of a service is a major, tangible expression of the demand, if not the need, for that service, and of the system's responses to perceived needs and expressed demands*'.

On the basis of the earlier models of health care utilisation, which were designed by Greenlick *et al*. (1968) followed and elaborated by Kohn & White (1976), Slikkerveer (1990) introduces a rather comprehensive strategy towards the design of a model of health care utilisation, where he also adopts a systems approach to the study of patterns of utilisation behaviour. As Slikkerveer (1990: 69) argues: '*In the context of the systems approach referred to here, illness behaviour may be regarded as a process in which the individual using health care takes action to restore the balance both in his internal psycho-biological system and in the external social system*'.

In this way, the process of health care utilisation is characterised by the interplay of socio-demographic, socio-psychological, socio-cultural, economic, geographical and organisational factors and has to be studied in a rather holistic manner. Following previous research, it has been possible to, as stated by Slikkerveer (1990: 48), to: '*divide illness behaviour into a large number of stages and to use an extensive system of factors with a cyclical character*'. In particular, in his conceptual model the concept of perceived morbidity is identified as a socio-cultural determinant of people's behaviour during the assumption of the stage of the 'sick role' and as an influential factor in people's utilisation behaviour. As noticed by Slikkerveer (1990: 74): '[…] [*Perceived*] *morbidity is defined as the observation and interpretation of symptoms of illness which initiate the decision-making process of seeking and obtaining medical help*'. Here the 'Leiden Ethnosystems Approach' is applied as a useful means to quantify individual determinants of health care utilisation and to subsequently insert them as predisposing variables into the overall model, thereby creating a common ground for comparison between predisposing, enabling and system variables. As Leslie (1976: 7) explains: '*Recognition of the need to evolve conceptual models and to record data for the complex analyses that this subject requires is discouraged by pre-emptively labelling one set of institutions "scientific medicine"*'.

In addition, the concept of 'intervening variables' is introduced in order to include an additional - system-based - group of important factors within the model of health care utilisation. Based on the 'Leiden Ethnosystems Approach', Slikkerveer (1990) further operationalised and differentiated the dependent factors of health care utilisation for several medical systems - traditional, transitional and modern - in order to incorporate a differentiation between the available medical systems into the conceptual model. Since the utilisation rates as dependent variables embody more than a simple calculation of the number of contacts of 'patients' with any of the available medical systems but reflect both the extent and variety of the plural medical system used in interaction with the independent and intervening variables, Slikkerveer (1990) was able to construct the ultimate *Model of Transcultural Health Care Utilisation*.

The model of transcultural health care utilisation has since been successfully applied in behaviour-based studies in various sectors and research settings, most of which have been subject to historical processes of acculturation and transculturation, predominantly in developing countries. These studies include research on plural medical systems in the Horn of Africa by Slikkerveer (1990); the study of indigenous knowledge and change in African agriculture by Adams & Slikkerveer (1996); research on the conservation of bio-cultural diversity in Bali, Indonesia by Agung (2005); the development of a multivariate model of transcultural utilisation of Medicinal, Aromatic and Cosmetic Plants by Slikkerveer (2006); the study of systems of indigenous knowledge, practice and belief regarding the use of wild plants in Kenya by Ibui (2007); the study of indigenous communication on MAC plant knowledge and practice in Indonesia by Djen Amar (2010); research carried out on MAC plants for community health and bio-cultural conservation in Bali, Indonesia by Leurs (2010); the study of integrated medicine for advanced partnerships among traditional birth attendants and community midwives in Rancaekek, Indonesia by Ambaretnani (2012); and the study of interprofessional collaboration between traditional and modern medical practitioners in Tanzania by Chirangi (2013).

In Greece, research on patterns of health care utilisation behaviour has recently been conducted on the determinants of behavioural patterns and has identified the following independent factors as influential indicates: 'region'; 'gender'; 'country of birth'; 'country of parent's birth'; 'age'; 'education'; 'primary health insurance' and 'secondary health insurance', both referring to public and private schemes; 'income'; and 'self-rated health'. The dependent factors have been operationalised in a way to initially distinguish between forms of 'no utilisation' and 'any utilisation' and to subsequently assess patterns of health care utilisation behaviour by means of recording the number of people's visits to health care services or rates of hospitalisation. The operationalisation of the dependent factors has involved a differentiation between primary health care services, namely general practitioners and specialists, and secondary health care services referring to public and private hospitals.

Research conducted in Crete on patterns of diagnosis and health care utilisation shows that a number of emotional and rational factors influence the choice of medical treatment. The factors include: 'attitudes towards illness' and the 'burden placed on others in an event of illness'; the 'quality of care as experienced by the patient'; 'previous experiences with the respective medical system'; the 'feeling of trust in the medical practitioner'; 'fear of hospitalisation'; the 'desire to be modern'; 'health insurance'; 'cost'; 'socio-economic status of the patient'; the 'need for health care as experienced by the patient'; 'cause', 'type' and 'severity' of the reported illness; as well as 'distance' and 'accessibility' of the respective medical system (*cf.* Arnold 1986; Koutis *et al*. 1993; Hanepen 1997; Hagoort 1998; Clark 2002; Dijkstra 2005; Geitona *et al*. 2007; Trigoni *et al*. 2008; Alexopoulos & Geitona 2009).

In particular, research conducted in Crete indicated that the 'newness' of the treatment in terms of providers, equipment, technology and medicines, which generally includes an orientation towards urban areas, influences people's choice of medical treatment (*cf.* Arnold 1986). Research carried out in Spili on utilisation patterns of OTC medicines follows the approach to the study of utilisation by the three main categories of accessibility, introduced by Buschkens & Slikkerveer (1982), and identifies the following factors as main determinants of utilisation behaviour: (1) 'economic access' in terms of costs of transport, insurance and out-of-pocket payments; (2) 'geographic access', being distance and transportation; and (3) 'socio-cultural access', which refers to the relationship between the patient and the health care provider (*cf.* Hanepen 1997). Another study conducted in Crete on different patterns of consultation with local healers demonstrates that the patient's choice of treatment is largely dependent on the tradition, the family network, the social and educational level, the financial resources of the patient, the type of illness experienced by the patient and on the accessibility of the medical practitioner (*cf.* Clark 2011).

The recent joint research project on the assessment of Over-the-Counter Medicines in Primary Care in Southern Europe (OTC-SOCIOMED) focuses on the use of 'prescribed medicines' *versus* 'non-prescribed medicines' from the complementary perspective of not only consumers, such as clients and patients, but also of providers, such as physicians and pharmacists. The research, which has been carried out in five South-European countries, including Greece, Turkey, Malta, Cyprus and the Czech Republic, encompassed 932 patients and 855 clients as well as 585 physicians and 685 pharmacists. The utilisation model, as it had been applied to this study, shows *i.a.* that 932 patientst from the sample reported the use of 2.459 medicines, differentiated over 819 non-prescribed (33.3%) and 1.640 (66.7%) prescribed medicines. Among the significant independent determinants of the utilisation of medicines in the five selected countries in this part of Europe are the variables: 'age'; 'marital status'; 'nationality'; 'education'; 'profession'; 'opinion on medicines'; 'preference for medicines'; 'socio-economic status of the patient', 'organisation of the health services', and 'perceived morbidity'. In addition, significant intervening determinants also included the factors 'regulations and promotions of medicines' as well as background characteristics of the physician.

In this international comparative study, Slikkerveer introduced an innovative model of the 'mutual relation analysis' indicating the mutual relationships among categories of significant determinants of patients of utilisation behaviour of prescribed and non-prescribed medicines (*cf.* Slikkerveer & Lionis 2012). This interesting model is also implemented in the present study of the utilisation of the plural medical system in Pirgos and Praitoria in Crete.

In view of the general applicability of the transcultural model of health care utilisation and the promising results of previous studies conducted on determinants of patterns of transcultural health care utilisation behaviour in different areas, the model has also been applied in the present research with a view to distinguish between the following blocks of factors: the independent predisposing factors composed of socio-demographic and psycho-social factors on the individual level; the independent enabling factors on the individual level; the independent perceived morbidity factors on the individual level; the independent institutional factors on the system level; the intervening factors on the system level; and the dependent factors, divided between the

utilisation of respectively the traditional, the transitional, and the modern medical system, on the system level (*cf.* Figure 3.2). The factors measured at the individual level, namely the socio-demographic, psycho-social, enabling and perceived morbidity factors, refer to person-specific concepts. The psycho-social and perceived morbidity factors both measure cognitive aspects, which relate to systems of knowledge, belief and opinion. While the psycho-social factors are measured on a rather general basis, the perceived morbidity factors assess people's knowledge, belief and opinion specifically in relation to their experience of illness. The factors measured at the system level, *i.e.* the institutional, intervening and health care utilisation factors, relate to official components of the plural medical system operating in the research area as well as to external phenomena.

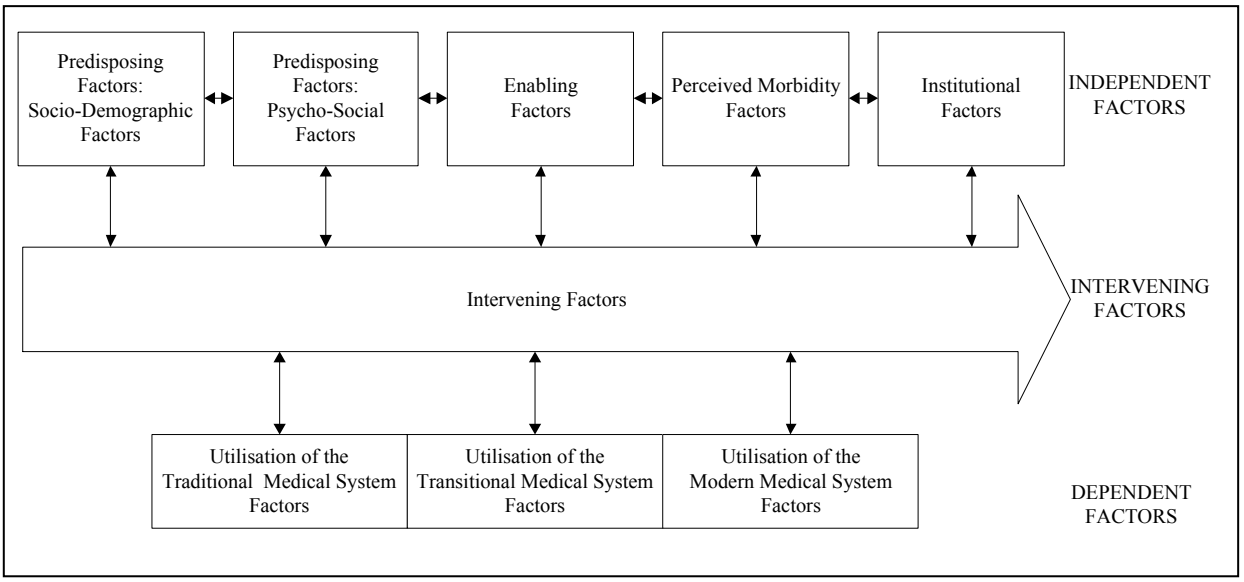


Figure 3.2 Conceptual Model of Transcultural Health Care Utilisation.
Source: Slikkerveer (1990); Slikkerveer & Lionis (2012).

3.1.3 Operationalisation of the Conceptual Model

The different blocks of factors indicated in the conceptual model of transcultural health care utilisation provide the basis for the analysis of patterns of transcultural health care utilisation behaviour. In order to operationalise the model into an adequate tool of measurement, the blocks of factors are sub-divided into measurable units, namely variables, which determine the subsequent selection of research techniques and statistical means of data analysis. In the model, the blocks of factors are at first specified as concepts, which are assigned on the basis of the intuition and experience of the researcher and are verified by measuring a number of variables related to each concept. On the basis of similar studies conducted elsewhere in the health sector and following qualitative research as well as a pilot study carried out prior to the execution of the household surveys in the two research communities, it has been possible to identify a number of potentially significant variables for each concept. The majority of concepts are commonly defined by a combination of variables which are concretised by a number of indicators respective to the complexity of each variable concerned (3.3). Since indicators generally vary between research areas, they are further substantiated by related categories, which are composed of a number of values, which ultimately allow for an adequate assessment of the phenomena or events desired to be measured (*cf.* Bice *et al*. 1976; Bernard 2002). Bice *et al*. (1976: 24) demonstrate that the process of measurement involves: '*specifying a concept, translating it into an operational definition which points to a variable that can be measured, and applying the operationally defined measurement technique to units of its indicators and related categories*'.

The matching of concepts, variables, indicators, categories and values as well as research questions can be subject to difficulties, which may arise when original and operationalised ideas are connected. Since empirical research generally involves some abstractions from the real world, rules of correspondence between concepts and indicators must be observed. Furthermore, indicators and real-world phenomena need to be linked by an adequate instrument of measurement. The questions formulated in the quantitative questionnaire, as they are selected on the basis of the nature of the selected variables, are applied at the level of categories. In other words, the categories of variables are incorporated in the questionnaire in the form of predefined answer categories and are later onwards used as categories of variables during the process of statistical analysis (*cf.* Bice *et al*. 1976; Leurs 2010). Tables 3.1 to 3.7 describe the detailed process of operationalisation of the concepts of the blocks of factors identified in the model of health care utilisation and applied to the research area of rural Crete, which encompasses the translation of blocks of factors into variables, indicators and categories.

Independent Predisposing Factors

Operating at the individual level, the predisposing factors refer to a number of socio-cultural background characteristics - a combination of 'hard' socio-demographic and 'soft' psycho-social factors - which influence people's health care utilisation behaviour (*cf.* Slikkerveer 1990). In particular, the following variables have been assigned to the concept of socio-demographic factors: 'community'; 'household size'; 'household composition'; 'gender'; 'age'; 'place of birth'; 'nationality'; 'religion'; 'education'; 'marital status'; and 'occupation' (3.4). Table 3.1 shows the operationalisation of the concept of the block of socio-demographic factors into variables, indicators and categories.

The following variables have been selected to define the concept of psycho-social factors: 'knowledge of the traditional medical system'; 'knowledge of the transitional medical system'; 'knowledge of the modern medical system'; 'opinion on the traditional medical system'; 'opinion on the transitional medical system'; and 'opinion on the modern medical system'. The variables of the knowledge and opinion of each individual have been concretised by means of incorporating a distinction between the traditional, transitional and modern medical system. In order to measure the respondents' level of indigenous knowledge of MAC plants in more detail, as this factor is forming a focal point in the present research, this specific knowledge is conceptualised in direct relation with the patients' knowledge of the traditional medical system, where it forms a major component, in the conceptual model. The assessment of the local people's indigenous knowledge of MAC plants is further substantiated in the indigenous classification of Medicinal, Aromatic and Cosmetic (MAC) plants, as well as the local priority plant species list for the research area, which have been constructed during the qualitative research in the area in fulfilment of the fourth specific objective of this study. Table 3.2 shows the operationalisation of the concept of the block of psycho-social factors into variables, indicators and categories.

Independent Enabling Factors

The following variables have been selected to define the concept of enabling factors, as they are also expected to influence the health care utilisation at the individual level: 'annual income'; 'annual expenses for health care'; 'insurance'; and 'socio-economic status'. The selected variables include the ability or respective inability of each individual to meet the financial requirements for receiving medical treatment, but exclude the costs paid by representatives of the medical system concerned. Although the financial requirements can in principle not be changed by the individual as they depend on the social and economic sub-system of the community, the variables operate on an individual level (*cf.* Slikkerveer 1990). Table 3.3 shows the operationalisation of the concept of the block of enabling factors into variables, indicators and categories.

Table 3.1 Independent Predisposing Factors: Socio-Demographic Factors.

Concept	Variable	Indicator	Category
Socio-demographic	Community	Name of community	Pirgos; Praitoria
factors at the individual level	Household size	Number of household members	1 member; 2 members; 3 members; 4 members, 5 and more members
	Household composition	Relationship of the household members to the household head	Household head; partner; son/daughter; grandchild; parent; brother/sister; parent-in-law
	Gender	Gender definition	Male; female
	Age	Number of years alive	<7; 7-13; 14-20; 21-27; 28-34; 35-41;42-48; 49-55; 56-62; 63-69; 70-76; 77-83; 84-90; >90
	Place of Birth	Location of the place of birth	This community; this municipality somewhere else in Crete; somewhere else in Greece; other
	Nationality	Nationality	Greek; Albanian; Bulgarian; Rumanian other
	Religion	Religious affiliation	Greek Orthodox; Bulgarian Orthodox Rumanian Orthodox; non-Orthodox Christian; non-Christian
	Education	Level of education completed	No formal education; primary education; secondary education; post-secondary education
	Marital Status	Present marital status	Single; married/co-habiting; divorced/ separated; widowed
	Occupation	Type of main occupation	Student/non-paid; homemaker; (stock) farmer; manufacturer; construaction worker; retailer; provider of food, beverage, accommodation; insurance agent; head officer / researcher; servant to building; public administrator / defence personnel; educator; health, social worker; artis/entertainer; priest/ personal servant; employee of the private sector; unemployed/retired

Independent Perceived Morbidity Factors

Perceived morbidity has been identified as a major determinant of patterns of health care utilisation behaviour (*cf.* Kohn & White 1976; Slikkerveer 1990, Leurs 2010). The following variables have been selected to define the concept of perceived morbidity factors: 'health status'; 'reported illness'; 'severity of the reported illness'; and 'duration of the reported illness'.

Table 3.2 Independent Predisposing Factors: Psycho-Social Factors.

Concept	Variable	Indicator	Category
Psycho-social factors at the individual level	Knowledge of the traditional medical system	Level of knowledge of the traditional medical system	Little knowledge; average knowledge; much knowledge
	Knowledge of the transitional medical system	Level of knowledge of the transitional medical system	Little knowledge; average knowledge; much knowledge
	Knowledge of the modern medical system	Level of knowledge of the modern medical system	Little knowledge; average knowledge; much knowledge
	Opinion on the traditional medical system	Level of opinion on the traditional medical system	Negative opinion; neutral opinion; positive opinion; no opinion
	Opinion on the transitional medical system	Level of opinion on the transitional medical system	Negative opinion; neutral opinion; positive opinion; no opinion
	Opinion on the modern medical system	Level of opinion on the modern medical system	Negative opinion; neutral opinion; positive opinion; no opinion

Table 3.3 Independent Enabling Factors.

Concept	Variable	Indicator	Category
Enabling factors at the individual level	Annual income	Average amount of the household's annual income in Euro	<10.000; 10.000-20.000; 21.000-30.000; 31.000-40.000; >40.000; no income reported
	Annual expenses for health care	Average amount of the household's annual expenses for health care in Euro	<250; 250-500; 501-750; 751-1.000; >1.000; no expenses reported
	Insurance	Type of insurance coverage	IKA; OGA; OPAD; other; no insurance
	Socio-Economic Status (SES)	Level of SES	Poor; average; rich

In general, the perceived morbidity variables refer to the individual's subjective and culturally defined interpretation of health and illness, thereby following an indigenous illness classification, which is not necessarily similar to the objective medical standard classification (*cf.* Slikkerveer 1990). As Slikkerveer (1990: 220) notices: '*For the analytical purpose of the study - which is to obtain insight into illness behaviour without attempting to evaluate the medical services consulted by patients - the individual's interpretation and experience of his state of health are more important determinants of the related process of seeking and obtaining medical care than his state of health established by standardised, clinical criteria*'. The variable 'reported illness' refers to the main illness reported by the respondent as experienced during the 12 months preceding the interview of the household surveys. Based on the people's own assessment of time rather than determined on medical grounds, any illness reportedly lasting up to one month has

been defined as 'acute', while any illness lasting from 1 to 12 months has been distinguished as 'chronic' (*cf.* Slikkerveer 1990). Table 3.4 shows the operationalisation of the concept of the block of perceived morbidity factors into variables, indicators and categories.

Table 3.4 Independent Perceived Morbidity Factors.

Concept	Variable	Indicator	Category
Perceived	Health status	Level of health status	poor; average; well
Morbidity factors at the	Reported disease	Classification of the reported illness	Local illness classification
individual level	Severity of the reported illness	Level of severity of the reported illness	Not severe; mildly severe; moderately severe; highly severe
	Duration of the reported illness	Level of Duration of the reported illness	Acute; chronic

Table 3.5 Independent Institutional Factors.

Concept	Variable	Indicator	Category
Institutional factors at the system level	Accessibility of institutions of the traditional medical system	Perceived accessibility of institutions of the traditional medical system	Very difficult accessibility; difficult accessibility; average accessibility; easy accessibility; very easy accessibility; no institutions reported
	Accessibility of institutions of the transitional medical system	Perceived accessibility of institutions of the transitional medical system	Very difficult accessibility; difficult accessibility; average accessibility; easy accessibility; very easy accessibility; no institutions reported
	Accessibility of institutions of the modern medical system	Perceived accessibility of institutions of the the modern medical system	Very difficult accessibility; difficult accessibility; average accessibility; easy accessibility; very easy accessibility; no institutions reported

Independent Institutional Factors

In view of the recurring features of the components of the plural medical system operating in the research area, it has been possible to operationalise the concept of institutional factors by means of measuring the geographical accessibility of the plural medical system as perceived by the respondent. Although institutional differences exist between medical systems in terms of organisation, personnel or education, the present study focuses on the geographical accessibility of the plural medical system (*cf.* Slikkerveer 1990). The pilot survey conducted in the research area has shown the unequal dispersal of institutions of the plural medical system, thereby substantiating the choice of variables. As Lewis *et al*. (1976: 11) notice: '[*Access*] *is measured by the availability of services in the community, the obtainability of services by any and all subgroups of the population, and the comprehensiveness of services offered by the source of first-contact care or facilities linked with it*'. In this way, the following variables have been selected to define the concept of institutional factors: 'accessibility of institutions of the traditional medical system'; 'accessibility of institutions of the transitional medical system'; and

‘accessibility of institutions of the modern medical system’. Table 3.5 shows the operationalisation of the concept of the block of institutional factors into variables, indicators and categories. In an attempt to directly relate the institutional variables to the dependent variables of health care utilisation, the former have been substantiated on the basis of the distinction made between the traditional, the transitional and the modern medical system.

Intervening Factors

In general, intervening factors operating on the system level alter the standard relationship between independent and dependent blocks of factors from outside of the communities concerned. In view of the current economic situation of the research area as part of Crete, the following variable has been selected to define the concept of intervening factors: ‘impact of the current economic situation’. Table 3.6 shows the operationalisation of the concept of the block of intervening factors into variables, indicators and categories.

Table 3.6 Intervening Factors.

Concept	Variable	Indicator	Category
Intervening factors at the system level	Impact of the current economic situation	Perceived impact of the current economic situation on health care utilisation	Very low impact; low impact; average impact; high impact; very high impact; no impact reported

Health Care Utilisation Factors

The dependent variables operate on the system level and refer to the total number of contacts between the patient and the plural medical system, expressed in scores measuring attendance or utilisation rates (*cf.* Slikkerveer 1990). The following variables have been selected to define the concept of health care utilisation factors: ‘utilisation of the traditional medical system’, ‘utilisation of the transitional medical system’ and ‘utilisation of the modern medical system’, which together constitute of the overall concept of the utilisation of the plural medical system. The factors of ‘utilisation of the plural medical system’ measure the concept of health care utilisation in terms of reported contacts between respondents and the plural medical system operating in the research area during a recall period of 12 months preceding the household surveys. Table 3.7 shows the operationalisation of the concept of the block of intervening factors into variables, indicators and categories.

Table 3.7 Dependent Health Care Utilisation Factors.

Concept	Variable	Indicator	Category
Health Care utilisation factors at the system level	Utilisation of the traditional medical system	Contacts of individuals with the traditional medical system	Utilisation rates of the traditional medical system
	Utilisation of the transitional medical system	Contacts of individuals with the transitional medical system	Utilisation rates of the transitional medical system
	Utilisation of the modern medical system	Contacts of individuals with the modern medical system	Utilisation rates of the modern medical system

3.2 Research Methods and Techniques

3.2.1 Selection of the Research Area

Prior to identifying the appropriate measurement techniques for collecting information on the variables identified as possible determinants of people's transcultural health care utilisation behaviour in rural Crete, a suitable research area to conduct fieldwork has been selected during the pilot study. In view of the nature of the present research, which includes a detailed analysis of people's indigenous knowledge and practice of MAC plants available in the research area, preference has been given to a geographically remote, but an environmentally diverse area in which human-plant relationships have continued to form an integral aspect of community life. In general, a wealth of bio-cultural diversity coupled with a relative geographical isolation would render any population group living in a rural area a valuable resource for the study of the interactions between the community members and their natural environment (*cf.* Clark 2002). The most western province of Crete, Chania, in which the mountain range of the *Lefka Ori*, as well as numerous caves and gorges, including the famous Samaria Gorge, are found, has been taken into account for its geographical and natural diversity. Nevertheless, logistic reasons referring primarily to communication and transport networks, which had been established during previous fieldwork conducted in the area of Central Crete has directed the selection of the research area for the present study to the central prefectures of Crete, namely the Prefecture of Iraklion and the Prefecture of Rethymnon. Since the majority of previous fieldwork training of Master students from Leiden University on the subject of health and healing, and particularly on knowledge and use of MAC plant in Crete, had been carried out in the Prefecture of Rethymnon, the focus of the present study has eventually been focused on the less studied Prefecture of Iraklion. In order to meet the requirements of the 'Leiden Ethnosystems Approach' and the principle of the 'Participant's View', the selection of the research area has also been guided by a preference for small, rural communities in which influence from outside, particularly from mass-tourism and settlement, is limited and people continue to rely on their indigenous systems of knowledge, practice and belief. In an attempt to furthermore select a research area, in which the characteristics of each medical system are constant for all participants, particular attention has been paid to the local availability of health care services. Apart from the easy access to natural resources, the distance to health care facilities, such as pharmacies or rural health posts, has also been taken into consideration during the selection process of the research area.

In view of these considerations, the focus has eventually been drawn to the South-central part of the Prefecture of Iraklion, which appears to meet most selection criteria. The area of South-Central Crete is found at a considerable distance from urban areas of high population density and mass tourism activities (3.5). Furthermore, the region is topographically shaped by the extensive Mesara Plain, the largest and most fertile plain of Crete. Although the wider region of the Mesara Plain forms a suitable research site, the setting has subsequently been confined to the eastern part of the plain, as it is bordered by the Asterousia Mountains in the South and hereby provides a diverse geographical area, characterised by both lowland and mountainous areas. The immediate vicinity of the Asterousia Mountains to the Libyan Sea in the South moreover generates a diversity of natural habitats, which offer an abundance of plant species. The preference for the Mesara Plain is further determined by its distinct historical features, particularly in the form of human settlement patterns, which date back to the period of time of 4000 to 3300 B.C. The settlements of Phaestus and Ayia Triadha in the western part of the plain have evolved from the important centres of Minoan Crete, whereas the settlement of Gortyn in the centre of the Mesara Plain has formed the capital of the island under the Roman rule during the 1st century B.C.

Since the historical significance of the western region of the Mesara Plain, the settlements of Phaestus, Ayia Triadha and Gortyn, as well as the coast at the western edge of the lowland have become rather popular tourist destinations, the selection of a research area was eventually made

for the eastern, less touristic part of the plain. The attention has also been drawn to the Mesara Plain, where recently an interesting study of obesity rates has been conducted among the famers living in the plain. This study has revealed that at the time of the research, the highest prevalence of obesity and overweight in this part of Greece has been recorded. Since the population of Crete has long been known for its healthy lifestyle and dieting, the results of the study has generated general attention and interest (*cf.* Vardavas *et al*. 2009; 2010).

Eventually, the secluded community of Praitoria in the eastern part of the Mesara Plain, which has presumably been inhabited since Roman times, has eventually been chosen as an appropriate research area. In view of the rather limited number of inhabitants living in Praitoria, an attempt has been made to extend the research focus and to include one or more mountain communities in the Asterousia Mountains. Although a number of these communities are located in the vicinity of Praitoria at higher altitudes, the seasonal inhabitation as well as the difficult accessibility of these mountain communities have favoured the choice of a more lowland settlement. By consequence, the neighbouring community of Pirgos has ultimately been chosen as a second research community, primarily because of its location in the lowlands at the foot of the Asterousia Mountains and its geographical and social vicinity to the other mountain settlements. In addition, its historical significance has also been a consideration as the community has similarly been inhabited since the Roman times. Moreover, Pirgos and Praitoria are both accessible by road, while the relative vicinity between the two communities rendered it possible to conduct the research in two communities over a rather limited period of time. In addition to the equal access to the diverse lowland and mountainous communities, the inhabitants of both communities furthermore cover a similar distance to the available health care facilities. Overall, the rural communities of Pirgos and Praitoria in South-Central Crete form an adequate research area to conduct the present study on transcultural patterns of health care utilisation behaviour (*cf.* Map 5.1).

3.2.2 Target and Sample Population

After the approval for conducting the present study had been received from the Ethical Committee of the University of Crete in Iraklion, strategies of sampling the target population have been assessed. In general, the 'target' or 'parent population' denotes the wider population living in the research communities of Pirgos and Praitoria. In view of the geographical vicinity of the two communities, the population of both villages has been combined into one target population group from which the sample has subsequently been drawn. In other words, the population of the community of Pirgos and the population of the community of Praitoria established together the sampling frame of the present study, namely the list of units from which the sample has been drawn and to which the results have eventually been generalised. Hereafter, the units of the target population, which have been chosen as the sample and in which the actual surveys have been conducted, are referred to as the 'study' or 'sample population'.

In view of the identification of the sampling frame, this study aims at collecting information on individuals rather than on communities at large, from which the sample has been drawn by means of the implementation of combined non-probability and probability sampling techniques. Methods of non-probability sampling have been applied in the present research in the form of: (1) convenience or haphazard sampling, in which units are chosen on the basis of their ease of access; and (2) snowball sampling, in which units are sampled through the intermediary of the respondent referring the researcher to other, possibly interested, respondents. Since strategies of non-probability sampling provide a sound basis for the execution of exploratory research and for collecting cultural data, as these data are mostly provided by community experts, the approach has been followed during the stages of the pre-testing of the structured questionnaire and the gathering of in-depth, qualitative information (*cf.* Moser & Kalton 1971; Molenaar 1999; Bernard 2002; Van den Akker 2002). The snowball technique has been used during the pilot study in order to gain early access to the population and to gather detailed information on the

key-issues of the research. Initially, non-probability sampling strategies have largely been dominated by language proficiency, singling out sampling units with knowledge of English. After proficiency in the Greek language had been achieved, language was no longer a determining factor during the later stages of the data collection and large-scale household surveys (3.6).

In contrast to the non-probability sampling techniques, probability sampling assigns every member of the target population, namely the sampling frame, an equal chance of being selected as respondent. Since probability-sampling techniques are moreover designed to measure the attributes of individuals of a particular population group, they are also applied to the present study as an appropriate sampling technique for the quantitative household surveys. In this respect, a method of simple random sampling referring to a sampling technique, in which individual units are selected at random as opposed to follow a sampling interval, has been chosen for the present study (*cf.* Moser & Kalton 1971; Bernard 2002). While it is the initial aim of the quantitative household surveys to cover about 400 units from the wider sampling frame, the number of elements is reduced to 300 units because of the feasibility in the field. Sampling is disproportionate as it aims at covering the entire population of Praitoria and at completing a maximum of 300 units with units drawn from the population of Pirgos. Compared to the size of Pirgos, the population of Praitoria is relatively small, *i.e.* covering one-fifth of the population of Pirgos. Apart from certain research advantages related to cover a smaller population size for easier management and faster as well as better establishment of local networks, the aim of covering all units in Praitoria is primarily based on prior acquaintance and increased interest in the community.

3.2.3 Development of Research Instruments

In addition to the identification of methods of sampling, certain appropriate research instruments have been designed in order to collect information on people's health care utilisation behaviour in general, and on the related variables, which have been identified as determinants of people's behaviour in particular. The term 'research instrument' is used to refer to any type of research method, such as qualitative questions and a quantitative questionnaire, which are used during the surveys. Research instruments are constructed on the basis of anonymity and confidentiality, thereby excluding questions on the name or contact information of the respondent. In an attempt to gain early access to the village population and to collect in-depth data on local patterns of health care utilisation, a number of open-ended, qualitative questions have been formulated and subsequently translated into the Greek language. The qualitative questions are designed in an attempt to identify and explore particular key-issues, such as the knowledge and use of traditional and herbal medicine and the indigenous classifications of MAC plants and illnesses, as these qualitative data provide insight into the local circumstances and the knowledge and experience of the local inhabitants. As Moser & Kalton 1971: 341) observe: '*In an open ended question the respondent is given freedom to decide the aspect, form, detail and length of his answer, and it's the interviewer's job to record as much of it as she can*'. On the whole, this method of analysis has particularly shown to be useful during the pilot study prior to the execution of the quantitative surveys, especially since the open-ended questions were used to clarify and specify certain key-concepts, which could subsequently be dealt with during the quantitative household surveys. The open-ended questions were asked at all stages of the research process, particularly in the form of additional questions, which are added to in the structured questionnaire. Also, after the completion the household surveys, sometimes further in-depth questions were posed to the respondents in order to collect supplementary information on particular key-subjects (*cf.* Bernard 2002).

In addition to the formulation of open-ended questions for interviews with key-informants, the construction of the structured questionnaire as the basis for the quantitative household surveys, proved to be rather challenging. Designed to measure the variables identified as possible

determinants of people's health care utilisation behaviour, a number of closed-category questions, *i.e.* questions with pre-defined answer categories, have further been elaborated. The order of questions in the questionnaire is arranged on the basis of general standards, which include the combination of similar questions and the location of sensitive questions at the centre of the questionnaire. In the same fashion, some answer categories were arranged accordingly and reformulated as 'don't know' or 'no answer provided ', and if feasible, 'not applicable'. The pre-defined answer categories also included 'other' as an option for a possible answer, followed by an empty line to enable the interviewer to record any 'other' answer, which is not included in the pre-defined answer categories. The structured questionnaire has gradually been adapted on the basis of the information, which was collected during the open-ended questions of the in-depth interviews in the pilot survey. In absence of a comparable questionnaire in the Greek language, the questions and answer categories have been translated one by one from English into Greek with the help of a professional linguist who is proficient in both languages. In this respect, a recent study carried out on the prevalence of Dyspepsia among a Greek population group underscores the importance of the development of a standardised questionnaire for conducting medical research in Greece in the Greek language (*cf.* Anastasiou *et al*. 2006). The same challenges are met in similar studies in medical anthropology, sociology and ethnomedicine, carried out in other culture areas of the world.

Subsequently, the questionnaire has been pre-tested during the pilot study with key-informants from both research communities, after which the outline of the initial questionnaire had to be slightly modified in order to meet the local requirements. Following the pre-testing as well as the translation and re-translation of the structured questionnaire during the pilot study, it has eventually been possible to develop a questionnaire with adequate vocabulary, precise questions and clear answer categories (*cf.* Slikkerveer 1990; Bernard 2002; Van den Akker 2002; Galobardes & Demarest 2003; Sapountzi-Krepia *et al*. 2005; Alexopoulos & Geitona 2009). The construction of the quantitative questionnaire is also based on the results of previous studies on research methods and techniques in the medical social sciences, including Suchman (1965); Kohn & White (1976); Astin (1998); Mosca *et al*. (2000); Pongsupap & Van Lergerghe (2006); Wilson *et al*. (2007); Kersten *et al*. (2009); Leurs (2010) and Slikkerveer & Lionis (2011).

The final version of the structured questionnaire follows the sequence of the various blocks of variables in the conceptual model, encompassing the blocks of respectively the socio-demographic variables, the psycho-social variables, the enabling variables, the perceived morbidity variables, the institutional variables, the intervening variables and eventually, the dependent health care utilisation variables, completed with some additional general questions on certain key-issues on the subject. The implementation of the structured questionnaire has also taken into account its application as a valid, precise and accurate means to conduct quantitative research on patterns of health care utilisation in rural Crete. The trustworthiness of the research instruments designed for this study, which include a number of open-ended, qualitative questions as well as an elaborate quantitative questionnaire, is directly linked to the validity of the collected data thereupon by means of these applications (*cf.* Bernard 2002).

3.3 Data Collection and Analysis

3.3.1 Qualitative Data Collection: Key-Informants

In order to gain access to the local population, to draw an adequate sample and to subsequently apply the quantitative questions in the structured questionnaire, initial techniques of data collection, implemented particularly during the pilot study, have required a general introduction of the nature of the research for the benefit of the respondent. Letters of introduction have been prepared and translated accordingly in a way to provide a short description of the research, as well as information on the academic affiliations and funding agencies involved in the study. In the same fashion, qualitative research in terms of asking open-ended questions to key-informants

conducted during the pilot survey also involved the a brief written statement in the Greek language, which was handed out in printed form to any respondent willing to answer the questions. This approach proved particularly valuable for overcoming the initial language difficulties. The statement explained the nature of the present research, assured anonymity, informed each respondent about the right to refuse answering any of the formulated questions and offered information on how to contact the researcher for questions or concerns (*cf.* Bernard 2002). In addition to a formal introduction, initial acquaintance with the participants and respondents has been made in the form of reviving existing personal contacts and following random conversations with community members, as well as by visiting the two research communities and participating in local events (*cf.* Hahn & Inhorn 2009) (3.7). In this way, the physical and social layout of the community is studied, enabling the drawing of maps of the local settlement patterns and charts of the relationships between the community members. Rapport with certain key-people, who occupy rather prestigious positions in the communities, such as the local priest or the head of the local primary school, were established in order to strengthen the local network. Personal experience and interaction with the village population also resulted in a gradual acquisition of the necessary social skills, such as learning the local language for better understanding and communication. In general, the technique of participant observation forms a very useful qualitative method of research, upon which data are collected on the basis of the immersion of the researcher into and regular removal from the research community, whereby the researcher is able to share the aim and objectives of the study with the members of the communities concerned. Participant observation also renders it possible to collect information on local systems of knowledge, practice and belief not only by observing and asking questions, but also by participating in local events, ceremonies, meetings and festivities. Furthermore, this technique provides a sound basis for conducting extensive household surveys, asking sensitive questions and making strong statements about the information collected at a later stage (*cf.* Blum & Blum 1965; Arnold 1986; Bernard 2002; Hahn & Inhorn 2009).

In addition to participant observation, initial information is gathered by means of applying a number of qualitative research methods, which are designed to collect in-depth information on certain key-issues. The collection of qualitative data commonly takes the form of unstructured interviewing, which is based on open-ended questions asked without any restrictions of time or control. Similarly, semi-structured interviewing, which also involves open-ended questions, often follows a general script in order to collect comparable data (*cf.* Blum & Blum 1965; Bernard 2002). While the method of semi-structured interviewing proved particularly valuable during the pilot study, the method of spontaneous, unstructured interviewing have been employed at any stage during the research process and have commonly involved a discussion led by the respondent on certain key-topics determined by the researcher. During certain stages of the quantitative household surveys, qualitative methods of data collection have been applied in order to gather additional relevant information. For instance, qualitative information has been collected when people's answers on questions were recorded, which relate to the block of psycho-social factors, resulting in a combination of structured and semi-structured interviews conducted during the household surveys. In this way, a number of respondents, who demonstrated considerable knowledge on central topics, have been identified as key-informants and have been questioned repeatedly as the study progressed through techniques of unstructured and semi-structured interviewing. Key-informants have been consulted in an attempt to construct an indigenous classification of MAC and a related indigenous classification of illnesses. The qualitative research technique of conducting additional interviews, which has been applied during or after the stage of the quantitative household surveys, has been implemented in the local language (*cf.* Blum & Blum 1965; Alcorn 1995; Bernard 2002).

In case that the respondent agreed, methods of note taking, at times in a language other than the one spoken, accompanied the collection of qualitative data during all stages of the research process. Notes have been made in the form of: scratch notes taken on the spot on minor observations; field notes made during the stages of interviewing; a personal diary, in which every

day events and emotions have been written; and a running account, in which information on the expenses of time and money has been kept (*cf.* Bernard 2002). In addition to taking research notes, the qualitative information collected has been - if possible - necessary and permitted by the respondent, verified by audio-recordings, photographs, pamphlets or samples of plants, which eventually increased the reliability of the data gathered. Qualitative interviews held during the pilot study and at later stages during the research process have been generally recorded with an electronic device, not at least in an attempt to overcome language difficulties and to document particular wordings. Furthermore, data gathered on the names and shapes of locally used MAC plants have been at times supported by photographs taken or plant samples collected (*cf.* Vokou *et al*. 1993).

3.3.2 Quantitative Data Collection: Household Surveys

In addition to employing techniques of participant observation and qualitative data collection, two extensive surveys have been undertaken within the present research in order to gain sufficient insight into people's health care utilisation behaviour. Data have been collected quantitatively on the basis of two quantitative household surveys, which form an appropriate means to collect data on the demographic, social, attitudinal, economic and morbidity characteristics of the research community (*cf.* White *et al*. 1976). The household surveys have moreover been identified as an adequate strategy for identifying limitations within the official health care system (*cf.* Buschkens & Slikkerveer 1982). As Slikkerveer (1990: 30) confirms: '*In particular, the population survey, an important issue in this type of research, not only deepens the understanding of patterns of utilisation of different kinds of health services by a population, but relating health care utilisation to cases of illness reveals the volume of unmet needs, identifying illness or disability for which only self-medicine or no specific care has been sought* […]'.

The household surveys have been conducted in the form of personal interviews held at the homes of respondents between the researcher and the household head. The household head has been identified as the person in the household most knowledgeable about health- and illness-related topics and about the household's financial status, as well as someone capable of providing socio-demographic information on all other household members. On the other hand, the 'household member' has been defined as any person, who usually stays, sleeps and shares meals or spends more than six months a year living in the household (*cf.* WHO 2002b). Prior to commencing the interview, the household members present at the time of the researcher's visit have been herewith asked to identify the household head among themselves. In case that the household head has been selected from the members present, the interview began, whereby questions have been asked to the household head. In case that the household head has been identified but absent at the time of the researcher's visit, the interview has been rescheduled for a time or day the household head has been present. The identification of the household head has been moreover obsolete among single-member households. Having selected the household head, the interview proceeded in a face-to-face manner with the interviewer recording the respondent's answer and taking additional notes on the printed questionnaire. Overall, the answers, which have been provided by the household head, have been distinguished as characteristic for the entire household and have been subsequently assigned to each household member. During the interview process, however, the other household members commonly stayed to observe, to provide additional qualitative information or to assist the household head in answering the questions, particularly regarding the blocks of socio-demographic, perceived morbidity and health care utilisation factors. In general, all respondents have been exposed to the same type of questionnaire, thereby generating quantitative, comparable data. At later stages during the household surveys, it has been moreover possible to use the information already collected in order to probe questions and to test the quality of the information gathered by the researcher (*cf.* Bernard 2002).

The general information on the front page of the formal questionnaire referring to the date and place of the interview, as well as to the name of the community and the number of the respondent selected has been provided by the researcher. Hereafter, respondents have been asked to share their knowledge of the variables related to the blocks of psycho-social, institutional, intervening and enabling factors. Subsequently, the focus of the interview widened, as the respondent has been requested to provide socio-demographic information on each of the household members, including the household head. In the same fashion, the respondent has successively been asked to give information on the perceived morbidity of each household member, including the household head, whereupon data gathered on the respondents could be divided between subjects who had experienced an episode of illness during the recall period of the preceding 12 months, hereafter identified as 'patients', and subjects who not had experienced an episode of illness during the recall period, hereafter referred to as 'non-patients'. While the interviews at this stage were completed for the category of 'non-patients', the interview with 'patients' continued with asking the questions concerning the dependent variables of health care utilisation of the three available medical systems. In this way, detailed information was collected on the type of medical treatment sought by each patient, the costs concerned and the result of the treatment. The interview was also completed at this stage if 'patients', who had experienced an illness episode during the recall period but who had not sought any type of medical treatment, rendering them also to belong to the category of 'non-patients'. In general, the quantitative data have been collected at the lowest level of analysis, *i.e.* at the individual level, allowing for a recalculation of data into larger units at a later stage of the process of data analysis.

3.3.3 Data Analysis

In order to present the information collected by means of qualitative interviews and quantitative questionnaires in the form of an overall statistical profile of patterns of transcultural health care utilisation behaviour, a thorough data analysis has been performed. Qualitative data have been studied on the basis of text interpretation in order to understand the meanings and interconnections among the cultural expressions used by the community members (*cf.* Bernard 2002). Data, which were collected on the indigenous classifications of MAC plants and on illnesses, for example, have been analysed schematically and graphically, thereby showing how people organise their knowledge. Audio-recordings have been transcribed and translated, pamphlets have been translated and samples of plants have been dried and compressed using books and papers.

The extensive amount of comparable, quantitative data, which has been collected by means of the formal questionnaire in correspondence with the conceptual model, has been evaluated through methods of statistical data analysis. Following the preparation of the data set - a process specifically explained in Paragraph 8.1.1 - a number of statistical techniques have been applied to the collected data in order to closely analyse patterns of transcultural health care utilisation behaviour and to substantiate qualitative findings. In general, the statistical analysis offers a variety of programmes, which can be used to find certain effects, processes and interactions involved in patterns of health care utilisation behaviour reported by the study population and to ultimately predict people's utilisation behaviour on the basis of the multivariate model applied to the collected data. Statistical methods have been chosen in accordance with the type of variables, which are included in the respective categories of factors, represented as blocks in the model, with the objective to evaluate the relationships and interactions between and among the variables as well as between the blocks of variables. In other words, techniques of statistical analysis have been selected with a view to document, understand and explain the interaction between the independent variables and the intervening variables in relation to the dependent variables of health care utilisation in the multivariate model, and to ultimately provide a statistically sound indication of the significant variables as determinants of the people's health care utilisation behaviour.

In the effort to divide the sample population into household members and then to sub-divide into 'patients' and 'non-patients', the quantitative data, which are collected during the household surveys, have first been transformed into two different data sets: (1) all household members including 'patients' and 'non-patients' (N=656); and (2) health care utilisation rates of all household members identified as 'patients' (N=452). In this respect, the number of households visited during the surveys amounts to 293, whereby the original target of a total of 300 units had to be reduced after the initial process of data cleaning. The two data sets offer information on all blocks of variables identified within the multivariate model for each household member of the sample. Data set *one* will be further described in Chapters V, VI and VII, whereby the data sets are subject to univariate analysis, namely a descriptive analysis of one variable at the time, and are used to substantiate the qualitative findings. In addition, data set *two*, which is described in Chapter VIII, provides the basis for the stepwise analyses, *i.e.* the bivariate analysis, the mutual relations analysis, the multivariate analysis, and the multiple regression analysis performed on the collected data. In this respect, all these analyses applied to the data sets are carried out with the use of Version 20 of the IBM Statistical Package for the Social Sciences (SPSS).

The bivariate analysis forms the point of embarkation for all statistical methods applied on the collected data in a way that it analyses the strength, direction and shape of the relationships between two variables. Assessing the quality of the relationship between a pair of variables, the bivariate analysis highlights to which extent the relationship between two variables exists by chance alone, or indicates a statistically relevant covariation. In other words, the bivariate analysis indicates *if* and *how* changes in one variable are met with similar changes in the other variable, and whether these changes occur because of a statistically significant relationship between the variables (*cf.* Bernard 2002; Field 2009; Leurs 2010). In the context of the present study, the bivariate analysis shows to what extent the score of the dependent variables can be predicted from any of the independent or intervening variables in the model. The bivariate analysis, however, does not allow for any indication of causality, *i.e.* for explaining which variable actually results in change, not at least because of the fact that any relationship between two variables can - or will - always be affected by other measured or unmeasured variables (*cf.* Field 2009).

Based on the type of data collected from the quantitative household surveys, the method of the bivariate analysis is selected in order to analyse the relationship between categorical variables with more than two categories, and to perform an analysis of the related frequencies. Firstly, the technique of cross-tabulation is implemented, in which two variables have been arranged in a grid, whereby the frequencies of each category are noted in the cells of the tabulation. In this way, it becomes possible to make a detailed comparison between both variables. While the schematic presentation of data in the table allows for an initial interpretation of frequencies and percentages across the cells, the Pearson's chi-square test (χ^2) is used to evaluate the actual relationship between the two variables. The Pearson's chi-square test of independence of two categorical variables determines whether the two variables within a cross-tabulation are associated and whether such association occurs by chance, or indicates an actual phenomenon within the population at large. In other words, the greater the significance value of the Pearson chi-square statistic, which is marked with χ^2, the less likely it is that the association between two variables exists by chance (*cf.* Bernard 2002; Field 2009; Leurs 2010).

In this way, the Pearson's chi-square test is based on two assumptions: (1) each respondent contributes to only one category in the cross-tabulation; and (2) no more than 20% of the expected frequencies are below 5 and none of the expected frequencies are below 1 (*cf.* Field 2009, Leurs 2010). In an effort to comply with the assumptions of the chi-square test statistic, all data included in the cross-tabulation are independent, as each respondent contributes to only one cell within the grid. Furthermore, the majority of expected frequencies, albeit not presented, are either all above 1 or, provided the number of frequencies remained below 20%, above 5.

Nevertheless, in a few cases the variables fail to meet the second assumption, as data are heavily tied or unbalanced, causing the sample distribution of the test statistic to be too deviant from the approximate chi-square distribution. Consequently, the probability of the chi-square test failing to determine a statistically significant relation between variables increases considerably. In order to overcome the loss of statistical power, an exact test is applied to the cross-tabulations, which fail to fulfil the second assumption, thereby solving the problem of approximation in small, unbalanced tables (*cf.* Field 2009).

Apart from adding the option of exact tests to the present data set, the values of significance of the chi-square test results are adapted to a certain extent. In general, significance values assess the degree of probability, to which a correlation between variables occurs by chance and are usually displayed as probability (p) values. In modern statistics, a probability value of .05, which equals a confidence interval of 95% and implies a .05 probability that the relationship between variables occurs by change, commonly forms the basis of significance tests (*cf.* Field 2009). Nevertheless, a number of studies have refined the mere dichotomy of defining values above .05 as 'non-significant' and values below .05 as 'significant' into a more nuanced classification of significance. In general, p-values above the threshold of .05 may indicate a certain trend among data, while values below the criterion may differ in terms of being significant. In order to avoid an oversimplification of results, the significance values of the Pearson's chi-square test are arranged along the following scale: χ^2>.15 'non-significant'; χ^2=.15-.10 'indication of significance'; χ^2=.10-.05 'weakly significant'; χ^2=.05-.01'strongly significant'; χ^2=.01-.001 'very strongly significant'; χ^2<.001 'most strongly significant' (*cf.* Agung 2005; Leurs 2010; Djen Amar 2010; Ambaretnani 2012; Chirangi 2013).

In order to further analyse the strength of each statistically significant association between two variables, Cramer's V can be applied to the data in order to measure the strength of all significant relationships regardless of the number of categories of each variable in the cross-tabulation, The values of Cramer's V range from 0 to 1, whereby 0 implies that no relationship exists between variables and 1 indicates that variables are perfectly associated (*cf.* Leurs 2010, Field 2009). In an attempt to adequately explain and interpret the effects between variables identified through a bivariate analysis, conclusions can be drawn from the percentage values presented within each cross-tabulation. Significant associations can basically derive from proportionally small differences in cell frequencies whereupon percentages rather than frequencies form an appropriate means to detect patterns within the data (*cf.* Field 2009). The bivariate tables indicating the distribution of two selected variables are interpreted on the basis of percentage values.

Subsequently, the mutual relations analysis is performed in which all statistically significant associations between variables are indicated in the block of variables in the multivariate model of transcultural health care utilisation. In view of the processes involved in the bivariate and mutual relations analysis, the statistical procedures involved and the results gained from the main component of the statistical data analysis applied to this study provide a sound basis for further consultation and interpretation of the results obtained from subsequent multivariate data analyses.

Although a bivariate analysis offers a significant insight into the relationship between independent, intervening and dependent variables, it fails to take into account the mutual and simultaneous interactions between all variables included in the multivariate model. Multivariate statistics form an extension of univariate and bivariate methods of data analysis by offering techniques to analyse more complicated data sets, in which variables are correlated to varying degrees. The multivariate statistic applied to the present study refers to the nonlinear canonical correlation analysis, using the technique of OVERALS which has been developed at the Department of Data Theory of the Faculty of Social Sciences of Leiden University (*cf.* Gifi 1990).

In particular, classical canonical correlation analysis assesses the relationship between two sets of variables, frequently referred to as independent and dependent variables, in which both sets contain multiple variables. As Gifi (1990: 193) elaborates: '*Any variable may contribute to the analysis in as much as it provides independent information with respect to the other variables within its own set and to the extent that it is linearly dependent upon other variables in the other set*'. In order to study the relationship between sets of variables, each set is first combined into a predicted value, namely an underlying dimension within the set also referred to as underlying factors or linear components, in which variables cluster together in a meaningful way. Clearly, the number of variables within each set produces a specific number of possible combinations, namely dimensions, whereupon the researcher determines the number of dimensions necessary for analysis.

Multivariate analysis generally produces reliable results on the first two dimensions, whereby the strongest combinations are found on the first dimension. In this way, canonical correlation analysis links up with the techniques of factor analysis and principal component analysis in the sense that it produces, across all subjects, the highest correlations between the predicted value and each selected variable, whereby an estimation is made to which extent the variable contributes to the underlying set of variables. The coefficients, which result from the correlations between the predicted values and the single variables, are known as 'factors' or 'component loadings'. On the whole, this analysis aims at identifying items, which load high on the respective factor or component (*cf.* Tabachnick & Fidell 2001; Bernard 2002; Field 2009).

In classical multivariate analysis, variables are usually assumed to have an a priori quantification and have to be treated at the interval level of measurement whereupon the transformation graph takes the shape of a straight line. The multivariate technique applied to this study, however, allows for the inclusion of variables, which have been measured at the nominal or ordinal level, whereby transformation graphs are produced in a shape other than straight lines (*cf.* Van de Geer 1993b). The OVERALS method describes a canonical correlation analysis, which is nonlinear and which assigns nonlinear transformations to the respective variables in order to be able to maximize correlation. In general, OVERALS forms an appropriate method of multivariate data analysis for the present study, particularly since a number of comparable studies have applied this method successfully. In these studies, research has also been conducted on patterns of behaviour by means of examining the relationship between variables, which are identified in an overall multivariate model (*cf.* Agung 2005; Ibui 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012; Chirangi 2013).

Apart from serving as the main method of multivariate analysis, the OVERALS technique is also implemented during the last stage of the statistical analysis performed on the collected data, during which an explanatory model of health care utilisation is developed, which allows for an ultimate prediction of people's utilisation behaviour. The analysis is no longer focussed on the relationship between variables, but on the correlation between the different blocks of variables, which have been identified within the multivariate model. First, the OVERALS analysis is performed on each block of variables in order evaluate the correlation between two blocks of variables in the model. Subsequently, the eigenvalues retrieved from each correlation are inserted into a formula, which produces the multiple correlation coefficients (ρ) indicating the strength of the relationship between the blocks of variables (*cf.* Field 2009; Leurs 2010). Since a multiple regression analysis provides a rather useful technique for the study of the relationship between blocks of independent and dependent variables, the amount of variation in the block of dependent variables, which is accounted for by the model, can be estimated. The description of the process of the stepwise statistical analysis concludes with a presentation in the ultimate model of the values of the multiple correlation coefficients, which highlight the characteristics of the processes related to the patterns of transcultural health care utilisation behaviour of the population of rural Crete.

Notes

(3.1) The system level of health care utilisation behaviour refers to be concept of medical systems and needs to be distinguished from the notion of health care systems, which relates to institutions offering medical services.

(3.2) According to a recent study conducted among the Mediterranean islands, people with a lower SES are more likely to adopt unhealthy patterns of behaviour, such as smoking and unhealthy dieting patterns, and to have a worsened psychological profile, namely to show depressive symptoms. By consequence, individuals tend to develop risk factors for cardiovascular diseases, such as hypertension, hypercholesterolemia and obesity as well as a high body mass index, more frequently than people with a higher SES, who appear to have a greater adherence to the Mediterranean Diet (*cf.* Panagiotakos *et al*. 2008).

(3.3) Since concepts are commonly defined by more than one variable, any statistical measurement process eventually applied requires a testing of correlations between the different variables assigned to each concept (*cf.* Bice *et al*. 1976; Leurs 2010).

(3.4) The grouping and lineup of categories of the variable 'Occupation' follow the order applied in the 'International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4', which has been developed by the Statistics Division of the United Nations (UN) (*cf.* United Nations 2013).

(3.5) In this respect, an initial research strategy included a comparison between the area of South-Central Crete and the tourist town of Malia at the north coast in the Prefecture of Iraklion. Nevertheless, these initial considerations have been abandoned following limitations of time and feasibility.

(3.6) In order to acquire proficiency in Greek, the researcher followed a one-semester beginners course in Modern Greek in 2009 at the 'Bibliotheek plus Centrum voor Kunst en Cultuur (BplusC)' in Leiden, The Netherlands, and took intensive private lessons in Modern Greek for a period of approximately three months in 2011.

(3.7) The Easter celebrations held right at the beginning of the fieldwork stage rendered it possible to assist in a number of community gatherings and festivities and to become acquainted with the target population in a rather short period of time.

Chapter IV RESEARCH SETTING: GREECE AND CRETE

Situated in the eastern part of the Mediterranean Sea as the largest island of Greece, Crete represents the research setting of the present study on people's patterns of health care utilisation. Any account on the natural, historical or cultural features of Crete involves a study of the characteristics of Greece at large. In this respect, the present chapter opens with an overview on the geography of Greece as a country of the Mediterranean Region and offers a synopsis of the rather extensive history of Greece. It concludes with an analysis of the recent events following the impact on Greece of the Eurozone financial crisis of 2009. Hereafter, the cultural environment of Greece is outlined not only from a historical point of view but also from a perspective of more recent developments, such as population exchange, labour migration, language uses and education schemes. In view of an analysis of these cultural patterns which are shaping everyday life of the Greek population, a brief description of the historical development and present-day expansion of the Greek Orthodox Church is also given.

The chapter proceeds with an assessment of the geography, history, socio-economy and culture of Crete, highlighting the distinctiveness of Crete in comparison to Greece at large. As Briassoulis (2003: 97) highlights: '[*Crete*] *has a historically strong and regionally diverse economic base, a strategic position, abundant natural and cultural resources, a spatio-temporally differentiated pattern of tourism development and a unique value system*'. The present chapter concludes with the presentation of a number of cultural icons of Crete, which have determined the image of the island considerably. In general, Chapter IV places the research setting of rural Crete in a wider perspective of Crete, Greece and the Mediterranean Region, providing a sound basis for the subsequent overview in Chapter V on the local characteristics of the research area.

4.1 Greece: Focus on the Mediterranean Region

4.1.1 The Geography of Greece in the Mediterranean Region

The Mediterranean Sea, including the Sea of Marmara, covers around 2.510.000 square kilometres with an extension of 4.000 kilometres from the Atlantic Ocean in the West to the Asian continent in the East and an average north-south distance of 800 kilometres, separating the European and the African continent (*cf.* Map 4.1). The Mediterranean Sea has long served as a geographical unifier for the countries bordering the intercontinental sea, known as the Mediterranean Region, the Mediterranean Basin or simply the Mediterranean. Scholarly attempts have been made to describe the Mediterranean Region on the basis of common natural and cultural features in sectors such as geography, ecology, climate, history, human settlement, cultivation, local belief systems and local customs. Climate conditions pertaining throughout the Mediterranean Region provide a sense of unity as they are characterised across countries by dry, hot summers and mild, rainy winters, whereas temperatures do not vary considerably. In the same fashion, historical movements and events have frequently had a similar impact on population groups inhabiting the countries bordering the Mediterranean Sea. Furthermore, geographical particularities have generated similar patterns of human settlement, particularly in rural areas, and practices of agriculture across countries. Cultural characteristics such as local customs, ritual practices, the belief in the 'evil eye', the system of dowry, political structures and the occurrence of internal conflicts have provided a sound basis on which the Mediterranean Region has been defined as a geographically distinct area (*cf.* Gilmore 1982). As Gilmore (1982: 181) explains: '*It is rather the combination of historical convergences with synchronic parallels in culture, all within a homogenous environment that provides both internal consistency and distinctiveness to the Mediterranean area*'.

Map 4.1 The Mediterranean Sea.
Source: Encyclopaedia Britannica, Inc. (2014).

Despite the various commonalities identified, the countries bordering the Mediterranean Sea differ greatly in sectors such as language, religion or social organisation and it has not been possible to link the Mediterranean Region to a form of political delimitation. Furthermore, the features classified as common are not necessarily unique to the Mediterranean Region, but may occur in different geographical settings. On the whole, the Mediterranean Region can be interpreted as a cultural area, which only partly overlaps with the distinct geographical region comprising all countries bordering the Mediterranean Sea (*cf.* Gilmore 1982; Hanepen 1997; Hagoort 1998; Heywood 1999; Pieroni *et al*. 2006; Britannica 2013). In this respect, Gilmore (1982: 177) concludes: '*By definition, "Mediterranean" refers to the landlocked Sea*'.

In spite of the difficulty to distinguish the Mediterranean Region as a unified geographical region, the countries bordering the Mediterranean Sea have been identified as a major centre of biodiversity, in which a variety of endemic species is found. Favourable climate conditions and a regional diversity of soil types, particularly among the Mediterranean islands, have stimulated the growth of regionally distinctive annual species, which over time have adapted to environmental changes. The large number of wild plants available throughout the Mediterranean Region has since the earliest days of human settlement formed a useful basis for people's livelihood, as plants have been used *i.a.* in the form of food, material, fuel and, most commonly, medicine (*cf.* Figure 4.1). The countries bordering the Mediterranean Sea, particularly the poorer regions of Southern Europe, moreover produce a considerable variety of agricultural crops and account for approximately 97% of the worldwide production of olive oil (*cf.* Allen *et al*. 2006; Skoula & Johnson 2006).

While cultivation practices generally change the native vegetation patterns and advance the development of new species throughout the Mediterranean Region, phenomena such as human population growth and the increased demand for plant resources have recently resulted in an occasional overexploitation and extensive destruction of the rich natural diversity in the area. By consequence, the bio-cultural diversity of the Mediterranean Region, which has a positive impact on the health of the population, has been threatened with extinction (*cf.* Skoula *et al*. 1997; Heywood 1999; Delanoë & Montmollin 1999).

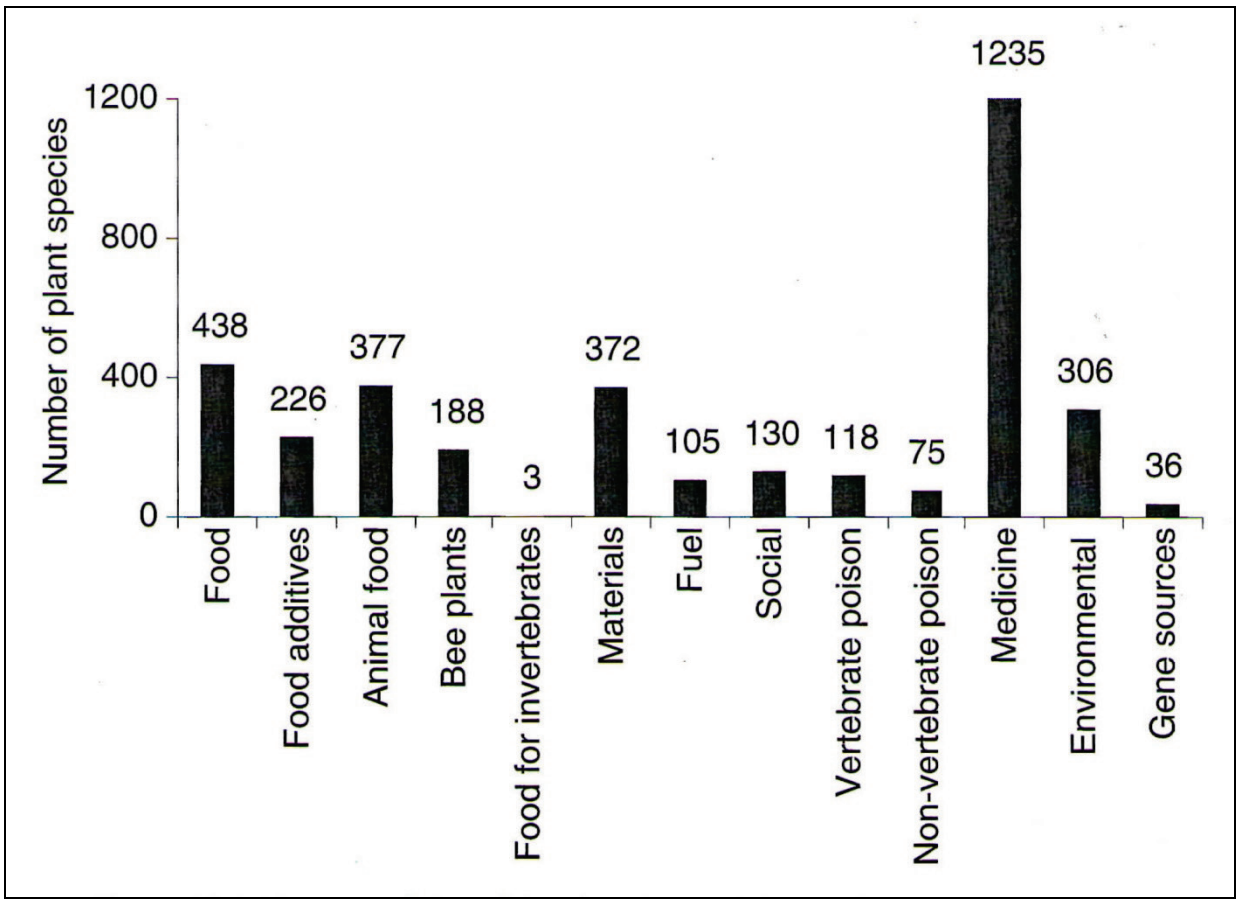


Figure 4.1 Uses of Wild Plants throughout the Mediterranean Region (Plants have been reported to the MEDUSA database and are all native to the Mediterranean Region). Source: Skoula & Johnson (2006: 184).

Immediately surrounded by its waters, Greece is situated in the north-eastern part of the Mediterranean Sea in Southeast Europe where it approximates the continents of Asia to the East and Africa to the South, and forms the most southern country of the Balkan Peninsula (*cf.* Map 4.2). The entire surface of Greece amounts to 131.957 square kilometres and is shaped by sharp inlets of water forming an extensive coastline and by numerous islands, which cover around 19% of the area. The most compact part of the surface, roughly referred to as the Greek mainland, comprises the geographic regions of Macedonia and Thrace in the Northeast; the regions of Epirus and West Greece in the Northwest; the region of Thessaly in the East; and the region of Central Greece, including the peninsula of Attica in East-Central Greece, where the capital of Athens is located. The Gulf of Corinth as the most prominent inlet of the Ionian Sea separates the Greek mainland from its most southern region, the Peloponnese. The Peloponnese refers to a peninsula of 21.439 square kilometres, which is connected to the Greek mainland only through a narrow isthmus near the city of Corinth (4.1). The Isthmus of Corinth divides the Gulf of Corinth from the Saronic Gulf, an inlet of the Aegean Sea, but has been opened in 1893 by the Corinth Canal, which brought considerable advantages to the shipping traffic. Apart from dissecting the mainland, the waters surrounding Greece enclose an abundance of islands, of which Crete, Euboea or Evia, Lesbos and Rhodes are the largest. The majority of the Greek islands are found in the Aegean Sea, at times only at a minimal distance from the Turkish coast. While the Ionian Sea encloses the group of Ionian Islands west of the mainland, the waters south of the Peloponnese accommodate Crete, the largest of the Greek islands, as well as the Island of Gavdos south of Crete, which forms the most southern point of Greece and the European Continent (*cf.* Lafranchis & Sfikas 2009).

Map 4.2 Map of Greece.
Source: Central Intelligence Agency (2014).

In addition to numerous inlets of water, the Greek landscape is distinguished by an extensively rocky, mountainous surface generated by tectonic movements, which have framed the relief of the country to this day. In addition to forming a chain of nowadays only partly active volcanoes

across the islands in the Aegean Sea, such as Santorini (Thera), the tectonic movements produce a drifting surface, which is noticeable in the continuous extension of the Gulf of Corinth as well as in signs of repeated seismic activity across the region. As Lafranchis & Sfikas (2009: 6) observe: '*Earthquakes, which are common in Greece though usually without consequence for man, remind us that Greece is still moving southwards, at a rate of up to 3.5 cm a year*'. The mountainous surface of Greece includes more than 1.600 peaks rising above 1.000 metres, of which the highest is found at Mount Olympus in North-Eastern Greece reaching 2.917 metres. The mountainous terrain of Greece moreover offers a number of deep and narrow gorges, which are carved into the rocky landscape by streams dissecting the country predominantly from the North to the Aegean Sea. In addition to a wealth of mountain chains, around one-fifth of the surface of Greece is covered by lowlands, namely by narrow mountain valleys and basins as well as riverine and coastal plains, whereby the largest plains are found in the regions of Macedonia and Thessaly (*cf.* Lafranchis & Sfikas 2009; Britannica 2013).

Although the climate of Greece is characterised by the typical Mediterranean features of hot, dry summers lasting from late May until September and mild, rainy winters, the mountainous shape of the surface creates regional and local differences. According to Lafranchis & Sfikas (2009: 16): *'Thanks to the topography, it is* […] *possible to follow spring from early February by the sea to late June or even July in the shaded gullies at high altitudes*'. In general, most precipitations fall between the months of October and April, following autumn- and spring-waves of rain, whereas rainfall is highest in the Northwest and considerably lower in the Southeast of Greece. The most hours of sun have been recorded for the west coast of the Ionian Islands, the Cyclades and the eastern part of Crete, while the highest average temperatures, generally higher in the South and West of the country, are reached in the plain of Thessaly near Athens and in the southern part of Crete. Since the winters on the mainland are frequently accompanied by snowfall, high altitude regions above 1.500 metres usually remain covered in snow for several months. The climate of Greece is further characterised by the regular activity of seasonal winds roughly classified as 'Vorias', which blow from the North, '*Vorras*', and 'Notias', which blow from the South, '*Notos*'.

The geographical position of Greece at the crossing of three continents, the widespread occurrence of isolated areas, such as islands and mountains, the contrasts in altitude, as well as differences in local climate conditions and rainfalls have favoured the development of a rather distinct type of vegetation. The wealth of different natural habitats has provided a favourable environment for the development and preservation of an enormous variety of natural endemic species. Although research into the diversity of the Greek flora has not yet been completed as new species continue to be discovered, Greece offers the richest flora and the highest rate of endemism in Europe. In particular, the vegetation of Greece has around 5.800 species and subspecies, of which the majority grows in small numbers and approximately 12.8% (n=740) are endemic to the country, growing mostly on islands, mountains and in gorges (*cf.* Lafranchis & Sfikas 2009). The flora of Greece comprises: evergreen trees and shrubs; small, aromatic and spiny shrubs; bulbous plants, which flower during the spring; and a considerably high percentage of annual plants. Although most species bloom in spring, flowering times can be rather diverse, whereby the number of annual plants decreases in certain places early during the year in May, because of the predominantly hot and dry weather conditions. Although the flora of Greece finds its origins primarily among the territories surrounding the Mediterranean Sea, numerous species have been introduced to the country via extensive trading and plant migrations, such as through an east-west migratory route, which developed in early Miocene and had its origins in West Asia, and a north-south 'Alpine' migratory route, which developed at a later stage in Central, Northern Europe.

In the same fashion, human interference with the natural environment, which started in Greece around 10.000 years ago and included the cutting and burning of forests as well as the introduction of domestic animals, such as sheep and goats, has had a strong impact on the development of the Greek flora (*cf.* Iatrou & Kokkalou 1997; Tan *et al.* 2001; Lafranchis &

Sfikas 2009). As Iatrou & Kokkalou (1997: 67) show: '*The Greek people, living in such a remarkably diverse country, rich also in indigenous plants, recognized the uniqueness of the flora since ancient times, and came to know their uses, both for food and for their non-food properties*'. The sometimes irrational management of ecosystems by humans has recently rendered the rich diversity of the Greek flora rather vulnerable to outside influences. Phenomena such as the regular occurrence of fires, the progress of urbanisation, the introduction of modern infrastructure, the growth of tourism at the coast and on mountains, the collection of aromatic plants for commercial purposes and the use of pesticides in agriculture in conjunction with the occurrence of overgrazing have threatened certain species with extinction (*cf.* Iatrou & Kokkalou 1997; Tan *et al*. 2001; Lafranchis & Sfikas 2009).

4.1.2 Greece: History and Recent Developments

Crossed by numerous mountain ranges enclosing rather secluded areas of settlement, the geographical features of Greece have favoured a course of history, which is largely characterised by the co-existence and interaction of different population groups in absence of a national entity. The continuous arrival of foreign invaders during historical periods of time, such as the Indo-European migration or the Barbarian Invasions, has prevented processes of unification and the formation of a Greek empire or state. Consequently, a status of entity has throughout history only been achieved following the intervention of foreign powers, which imposed unity on Greece from the outside, as it took place under the Roman and the Ottoman rule. Since the Greek State, as it is known today, only came into existence during the 20th century A.D., Greece looks back on a period of history, rich in cultural exchange and interaction.

Following initial forms of human settlement in the area of contemporary mainland Greece during the Palaeolithic Age, the first agricultural communities emerged in the Neolithic Age during the 6th millennium B.C. in the region of Thessaly near the city of Corinth (4.2). The Bronze Age introduced not only a general expansion of peasantry but also a period of general upheaval, provoked by the gradual arrival of Indo-European immigrants on Greek land from regions such as the Black and Caspian Sea, Asia Minor and the Balkan. These migratory movements contributed to the formation and development of the Cycladic civilisation on the Cyclades and the Helladic civilisation on the mainland, as well as to the emergence of the first 'recognised' culture of Europe, known as the Minoan civilisation in Crete around 3000 B.C. The merge of incoming and old-established religious beliefs and practices resulted in the development of a particular polytheistic belief system in which an Indo-European sky god has been identified as Zeus and Mount Olympus has been assigned home to the deities.

Furthermore, the first peasant communities in the Peloponnese have considerably been influenced by the Minoan culture and the religion of Crete, which maintained its dominance in the area until the rise of the Mycenaean civilisation on mainland Greece. During the 14th and 13th century B.C., the Mycenaean civilisation expanded rapidly and gained dominance in the Aegean region, particularly after the destruction of Minoan Crete, until power declined during the 12th century B.C. The heroism and warfare of the Mycenaean civilisation has been highlighted in accounts written on the Trojan War, most prominently in the Iliad and Odyssey of Homer, which refers to a legendary conflict between the inhabitants of mainland Greece and western Asia Minor. Later, the Greek land became home to: (1) the Achaeans, who inhabited the northern part of the Peloponnese and bore strong resemblance to the Mycenaean population in terms of language and warfare whereupon the names of both groups have been used interchangeably (4.3); (2) the Aeolians, presumably a group of descendants from the first wave of Indo-European immigrants, who migrated east during the 12th century B.C. and settled in the Island of Lesbos as well as along the west coast of Asia Minor; (3) the Ionians, who consisted of the Athenians living in the region of Attica and the Greeks inhabiting Euboea as well as several other Aegean islands; (4) and the Dorians, who invaded Greece from the Danube region in the North around 1200 B.C. and settled in the Peloponnese and in Crete. On the whole, the Achaeans, Aeolians,

Ionians and Dorians have been identified as the four primary subgroups of the so-called 'Hellenes', the speakers of various ancient Greek dialects and literal ancestors of the Greek population. The Hellenic population groups spread slowly across the Greek land and came to mingle with the indigenous population of Greece to varying degrees not at least favoured by the geographical features of the landscape which offered rather secluded areas of settlement (*cf.* Bengston 1988; Boardman *et al*. 2001; Waldman & Mason 2006).

The end of the Mycenaean civilisation marked the beginning of a period of transition to the politically, philosophically, artistically and scientifically advanced civilisation of Ancient Greece, which flourished roughly between the 12th and the 4th century B.C. Later, the phenomenon of the Greek city-state or '*Polis'* occurred during the 8th and 7th century B.C. as a place of political, religious, intellectual and economic life, which typically centred on one town and contained an acropolis, a citadel on raised ground and a marketplace, '*Agora'*. However, the emergence of the Greek city-states soon became overshadowed by the rise of the Spartan military state in the south-eastern part of the Peloponnese during the 8th and 7th century B.C. Following the integration of several adjacent territories, the city-state of Athens developed and came to be governed by a regime of tyranny, a form of sole reign, which emerged during the 6th and 7th century B.C. For reasons of overpopulation, social conflict, search for new land and trade as well as a newly developed feeling of unity among the speakers of the Greek language, Greece began to expand its territory to regions surrounding the Black and Mediterranean Sea during the Great Hellenic colonisation, which occurred approximately between 750 and 500 B.C. (*cf.* Bengston 1988; Britannica 2013) (4.4).

The 5th century B.C. marks the onset of the era of Classical Greece, which lasted roughly until the 4th century B.C. and is primarily characterised by the rise of the city-state of Athens to a commercial, cultural and intellectual centre of Greece. However, the growth of the Persian Empire posed a threat to the Ionian city-states along the west coast of Asia Minor and resulted in a series of Greco-Persian wars, during which the city-states of Athens and Sparta joined forces to fight and eventually defeat the Persian army mobilised under the Persian King Xerxes I during the 5th century B.C. Subsequently, Athens continued to strengthen its hegemony across the Aegean Sea under statesman Pericles, who encouraged the development of Athenian democracy and the Athenian empire.

Under the Roman rule, the population of Greece became exposed to the spread of Christianity, which had been approved an official religion under Constantine I, the first Roman emperor to convert to Christianity. Gradually, Greece fell under the growing influence of the eastern city of Byzantium - today known as Istanbul - which was declared the Seat of the Roman Empire by Constantine I in 330 A.D. and was later renamed as Constantinople. Following the Fourth Crusade and the conquest of Constantinople in 1204 A.D., which resulted in the establishment of the Latin Empire, the territories of the Byzantine Empire were divided among Western magnates whereupon Greece came under the Frankish and the Venetian rule. After Constantinople was recovered by Byzantine powers during the 13th century A.D., the city of Mistra in the southern part of the Peloponnese emerged as a significant Byzantine centre and as Seat of the Byzantine despots. The advance of the Turks during the 14th and 15th century A.D. eventually put an end to the Byzantine hegemony in Greece although the naval powers of Venice and Genoa succeeded to maintain supremacy over parts of Greek land, particularly the Greek islands (*cf.* Kain Hart 1992; Britannica 2013).

During the extensive period of the Ottoman rule in Greece, which lasted from the capture of Athens in 1458 until the onset of the Greek War of Independence in 1821, the Greek population demonstrated considerable resistance against the Turks. Independence has been encouraged through the continuous opposition against the Ottoman rule by armed bandits, known as 'Klephts', and the Greek Orthodox Church (4.5). During the 17th and 18th century, tensions rose between the Ottoman Empire and the Great Powers of Europe, particularly France and Great Britain, and Russia regarding the control of the strategically crucial Bosporus Strait. The European powers resorted to exert pressure on the Turks in order to secure European access to

Asia and to prevent Russia from gaining direct access to the Mediterranean Sea. As a result of these external strains, Ottoman hegemony weakened, thereby motivating the Greek population to declare the war of independence on the Turks in 1821, which lasted until 1829 and amounted to the Declaration of Greek Sovereignty, issued in 1830. Following the Conference of London in 1832, Greece was declared a monarchy by the Great Powers and Otto of Wittelsbach was appointed the first King of the Modern Greek state, which, however, did not cover the entire surface of contemporary Greece, but excluded certain areas such as the region of Thessaly and Crete. During the reign of King Otto, the phenomenon of the Great Idea, *'i Megali Idea'*, namely a nationalistic idea to restore the Greek Orthodox Byzantine Empire and to unite all areas of Greek settlement, emerged, whereupon the King contemplated an intervention against Turkey in the Crimean War, which was fought between 1853 and 1856. In view of the King's failure to acquire any additional territory and the subsequent occupation of the harbour of Piraeus by French and British forces, King Otto has been forced into exile in 1862 and was replaced by King George I of Denmark, who reigned over Greece between 1863 and 1913. At the turn of the 20th century, Greek land expanded gradually as encouraged by the continuous decline of the Ottoman Empire and the Balkan Wars fought in 1912 and 1913. Through the mediation between the Great Powers rather than by armed conflict, Greece acquired not only the Ionian Islands and the Province of Thessaly but also parts of the Province of Macedonia and Crete. The first three decades of the 20th century witnessed the final expulsion of the Turks from the Balkan Peninsula, and brought substantial territorial and diplomatic gains for Greece. The socio-political developments in Greece have been largely dominated by the work of Eleftherios Venizelos, presumably one of the most prominent Greek politicians, who acted as Prime Minister of Greece during different periods of time between 1910 and 1933.

At the outbreak of the First World War, the contrasting politics of Prime Minister Venizelos, who advocated the participation of Greece in the war alongside the Entente Powers, and King Constantine I, eldest son of King George I, who insisted on the neutrality of Greece, led to an opposition of political views among the population. After King Constantine I was eventually forced to resign, the participation of Greece in the war led to the landing of Greek troops in the city of Izmir (Smyrna) at the west coast of Asia Minor, which became largely populated by Greek people in 1919. Following further tensions between Greece and the newly established Turkish Republic, the Conference in Lausanne in 1923 brought peace, where Greece and Turkey agreed on an exchange of population groups between both countries on the basis of religious affiliation. Consequently, Greece experienced the arrival of millions of Turkish-speaking Orthodox Christians in exchange for the departure of thousands of Greek-speaking Muslims to Turkey. While the interwar-period has been characterised by political turmoil in Greece, the onset of the Second World War was marked by the invasion of Italian forces to Greece from Albania in 1940. Although Greek forces were able to reclaim their land from the Italians and to subsequently align with British forces, the German army crossed Greek borders in 1941 forcing King George II to flee to the Middle East, and maintained control over Greek territory until 1944. The German occupation of Greece was met with fierce resistance by Greek partisan groups, primarily the National Liberation Front, '*Ethniko Apeleftherotiko Metopo (EAM)*', founded by the Communist party in 1941 and its military arm, the Greek People's Liberation Army, '*Ellinikos Laïkos Apeleftherotikos Stratos (ELAS)*', which controlled around two-thirds of Greece by the time German forces retreated in 1944 (*cf.* Herzfeld 1999; Britannica 2013).

After the retreat of German forces between 1944 and 1945 and subsequently between 1946 and 1949, the strong position of communist guerrilla forces in Greece amounted to a civil war between communist and conservative camps. After the end of the civil war Greece acquired the Dodecanese Islands and slowly took on the shape of its present surface. During the decades following the Second World War, Greece experienced a general increase in economic gains, urbanisation and living standards, which has been stimulated by the rapid development of the tourist industry during the mid- to late-1960s, and the money transfers made by migrant workers, working in Germany in particular.

Since the elections planned for 1967 were expected to bring another victory for the liberal party, while tensions had grown between Georgios Papandreou and King Constantine II, son of King Paul, a number of officers under the guidance of Colonel Georgios Papadopoulos launched a military coup the same year. Consequently, a military junta ruled Greece between 1967 and 1974, during which the monarchy was finally abolished and Greece declared a republic in 1973. The harsh regime of the military junta has been at times met with fierce resistance on the side of the Greek population, most prominently evidenced by the Athens Polytechnic uprising, which ended in a bloody oppression of protesting students by the military regime in November 1973. The military junta soon aspired the annexation of Cyprus and provoked an overthrow of the Cypriot government in 1974, which ultimately led to the invasion of Turkish troops in Cyprus and the subsequent division of Cyprus into a Turkish and Greek Cypriot political entity. After the decline of the military junta, Konstantinos Karamanlis founded the centre-right New Democracy, '*Nea Dimokratia (ND)*', in 1974. Karamanlis succeeded to guarantee the membership of Greece in the European Economic Community, which Greece effectively joined in 1981. Consequently, Greece became a major beneficiary of common European policies, whereby resources have been allocated in order to support the country's rather weak agricultural and industrial sector. Although economic gains have been made in the shipping and tourist industry, agricultural and industrial productivity remained low, while unemployment rates rose following the return of many migrant workers to Greece, which rendered the Greek economy one of the weakest within the European Union (EU) during the last decades of the 20th century.

Concurrent social transformations led to the overthrow of the government of Konstantinos Karamanlis by the centre-left Pan-Hellenic Socialist Movement, '*Panellino Sosialistiko Kinima (PASOK)*', founded in 1974 by Andreas Papandreou, who became Prime Minister of Greece between 1981 and 1989. Since 1974, democracy in Greece has been characterised by a dual party system and a rather polarised political environment, in which political parties monopolise bureaucratic structures and personnel. As Davaki & Mossialos (2005: 147) argue: '*The state enhanced polarization by creating jobs and administrative posts to accommodate certain social groups and exclude others*'. Although Greece entered a process of industrialisation in the early 1960s, a strong working class has been never formed whereupon movements of the trade union have been rather limited. As Davaki & Mossialos (2005: 145) notice: '[…] [*Groups*] *achieve their objectives either through government support - dependent on a subordinate relationship with the party in power - or by abusing their right to strike*'. In view of the fragmented state apparatus, which accommodated practices of excessive government borrowing and misleading accounting, as well as a stagnating national economy suffering from limited natural resources, the Eurozone financial crisis of 2009 had a comparatively strong effect on Greece and amounted to a call of elections the same year (4.6).

As Greece had accumulated an enormous national budget deficit, the new government led by George Papandreou resorted to taking harsh austerity measures and eventually asked financial support from the EU and the International Monetary Fund (IMF). In view of the threat, which the collapsing Greek economy posed to the Eurozone, of which Greece had become a Member since 2001, the country was granted financial support through the financing of a first and second Economic Adjustment Programme in 2010 and 2012. The elections of June 2012 introduced a shift from the rather traditional two-party alternation to a coalition formed between the ND, PASOK and the smaller Democratic Left, DIM.AR under the guidance of ND leader Antonis Samaras as Prime Minister. In Greece, the austerity measures in the form of budget cuts, reductions in benefits and pensions as well as tax increases coupled with massive rates of unemployment accompanying the economic adjustment programmes, however, have marked the beginning of a period of uncertainty (4.7). The austerity measures have regularly been met with great disapproval and have led to the organisation of violent protests and strikes, suicides and a general state of anxiety and depression among the Greek population (*cf.* European Commission 2014).

4.1.3 Culture, Population and the Greek Orthodox Church

Early writings of the era of Ancient Greece not only shed light on a period of history rich in cultural exchange and interaction, but also offer insight into the cultural and social values of the population at that time. The Greek poet Homer, for example, who has likely been e active during the 9th and 8th century B.C., elaborates that conflict formed an intrinsic part of Greek society, as its members appeared to frequently engage in warfare. According to Hesiod, presumably active during the era of Archaic Greece in the 7th century B.C., the key-virtues of daily life in a Greek village refer to a general respect for the gods, for the powers of nature and for the community. In this respect, a number of ancient virtues, particularly the respect for nature and community, have survived the historical turmoil and may at times still be encountered among Greek communities today. In addition to creating an early impression of Greek culture and society, the writings of Homer and Hesiod contribute to the extension and shape of a regional religious belief system. In the absence of a formal church, these literal compositions connected the polytheistic belief in the Olympic gods to the belief in local deities and thereby produced an extensive corpus of religious and spiritual myths. Overall, the development of a polytheistic belief system as well as the introduction of Greek Orthodox Christianity at a later stage mark significant milestones in Greek history, which have shaped Greek society to this day. The virtues of conflict and respect coupled with a complex polytheistic belief system, however, form the evidence of a Greek society, which has since antiquity been characterised by the co-existence of different population groups and the constant interplay between culture areas, not at least encouraged by the geographical features of the country (*cf.* Blum & Blum 1965; Bengston 1988).

The history of migration, foreign occupation and warfare coupled with recent policies of assimilation has formed a population, rich in cultural diversity and strong in national identity. In general, the population of Greece comprises around 9.793.000 inhabitants, of which around three-fifths reside in urban areas, particularly in the capital of Athens, in Thessaloniki and Iraklion in Crete (*cf.* Map 4.2). The Muslim community of Thrace in North-Eastern Greece forms the only officially recognised minority, although ethnicities found across the country include Turks, Bulgarians, Albanians, Macedonians, Vlachs and Roma.

The language profile of Greece is characterised by the co-existence of Modern Greek, as one of the oldest Indo-European languages, and different local and regional dialects, at times enriched by idiomatic expressions of languages other than Greek, such as '*Kritika*' spoken in Crete, which finds its origin in the linguistic adaptations to languages spoken by foreign invaders. Also, several minority languages are spoken, such as Turkish, Macedonian and Albanian. In the tourist sector also English, French and German are spoken. Modern Greek finds its origins in the rather uniform Hellenistic Greek language, known as '*Koine*' and in the later Byzantine Greek, whereby the former was written and spoken as early as during the 4th century B.C. after which it has survived as the liturgical language of the Greek Orthodox Church. During the early 19th century, the language profile of Greece formed a discrepancy between, on the one hand, the written '*Katharevusa*', a corrected form of Modern Greek rooted in ancient Greek, and used mostly in law, administration and education, and, on the other hand, the spoken, uncorrected Demotic Greek. In 1974, after a rather extensive debate on the persistence of this form of bilingualism, the official status of *Katharevusa*, often interpreted as a means of the educated to exert power over the uneducated, was abolished and Demotic Greek, '*Dimotiki*' became what is known today as 'Modern Greek' (*cf.* Greger 1985; Herzfeld 1999; Horrocks 2010).

Nowadays, education in Demotic Greek, as the language of instruction is provided on the primary, secondary and tertiary level through both public - free - and private institutions and is compulsory for children between the ages of 6 and 15. Primary education consists of one to two years of kindergarten and six years of attendance at the primary school, '*Dimotiko*' between the ages of 6 to 12 (4.8). Secondary education in Greece is divided into lower and higher secondary education. Lower secondary education corresponds to the compulsory attendance at the

'*Yimnasio*' between the ages of 12 and 15. Higher secondary education relates to three years of higher secondary school, '*Likio*', or vocational secondary school, '*Epangelmatiko Likio (EPA.L)*', attended between the ages of 15 and 18, or to formal level education provided by vocational training institutes, '*Instituta Epangelmatika Katartisis (IEK)*'. Finally, tertiary education is provided by Universities and Polytechnics as well as by so-called Technological Education Institutes and by academies for the military or the clergy. In general, the educational system of Greece is highly centralised and receives limited funding, as government spending for public education in Greece is the lowest among the countries of the EU. Admission to tertiary education is heavily restricted and the standard levels of education in Greece have been defined as rather poor, whereby a slight improvement in the educational status has been recorded alongside an increase in economic growth prior to the Eurozone financial crisis. To this day, the Greek educational system accommodates an extensive array of private education, '*Frontistiria*', run by educational institutions and tutors, who operate at the primary, secondary and tertiary level, offering education primarily in the form of supplementary lessons or exam preparations in exchange for tuition fees.

Furthermore, the strict admission policy at the tertiary level encourages a growing number of students to attend universities abroad, thereby draining Greece from its foreign currency reserves and brainpower. The heavy reliance of the Greek economy on agricultural production furthermore creates little opportunity for students from rural areas to receive higher education and employment. Obtaining a tertiary education degree in Greece is usually accompanied by job security, high social status and personal prestige (*cf.* Giamouridis & Bagley 2006; Panagiotakos *et al*. 2008). Giamouridis & Bagley (2006: 11) notice that: '*a segregated educational system ultimately leads to a segregated social structure*'.

The Greek Orthodox Church, to which virtually all members of the Greek population belong, influences the cultural identity of Greece considerably and has been identified as the main symbol of modern Greek national identity. Prior to the introduction of Christianity, the Greek population shared a polytheistic belief in an array of gods, cults and legends, which have been tied to geographic space, as well as to festival times and concrete events in the religious year (*cf.* DeHart 1999). The Greek Orthodox Church owes its origin to the expansion of Christianity across the Roman Empire during the 4th century A.D. under Constantine I, founder of Constantinople, which became a significant patriarchate in 381 A.D. and the centre of Eastern Orthodoxy (4.9). Eastern Orthodoxy continued to act as a unifier among its adherents not only during the Byzantine Era, which ended with the fall of Constantinople in 1453, but also during the period of the Ottoman hegemony on the Balkan, which lasted until the beginning of the 20th century. Although affiliation with the patriarchate created a notion of unity among the followers of Eastern Christianity living in the Balkan, the diverse population groups retained their ethnical distinctiveness (*cf.* Kain Hart 1992; Roudometof & Makrides 2010; Britannica 2013).

Apart from historical accounts, folklore, poetry and literature, the Greek identity has been encouraged through religious symbolism and festivities, many of which formed part of ancient folk and religious traditions and have been reinterpreted as national celebrations (4.10). Following the establishment of the National Church of Greece in 1833 and the stimulation of Greek identity through religious education, the affiliation with the Greek Orthodox Church came to form a central component of Greek nationality (4.11). Although after the Second World War, tendencies towards equating national identity with religious affiliation reduced, the Greek Orthodox Church has remained a crucial institution in the political discussions on Greek identity, and has continued to occupy an integral position in the everyday life of rural, communities to this day, particularly in the islands (*cf.* Kain Hart 1992; Roudometof & Makrides 2010) (*cf.* Illustration 4.1).

While the Greek Orthodox Church of today is integrated into the Greek state through the Ministry of Education and Religious Affairs, it is largely autocephalous, *i.e*. self-governing. The Holy Synod of the Orthodox Church of Greece under the current Archbishop of Athens and All Greece, Ieronymos II is given supreme religious authority over all bishops and clerics. In the

doctrines of the Greek Orthodox Church, bishops and members of the cloister are obliged to remain celibate, only allowing monks to be appointed as bishops, while priests and deacons are given the right to marry, provided that marriage precedes the ordination to priesthood. The members of monastic communities, such as the semiautonomous Republic of Greek Orthodox monks living on Mount Athos, known as '*Ayios Oros*', 'Holy Mountain', in North-Eastern Greece, settle primarily in remote locations where they continue to play an important role as teachers and guardians of traditional Greek Orthodoxy.

In general, the Greek Orthodox Church follows an annual canon of religious rituals and celebrations, which are organised around a liturgical calendar and include visits to the church on particular days, observation of periods of fasting and participation in seasonal festivities, such as Easter and Christmas. The liturgical calendar of the Greek Orthodox calendar is dedicated primarily to the veneration of Christ, the Mother of God, '*Panayia*', and the Saints and is predominantly expressed through the honouring of holy icons (*cf.* Greger 1985; Kain Hart 1992; Van den Akker 2002; Roudometof & Makrides 2010).

Illustration 4.1 Church of the Holy Trinity in Praitoria.
Photograph by J. Aiglsperger (2011).

4.2 Crete: The Largest Island of Greece

4.2.1 Geography, Climate and Flora of Crete

Forming the fifth largest island of the Mediterranean Region as well as the largest island of Greece, Crete extends over a surface of approximately 8.729 square kilometres reaching 254 kilometres from the West to the East and between 12 and 56 kilometres from the North to the South. Crete is situated south of the Aegean Sea, roughly equidistant from the mainland of Greece in the North, Turkey in the East and Libya in the South, thereby bridging three different continents, which once have physically been connected (*cf.* Map 4.1). Surrounded by the Sea of Crete in the North and the Libyan Sea in the South, Crete approximates the Dodecanese Islands, particularly the Island of Kasos of the Karpathos island group, in the Northeast and the Island of

Antikithira to the Northwest (*cf.* Map 4.2). The administrative region of Crete similarly encloses a number of offshore islands, such as the Island of Dia north of Iraklion, the Island of Khrisi or Gaïduronisi south of Ierapetra and the Island of Gavdos south of Hora Sfakion.

The surface of Crete is shaped by an extensive coastline of approximately 1.040 kilometres, which stretches around several peninsulas at the north coast and herewith offers natural harbours to the island's major cities of Chania, Rethymnon, Iraklion and Ayios Nikolas. From West to the East, these cities are the capitals of the four prefectures of Crete, namely the Prefectures of Chania, Rethymnon, Iraklion and Lasithi respectively (*cf.* Map 4.3). The prefectures are governed by a prefect, '*Nomarhis*', who usually resides in the capital city (*cf.* Briassoulis 2003; Fielding *et al*. 2005; Lafranchis & Sfikas 2009).

Map 4.3 Map of Crete.
Source: Map data ©2014 Google.

The surface of Crete is largely mountainous, whereby around three-fifths of the area rises to 200 metres above sea level. The island is covered by various mountain ranges, including the *Lefka Ori* or White Mountains in the West, the Psiloritis Mountain in the Prefecture of Rethymnon, the Asterousia Mountains in the southern part of the Prefecture of Iraklion; and the Dikti or Lasithiotika Mountains in the East, which enclose the Lasithi Plateau on the northern slopes. In Crete, the areas of high altitude have been identified as scared, mythological places, particularly during the era of Minoan civilisation, and have frequently been attached to the life and veneration of Zeus, the Father of all Greek gods. The shape of the around 800 metres high Mount *Yiukhtas* south of Knossos, for example, which served as a peak sanctuary to the Minoan palace of Knossos, is said to resemble the lying face of Zeus (*cf.* Illustration 4.2).

The high altitude areas of Crete enclose a number of lowland regions, of which the Mesara Plain between the southern slopes of the Psiloritis Mountain and the northern slopes of the Asterousia Mountains in South-Central Crete has the most extensive area of flatland covering a length of approximately 29 kilometres. The great abundance of limestone and dolomite has favoured the formation of caves, plains, basins, craters and gorges, particularly in the area of South-Western Crete. The Samaria Gorge, which reaches a length of approximately 18 kilometres, forms the longest gorge of Europe (*cf.* Map 4.3). While only a few of the rivers running through Crete flow permanently, the majority carries water only during the winter partly as a result of modern irrigation works (*cf.* Rackham & Moody 1996; Iatrou & Kokkalou 1997; Briassoulis 2003; Fielding *et al*. 2005; Britannica 2013).

The typical Mediterranean climate of Crete is characterised by winters, which extend from November to March and are generally cool, albeit seldom frosty, and moist because of the rain brought from the Atlantic by north-westerly winds. The summers, which extend from June to

August, are generally hot and dry and are occasionally hit by storms owing to the activity of strong winds. Crete is exposed to the north-westerly winds, which blow during the winter month and the *Meltemi*, which reaches the island from the Aegean Sea during the summer. The *Sirocco*, blows during the spring and sometimes autumn, bringing dust from North Africa, which may colour the sky and landscape orange with sudden increases in temperature. The southern heat waves frequently result in extensive periods of draught, which may last for more than six months, from May to October. While lowlands usually remain dry, rainfall in Crete increases with altitude, but decreases from the West to the East as well as from the North to the South bringing the White Mountains around five times as much rain as the south-east coast. The temperatures increase slightly from the Northwest to the Southeast, where the percentage of sunshine is high and maximum temperatures of 40 degrees Celsius during the summer are rather common.

Illustration 4.2 Mount *Yiukhtas* seen from Iraklion.
Photograph by J. Aiglsperger (2010).

During the winter, minimum temperatures in Crete rarely fall below 0 degrees Celsius, whereby the average temperature reached in Iraklion during the winter months has been estimated at 12 degrees Celsius. Snow usually falls at higher altitudes during late October, whereas elevations above 1.600 metres may remain covered by snow until May (*cf.* Greger 1985; Rackham & Moody 1996; Chartzoulakis *et al*. 2001; Tan *et al*. 2001; Fielding *et al*. 2005; Kritsotakis & Tsanis 2009; Lafranchis & Sfikas 2009).

The geographical particularities of Crete at the crossroads of three different continents, in combination with differences in surface areas and climate conditions, have contributed to the development of a naturally diverse and highly endemic type of vegetation. In particular, the flora of Crete comprises around 1.735 native species, of which approximately 9.2% (n=159) are endemic to the island and around 8.1% (n=140) have been introduced by human activity (*cf.* Fielding *et al*. 2005). Routes of plant migration have reached Crete from the Mediterranean and the Euro-Siberian Region as well as from Asia and North Africa, by the result of which the island has acquired a great variety of natural plant species. Moreover, Crete provides a favourable environment for the growth of endemic plants, which are able to flourish in the inaccessible, protective habitats at high altitude cliffs and treeless mountain peaks, out of the reach of grazing animals (*cf.* Rackham & Moody 1996; Delanoë & Montmollin 1999; Fielding *et*

al. 2005; Allen *et al*. 2006; Lafranchis & Sfikas 2009). As Lafranchis & Sfikas (2009: 12) highlight: '*Crete is an interesting example as several of the Cretan endemics have produced two closely related species, one in the western part and another one in the East*'. Although the vegetation grows rather safely in areas of high altitudes, which are only occasionally affected by the overgrazing of animal flocks, the Cretan flora has recently been threatened by a variety of phenomena, such as invasive species, a lack of genetic diversity among isolated plant populations, fires, flash floods, earthquakes, soil erosion, deforestation, pollution due to the use of herbicides, harmful farming technologies, such as mechanical ploughs, urbanisation along the coast, tourism and over-collection of species by humans (*cf.* Delanoë & Montmollin 1999; Heywood 1999; Fielding *et al*. 2005).

4.2.2 The Unique History of Crete

On the one hand, the geographical location and mild climate of the island have prompted ancient scholars to refer to the Crete as the '*isle of the blessed*' (Bengston 1988: 8). On the other hand, the strategically favourable location of Crete at the crossroads of three continental regions has throughout history attracted the interest of foreign invaders seeking to annex the territory on a pursuit of hegemony, exposing the island to continuous waves of outside occupations. As Rackham & Moody (1996: 88) observe: '*Each successive conqueror of Crete left at least a few people on the island*'. In general, the history of Crete sheds light on a series of events, which, despite a certain amount of disagreement among scholars on the exact course, are rather unique to the island and only party overlap with the history of Greece at large. As Detorakis (1994: XIII) notes: '*The history of Crete is daunting, both in length and in the variety and number of events it includes. Nowhere in Greece can boast such a long and rich historical and cultural tradition as Crete, stamped as it is by such a distinct character*'.

The earliest evidence of human settlement in Crete, which has been reportedly established around 6000 B.C., is found in Knossos, south of Iraklion. Excavated by the English archaeologist Sir Arthur Evans by the end of the 19th century A.D., Knossos has been identified not only as the largest archaeological site of Bronze Age Crete but also as the presumably oldest city of Europe. Knossos formed the cultural and political centre of the 'Minoan Civilisation' between 3000 and 1100 B.C., a term coined by Sir Arthur Evans with reference to the mythical Cretan King Minos, son of Zeus and Europa. The Minoans established themselves in Crete and demonstrated remarkable skills in writing, producing sophisticated artwork, such as elaborate frescoes and pottery, undertaking extended trading activities and constructing palaces and cities across the island. In addition to Knossos, significant Minoan centres have been founded in Phaestus, west of the Mesara Plain in South-Central Crete, in Zakros at the east coast and in Malia at the north coast, east of Iraklion (*cf.* Watrous *et al*. 1993; Detorakis 1994; Herzfeld 2003; Britannica 2013) (*cf.* Illustration 4.3).

Around 1400 B.C., the massive eruption of a volcano on the Cycladic Island of Santorini (Thera) may have had a destructive effect on Crete, weakening the Minoan civilisation and rendering the island prone to foreign invaders. Consequently, Crete was annexed as a colony by the Mycenaeans and subsequently invaded by the Indo-Germanic population group of the Dorians, who ruled the island from 1100 to 69 B.C. The invasion brought an end to the Minoan civilisation and prompted earlier settlers to retire to remote mountain villages. During the era of Classical Greece, the city-state of Gortyn at the western end of the Mesara Plain gained dominance, as shown by the discovery in 1884 of an extensive law code, written on 12 tablets in an ancient form of the Dorian dialect. The Hellenistic Era introduced a period of internal conflict to Crete, as leagues of towns, which had been formed around the major city-states, such as Knossos and Gortyn, entered into a dispute over the rule of the island.

The Romans eventually subjugated the rather fragmented land in 67 B.C. whereupon Crete has been linked to the Roman Province of Cyrenaica in North Africa, while Gortyn became the capital of the island. Following the division of the Roman Empire in 395 A.D., Crete remained

under the rule of the Byzantine Empire until the Venetian conquest of the island in 1204 A.D. During the era of Byzantine hegemony, Crete was invaded by the Arabs in 824 A.D., who raided the island from Egypt in the South, destroyed Gortyn along with other urban centres and maintained control over Crete until 961 A.D. When the confusions of the Fourth Crusade culminated in the fall of Constantinople in 1204 A.D., Crete was handed over to the Boniface of Montferrat, who, however, lacked the means and experience to control the island. He eventually sold Crete to the Venetians for the meagre price of 1.000 silver marks. Shortly after the island was sold, the naval forces of the Republic of Genoa entered into a series of battles with the Venetians and managed to seize control over a large part of Central Crete before the Republic of Venice regained control in 1217 A.D.

Illustration 4.3 The Minoan Palace in Malia.
Photograph by J. Aiglsperger (2010).

Despite fierce resistance from the population of Crete, the Venetian rule continued until 1669 A.D., where the island emerged as a political and artistic centre known as the 'Kingdom of Candia', with Iraklion, designated as 'Venice of the East', as its capital. Crete soon entered the Renaissance, attracting scholars, artists and clerics from other parts of Greece and beyond. The strong influence of the Republic of Venice on the island's population is still visible in the architecture, monuments and folklore today (*cf.* Detorakis 1994; Kokonas 1995; Papadopoulos 2009; Clark 2011; Britannica 2013). As Herzfeld (1991: 46) observes: '*The Venetian glories and the folklore traditions merge in the collective representation of a single Cretan past, grandly European in its architectural culture but folksily small-town in the intimacy of domestic space*'.

As the Venetian occupation of Crete remained a matter of dispute between outside powers, such as the Republic of Genoa and the Byzantine Empire, it was eventually the advance of the Turks in Greece during the 15th and 16th century, which brought an end to the Venetian rule over the island. The Cretan War between the Venetians and Turks from 1645 until 1669 ended with the fall of Candia after a siege of 20 years, and heralded the period of the Ottoman rule in Crete. The Ottoman hegemony, however, intensified the local struggle for independence of the Cretans who formed the resistance movement against the Ottoman forces. Following the outbreak of the Greek War of Independence in 1821, the Cretan population waged numerous uprisings against the Turks who sought help from the Egyptians, who invaded Crete in 1822. Although Greece

was declared a sovereign state in 1830, Crete remained under the jurisdiction of the Turks and was ruled by the Egyptians from 1830 until 1840 when the island was brought back under the Ottoman rule. The Cretan population eventually launched a major rebellion against the leadership of the Turks, which lasted from 1866 to 1869 and attracted worldwide interest (4.12). In en effort to end the rebellion, the Ottoman Sultan granted the Greek population of Crete a significant amount of self-government in the Pact of Halepa of 1878, but the Cretan population staged a final revolt against the Ottoman rule in 1897, which led to the ultimate defeat of the Turks. In 1898, Crete was declared autonomous (*cf.* Watrous *et al.* 1993; Detorakis 1994; Herzfeld 1999).

The autonomy of Crete was, however, soon challenged by voices demanding unification with Greece, most prominently raised by the Cretan lawyer and journalist Eleftherios Venizelos, Minister of Justice in the Cretan government between 1899 and 1901. In 1908, Crete officially joined the Republic of Greece under Prime Minister Venizelos in 1913, which marked the end of the independent history of the island. As Detorakis (1994: 430) concludes: '*Following the date of its union with Greece on 1 December 1913* [*Crete*] *could not but share the same general history of the rest of Greece, of which it now comprised an organic part*'. Notwithstanding, the history of Crete has since continued to follow a distinct course shaped by events, which have contributed to the unique history of the island, such as the abduction of the German General Kneipe by British and Cretan resistance fighters in April 1944; the burning of entire villages, such as Anogia northeast of the Psiloritis Mountain in August 1944, by German forces; and the closing of the leper colony Spinalonga north of Ayios Nikolaos in 1957, which formed one of the last active leper colonies in Europe (*cf.* Detorakis 1994; Britannica 2013).

4.2.3 Socio-Economic Developments and Cultural Icons

In the aftermath of the Second World War, patterns of internal migration across the island of Crete created a drift towards urbanisation, which has been centred on the major towns along the north coast and on several inland regions, such as the Mesara Plain in South-Central Crete. Almost one quarter of the Cretan population of today, which comprises around 606.274 inhabitants, reside in the capital of Iraklion (*cf.* Briassoulis 2003). Migrant workers returned to Crete during the second half of the 20th century, marking the beginning of the arrival of migrants from various countries of the Middle East and the Balkan as well as from Eastern Europe. Crete gradually developed into a tourist destination during the mid-1960s, which further increased during the 1970s and 1980s. The growing tourist industry became the leading sector in the island's economy, creating a growing demand for employment in the tertiary sector. By the end of the 20th century, the mainly small- and medium-sized family businesses in the tourist industry in Crete had developed into the establishment of additional facilities, such as car rentals, travel agencies, water parks and golf courses.

Nowadays, about four-fifths of the tourist activities in Crete take place along the north coast in and around the major cities. Apart from the socio-economy development of the island, the accelerating growth of tourism has also negative consequences for the population of Crete in terms of environmental degradation, shortage of water and electricity, noise, illegal hotel businesses and the growth of socio-economic inequalities among the population. Inequalities emerge in particular between the North and South, the coast and the hinterland, and between urban and rural areas. Similarly, the population is being confronted with radical changes in traditional patterns of subsistence economy, traditional values and attitudes (4.13). Despite the strong impact of tourism in sectors of trade, transportation, accommodation and food service, the population of Crete has succeeded to maintain a certain degree of cultural autonomy (*cf.* Rackham & Moody 1996; Molenaar 1999; Briassoulis 2003). As Greger (1985: 113) observe: '[...] [*Villagers*] *sensibly continue their old system of welcoming strangers, offering them every hospitality and generally putting on a good show, while not trusting the visitor an inch*'.

Illustration 4.4 Tourism and caves along the beach in Matala.
Photograph by J. Aiglsperger (2011).

As a popular tourist destination, Crete has also become an attractive target for visitors from countries such as Austria, Germany or The Netherlands, who decide to settle or to build a second home in the island (4.14). In addition, the hippie movement of the 1960s and 1970s brought a large number of foreign visitors to Crete from all corners of the world. The coastal town of Matala in South-Central Crete became a centre of attraction among hippies, who travelled across Crete using cheap means of transport, such as donkeys, and at times decided to settle in the island. Some of them decided to inhabit and live in rather poor conditions in the caves situated along the beach of Matala, which had presumably been used as tombs during Roman and Byzantine times. Although the newcomers have been expelled from the caves during the mid-1970s by representatives of the local population, the church and the government, a number of settlers have since continued to live in Crete. The town of Matala has remained a popular tourist destination and in 2011 the first annual Matala Beach Festival was held as a reunion among hippies, who had lived in the caves (*cf.* Escher 2011) (*cf.* Illustration 4.4). After Greece's entry into the EU in 1981, Crete received a considerable amount of subsidies, which have strengthened the economy of the island, in particular the tourist and the agricultural sector, which eventually led to an intensification of crops, including fruits and olive oil. The cultivation of agricultural products, such as bananas and tomatoes, in greenhouses expanded and became an important part of the export business. The tourist sector, however, remained fairly dominant, dividing the socio-economic profile of Crete between activities undertaken in the tourist sector during the summer and activities undertaken in the agricultural sector during the winter. Since both sectors of tourism and agriculture require considerable amounts of water, the economic activities in Crete are largely dependent on geographical features and climatic fluctuations (*cf.* Rackham & Moody 1996; Herzfeld 1999; Chartzoulakis *et al*. 2001; Briassoulis 2003).

Cultural Icons

Living on an island, which has been identified as the birthplace of Zeus, Father of all Greek gods, and as the 'Cradle of European Civilisation', the population of Crete has been associated with a sense of origin and uniqueness. The life and work of a number of personages, who have been born in Crete and have risen to fame in Greece and beyond, shed light on the distinctiveness of the island and its population. Epimenides of Crete, for example, who presumably lived during the 7th and 6th century B.C., is to this day honoured as a local historian, seer, religious teacher, purifier, healer, literary figure and author of the famous 'Cretan Paradox': '[…] *Cretans are ever liars, evil beasts, lazy bellies*' (Strataridaki 1988: 217). He is the subject of various legends in which he is believed to have lived an extended life sleeping in a cave on the Dikti Mountains for 57 years and to have divinely inspired through dreams. The 'Cretan Paradox' of Epimenides emerged from a controversy between the traditional Cretan belief in Zeus as a mortal god and the widespread belief in Zeus as an immortal god, prompting Epimenides to denounce all Cretans as liars. The generally negative image projected on the population of Crete during ancient times has been further advocated during the Hellenistic Era when Cretans, who have been recruited as mercenaries by foreign armies, reportedly engaged in illegal activities mostly out of personal greed (*cf.* Strataridaki 1988; Van de Kerk 1993; Mackenzie 1995).

Born in Crete, the artist Domenikos Theotokopoulos (1541-1614) is the figurehead of the Venetian occupation of Crete, during which the island developed as a significant centre of post-Byzantine painting of icons. He received his initial training at the Cretan school before he left to Venice to develop his talents, where he became famous under the name of 'El Greco'. During the 16th and 17th centuries, the rise of Crete as a political and artistic centre under the Venetian rule also brought a peak in literary art, prominently shown in the work of the Cretan poet Vitsentzos Koronaros (1553-1614), author of the epic of '*Erotokritos'*, written in a dialect of Eastern Crete. To this day, the epic is regarded as the masterpiece of Cretan literature and as a cornerstone of the Cretan '*Mantinades*', the recitative Cretan folk songs, which are traditionally accompanied by the sound of the lyre to express emotions (*cf.* Greger 1985; Herzfeld 1999; 2003; Horrocks 2010; Britannica 2013).

During the Ottoman occupation of Crete, Ioannis Vlakhos (1722 or 1730-1771), also known as 'Daskaloyiannis', one of the famous Cretan resistance fighters, staged a revolt against the Turks at the end of 18th century in the south-western region of Sfakia on the southern slopes of the White Mountains. Born in the village of Anopolis in Sfakia himself, the revolution led by Daskaloyiannis has since been related to the region of Sfakia as a whole, to this day known as a stronghold of Cretan resistance. As the inhabitants of Sfakia have continuously been engaged in their struggle for independence, using the natural wilderness and inaccessibility of the region for their protection since the Arab invasion, Sfakia is now regarded as one of the few places of Greece, which has never been fully occupied by outside forces (*cf.* Damer 1988).

The socio-political environment of the early 20th century has later well been represented by the Cretan author and philosopher Nikos Kazantzakis (1883-1957) in his famous novel 'Zorba the Greek'. His novel has since become the emblem of Cretan culture and mentality, and has been translated into several languages, and produced as the popular motion picture. The repertoire of Kazantzakis includes an abundance of letters, novels and translations, which have been principally written in Demotic Greek, which caused controversy among the rather conservative literary circles at that time. More recently, the student demonstrations against the military junta since the 1960s have been actively supported by the Cretan singer and composer Nikos Ksiluris (1936-1980). He opened the international stage to Cretan folk music, which is frequently accompanied by instruments, such as the lyre, and by dances, such as the '*Pentozalis*', expressing Cretan folklore and culture (*cf.* Greger 1985; Herzfeld 1999; 2003; Horrocks 2010).

While the examples of the cultural icons and traditions mentioned above have contributed to the image of Crete and its population on an international level, their names resound throughout the island far into the distant corners of the rural communities. As Herzfeld (2003: 282) confirms, these cultural features: '[*allow*] *local scholars to claim for Crete a level of cultural sophistication that few other geographically outlying areas of Greece can even approach*'.

Notes

(4.1) The Peloponnese, '*Peloponnisos*' in Greek, refers to the island, '*to nisi*', of Pelops. According to Greek mythology, Pelops has been the grandson of Zeus and the son of Tantalus, who cooked and served his son to the gods at a banquet in order to test their observation. After his body has been restored, Pelops became the ruler of a large part of the Peloponnese and is regarded as the Founder of the Pelopid Dynasty (*cf.* Britannica 2013).

(4.2) In Greek history, all dates preceding the 8th century B.C. are rather approximate (*cf.* Bengston 1988).

(4.3) The Achaeans appear in the Iliad of Homer as a group of people, who formed part of the Mycenaean population and presumably sacked the city of Troy in 1184 B.C. (*cf.* Waldman & Mason 2006).

(4.4) Socrates, revealing his opinion on the earth, explained that Greeks settled along the coast of the Black and Mediterranean Sea '*like ants or frogs about a pond*' (Plato: 109b cited in Perseus Digital Library 2013).

(4.5) The Greek word '*kleftis*' is nowadays translated as 'thief'.

(4.6) In Greece, the exportation of products, for example, has been negatively affected by a series of factors, including: unfavourable market mechanisms within the EU; high transportation and production costs; non-cooperation between Greek producers and the state; and non-cooperation among Greek producers themselves. By consequence, the Greek economy has not been able to yield the revenues expected from the export of domestic products, such as olive oil or wine. While Greece is the third largest worldwide producer of olive oil behind Italy and Spain with a notable 80% production of extra virgin olive oil, earnings are low standing at approximately two Euro per litre for the inhabitants of Pirgos and Praitoria. In this way, a considerable amount of Greek olive oil is sold to Italy, where it is blended with local olive oil and then sold, labelled as Italian olive oil, on the international market (*cf.* Happel 2011).

(4.7) The gross domestic product per capita in Greece suffered a considerable decline from 17.100 Euro per inhabitant in 2010 to 14.900 Euro per inhabitant in 2012 with a -6.4% change in the gross domestic product on the previous year recorded in 2012. In October 2013, the unemployment rate for Greece has been estimated at 27,8% (*cf.* Eurostat 2014a; 2014b; 2014c).

(4.8) 'Dimotiki', 'Demotic Greek', and '*dimotiko*', 'primary school', are linguistically rooted in '*dimos*', which can be translated as 'community' or 'people', and hereby highlight the communal significance of both the demotic language and compulsory primary education.

(4.9) The patriarchate refers to the office of a patriarch or bishop, who acts as the head of an autocephalous or independent Orthodox Church (*cf.* Oxford Dictionaries 2013).

(4.10) Annunciation Day, which is traditionally celebrated on the 25th of March, for example, has been transformed into the national day of commemoration of the Greek revolution (*cf.* Roudometof & Makrides 2010).

(4.11) During the 19th century, the legend of the so-called '*krifo skholio*', 'secret school', in which Orthodox clerics taught students religious doctrines and the Greek language secretly at night during the period of Ottoman occupation, became rather widespread (*cf.* Roudometof & Makrides 2010). In this way, the legend has lived on within a popular nursing rhyme, of which the following beginning '*Feggharaki mu lambro, fenge mu na perpato, na piyeno sto skholio, na matheno ghrammata, ghrammata, spudaghmata, tu Theu ta pramata*', has been roughly translated by Roudometof & Makrides (2010: 27) as: '*Oh bright moon/shine on me, so I would walk/and go to school/to learn things, God's own things*'.

(4.12) In 1866, Ottoman forces encircled the monastery of Arkadi located southeast of Rethymnon where 300 armed rebels and 600 women and children had taken refuge under the leadership of the abbot of the monastery. Refusing to surrender to the Turks after three days of battle, the refugees blew up the powder magazine and reduced the entire monastery to ashes, sacrificing most of the Greeks, while killing hundreds of Turks (*cf.* Detorakis 1994).

(4.13) The holiday resort of the coastal town of Malia northeast of Iraklion within the Municipality of Hersonisos, for example, nowadays forms one of the most popular tourist destinations of Crete, a favourite among young British tourists in particular. Every year during the summer months, the employees of the health centre in Malia reportedly deal with numerous injuries and deaths caused by excessive alcohol consumption among young tourists. One of the general practitioners employed at the health centre derogatively spoke about the drunkenness of tourists upon arrival as well as about the general affordability of holidays spent at the resort, which are facilitated by foreign tour operators whereupon it is often cheaper for foreigners to visit Malia than it is for Greeks.

(4.14) In the research area of South-Central Crete, families from Germany and Austria have settled *i.a.* in the villages of Praitoria, Kharakas, Doraki and Kapetaniana.

Chapter V THE COMMUNITIES OF PIRGOS AND PRAITORIA

Following a description of the geographical, historical and cultural features of Crete at large, the present chapter sheds light on the characteristics of two local communities situated in the rural area of South-Central Crete. Kain Hart (1992: 8) defines locality as: '*a circumscribed area of a world-historical field of forces known to villagers through their own experience (and that of their families and acquaintances) and education*'. The following paragraphs describe the physical outline of the research area and the cultural features of the target population from a local point of view. The Greek term '*Kosmos*' can be translated as both 'community' and 'culture' and hereby suggests that the inhabitants of the two research communities rely on a strong sense of local and social affiliation. Communal features, which are known and secure, stand in contrast to external elements, namely anything outside the '*Kosmos*', which herewith bare notions of mystery and danger of the unknown. Overall, a description of the cultural characteristics of the target population incorporates a variety of polarities, which appear to exist between: exchange and isolation; diversity and uniformity; excess and moderation; chaos and order; public and private life; competition and sense of community; anarchy and loyalty; as well as crisis and consistency. Since communal norms generally span across such polarities, socially adequate patterns of behaviour shown by the local inhabitants depend largely on social occasions and specific moments in time. Nevertheless, a contradiction appears to exist between the norms of the community and the behaviour of the community members, who constantly and consciously fail to conform to communal standards. As Gilmore (1982: 190) observes: '*Sibling solidarity* [*, for example,*] *is always an ideal, but it is often directly contradicted by open and often violent animosity between brothers*'. Failure to display an ideal and adequate form of behaviour does, however, not provoke feelings of guilt among the community members. In view of such polarities and contradictions, local belief systems shared by the local population generally involve the notion that the social, natural and spiritual environments have both good and bad characteristics. Traditional practices and local rituals are generally directed at keeping the social, natural and spiritual environment in harmony and to provide a sense of orientation, thereby reducing feelings of anxiety and uncertainty (*cf.* Blum & Blum 1965; Greger 1985; Herzfeld 1985; Kain Hart 1992). At first, the present chapter localises the two research communities within the wider research area of South-Central Crete.

Subsequently, the surroundings and the size of the villages are highlighted in addition to patterns of migration and settlement developed by the local population. Following a detailed description of the socio-demographic characteristics of the study population, the everyday life of local inhabitants, as it is not only shaped by adherence to an annual religious canon but also by the performance of practices and festivities, which follow spiritual belief systems, socio-economic routines and traditional habits, is presented. In this way, the pluralistic characteristics of the two research communities and population provide a sound basis for the subsequent presentation of medical-anthropological material collected in the research area. Shedding light on the social context of the community allows for a more profound understanding of differences in local perceptions of health and illness (*cf.* Slikkerveer 1990; Koutis *et al.* 1993). As Arnott (1996: 265) observes: '*A society's attitude towards the health of its population and the development of medicine are reflections of* […] *its social order* […]'.

5.1. Between the Asterousia Mountains and the Mesara Plain

5.1.1 Location of the Research Communities in South-Central Crete

The region of South-Central Crete covers an area of approximately 611 square kilometres and overlaps with the boundary between the Aegean and African land plates. As the result of a rather dynamic geologic history, the region is to this day exposed to increased seismic activity, whereby a rather strong earthquake occurred in the southern part of Crete as late as in June 2013.

Average temperatures across the area reach between ten and 15 degrees Celsius during the winter months and between 25 and 30 degrees Celsius during the summer months. The surface is shaped by the catchment area of the Yeropotamos River running westward, which carries water during rainy seasons, and the catchment area of Anapodaris River, the longest river of Crete, running eastward. The principal features of South-Central Crete, however, refer to the Asterousia Mountain range, which spreads along the south coast, and to the extensive and fertile Mesara Plain. In particular, the Asterousia Mountains, which rise to a maximum of 1.231 metres at the peak of Mount Kofinas and descend abruptly to the south coast, offer a barren landscape dissected by small valleys and gorges. While the mountain slopes produce a natural abundance of wild greens and aromatic plants, agricultural products, such as olives (*Olea europaea* L. *sylvestris* Brot.), grapes (*Vitis vinifera* L.), maize (*Zea mays* L.) or almonds (*Amygdalus communis* L.), are largely grown in the mountain valleys. Olives are, however, cultivated in a low-density fashion, which has recently been fostered by the growing abandonment of olive groves and the increased migration of workforce to urban, touristic zones. Enclosed by the Asterousia Mountains in the South and by the foothills of the Psiloritis Mountain in the northwest, the Mesara Plain, also known simply as 'Mesara', forms the largest plain of Crete. The flatland is crossed by the Yeropotamos River and offers a distinctively rich natural environment and a great abundance of arable land. More than 400 different species of flowering plants, including over 350 aromatic plants, which grow across a variety of natural habitats, have been found in the Mesara. In this way, over a hundred plants have reportedly been used for medicine, spice, food, fodder, forage, fuel, construction and craft material or have been applied for ritual purposes by the local population since the early days of human settlement in the area. While the western end of the Mesara has recently emerged as a centre of greenhouse cultivation of crops, such as tomatoes, a variety of agricultural products, including olives, grapes and cereals have long been harvested across the region.

On the whole, the Mesara Plain has been distinguished as a centre of intensive olive cultivation, whereby the practices involved have at times been identified as having a negative impact on the biodiversity of the plain in terms of causing plant extinction, soil erosion and water resources insufficiency. The movement of rather large flocks of sheep and goats between the Asterousia Mountains and the Psiloritis Mountain has caused tensions between olive famers and shepherds. In brief, episodes of drought, excessive garbage disposal, as well as activities of grazing and burning, which are the result of farming and shepherding techniques, as well as of natural phenomena, are the leading causes of environmental degradation in the region of South-Central Crete (*cf.* Watrous *et al*. 1993; Dijkstra 2005; Fielding *et al*. 2005; Allen *et al*. 2006; De Vries 2007; Kritsotakis & Tasnis 2009) (5.1).

Patterns of early human settlement in the region of South-Central Crete shed light on a concentration of settlement towards the western end of the Mesara Plain, as evidenced by the historical sites of: Minoan Phaestus; Minoan Ayia Triada west of Phaestus; Hellenistic-Roman Matala, namely the location of the main harbour at the time; and Roman Gortyn. Following a frequent occurrence of earthquakes as well as the advance of the Arabs during the Byzantine Era, upon which Iraklion became the Capital of Crete, the population of Gortyn declined and reorganized itself into rural communities around the 7th century A.D. Although the number of rural sites in South-Central Crete had reportedly increased earlier, namely during the Hellenistic Period, the majority of present-day villages and rural churches have been established during Byzantine times. Encouraged by the Venetians and supported by the operation of new olive presses, the production of olive oil in South-Central Crete increased significantly during the 16th century. Ottoman hegemony of the 17th and 18th century introduced an increase in cereal production, building of water mills and the establishment of new villages across the Mesara Plain (*cf.* Watrous *et al*. 1993).

In general, the inhabitants of rural Crete have resorted to living in small hamlets or communities whereupon the sight of isolated houses is rather rare (*cf.* Rackham & Moody 1996). As Watrous *et al*. (1993: 196) notice: '*Villages in the region are often located at the base of the*

foothills, at points where up-slope streams or springs converge on the fertile bottomland'. The rural community of Pirgos is situated at the northern foothills of the Asterousia Mountains east of Mount Kofinas and southeast of the Mesara Plain. Joining the flatland of the Mesara in the North, the community is placed at an average height of 290 metres and is enclosed by hills in the East, West and South. Following the definition adopted by the *United Nations Environment Programme World Conservation Monitoring Centre*, in which high altitude areas consist of a lower limit of 300 metres, Pirgos may be identified as a semi-mountainous community (*cf.* Hellenic Statistical Authority 2008; Tyrovolas *et al*. 2011). By contrast, the lowland community of Praitoria is found in the eastern part of the Mesara Plain north of Pirgos and on the western bank of Anapodaris River, which rises at the Dikti Mountains and exits at the south coast between the villages of Tsutsuros and Keratokambos into the Libyan Sea (*cf.* Map 5.1).

Map 5.1 The Two Research Communities in South-Central Crete.
Source: Daily & Gerrard (2008) (*edited*).

The weather conditions of Pirgos and Praitoria are rather typical for South-Central Crete and are characterised by a relatively small variation of minimum and maximum temperatures although humidity and frost occasionally persist in the lowland areas during the winter months. While winds generally reach the communities from the northwest throughout the year, southern winds, such as the *Sirocco*, may at times sweep through the villages during the winter. The prolonged absence of excessive rainfall during the past decades in conjunction with episodes of draught has created widespread patterns of soil dehydration across the region. As a result, the hills of Pirgos, which used to provide the community with spring water, nowadays offer numerous drained streambeds, whereas only one of three streams continues to run through the community carrying water during the rainy season. In the same fashion, the western bank of the Anapodaris River, which borders the community of Praitoria in the North, remains largely dry during the summer months (*cf.* Illustration 5.1).

Illustration 5.1 Anapodaris River in Praitoria.
Photograph by J. Aiglsperger (2011).

In addition to a natural abundance of wild plants and species, the natural environment surrounding the communities of Pirgos and Praitoria comprises a number of man-made landscapes. Practices of reforestation, namely of different types of trees, such as Cypress (*Cupressus sempervirens* L.) or Eucalyptus (*Eucalyptus globulus* Labill.), in the region of South-Central Crete during the mid-20th century resulted in the planting of the 'Forest of Farmakaras' in Pirgos in 1949. In the same fashion, Cypress and Eucalyptus trees were planted on the cemetery of Pirgos, whereby the Eucalyptus trees, however, had to be destroyed at a later stage due to the damage the enormous roots inflicted upon several tombs. The road connecting Praitoria to the community of Kharakas southwest of Praitoria has been similarly framed by two rows of Eucalyptus trees, not at least as a means to curtail the spread of Malaria in Crete at the beginning of the 20th century. In view of the prevalence of Malaria, villages situated at the higher foothills of mountain, such as Pirgos, provide a healthier environment for the local population than flatland communities (*cf.* Watrous *et al*. 1993; Kalokhristianakis 2009).

The name of the community of *Pirgos* contains a direct reference to the Greek word for 'Tower'. The settlement is said to derive its name from a tower, which was established on a hill towards the eastern edge of the present village, known as '*O Apano Pirgos*' ('Upper Pirgos'), and served as a point of observation, most probably during the Venetian occupation of Crete. Originally, a second tower was established in the centre of the village, which served as a watchtower for the Venetian and subsequently the Ottoman guards, but was almost entirely demolished in favour of the construction of residential buildings in the village centre. The name of the community has reportedly first been mentioned in an inscription dating back to the First Century A.D., which made a reference to the historical site of Rytion. Found northeast of Pirgos, the site was occupied during the Greek Dark Ages and is nowadays known as Rotasi. Although no historical evidence regarding the establishment of Pirgos as a community before the introduction of Christianity has been found, archaeological remains recognize the possibility of an early existence of the village under a different name or in the form of an independent unit within the settlement of Rytion. While the excavation of two Roman tombs west of Pirgos indicates that the settlement evolved as a community during that time, the historical records on the existence of Pirgos during the periods of the Venetian and the Ottoman rule in Crete are, however, more readily available. The community of Pirgos reportedly first appeared as an

independent entity in 1271 in the context of a Venetian treaty prepared by the notary of Iraklion Pietro Scardon. Furthermore, the Seat of the Venetian Master is said to have been situated on the hillside enclosing Pirgos in the South, known as *Ta Arkhontika* ('The Mansions'), and is to this day covered in fragmentary remains of walls, water channels and fountains spread across the hill.

Local accounts refer to the existence of a chain of up to 18 watermills, which had been constructed during the periods of the Venetian and the Ottoman rule in a valley between two hills enclosing Pirgos in the South and were mainly used for the production of flour. The name of the community of Praitoria, at times referred to as 'Protoria', on the other hand contains a reference to the occupation of Praetor, who acted as a Judicial Officer in Ancient Rome. Although the name of the village suggests that Praitoria has existed for more than 2000 years, the community first appeared as *Praitoria Apano* ('Upper Praitoria') in the Venetian Population Census of 1577 (*cf.* Kalokhristianakis 2009; In 2013).

5.1.2 Administration, Surroundings and Size

Under the Venetian rule, the communities of Pirgos and Praitoria formed part of the Province of Monofatsi, which was the largest of the 20 provinces of Crete at the time and enclosed a considerable part of the Mesara Plain. The province derived its name from a fortress built in the aftermath of the Fourth Crusade on a hillside west of the contemporary community of Tsifout Kastelli, northwest of the community of Praitoria. The fortress was named after a similar stronghold established in 820 B.C. in Corsica, called 'Bonifacio', later transformed into Greek as 'Monofatsi', and served as eponym to the Province of Monofatsi. The community of Pirgos was assigned the Seat of the Province in 1867 and is to this day frequently referred to as '*Pirgos Monofatsiu*', namely the 'Pirgos of Monofatsi'. Towards the end of the 19th century, the provinces of Greece were changed into administrative regions, whereby new regulations introduced a system, in which administrative units were distinguished on the basis of their population size. The new administrative regulations differentiated between a smaller unit or community, known as '*Kinotita*', managed by the Village President or '*Proedros*', and a larger unit or municipality known as '*Dimos*', governed by the so-called '*Dimarkhos*'. At the beginning of the 20th century, Pirgos and Praitoria were officially recognised as communities.

During the general reorganisation of the Greek administrative system in 1997, the differentiation between '*Kinotita*' and '*Dimos*' was abandoned and smaller units were submerged into larger aggregates. By consequence, the communities of Pirgos and Praitoria both came under the administration of the '*Dimos*' of Asterousia, whereby Pirgos has been appointed as the Seat of the municipality (*cf.* Table 5.1). In 2011, the administrative system of Greece was overhauled in an attempt to form larger administrative units whereupon the Municipality of Asterousia was merged with the Municipalities of Arkhanes and Nikos Kazantzakis. The communities of Pirgos and Praitoria nowadays fall under the administration of the Municipality of Arkhanes-Asterousia, which forms part of the Prefecture of Iraklion. The community of Peza in the former Municipality of Nikos Kazantzakis has been assigned as the Seat of the municipality (*cf.* Kalokhristianakis 2009).

The community of Pirgos, as it was officially recognised at the beginning to the 20th century, originally extended its administrative authority to the following surrounding settlements: Plakiotissa and Kefalados in the North; the semi-mountainous village of Rotasi in the East; the mountainous community of Ethia in the Southeast; the mountainous settlements of Murnia and Prinias in the South; the mountainous communities of Amigdalos and Paranimfi in the Southwest; and the settlement of Tris Ekklisies along the south coast. Although the community has been incorporated into the Municipality of Asterousia and subsequently came to form part of the Municipality of Arkhanes-Asterousia, the mountainous settlements of Murnia and Prinias remained under the administrative control of Pirgos (*cf.* Table 5.1).

Table 5.1 The Population of the former Municipality of Asterousia (2001).

Community & Administrative Units	Inhabitants	Households
Pirgos (Pirgos, Murnia, Prinias)	1.148	389
Ahentrias (Ahentrias, Ayia Paraskevi, Ayios Penteleimonas)	318	116
Ethia (Ethia, Ayia Anna, Rotasi)	365	145
Kalivia (Kalivia, Kato Kalivia, Neokhori)	440	161
Ligortinos (Ligortinos, Kefalados, Plakiotissa)	642	226
Mesokhorio (Mesokhorio)	752	262
Paranimfi (Paranimfi, Amigdalos, Platanias, Tris Ekklisies)	305	95
Praitoria (Praitoria)	197	71
Tefeli (Tefeli, Aposelemi, Pirathi)	905	302
Kharaki (Kharaki, Vorias, Made)	348	90
Kharakas (Kharakas, Ayia Fotia, Doraki)	883	344
Total	6.303	2.201

Source: Hellenic Statistical Authority 2008.

Following a campaign launched in the 1930s, which established the connection of the villages in the Mesara Plain through a network of roads, the communities of Pirgos and Praitoria were connected through a bridge, which was asphalted in 1966. Eventually, a network of asphalted roads has been created, which connected the region of South-Central Crete to the urban centres along the north coast. Prior to the construction of asphalted roads, the communities south of the Anapodaris River, including Pirgos and Praitoria, frequently remained isolated from the villages north of the river, which appeared to cut the region in half, particularly during the winter months. Following the building of a north-south axis between the capital of Iraklion and Pirgos, which runs along the communities of Tefeli, Ligortinos, Plakiotissa and Praitoria (5.2), in 2008, the bridge connecting Pirgos and Praitoria has been replaced. In addition to the north-south axis of Central Crete, the two research communities are moreover situated along the southern east-west axis, which connects the city of Ierapetra to the city of Rethymnon. The north-south axis splits and enters Pirgos as the country road Praitoria-Pirgos in the North, while the east-west axis continues eastward and passes Pirgos along the northern edge connecting the community to the villages of Rotasi and Mesokhorio. The village of Praitoria is situated at a roundabout marking the intersection of the two axes. In this way, the east-west axis links Praitoria to the neighbouring community of Asimi, to the commercial town of Mires and to the historical sites of Gortyn, Phaestus and Matala (*cf.* Kalokhristianakis 2009).

As shown in Table 5.1, the Population Census of 2001 indicates that the population of Pirgos comprises 1.148 inhabitants, who live among a total of 389 households. Excluding the settlements of Murnia and Prinias, which fall under the administrative authority of Pirgos, the population of the community amounts to approximately 1.100 inhabitants. In comparison, the population of Praitoria consists of 179 inhabitants, who live among a total of 71 households (*cf.* Hellenic Statistical Authority 2008; Kalokhristianakis 2009). Table 5.2 shows the sample for the present research, which has been taken from the population of Pirgos and Praitoria with the exclusion of the administrative units of Murnia and Prinias and amounts to a total of 656 inhabitants living among 293 households.

Table 5.2 The Sample or Study Population of the Two Research Communities of Pirgos and Praitoria (N=656).

Community	Inhabitants	Households
Pirgos	495	220
Praitoria	161	73
Total	656	293

The sample or study population consists of 495 inhabitants living among 220 households in Pirgos and of 161 inhabitants living among 73 households in Praitoria. The number of sample households in Praitoria exceeds the official number of households recorded for the community during the Population Census of 2001. Possible reasons for such an inconsistency may refer to the construction of new houses or to the reuse of houses, which had been abandoned, by family members or other relatives (*cf.* Paragraph 5.1.3). Apart from the sample population, additional informants, who participated in the present study, were found among the extended population of Pirgos and Praitoria, as well as among the inhabitants of the surroundings villages, including Murnia, Plakiotissa, Rotasi, Mesokhorio, Kharakas and Tefeli.

5.1.3 Patterns of Migration and Settlement

The neighbouring communities of Pirgos and Praitoria are situated at a rather short distance from the surrounding settlements, to which the villages are connected through a relatively well-developed network of roads. Nevertheless, the majority of household members of the sample (61.7%, n=405) appear to have been born in the respective research community. It is found, that 61.0% (n=302) of the 495 inhabitants of Pirgos and 64.0% (n=103) of the 161 inhabitants of Praitoria were born in respectively Pirgos or Praitoria (*cf.* Table 5.3).

Table 5.3 Distribution of the Place of Birth of the Household Members of the Sample over the Two Research Communities (N=656).

Place of Birth	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
this community	302	61.0	103	64.0	405	61.7
this municipality	74	14.9	18	11.2	92	14.0
somewhere else in Crete	87	17.6	15	9.3	102	15.5
somewhere else in Greece	20	4.0	3	1.9	23	3.5
other	12	2.4	22	13.7	34	5.2
Total	495	100.0	153	100.0	656	100.0

Overall, none of the household members living in Pirgos were born in Praitoria, whereas a total of three respondents living in Praitoria referred to Pirgos as their place of birth. Around 14.0% (n=92) of the household members of the sample appear to have been born in a community within the Municipality of Arkhanes-Asterousia. Excluding the respondents, who were born in the research communities, the majority of household members living in Pirgos indicated the mountainous settlements of Murnia and Prinias as their place of birth. In general, these findings reflect the administrative authority of the community of Pirgos over the settlements of Murnia and Prinias. Furthermore, a considerable number of inhabitants of both research communities were born in the village of Ahentrias, while a relatively significant number of household members living in Pirgos referred to the communities of Mesokhorio and Paranimfi as their place of birth (*cf.* Table 5.4). Besides the Municipality of Arkhanes-Asterousia, a considerable number of household members (15.5%, n=102) were born somewhere else in Crete. The distribution of respondents born elsewhere in Crete among the research communities is affected by the number of largely young, inhabitants of Pirgos, who were born in the hospital of Iraklion, but who were raised in the village. Furthermore, a considerable number of household members living in Praitoria were born in the community of Asimi outside the Municipality of Arkhanes-Asterousia. In line with the distribution of community members born elsewhere in Crete, the number of household members, who were born somewhere else in Greece other than Crete, is higher among the respondents living in Pirgos. On the other hand, the number of household members, who were born in a place outside Greece, is higher among the respondents living in Praitoria. Among the inhabitants of Pirgos, the most commonly mentioned countries of birth other than Greece include Bulgaria, Albania and Rumania.

Table 5.4 Distribution of the Place of Birth of the Household Members of the Sample in the Municipality of Arkhanes-Asterousia over the Two Research Communities (N=656).

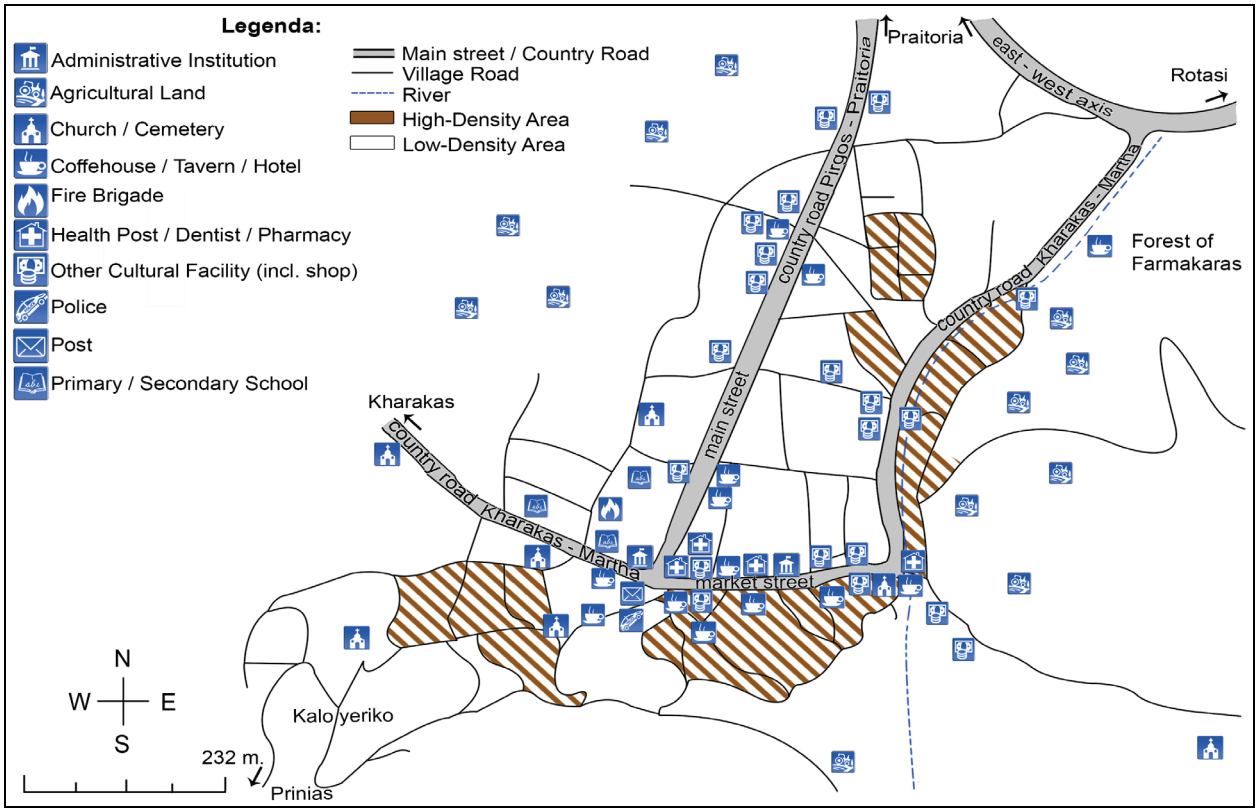
Place of Birth	Pirgos	Praitoria	Total
Pirgos	302	3	305
Praitoria	-	103	103
Murnia	15	-	15
Prinias	11	-	11
Ahentrias	4	4	8
Mesokhorio	8	-	8
Paranimfi	7	1	8
Kharakas	5	1	6
Doraki	5	0	5
Ethia	4	1	5
Ligortinos	3	2	5
Amigdalos	3	0	3
Kalivia	1	2	3
Kefalados	2	1	3
Rotasi	3	-	3
Plakiotissa	-	2	2
Tefeli	2	-	2
Neokhori	-	1	1
Pirathi	1	-	1
not applicable[1]	119	40	159
Total	495	161	656

[1]: place of birth somewhere else in Crete, somewhere else in Greece or other

In the community of Pirgos, the distinct places of birth are to some extent reflected in the local patterns of settlement, whereby inhabitants born in the mountainous villages of Murnia and Prinias tend to reside at higher altitudes on the mountain slopes. Community members, who were born in Murnia, appear to cluster on the eastern hillside of Pirgos, while inhabitants, who were born in Prinias, tend to settle on the southern hillside of the village. The western hillside of Pirgos has long formed an independent settlement and is today commonly referred to as '*To Kaloyeriko*', loosely translated as 'The Monk's Quarter', which derives its name from a group of monks previously residing in the area (*cf.* Illustration 5.2). More recently, areas of settlement in Pirgos have spread northwards, particularly following the construction of the north-south axis, which connects Pirgos to Iraklion. New houses are primarily built in the immediate vicinity of the main street of Pirgos, which enters the village in the North as a section of the country road Praitoria-Pirgos. Map 5.2 presents a detailed map of the community of Pirgos, including the network of country roads and local streets, as well as the location of a number of local institutions, as they are described in the following paragraphs.

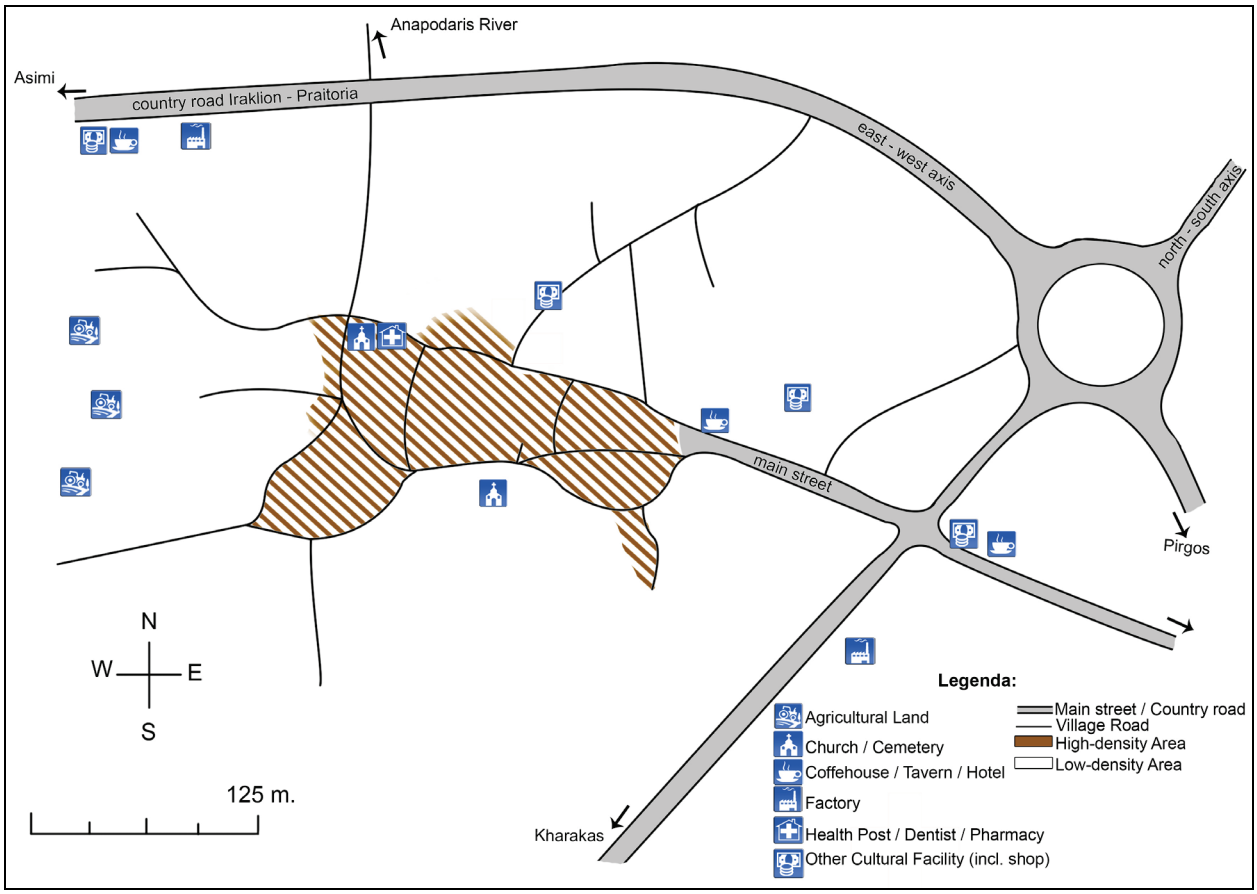
Settlement patterns in the community of Praitoria shed light on a concentration of houses in the village centre as well as on a dispersion of a handful of detached houses along the outer edge of the community. At its western edge, the community of Praitoria gives way to cultivated fields and olive groves, as they are characteristic of the landscape of the wider region of the Mesara Plain, in which the community is embedded (*cf.* Illustration 5.3). Map 5.3 presents a detailed map of the community of Praitoria, in which the network of country roads and local streets, as well as a number of local institutions, as they will be discussed in the subsequent paragraphs, are charted.

Illustration 5.2 View of the Community of Pirgos from the south-eastern hillside against the backdrop of the Mesara Plain with the row of Eucalyptus trees framing the road between Praitoria and Kharakas. In the front, there are the ruines of the Venetian Occupation with the '*Kaloyeriko*' on the western hillside on the left. Photograph by J. Aiglsperger (2011).



Map 5.2 Map of the Community of Pirgos, Crete.
Source: J. Aiglsperger (2010).

Illustration 5.3 View of the Community of Praitoria from the South against the backdrop of the south-eastern foothills of the Psiloritis Mountain.
Photograph by J. Aiglsperger (2010).



Map 5.3 Map of the Community of Praitoria in Crete.
Source: J. Aiglsperger (2010).

In view of the settlement patterns shown in the research communities, a number of inhabitants of Pirgos and Praitoria own additional houses along the south coast, primarily in and around the coastal village of Tris Ekklisies. Used as holiday homes, community members generally visit these houses on weekends during the summer months or for the entire summer period, particularly when they are retired or exempted from the duties of their year-round profession. In the same fashion, villagers living in the research communities may inhabit their houses on a seasonal basis. In particular, community members, who own a house in the village, occasionally live and work in urban areas, such as Iraklion, and hereby visit their village homes only in the weekend or during the summer in order to call on relatives or friends or to engage in farm work. In this way, a number of inhabitants reside outside the community for a substantial period of time during the year, but keep a house in the village. Relatives or friends of the absent homeowner at times decide to return to the village, particularly when they are facing financial difficulties, and hereby reuse the vacant houses in the village. The number of people living in Pirgos and Praitoria fluctuates continuously, whereby the community members can be classified as (1) villagers registered and living in the community; (2) villagers registered but not living in the community; and (3) villagers not registered but living in the community (*cf.* Lindholm *et al.* 1992; De Vries 2007). With regard to the present study, the sample was taken from the permanent parent population of Pirgos and Praitoria, which comprises all community members residing in the village for at least six months per year.

5.2 Characterisation of the Local Population

5.2.1 Age, Gender and Communal Networks

On the basis of identifying the sample population of Pirgos and Praitoria, Table 5.5 presents the age distribution of the household members of the sample over the research communities.

Table 5.5 Distribution of the Age of the Household Members of the Sample over the Two Research Communities (N=656).

Age	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
<7	38	7.7	14	8.7	52	7.9
7-13	35	7.1	9	5.6	44	6.7
14-20	24	4.8	5	3.1	29	4.4
21-27	49	9.9	13	8.1	62	9.5
28-34	51	10.3	11	6.8	62	9.5
35-41	44	8.9	13	8.1	57	8.7
42-48	36	7.3	10	6.2	46	7.0
49-55	39	7.9	8	5.0	47	7.2
56-62	40	8.1	19	11.8	59	9.0
63-69	38	7.7	26	16.1	64	9.8
70-76	48	9.7	12	7.5	60	9.1
77-83	40	8.1	14	8.7	54	8.2
84-90	9	1.8	6	3.7	15	2.3
>90	4	0.8	1	0.6	5	0.8
Total	495	100.0	161	100.0	656	100.0

The relative majority of community members are between the ages of 28 and 34 (10.3%, n=51) in Pirgos and between the ages of 63 and 69 (16.1%, n=26) as well as 56 and 62 (11.8%, n=19) in Praitoria. On the whole, these findings are in line with the data collected by the Hellenic Statistical Authority during the Population Census of 2001, in which the highest percentage of community members living in Pirgos are found in the age category of 25 to 39 years and the

highest percentage of community members living in Praitoria belonged to the age categories of 65 to 79 and 55 to 64 years (*cf.* Hellenic Statistical Authority 2008). In total, the majority of the sample population, namely of all respondents residing in Pirgos and Praitoria, are found in the age category of 63 to 69 years (9.8%, n=64). Although the respondents are rather evenly distributed among all age categories, the population of Praitoria appears to be slightly older than the population of Pirgos. In general, older inhabitants occupy a position of esteem within the community and are treated with a sense of respect and politeness by the younger community members. The difference in social status is expressed by the common use of the terms '*Kirios*', 'Sir', and '*Kiria*', 'Madam', by community members when addressing male and female inhabitants, who have reached an advanced age (*cf.* Kain Hart 1992).

Following the distribution of age among the respondents, Table 5.6 highlights the distribution of gender among the household members of the sample over the two research communities.

Table 5.6 Distribution of the Gender of the Household Members of the Sample over the Two Research Communities (N=656).

Gender	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
male	233	47.1	83	51.6	316	48.2
female	262	52.9	78	48.4	340	51.8
Total	495	100.0	161	100.0	656	100.0

Although the difference in percentage between the male (48.2%, n=316) and female (51.8%, n=340) gender within the sample is minor, the female population (52.9%, n=262) predominates in the community of Pirgos, while the male population (51.6%, n=316) outweighs the female population in Praitoria (*cf.* Table 5.6). As represented in Figure 5.1, the relative majority of male respondents are between the ages of 63 and 69 years (11.4%, n=36), while the highest percentages of female respondents are found in the age categories of 70 to 76 (11.2%, n=38), 56 to 62 (10.6%, n=36) and 21 to 27 (10.3%, n=35). In general, the female population of both research communities outweighs the male population in the age categories of 70 to 76 years and above.

In Crete, male-selfhood, which is primarily rooted in the recognition of patrilineal ancestors, is embedded and visibly performed within the larger context of the community and household. In contrast to women, male community members typically tend to consume alcohol, tobacco and meat, play with the so-called '*Komboloi*' ('worry beads', which are moved by one or two hands to pass the time), attend local coffeehouses, play card games, hold political discussions in public, wear fire arms, notably at weddings and baptisms, practice stock farming, raid sheep and entertain their guests within great hospitality (5.3). Furthermore, men are associated with the values of both loyalty and competition, whereby the latter occurs only between men without any social affiliation. Masculinity is closely linked to the image of the '*Palikari*', originally a Greek soldier serving in the War of Independence against Turkey, which is enhanced and acknowledged to this day as the ideal of a strong, courageous young man. As Greger (1985: 31) explains: '[…] *Household values of harmony and hospitality are the ones relating to social skills, those of the palikari shepherd and freedom-fighter are related to skills of individual and manly survival for the sake of one's own household*'. In the same fashion, masculinity is attached to the profession of the shepherd, which traditionally involves a difficult but modest way of life in line with the purity of nature and is exclusively practiced by men. Although male self-hood continues to carry specific social connotations, conformity with the ideals of masculinity is frequently characterised by men creatively separating what it means to be men in the social context from actual practices to achieve such a status (*cf.* Blum & Blum 1965; Gilmore 1982; Greger 1985; Herzfeld 1985; Damer 1988; Van der Hoeven 1992; Hanepen 1997; Hagoort 1998; Van den Akker 2002; Palstra 2003).

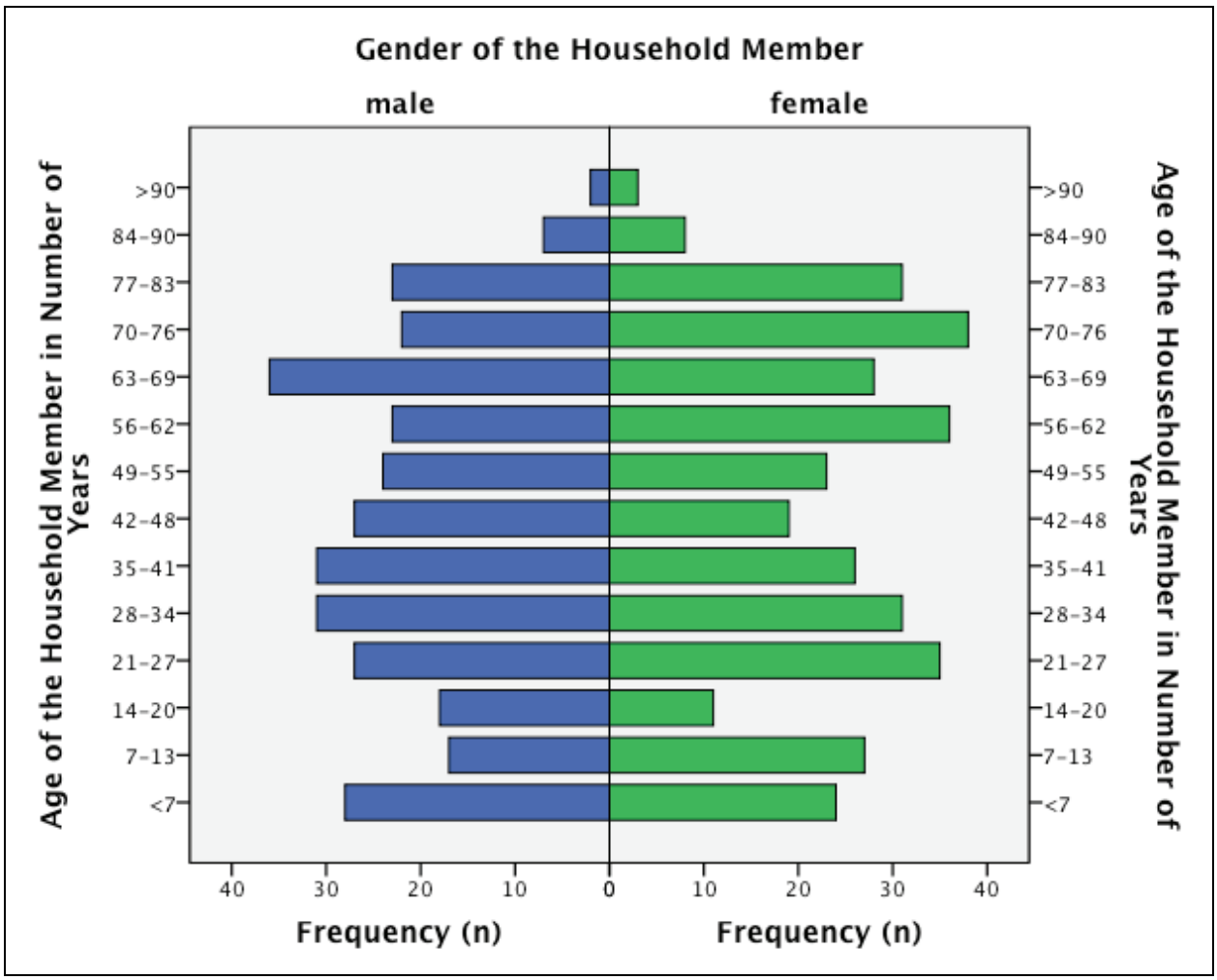


Figure 5.1 Frequency of the Age of the Household Members of the sample divided by the Gender of the Household Members of the sample (N=656).
Source: Household Surveys (2011).

On the other hand, female community members rarely tend to abandon the sphere of the parental and later spousal, household, farm or village and by consequence function as natural stewards of traditional, local values. Furthermore, female inhabitants are commonly devoted to religious matters where women attend the church on a regular basis and feel responsible for the everyday performance of religious duties. On the whole, femininity is associated with passiveness and indecisiveness, as well as with practices of harmonisation and concealment. Women are moreover considered to be unable to control their tempers or sexuality and to be dangerous, not at least because of their ability to create and destroy life. In this way, the marriage bed forms a crossing point between the sacred and the mysterious where, as Greger (1985: 135) notes: '[...] [*sexuality*] *has been, and still is, regarded as an intensely private, concealed and polluting activity*'. In this way, gender roles are supported by religious doctrines, which involve the arrangement of men sitting on the right and women sitting on the left side in church, as well as the rather unofficial regulation that women should wear skirts when attending the service. Furthermore, menstruating women are generally prohibited from kissing icons and from receiving communion, and in some places from attending the liturgy (*cf*. Greger 1985; Herzfeld 1985, Koutis *et al*. 1991; Kain Hart 1992; Van den Akker 2002; Roussou 2011).

While the social connotations of masculinity and femininity seemingly persist regardless of the marital status of the respondents, marriage appears to further confine the role which men and women play in the community. Table 5.7 illustrates the distribution of the marital status of the household members of the sample over the two research communities.

Table 5.7 Distribution of the Marital Status of the Household Members of the Sample over the Two Research Communities (N=656).

Marital Status	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
single	163	32.9	40	24.8	203	30.9
co-habiting	9	1.8	4	2.5	13	2.0
married	278	56.2	97	60.2	375	57.2
separated	0	0.0	2	1.2	2	0.3
divorced	3	0.6	1	0.6	4	0.6
widowed	42	8.5	17	10.6	59	9.0
Total	495	100.0	161	100.0	656	100.0

The vast majority of the population of both research communities is married (57.2%, n=375), while only a minor percentage of community members are co-habiting (2.0%, n=13), divorced (0.6%, n=4) or separated (0.3%, n=2). The relatively rare occurrence of cases of co-habitation, divorce and separation seemingly roots in the social esteem and pride associated with marriage in rural Crete. In case that the spouse is from a village other than their own, women generally abandon their place of birth when getting married in order to live with the husband. Among the sample population of Pirgos and Praitoria the number of male community members born in the village (68.4%, n=216) exceeds the number of female community members (55.6%, n=189) born in the community, whereas a significantly larger number of women than men are born either in the municipality, or somewhere else in Crete or in Greece. In this respect, a number of respondents, notably of advanced age, recall that their marriage was the result of bride-theft or bride-abduction, as it has been practised by villagers during earlier times. Bride-theft principally occurred upon disagreement among the parents of a couple intending to marry with the proposed marriage plans, whereupon the man decides to kidnap his envisaged bride and to hide her in the mountains in order to show his determination and to eventually receive the parents' approval. As Kain Hart (1992: 127) concludes: '*If the Church position is that marriage is an act of free will, it is most often locally called a matter of tyche (chance, fortune, fate)*'. Moreover**,** the majority of women get married at a relatively young age, often to men ten years or more their senior, as reported by all married female community members in the lowest age group of 14 to 20 years. The difference in age at the time of marriage can furthermore be related to the unequal distribution of the widowhood between the male (10.2%, n=6) and female (89.8%, n=53) household members of the sample (*cf.* Van Beelen 1990; Van der Hoeven 1992; Van Bommel 1993; Dijkstra 2005; De Vries 2007).

The relative abundance of widowed women has moreover been associated with the minimal exposure of female community members to warfare and competition as well as to responsibilities and worries in general (*cf.* Greger 1985; Van Beelen 1990; Bouma 2000). As Greger (1985: 34) highlights: '*It is well known in Crete that men are worriers, and that women should not be. Women have pains but they do not have worries: their husbands protect them from such responsibilities*'. Widowhood is often related to a status of social vulnerability and women commonly accuse their male relatives of having them left unprotected during practices of lamenting, a custom, which is typically followed by the female villagers. Nevertheless, women can be subject to the faults of men carrying responsibilities and can consequently experience feelings of anxiety and risk. The relationship between men and women is primarily shaped by female subordination, which is coupled with the adherence of women to their household and religious chores (*cf.* Greger 1985; Herzfeld 1993) (5.4). As Kain Hart (1992: 24) indicates: '*Women are preeminent in the domain of religion, and are channels of sanctity for the family, yet their participation in this field is crosscut by signals of subordination to men*'. While male community members generally resort to demonstrating their character in public, women express their personality only upon defence of the household or marital group. Female villagers moreover nurture their husbands and children within the domestic sphere of the household, but

maintain a distance from the husband in the wider social context. As noticed by Greger (1985: 127): '*Family honour comes before all other and the maintenance of a husband's honour and a wife's virtue are two sides of the same coin*'. Nevertheless, following their role as custodians of local values and meaning systems, women exercise a certain degree of social authority. As Gilmore (1982: 196) theorises: '[…] *Women, through gossip, virtually run the daily life of villages, maintaining social control through the power of their tongues. So, paralleling the political control of men in the Mediterranean region, there appears to be an oral dominance of women*'. Community members fear public exposure not only in terms of physical exposure of the body, but also in terms of oral exposure through the means of gossip. In this respect, female community members generally develop close friendships among each other and regularly gather in or in front of their homes to chat, express their opinion and share gossip, while drinking coffee and embroidering. Men and women, supported by their acquaintances of the same gender, usually conceal gossip from one another, thereby widening the gap between the male and female social spheres (*cf.* Blum & Blum 1965; Gilmore 1982; Greger 1985; Herzfeld 1985; Damer 1988; Kain Hart 1992; Hagoort 1998).

In addition to acting as guardians of traditional values and the household domain, women generally experience a change in social status upon the advent of motherhood. In other words, femininity is closely associated with the status of being married and having children, to which community members commonly attach great social significance. In this way, female villagers continue to meet the social demand of raising a family in spite of limited financial resources and the physical hardship involved in having children (5.5). Mothers generally lack family authority and occupy the same social position as their offspring, notably under the authority of their husband. Consequently, mothers and children form a type of same-level companionship, which is not at least encouraged by the relatively young age of female community members at the time of delivering their first child. The average age of women of the sample, whose firstborn is of age seven or below, amounts to 24 years at the time of birth of their first child (*cf.* Blum & Blum 1965; Gilmore 1982; Greger 1985; Arnold 1986; Damer 1988; Kain Hart 1992). In view of the rather great social significance, which rural inhabitants attach to marriage and motherhood, Table 5.8 highlights the distribution of the size of the households, namely of the number of members per household of the sample, over the research communities.

Table 5.8 Distribution of the Size of the Household of the Sample over the Two Research Communities (N=656).

Number of Household Members	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
1 member	76	15.4	23	14.3	99	15.1
2 members	160	32.3	58	36.0	218	33.2
3 members	60	12.1	24	14.9	84	12.8
4 members	104	21.0	40	24.8	144	22.0
5 members	65	13.1	10	6.2	75	11.4
6 members	30	6.1	6	3.7	36	5.5
Total	495	100.0	161	100.0	656	100.0

The majority of households of the sample is composed of two members (33.2%, n=218), of which 91.7% (n=200) are married and of which the highest percentage belongs to the age category of 63 to 69 years (20.2%, n=44), suggesting that the households consist primarily of married couples of older age. The second largest majority of households of the sample are composed of four members (22.0%, n=144), which in equal parts are either single (48.6%, n=70) or married (48.6%, n=70). Furthermore, the highest percentage of 4-member households is found in the age group of 7 to 13 years, which indicates that the four members refer primarily to the married couple and their children. Hereafter, the percentage of 5- and 6-member households is

higher among the inhabitants of Pirgos. The highest percentage of 5- and 6-member households in both communities coincides with the age category of seven and below, as such supporting the fact that nuclear families in rural Crete consist primarily of the husband and wife as well as their children. Table 5.9 shows the distribution of the composition of each household of the sample, that is of the relationship of each household member to the household head, over the two research communities.

Table 5.9 Distribution of the Relationship of the Household Members of the Sample to the Household Head over the Two Research Communities (N=656).

Relationship	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
household head	220	44.4	73	45.3	293	44.7
partner	137	27.7	48	29.8	185	28.2
son / daughter	124	25.1	31	19.3	155	23.6
son-in-law / daughter-in-law	1	0.2	0	0.0	1	0.2
grandchild	2	0.4	4	2.5	6	0.9
parent	4	0.8	3	1.9	7	1.1
parent-in-law	2	0.4	0	0.0	2	0.3
grandparent	2	0.4	0	0.0	2	0.3
brother / sister	3	0.6	1	0.6	4	0.6
brother-in-law / sister-in-law	0	0.0	1	0.6	1	0.2
Total	495	100.0	161	100.0	656	100.0

The most common pattern of household composition found in the sample links up with the relationship between the household head and his or her partner (28.2%, n=185) and to the relationship between the household head and his or her son or daughter (23.6%, n=155). The percentage of households, which are composed of sons and daughters, is slightly higher in the community of Pirgos. In general, family ties among the Cretan population are strong whereupon children, who decide to stay in the village, commonly live with their parents until they are married. While the majority of representatives of 3-member households are either married (64.3%, n=54) or single (31.0%, n=26), the highest percentage of 3-member households belongs to the age category of 35 to 41 years (13.1%, n=11), which suggests that unmarried children to a certain extent continue to live with their parents until they reach their middle age.

The most common pattern of household composition following the relationship between the household head and his or her partner as well as his or her son or daughter refers to the relationship between the household head and his or her parent. Overall, parents often live with or in the immediate vicinity of their children, whereby community members commonly accommodate their parents when the latter reach an advanced age, experience illness or loose their spouse. The nuclear family hereby acts as a substitute for the welfare state, whereby: working parents generally leave their children in the care of the grandparents whilst at work. The physically or mentally handicapped inhabitants commonly live with a family member; and community members frequently move in with their children, sometimes to urban areas, such as Iraklion, when they are reaching an advanced age. In Crete, inhabitants moreover follow the custom of naming the firstborn son after his paternal grandfather, as such highlighting the general significance of maintaining family relationships.

In the same fashion, the characteristic ending of Cretan surnames in *'-akis'*, notably a diminutive referring to *'son of'*, which has been in use since the Middle Ages and refers to an ordinary given name or to the nickname of a particular ancestor (5.6), emphasises the great significance of family affiliation in Crete. Family ties within the community are usually based on agnatic, that is paternal, relationships and follow the patrilineal ancestry (*cf.* Greger 1985;

Herzfeld 1985; Van Beelen 1990; Kain Hart 1992; Rackham & Moody 1996; Molenaar 1999; Van den Akker 2002; Davaki & Mossialos 2005). In this respect, Kain Hart (1992: 175), however, concludes: '*If "close" relationships are generally within the family, of these, the relationships between mothers and daughters and sometimes between sisters are the most intense*'. Furthermore, spiritual kinships, such as the ties established between the child and the godparent during the baptism or between the bridal pair and the marriage witness at the wedding, as they are not necessarily based on blood relations, carry great social significance (*cf.* Greger 1985).

On the basis of kinship relationships, rural communities generally embrace a small number of powerful patrigroups, namely agnatic kin groups, which form a communal network and allow community members to position themselves along an extensive array of relatives. In this way, agnatic relationships to a certain extent determine the distribution of land holdings, which are generally inherited within the kin group. Since property tax has only been introduced to Crete in 1913, namely the year when Crete joined the Republic of Greece, land holdings have long been under the control of families and patrigroups and have hereby been indicative of the wealth and social status of these groups within the community. Patrigroups moreover play a rather crucial role during the periods of election, which to a certain extent depend on patrigroup membership, challenging the role of the state. The custom of firing of weapons in the air at weddings or baptisms by members of the respective patrigroup can be interpreted as a sign of aversion to the state or to members of other patrigroup**s,** or to villagers, who stand outside the network of kin groups. Villagers generally view fellow community members, who lack a tight network of family relationships, with concern. Overall, local inhabitants attach considerable importance to kinship ties, which in turn evoke notions of loyalty, solidarity, mutual help and joint defence among the family and kin group members. As Herzfeld (1990: 112) notes: '*Cretans rather pride themselves on their aggressive - and often highly divisive - defence of family and individual prestige*'. Nevertheless, affiliation with a family or kin group does not necessarily involve a share of confidence between its members. The value system of the community strongly discourages intimacy between family and patrigroup members. Furthermore, conflicts within one kin group generally cause embarrassment and shame among the entire village population and are at times settled through interpersonal agreements, such as an establishment of spiritual kinship or an arrangement of marriage between the opposing groups (*cf.* Greger 1985; Herzfeld 1985; Kain Hart 1992; Van den Akker 2002) (5.7).

Following the web of family and kinship relationships, the subsequent level of communal network refers to the affiliation of the community members with the village at large. Local inhabitants generally have a strong sense of belonging to the community, as it generally persists even among villagers, who have left the community in order to live somewhere else. The sense of belonging is, however, not necessarily rooted in historical affiliation with the community. As Kain Hart (1992: 57) argues: '*So while there is a strong flavour of local endogamy and local identity, this has existed within the brackets of a history of migration*'. The inhabitants of rural Crete manage a communal network of social ties, on which they rely for everyday duties and in which they are tied to a set of social obligations. 'Appropriate' social behaviour is locally known as '*Filotimo*', a word, which is unique to the Greek language and has roughly been translated as 'Friend of Honour'. In the research communities, '*Filotimo*', which forms one of the most integral virtues among the population of Greece at large, is most prominently expressed by the generous hospitality of the villagers, by the making promises or by practices of the exchange of gifts. To some extent, the community members continue to fulfil their social duties during episodes of illness or other hardships (*cf.* Van de Kerk 1993). Nevertheless, social conduct commonly involves a certain degree of manipulation, upon which community members offer hospitality in a way to prevent others from causing them harm and exchange promises and gifts in order to burden the counterpart with debt allowing them to make demands (5.8).

As Herzfeld (1991: 81) observes: '*Hospitality does not mark acceptance of the stranger so much as the moral superiority of the host*'. In the same fashion, inhabitants usually maintain a good relationship with certain well-educated, members of the community, such as physicians or teachers, in an attempt to win their support.

Villagers generally find contentment in the familiarity of the social ties. Nevertheless, the rather closely-knit social network provides a common ground, on which community members become affected by the uncontrolled ill-will, as well as the negative moods and feelings of others, as such developing feelings of distrust and anxiety. While patterns of social conduct moreover include a general respect for the wealth of others, rural population groups have recently become prone to an unequal distribution of welfare as a consequence of the introduction of new technologies and a new education system to Greece in the 20th century. Consequently, an unequal distribution of possessions and levels of education have provoked a hierarchical configuration of social structures whereupon spontaneous, amicable visits to fellow villagers within the realms of true hospitality have become rather rare. The social network has become subject to notions and practices of competition, including theft, which create powerful tensions between family and community members (5.9). As Kain Hart (1992: 183) shows: *Theft might occasionally have been motivated by actual need, but clearly the significance of theft in the imagination of villagers has to do with ridicule and the assertion of dominance*'. In order to avoid feelings of envy and competition among others, local inhabitants frequently conceal notions of happiness, pride, wealth or success. Nonetheless, obligatory social conduct, including practices of hospitality and the exchange of gifts, continues to have great social significance, particularly in rural communities, in which it forms an informal code of conduct and as such overshadows differences in the formal social status of the community members (*cf.* Blum & Blum 1965; Gilmore 1982; Greger 1985; Herzfeld 1985; Kain Hart 1992; Hagoort 1998; Herzfeld 1999; Van den Akker 2002; Herzfeld 2003).

5.2.2 Nationality, Religion and Cretan Character

Further specifying the characteristics of the sample population, Table 5.10 presents the distribution of the nationality of all household members of the sample over the research communities.

Table 5.10 Distribution of the Nationality of the Household Members of the Sample over the Two Research Communities (N=656).

Nationality	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
Greek	483	97.6	135	83.9	618	94.2
Albanian	6	1.2	0	0.0	6	0.9
Bulgarian	0	0.0	23	14.3	23	3.5
Rumanian	6	1.2	1	0.6	7	1.1
other	0	0.0	2	1.2	2	0.3
Total	495	100.0	161	100.0	656	100.0

The vast majority of the respondents report the Greek nationality (94.2%, n=618). The highest percentage (14.3%, n=23) of the community members, who have a nationality other than Greek, is found in Praitoria, namely among the Bulgarian inhabitants of the community. The highest percentage of non-Greeks living in Pirgos is equally distributed among the inhabitants with the Albanian (1.2%, n=6) and the inhabitants with the Rumanian (1.2%, n=6) nationality. Table 5.11 indicates the distribution of the religious affiliation of all household members of the sample over the research communities.

Table 5.11 Distribution of the Religious Affiliation of the Household Members of the Sample over the Two Research Communities (N=656).

Religious Affiliation	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
Greek Orthodox	483	97.6	134	83.2	617	94.1
Bulgarian Orthodox	0	0.0	23	14.3	23	3.5
Rumanian Orthodox	6	1.2	1	0.6	7	1.1
non-Orthodox Christian	0	0.0	3	1.9	3	0.5
non-Christian	6	1.2	0	0.0	6	0.9
Total	495	100.0	161	100.0	656	100.0

In line with the distribution of nationality among the respondents, an overwhelming majority of household members belong to the Greek Orthodox Church (94.1%, n=617). Furthermore, 14.3% (n=23) of the sample population of Praitoria follows Bulgarian Orthodoxy and as such forms the highest ratio of non-Greek Orthodox adherents. The majority of respondents, who have the Albanian, Bulgarian or Rumanian nationality and practise a religion other than Greek Orthodoxy, settled in rural Crete as immigrants in search of work. In general, these immigrants commonly arrive in groups of sometimes extended families, of which the second generation of children are nowadays born in Crete. Migrants from mostly neighbouring countries reach Crete as seasonal labourers, who come for the harvest season and reside in the village for a period of about six months' time (*cf.* Van den Akker 2002).

In view of the overwhelming majority of respondents, who reportedly assume the Greek nationality and belong to the Greek Orthodox Church, the inhabitants of Crete generally identify themselves as Greek within an international context. On a national level, however, community members distinguish themselves as Cretan and maintain an identity, which is acknowledged not only by the inhabitants of Crete but also by the population of Greece at large. As Herzfeld (1985: 6) claims: '[…] *Crete regards itself as an idiosyncratic and proudly independent part of the national entity* […]'.

Despite the recent development of tourism and the increased arrival of immigrants in Crete, the local population has continued to adhere to a notion of 'Cretan-ness' and to display a rather unswerving loyalty towards other Cretans, consequently retaining a sense of autonomy, inner strength and security. Devotion to the ideal of being Cretan has remained particularly visible and expressed among rural and mountain communities, in which forms of loyalty and autonomy have been linked to the circumstances of hard work and physical isolation. Local inhabitants commonly express 'Cretan-ness' by a way of dressing, whereby the habit of older community members to typically dress in black has been interpreted as a way of mourning their loss and sharing their sorrow over the years of foreign oppression. The traditional attire involves a black dress and headscarf for women and a black shirt and special black baggy trousers, '*Vrakes*', which are tucked in black knee-height boots, '*Stivania*', as traditionally worn by shepherds, as well as a traditional male headdress, '*Sariki*', which is wrapped several times around the head. Male community members moreover express 'Cretan-ness' and local pride by growing a moustache (*cf.* Greger 1985; Herzfeld 1985; Van de Kerk 1993; Rackham & Moody 1996; Herzfeld 1999; 2003).

In line with the display of loyalty among each other, the inhabitants of Crete also show a certain degree of resentment towards forms of external authority, which can be understood as a consequence of their experience of continuous periods of time of foreign occupation throughout history. Community members commonly disregard bureaucratic and legal regulations and adhere to a negotiation system based on honour and patronage, in which written and legal evidence is not required but rather interpreted as a sign of failed negotiation and betrayal (*cf.* Herzfeld 1985; Hagoort 1998). As Gilmore (1982: 191) explains: '[…] *Mediterranean honour contains three separate vectors of competition: first, for wealth; second, for status in the sense of respect; and third, for masculinity narrowly defined as virility*'. Consequently, abstract schemes, such as

systems of central administration, frequently fail to meet the demands of the local population (*cf.* Greger 1985; Herzfeld 1985). According to Greger (1985: 169): '[...] [*Competitiveness*] *within the honour ethic has a greater component of morality, and can be better kept under control, than competitiveness as understood within a marketing profit-making economy*'. Although community members generally respect the dominance of the state apparatus, local autonomy is held in high esteem, whereupon the population of Crete appears to be characterised by a constant interplay between the ideals of democracy and freedom (*cf.* Herzfeld 1985; Van Bommel 1993; Van de Kerk 1993; Hanepen 1997; Dijkstra 2005). As noticed by Greger (1985: 76): '*At one and the same time it is honourable to steal (and get away with it) and dishonourable to steal and break good laws designed to protect the* [*community*]'.

5.2.3 Education, Occupation and Socio-Economic Profile

As regards the sample population, Table 5.12 shows the distribution of the level of education completed by the household members of the sample over the two research communities.

Table 5.12 Distribution of the Level of Education Completed by the Household Members of the Sample over the Two Research Communities (N=656).

Level of Education Completed	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
no formal education	128	25.9	45	28.0	173	26.4
primary education	156	31.5	61	37.9	217	33.1
secondary education	134	27.1	48	29.8	182	27.7
post-secondary education	77	15.6	7	4.3	84	12.8
Total	495	100.0	161	100.0	656	100.0

The majority of the respondents completed primary education (33.1%, n=217). The percentage is lowest among household members, who finished post-secondary education (12.8%, n=84). With the exception of religious institutions, which offered a certain degree of education, the availability of educational facilities in rural Crete has until recently been rather limited whereupon inhabitants remained largely illiterate and most knowledge was handed down orally. While only a minor proportion of the older population of today have completed the level of primary education, the majority did not receive any type of formal education. Accordingly, the percentage of respondents, who did not enter formal education, is higher among older and female inhabitants. Women generally got married at a young age and hereby abstained from entering formal education, whereas access to secondary education has been long restricted to men. Following the establishment of educational facilities after the Second World War, male and female community members have since entered higher levels of education and have begun to leave the village, the island or even the country in pursuit of receiving formal education elsewhere. In the two research communities, the percentage of inhabitants, who have received a level of primary education, is considerably higher in Praitoria (*cf.* Van Beelen 1990; Van der Hoeven 1992; Van de Kerk 1993; Molenaar 1999; Bouma 2000; Dijkstra 2005).

Apart from attending the '*yimnasio*' and '*likio*', community members reportedly received secondary education at vocational training institutes, '*Instituta Epangelmatika Katartisis (IEK)*', and at technical schools, such as the former technical vocational lyceum, '*Tehniko Epangelmatiko Likio (TEL)*', which has been later replaced by the vocational secondary school, '*Epangelmatiko Likio (EPA.L)*' (5.10). During the 1980s, a number of post-secondary educational facilities, such as the University of Crete with seats in Iraklion and Rethymnon, the Technical University of Chania and a number of national as well as international research centres, have been established in Crete. In this way, respondents, who pursued post-secondary

education, attended a university primarily in Iraklion or Rethymnon, or, albeit less frequently, in places outside Crete, such as Athens or Mytilene. Community members received post-secondary education at Technological Education Institutes, '*Tekhnoloyika Ekpedeftika Idrimata (TEI)*', at vocational colleges and at logistic schools. Nevertheless, the number of inhabitants, who completed a level of post-secondary education, is rather small. Such small number is probably due to the restrictions imposed by the admission to post-secondary education facilities and the limited opportunities, which are offered to rural inhabitants, who follow agricultural work, or for entering education at the post-secondary level. In this respect, the percentage of community members, who have completed a type of post-secondary education, is substantially higher among the inhabitants of Pirgos than of Praitoria (*cf.* Greger 1985; Hagoort 1998; Briassoulis 2003; Palstra 2003; De Vries 2007).

Following the distribution of the level of education completed by the respondents, Table 5.13 shows the distribution of the main occupation of the household members of the sample over the two research communities.

Table 5.13 Distribution of the Main Occupation of the Household Members of the Sample over the Two Research Communities (N=656).

Main Occupation	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
not in labour force	26	5.3	9	5.6	35	5.3
student / non-paid	74	14.9	19	11.8	93	14.2
self-employed	8	1.6	1	0.6	9	1.4
homemaker	78	15.8	24	14.9	102	15.5
(stock) farmer	151	30.5	64	39.8	215	32.8
manufacturer	12	2.4	5	3.1	17	2.6
electrician	2	0.4	0	0.0	2	0.3
construction worker	8	1.6	0	0.0	8	1.2
retailer	21	4.2	6	3.7	27	4.1
driver / carrier	4	0.8	2	1.2	6	0.9
provider of food, beverage, accommodation	10	2.0	0	0.0	10	1.5
insurance agent	2	0.4	0	0.0	2	0.3
head officer / researcher	2	0.4	2	1.2	4	0.6
servant to building	1	0.2	4	2.5	5	0.8
public administrator / defence personnel	22	4.4	5	3.1	27	4.1
educator	37	7.5	4	2.5	41	6.2
health, social worker	8	1.6	4	2.5	12	1.8
artist / entertainer	2	0.4	1	0.6	3	0.5
priest / personal servant	6	1.2	0	0.0	6	0.9
employee of the private sector	4	0.8	1	0.6	5	0.8
unemployed / retired	15	3.0	10	6.2	25	3.8
other	2	0.4	0	0.0	2	0.3
Total	495	100.0	161	100.0	656	100.0

The category 'not in labour force' comprises those respondents, who have not entered formal education and are as such not considered to practice any kind of formal profession. All of the 35 respondents (5.3%), who are not in labour force, belong to the age category of seven and below. The category of students includes any community member, who receives formal education on a primary, secondary or post-secondary level. The 93 students and other non-paid workers (14.2%) of the sample are primarily younger inhabitants. Across the sample population, the majority of community members, however, have the occupation of farmer or stock farmer (32.8%, n=215),

more precisely of farmer, shepherd, animal breeder or beekeeper. In the two research communities, men and women alike practice the profession of stock farmer, although the percentage of male farmers slightly exceeds the percentage of female farmers, not at least stimulated by inhabitants who have the profession of shepherd, which is exclusively chosen by men. The highest percentage of respondents, who have a formal occupation but who did not receive any formal education, is found among the profession of farmer or stock farmer. To some extent, local inhabitants view farming as a somewhat random activity rather than a formal profession, whereby practices of agriculture and stockbreeding are generally associated with a low social status. Nevertheless, the profession of shepherd has widely enjoyed a good reputation and forms an ideal for an enduring life, which reflects a proximity between humans, animals and the natural environment. Shepherding commonly involves the conquest and inhabitation of isolated, impassable and bitter mountain locations, as well as an exposure to natural elements, such as wind, rain and the sky in general. The profession of shepherd is regarded as a symbol of harshness, strength, purity and romanticism, by which shepherds have occupied a rather independent and solitary position within the community (*cf.* Herzfeld 1985; Kain Hart 1992; Rackham & Moody 1996; Bouma 2000; De Vries 2007; Panagiotakos *et al*. 2008).

The geographical location of the two research communities on the slopes of the Asterousia Mountains and on the eastern edge of the fertile Mesara Plain provides a sound basis for undertaking agricultural and stockbreeding activities. As Chartzoulatkis *et al*. (2011: 194) explain: '*Horticultural crops have always been the major agricultural activities in the small and medium-sized farms, especially in the Island of Crete*'. In the two research communities, crops are generally harvested for private consumption or for sale at local markets, which are held in the more populated communities of South-Central Crete on a weekly basis. While the largest market in the research area is held in the town of Mires, a weekly market has been held in the community of Pirgos every Tuesday for the last 60 years. The main agricultural products grown in the research area include olives (*Olea europaea* L. *sylvestris* Brot.), grapes (*Vitis vinifera* L.), cereals, legumes, citrus fruits, nuts and culinary herbs (5.11). Olives are planted extensively up to an altitude of around 600 metres and are either consumed privately or sold at local markets (*cf.* Illustration 5.4). Moreover, the cultivation of olives forms the basis for the local production of olive oil, which is consumed privately rather than sold at the market. Following the general availability of homemade olive oil across the households in the research area, the product is rarely sold in local supermarkets (*cf.* Kalokhristianakis 2009). Grown at altitudes above the olive-limit, grapes provide the basis for the production of privately consumed vinegar, raisins and wine leaves, as well as for the preparation of privately consumed and commercially sold wine and raki, an alcoholic beverage made from the distilled pomace of grapes (5.12). Wine, which is cultivated at small vineyards, is usually consumed privately or sold as loose, barrelled wine at local taverns. The wine, which is harvested at large vineyards, such as the resinated 'Retsina', is commonly bottled, a practice Cretans reportedly consider to produce a rather distasteful wine, and sold commercially. Raki, which is typically brewed at locally owned distilleries, is either used for private consumption or sold at local coffeehouses, bars and taverns. Cereals, such as maize (*Zea mays* L.), wheat (*Triticum vulgare* L.), barley (*Hordeum vulgare* L.) and oat (*Avena sativa* L.), which used to form the main subsistence crops during the 19th and 20th century, are nowadays used, at times in combination, in the production of bread for private consumption, although wheat is occasionally also cultivated for sale and trade. Legumes, including peas (*Pisum sativum* L.), lentils (*Ervum lens* L.) and other types of beans, as well as seeds, such as flax (*Linum usitatissimum* L.) and sesame (*Sesamum indicum* L.), used for the preparation of bread and sweets, are grown solely for household consumption. The pods of carob (*Ceratonia siliqua* L.) are used in the preparation of homemade sweets but are also frequently sold at local markets. Other fruits and nuts, which are cultivated in the research area, notably in river bottomlands, as minor crops for household consumption or for sale at local markets, include apples (*Malus domestica* Borkh. / *Malus sylvestris* (L.) Mill.), quinces (*Cydonia oblonga* Mill.), figs (*Ficus carica* L.), pomegranates (*Punica granatum* L.), loquats (*Eribotrya japonica*

(Thunb.) Lindl.) oranges (*Citrus sinensis* (L.) Osbeck), lemons (*Citrus medica* L.), almonds (*Amygdalus communis* L.), bitter almonds (*Prunus amygdalus* Batsch *amara*) and walnuts (*Juglans regia* L.). Vegetables and culinary herbs, such as fresh tomatoes (*Solanum lyciopersicum* L.), cucumbers (*Cucumis sativus* L.), potatoes (*Solanum tuberosum* L.), aubergines (*Solanum melongena* L.), onions (*Allium cepa* L.), common peppers (*Capsicum annuum* L.), artichokes (*Cynara scolymus* L.) and okra (*Hibiscus esculentus* L.), which are harvested in local gardens, are similarly grown for private consumption or for sale at local markets.

Illustration 5.4 Olive Cultivation in Pirgos in Crete.
Photograph by J. Aiglsperger (2011).

Furthermore, the herding of sheep and goats in the research area allows for the production of meat and dairy products, including various types of cheese, which are typically prepared in Crete, such as 'Graviera', 'Mizithra', 'Anthotiro' or 'Feta'. The meat and dairy products are either privately consumed or sold to local supermarkets. In addition to flocks of sheep and goats, donkeys have long been used as riding and packing animals, but are rarely seen in the research area today. Villagers typically reach the fields by a pick-up truck, which has gradually replaced the tractor and is nowadays commonly seen in the two research communities, loaded with farming tools and products. As Greger (1985: 142) points out: '*The pick-up truck is probably the biggest labour-saving device and also the biggest agent of change*'. Moreover, the local inhabitants engage in the collection of snails, particularly following periods of rain, which are used for private consumption. Furthermore, community members commonly keep bees in beehives, which are placed in rocky and flowery locations covered with aromatic plants, such as Thyme (*Coridothymus capitatus* (L.) Rechenb. Fil. or *Thymus capitatus* (L.) Hoffmanns. & Link) or Summer Savory (*Satureja thymbra L.*), and as such produce specific types of aromatic honey. Apart from crops and animals, which are farmed for the production of food, the plants, which are cultivated in the research area, are mostly used for seasoning and medicine. Cereals, carobs (*Ceratonia siliqua* L.) and other wild plants are commonly harvested for the preparation of animal fodder as well as for bee forage. The cultivation of trees and shrubs moreover enables the production of timber, which is used as a building material in fencing and roofing, as well as for blocking gaps, breaking the wind and providing shade in places, such as village squares. Firewood is primarily harvested from the wood of the long-lasting Olive tree (*Olea europaea* L. *sylvestris* Brot. / *Olea europaea* L. *oleaster* (Hoffmanns. & Link) Negodi), as well as from the wood of the spiny broom and the oak tree, and is used for heating and cooking instead of oil and

gas. Fuel and charcoal are similarly extracted from the wood of the Olive tree, the spiny broom and the oak tree, which are also used for making the traditional walking sticks, known as '*Katsuna*', used by shepherds and popular among tourists. Finally, plants and plant-based products are also used as compost and for fishing and dyeing. They are also used for lighting, whereby a lamp floats on olive oil, and as a decoration, as well as in religious and spiritual ceremonies and rituals. Although income is seasonal and depends largely on environmental and weather conditions, practices of farming and stock farming have provided the most valuable source of self-sufficiency to the population of rural Crete (*cf.* Greger 1985; Van de Kerk 1993; Watrous *et al*. 1993; Rackham & Moody 1996; Iatrou & Kokkalou 1997; Chartzoulakis *et al*. 2001; MEDUSA Network 2002; Van den Akker 2002; Briassoulis 2003; Fielding *et al*. 2005; Botanic Garden and Botanical Museum Berlin-Dahlem 2007; De Vries 2007; Clark 2011).

As regards the occupation of farmer or stock farmer, the second highest percentage of respondents practice the profession of homemaker (15.5%, n=102). Excluding the category of students and non-paid labourers, the third highest percentage of household members of the sample are found in the occupation of educator (6.2%, n=41), which comprises teachers, kindergarten teachers, gym teachers, professors and schoolmasters. In this respect, a significantly higher number of educators (90.2%, n=37) lives in the community of Pirgos.

The availability of communal facilities, such as schools, coffeehouses and hairdressers, as well as administrative buildings in Pirgos contributes to the rather unequal distribution of certain occupations among the two research communities. The inhabitants of Pirgos predominantly have the occupation of respectively: electrician; construction worker, which includes refrigeration engineers, plumbers and crane operators; provider of food, beverage or accommodation, which comprises the proprietors and staff of coffeehouses, as well as owners of tavern and hotels; insurance agent; priest or personal servant, whereby the latter refers mainly to hairdressers; public administrator or defence personnel, which includes municipal employees, policemen, firemen and soldiers; and retailer, which includes vendors, grocers, butchers, car mechanics and gas station owners. On the other hand, the number of household members, who work as servants to buildings, namely as cleaning ladies, secretaries, receptionists and night watchmen, is larger among the inhabitants of Praitoria. The distribution of professional activities among the sample population differs in relation to the gender of the respondents.

In fact, a significantly larger number of male community members practice the profession of: electrician; construction worker; driver or carrier, which includes taxi and tourist bus drivers as well as sailors; provider of food, beverage or accommodation; priest or personal servant; head officer or researcher, as well as manufacturer, notably of food, textiles, furniture and mechanical goods. In the same fashion, more men than women are reportedly self-employed or employed in the private sector. Female community members dominate the profession of respectively: homemaker; human health or social worker, which includes childcare and health care delivery workers; artist or entertainer, which includes gymnasts, betting shop owners and theatre employees; servant to buildings; and retailer. Across the sample population, the highest percentage of unemployment has been found among inhabitants, who are found in the age category of 21 to 27, thereby reflecting the high rate of youth unemployment in Greece, which has been reportedly estimated at 55.3% in 2012 (*cf.* Eurostat 2014c). Furthermore, a rather large number of respondents have an occupation, which is not subject to formal retirement, and as such stimulate a relatively low rate of retirement among the sample population. Community members commonly practice the profession of farmer, stock farmer, homemaker or provider of food, beverages or accommodation until an advanced age or enter the occupation after having retired from a different job. In general, local inhabitants frequently continue to work after retirement or during episodes of illness, expressing as such their strong working mentality, which is to a certain extent based on the wish to make money and to stay active.

Finally, the profession of priest, which is exclusively practiced by men, has wider social significance, whereby the priest is not only responsible for the execution of religious tasks, but also functions as a communal advisor and person of trust (*cf.* Greger 1985; Van Beelen 1990; Koutis *et al*. 1993; Van de Kerk 1993; Bouma 2000; Dijkstra 2005; De Vries 2007; Panagiotakos *et al*. 2008).

In the research communities, local inhabitants, who have the occupation of farmer or provider of food, beverage or accommodation, generally participate in a family business, which is managed by members of the nuclear, extended or in-law family. The majority of community members own pieces of land or cattle, which are inherited within the kin group and are farmed by family members. Furthermore, local taverns and accommodation facilities are frequently run by members of the same family. Family businesses not only offer full-time employment to the members of a kin group, but also provide members of the family, who have an occupation outside the family business, the opportunity to make some extra money. In this way, younger inhabitants frequently engage in the agricultural activities of their parents whilst practicing a regular profession, at times in places even outside the community. In this fashion, community members are frequently joined by relatives, who are living outside the village, such as in Iraklion, visiting them on weekends or during harvest time to work in the fields, olive groves or vineyards. Family members, who practice a profession in the tourist sector, frequently work extended hours during the summer months, whereby they combine agricultural and tourist activities. Overall, it is common practice among the inhabitants of rural Crete to have more than one occupation, not at least encouraged by the widespread availability of family businesses. Nevertheless, a gradual tendency among community members to have an occupation in sectors other than agriculture has recently prompted holders of large areas of land to employ migrant labourers during the harvest season from countries such as Bulgaria or Albania (*cf.* Greger 1985; Van Beelen 1990; Van de Kerk 1993; Rackham & Moody 1996; Hanepen 1997; Molenaar 1999) (5.13).

In view of the social significance of family and patrigroup relationships, as well as the predominance of family businesses in the research communities, economic standards are generally based on the income of the family or patrigroup, rather than on the individual community member. Family and patrigroup members share the responsibility in their contribution to the income of the kin group and provide sources of economic power, whereby family members living in urban areas commonly raise the economic standard of their communal patrigroup. Local inhabitants provide financial support to each other through the network of social ties, in which they adhere to a rather informal system of referral. Based on a notion of loyalty between fellow community members, the referral system, which comprises the entire village population and at times extends to neighbouring settlements, produces economic revenues for the community at large. Villagers, who live outside the community but who own properties in the village, tend to visit the community regularly during weekends or holidays. Also community members, who own businesses outside the village but remain in the community, continue to rely on these local socio-economic networks. Community members, who are not working, unemployed or incapable of work, are generally exempted from participating in family- and community-based socio-economic networks. In the same fashion, the businesses managed in the two research communities, which are linked to international enterprises, are mainly managed independently from local socio-economic networks. In general, the economic environment of the two research communities has been rather secluded and has provoked low outside competition. Nevertheless, a growing tendency towards national and international cooperation has recently weakened the solidarity and loyalty in the communities, on which the socio-economic networks are based, and has shifted the responsibilities for economic security to the nuclear family (*cf.* Hanepen 1997; Herzfeld 1999).

In this way, Table 5.14 shows the distribution of the estimated annual income of each household, namely the income of all household members combined, of the sample over the two research communities. In the communities of Pirgos and Praitoria, the majority of households

have an estimated income, which ranges from 10.000 to 20.000 Euro per year (37.5%, n=110). The distribution of household incomes of the sample leans towards the lower end of the scale, whereby only a minimum number of households reportedly have an annual income above 40.000 Euro (1.0%, n=3).

Table 5.14 Distribution of the Estimated Annual Income of the Households of the Sample in Euro over the Two Research Communities (N=293).

Annual Income	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
<10,000	70	31.8	21	28.8	91	31.1
10,000-20,000	88	40.0	22	30.1	110	37.5
21,000-30,000	34	15.5	12	16.4	46	15.7
31,000-40,000	8	3.6	2	2.7	10	3.4
>40,000	2	0.9	1	1.4	3	1.0
no income reported	18	8.2	15	20.5	33	11.3
Total	220	100.0	73	100.0	293	100.0

While the distribution of the annual income of the household is fairly similar in both research communities, a considerably high percentage of household heads living in Praitoria refrained from indicating the amount of income on the present scale (20.5%, n=15). In addition to the annual income of the household, Table 5.15 presents the distribution of the socio-economic status (SES) of all households of the sample over the two research communities.

Table 5.15 Distribution of the Socio-Economic Status (SES) of the Household Members of the Sample over the Two Research Communities (N=656).

SES[1]	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
poor	52	10.5	60	37.3	112	17.1
average	442	89.3	99	61.5	541	82.5
rich	1	0.2	2	1.2	3	0.5
Total	495	100.0	161	100.0	656	100.0

[1]Specifications of the Socio-Economic Status:
poor: minimum number of possessions; small, dark and old house;
average: medium number of possessions, including ownership of a limited number of assets, such as a public house; medium-sized house;
rich: possession of a variety of assets, such as public houses, holiday homes or shops; large and well-furnished house (*cf.* Van den Akker 2002).

The vast majority of households in both research communities have an average SES (79.2%, n=232) and are defined as neither poor nor rich. Furthermore, a considerably low percentage of households across the sample reportedly enjoy a high SES (0.7%, n=2). The percentage of community members, who have a poor SES (20.1%, n=59), is higher among the inhabitants of Praitoria. A rather large number of households, which maintains a poor SES (52.5%, n=31), has an estimated annual income of less than 10.000 Euro, thereby suggesting that a poor SES is related to a low annual income. All households with an estimated annual income between 31.000 and 40.000 Euro as well as above 40.000 Euro show an average SES. The heads of the households, who have been classified as maintaining a high SES, all refrained from reporting an annual income, which indicates that community members may conceal their wealth and possessions from others. The highest percentage of households, which shows a low SES, furthermore coincides with the age category of 70 to 76 years, while the percentage of households, which reportedly has a high SES, is highest among the age groups of 21 to 27 and 56 to 62 years. While both young and older community members appear to be similarly able to

achieve a high SES, older inhabitants are seemingly more likely to maintain a low socio-economic status. A vast majority of respondents, who have been born outside the Municipality of Arkhanes-Asterousia or outside Crete, demonstrate an average SES, which suggests that local inhabitants, who were born in the community or municipality, maintain a lower socio-economic status than villagers born elsewhere. Finally, the highest percentage of households, which show a low SES, is found among community members, who have not received any type of formal education.

5.3 Social Organisation of the Research Communities

5.3.1 Housing and Communal Institutions

From the outside, an initiale impression gained from the view of the communities of Pirgos and Praitoria reveals the rather typical features of dusty roads, whitewashed old houses and often unfinished two-storyed buildings. To a certain extent, however, the characteristics of the sample population are reflected in local patterns of living and housing, as well as in the types of local institutions available in the communities. It is common for community members, who start a family and decide to stay in the village, to live in the close vicinity of their parents whereupon parents and children often tend to reside in neighbouring houses or occupy both levels of a two-storeyed building. Houses established in the two research communities have mostly one or two, but occasionally three storeys, which are usually connected through external staircases. Balconies generally encircle the first and second floors, while ground floors frequently extend towards a terrace or small garden, which is commonly decorated with flowers and potted plants, providing a hospitable area for drinking coffee and entertaining passers-by. Overall, only a small number of houses in the two research communities are bordered by fences and accessed through external gates. The most commonly held kinds of pets, such as dogs and cats, are always kept outside the house on the terrace or in the garden, whereby watchdogs are generally tied against walls or fences. Similarly accessible by external staircases, the rooftops of houses are typically flat, whereby the space is used *i.a.* for collecting and heating water in containers, for hanging clothes, as well as for drying vegetables or fruits, such as grapes (*Vitis vinifera* L.) (*cf.* Rackham & Moody 1996).

During the day, blinds on the balcony and shutters at the windows protect the houses from the sun leaving the inside rather dark. The inside of the houses is typically divided into a kitchen and adjoining dining area, which generally include a fireplace or oven, different seating facilities and a dining table. In addition, there is a master bedroom, and depending on the number of household members, a second or a third bedroom. There is also a bathroom with toilet, whereby the latter is sometimes housed in a separate room. In this way, it is common practice among families with three or more children for siblings, notably of the same gender, to share a room. Older, widowed inhabitants may resort to sleep on a sofa bed in the kitchen instead of using the master bedroom. Inside the house, the walls and flat surfaces of tables and sideboards of inhabited rooms are typically decorated with framed family pictures and icons. Furthermore, an altar table, which holds pictures of deceased family members or close acquaintances, icons, incense and oil lamps, is frequently arranged in one corner of the house, usually in the kitchen. The majority of houses in the two research communities contain an extra, non-inhabited room or shed for storage, namely of food, such as barrelled olive oil or wine, which usually adjoins the house or occupies an uninhabited ground floor. In view of the spread of farming activities, local inhabitants frequently own an additional field house, '*Khorafi*', which is typically positioned next to their field and in which agricultural equipment and products are stored (*cf.* Roussou 2011) (*cf.* Illustration 5.5).

In addition to residential and field houses, the two research communities of Pirgos and Praitoria furthermore encompass a variety of administrative, cultural and religious institutions, which assist the local population in their daily activities. Since Pirgos formed the Seat of the

Municipality of Asterousia from 1997 until 2011, all administrative establishments providing services to the inhabitants of the settlements in the former municipality are to this day based in the community of Pirgos (*cf.* Map 5.2). The communal building located at the crossing between the main street of Pirgos and the country road Kharakas-Martha accommodates the local town hall and the Citizen Service Centre, '*Kentro Eksipiretisis Politon (KEP)*'. To the southwest, an ascending path leads to the oldest administrative institutions of Pirgos, which were established following the Pact of Halepa in 1878 and include the police station, the local court and the post office, which formerly hosted the telegraph and telephone office.

Illustration 5.5 Rural Field House in South-Central Crete.
Photograph by J. Aiglsperger (2011).

West of the building in which the town hall is established, the local nursery school is situated along the northern edge of the country road Kharakas-Martha, and is adjoined by the building of the local fire brigade in the North. In view of the general absence of educational facilities until the beginning of the 20th century, the students of Pirgos and Praitoria had to walk on foot to the nearby community of Kharakas in order to receive primary education. When free access to compulsory education for both genders was established in the first Cretan Constitution adopted in 1899, educational facilities have been established in the rural areas of the island. The primary school in Pirgos is currently located north of the town hall at the western edge of the ascending main street in a two-storeyed building, which was opened in 1997 and extends towards a large asphaltic schoolyard. Encircled by a high fence, the schoolyard is used for gym lessons as well as for the organisation of open-air communal festivities. In the same fashion, the school building houses a large auditorium on the first floor, which serves the organisation of communal assemblies, theatres, concerts and other festivities. In addition to the nursing and primary school, the community of Pirgos furthermore encompasses a lower-secondary school, which is located behind the nursing school further west along the northern edge of the country road Kharakas-Martha. The one-storeyed building extends to an asphaltic schoolyard, which is encircled by a fence, and is enclosed by several equally asphaltic yards used for gym lessons and ball games. The students of both research communities usually attend school in Pirgos until they complete the lower secondary level, whereby the students of Praitoria as well as of other surrounding villages are brought to Pirgos by the local school bus. In order to enter education at the higher secondary level, students generally commute by bus to the nearby community of Kharakas. Apart from the educational facilities, the communal institutions located in Pirgos moreover include an 'Open Care Centre for the Elderly', '*Kentro Anikhtis Prostasias Ilikiomenon (KAPI)*',

which is located along the northern edge of the market street next to the health post. The centre functions as a gathering place for the older community members, who meet at the common room to talk, have coffee, crochet or read the newspaper. The female Director of the KAPI, who is generally present at the centre on weekdays until noon, performs the task of organising a number of activities, such as excursions, music sessions or theatre plays. Furthermore, a female assistant is present at the centre during weekdays to prepare coffee and other beverages for the visitors. The majority of guests at the KAPI in Pirgos live in the village. Following the absence of an open care centre in Praitoria, the inhabitants frequently resort to visiting the KAPI in the nearby village of Kharakas (*cf.* Molenaar 1999; Kalokhristianakis 2009).

Apart from the different administrative institutions located in Pirgos, a number of cultural facilities are available in both research communities. The community of Pirgos accommodates a multi-storeyed hotel, which is located north of the village along the western edge of the main street, as well as a small-sized hotel, which is situated in the centre of the community, south of the market street. The availability of rooms in both hotels is written on signs, which are displayed along the streets in the village as well as along the main roads bordering the community of Pirgos. For the most part, hotel guests are either Cretans, who visit the village as family members or friends on festive occasions, such as weddings, or foreign transients, who stay for rather short periods of time. The multi-storeyed hotel in Pirgos offers apartments in an adjacent building on a monthly basis, which are rented by mostly young visitors, who come to Pirgos from different parts of Greece in order to assume a job in fields such as education or health care and frequently encounter initial difficulties in finding accommodation. Besides the hotel buildings, Pirgos encloses a number of taverns and coffeehouses primarily situated along the main and the market street, which offer guests the opportunity to sit outside, watch television or use the Internet. The older community members tend to frequent the coffeehouses located along the market street, while younger inhabitants gather primarily in the cafes along the main street, which are used as bars during the evening hours, as well as at the coffee bar adjoining the Forest of Farmakaras. In view of the availability of a single coffeehouse in Praitoria, the inhabitants either frequent the cafes in Pirgos or visit, notably in small numbers, the local coffeehouse, which is situated north at the division of the main street (*cf.* Map 5.3). The inhabitants of Praitoria and other visitors commonly gather at the two local gas stations, which are positioned in the Southeast along the country road Knossos-Kharakas and in the northwest along the country road Iraklion-Praitoria.

In addition to providing the opportunity to consume beverages and snacks, the gas stations in Praitoria both accommodate a small shop, forming the only selling points of consumer goods in the community. While the gas stations in Pirgos withhold from offering a meeting place and consumer goods, the petrol station situated at the northern edge of the main street in Pirgos functions as a service station. Service stations, which attend to the reparation of motorised vehicles, are available in both research communities. With the exception of both gas stations located in Praitoria, consumer goods and other services are, however, solely found in the community of Pirgos, particularly in the vicinity of the main and the market street, as well as the country road Kharakas-Martha. Furthermore, there are in Pirgos a variety of supermarkets, small grocers, bakeries and tobacconists; clothing and jewellery shops; a flower store; shops specialised in household goods and electronics; two banks; a number of hairdressers; a bookstore; a betting shop; a private insurance company; and a gym. Making use of the open space surrounding the community of Praitoria, two factories of mechanic products, of which one is specialised in the manufacture of olive-harvesting tools, have been established at the southern and western edge of the village. With the exception of supermarkets, which are generally open the entire day from Monday until Saturday, and gas stations, which operate all week long, the cultural institutions in the two research communities operate from Monday until Saturday during the morning and evening hours, and close down after lunch hour during the afternoon.

In general, the administrative and cultural institutions provide the meeting places for mostly male community members, who frequently visit acquaintances at their place of employment, gather around the office desk or cash register and engage in rather vivid conversations, which are at times accompanied by the consumption of beverages or snacks ordered from a coffeehouse or tavern nearby.

Besides the administrative and cultural institutions available in the two research communities, the landscape of rural Crete generally offers a number of sacred sites, such as sanctuaries, caves, churches, chapels and monasteries often found at extremely remote locations. As Rackham & Moody (1996: 187) observe: '*Nearly every chapel, even if shattered in some forgotten earthquake, is still sacred and has a little icon and a lamp in a hole in the wall*'. Religious institutions, such as churches, chapels or monasteries, are frequently established in response to a religious calling, such as a request received from an angel in a dream or the need to thank a particular Saint. In Pirgos, the whitewashed Church of the Prophet Elias at the *Kaloyeriko*, which is located in the south-western part of the village and has been established during pre-Venetian times, is reminiscent of the group of monks, who lived previously in the area. Founded during the late-Byzantine Era, the Church of Saint Constantine and Saint George is found south of the market street of Pirgos and experiences bustling activities on the name day of Constantine, Eleni and George. Following the market street to the west, the small Church of Saint Paraskevi, which was presumably established at the beginning of the 20th century and worshipped for its holy water, is found in the midst of residential houses. The Church of Lord Christ (Methamorphosis), also founded at the beginning of the 20th century, which is located in the south-western part of Pirgos along the southern edge of the country road Kharakas-Martha, provides wider space as well as a church square. Following the country road Kharakas-Martha to the west, the village cemetery is placed towards the edge of the village south of the road. In response to an increase in population size, the even larger Church of Saint Irene, situated north of the primary school, was constructed. The church was founded in 1973 and inaugurated in 1981, and forms the core institution in which religious services and festivities are held today. Finally, the Church of Saint Raphael, which was established and inaugurated in 1990, is located on a hill in the south-eastern part of Pirgos at a rather long distance from the village centre. It can be reached by an asphaltic road from the North as well as by a non-prepared road from the west. In spite of its rather small size, the community of Praitoria accommodates three churches, namely: (1) the Church of Archangel Michael founded in the 13th century, which is positioned towards the west of the village next to the health post; (2) the Church of the Holy Trinity, which forms the largest church of the community, is situated at the southern edge of the village; and (3) the Church of Saint George, which is located at the heart of the community.

5.3.2 Adhering to the Religious Canon: A Selection of Rituals and Celebrations

Following the development of Orthodox Christianity during the Byzantine Era, the countries bordering the Mediterranean Sea in the East came under the influence of Orthodox elements. To this day, the national churches of these countries demonstrate a number of similarities, such as an emperor cult or an extensive monasticism, which are evidence of a common religious affiliation. Throughout history, however, Orthodox Christianity has come to incorporate various pagan features, which are characteristic of the habits of local population groups living in areas of Orthodox domination. The religious canon of the Greek Orthodox Church, for example, contains elements of local culture and traditional lifestyle, which have been adapted from people's organisation of daily life (*cf.* Kain Hart 1992). As Kain Hart (1992: 1) argues: '[…] [*Religious*] *tradition in Greece deeply relies on a scrupulous sense of place; religious experience is the product of theology in the crucible of a community (the living and their dead) and a landscape, which is the physical ground or material for a cosmology*'. Nevertheless, the Greek Orthodox Church, which has not been subject to events of reformation or counter-reformation, also offers a number of theoretical and practical commonalities at the local level. By consequence, the

components of Greek Orthodox Christianity are rather ambiguous, as they include both religious elements, which are virtually identical among communities, and irreligious elements, which are largely specific to local or regional population groups. Apart from its rather ambiguous features, Greek Orthodox Christianity incorporates a certain sense of nostalgia for the past. As noticed by Kain Hart (1992: 18): '*Religion in Greece involves a canon, in other words a sacred tradition that is articulated in more or less archaic terms, and in which the past has a positive value*'. Religious representatives, who throughout history have acted as local experts and mediators of mundane as well as sacred knowledge, continue to play an indispensible role in the daily life of particularly rural population groups. Although local inhabitants occasionally view them with scepticism, religious representatives serve the community not only as ministers but also as authoritarian figures and educators, who advocate and adhere to religious doctrines. '*The ideas and ideals expressed in Orthodox rhetoric in its more and less abstract manifestations often have the role not of mirroring the "ambient" social reality but of providing an indigenous critique of social reality*' (*ibid.*: 21). The Greek Orthodox Church performs a number of rituals, which aim at strengthening moral security and at counteracting socially destructive values, such as envy and jealousy, as well as at protecting personal feelings, conditions and belongings (*cf.* Kain Hart 1992). In particular, Greek Orthodox Christianity is organised around a calendar of rituals and celebrations, which invoke: the birth, life and death as well as resurrection of Christ; the birth, life and dormition of the Mother of God; and the birth, life, martyrdom and death of the Saints. Practices of veneration, particularly of the Mother of God and the Saints, are rather closely linked to people's daily life and provide a direct insight into the parallel reality of the past. The adoration of Saints, which emerged out of the disintegration of the Roman social order in late classical times, expresses the linkages very well between pagan and religious elements and forms a particularly significant ritual within the Greek Orthodox Church. As Herzfeld (1990: 11) notes: '*In popular cosmology, which situates saints in a local setting and gives them local relevance, actions often seem more significant than physical form*'. The Saints are regarded as pure and stand in contrast to the impure humans, whereby their purity embraces values of localism and family, as well as natural elements, such as air, sun or water. As Kain Hart (1992: 199) concludes: '[…] [*The*] *saints serve in a great variety of capacities: as models for personal behaviour, as emblems of social groups, as personifications of disease or heralds of weather, as putative ancestors and national fathers, and so on. Saints carry such a varied load of associations and identities that it is impossible to characterize them in any simple way or to reduce them to sociological or psychological "projections"*'.

The inhabitants of the two research communities commonly express their religious faith by making the sign of a cross, particularly when receiving uncomfortable news, when speaking about deceased loved-ones or when passing by a church building. In addition to the sign of the cross, habitual expressions, such as '*Panayia mu*', 'My Mother of God', or '*Doksa to Theo*', which literally translates as 'Glory of God', interpreted as 'Thank God', highlight the ubiquity of religion in everyday village life. Reverence for Christ, the Mother of God and the Saints is furthermore expressed through the worshipping of icons, which are the frame of reference in the canon of the Greek Orthodox Church. According to Herzfeld (1990: 111): '*The capacity of these icons to express social division does not lie in features of their design, but in the uses to which their very conventionality can be put*'. Holy icons combine religious values with local virtues, such as hospitality, for example, and thereby act as mediating symbols between religion and its members. In this way, local inhabitants frequently hang icons on the inside wall of their houses or place them on the family altar, which is designed to protect the household from evil forces. In addition to icons, the altar with incense and oil lamps commonly contains mostly pictures of deceased family members or friends. In general, the villagers worship icons by means of decorating the icon with flowers or lighting the censer and oil lamp on the altar, thereby provoking a regular exchange of substances between the domestic and the religious environment. Water and oil, for example, which are commonly available in rural households, are not only used for regular household chores, but are also used as sacred substances to domestic religious rituals.

The oil lamp, which is frequently lit during evening hours, is used for censing each room and for protecting the house from invasive spirits. As Kain Hart (1992: 116) demonstrates: '[*Each*] *household, through the possession of its own icons and the performance of private rituals, maintains its religious autonomy. Despite the public fuss made on formal occasions over higher members of the clerical hierarchy, there is a strikingly democratic ring to local piety*'. Community members moreover undertake casual visits to churches in the village, at times when taking a leisurely stroll, and lit a candle and cense the icons in the church with the available censer, while saying a prayer (*cf.* Kain Hart 1992; Roussou 2011).

Apart from the religious activities performed at home or by chance, the inhabitants of rural Crete frequently attend church on Sunday morning in order to follow the Eucharistic Liturgy. While it is common practice among villagers to enter the church after the service has begun, delaying their attendance at the liturgy, participation in the communion is generally held in high esteem. The communion centres on the distribution of the '*Prosforo*', namely a round loaf of bread, which is stamped with a seal, usually in the shape of a cross, and symbolises the incarnation of Christ. The loaf is cut at its centre with a small knife in the shape of a lance, '*Loghi*', and is thereafter consecrated and distributed as communion. The remainders of the *Prosforo* are cut in small pieces and distributed as blessed instead of consecrated '*Antidoro*' to the congregation after the service. In contrast to the *Prosforo*, the '*Artos*', a type of bread sweetened with sugar, is brought to church, blessed and distributed, usually accompanied by olive oil, wine, candles and incense, on particular festive days. Apart from the Sunday liturgy, community members commonly attend church on the name days of specific Saints, which are celebrated rather extensively and where students frequently remain absent from school. Following the annual calendar, the icon of the Saint is placed on the respective name day in front of the altar behind the seating area and visitors to the church usually walk to the front in order to kiss the icon and make the sign of a cross before taking a seat. As Kain Hart (1992: 231) highlights: '[…] [*The*] *saint's personality becomes over time deeply linked to the time of year in which he or she is celebrated*'. In this respect, it is common practice among local inhabitants to attend church on the name days of Saints, who have acquired wider significance (5.14). Since the majority of the villagers are named after a local Saint, community members furthermore visit church on the name day as well as on the day of birth and the day of death of the Saint concerned. In Crete, great significance is attached to the celebration of name days, on which local inhabitants not only attend church, but also invite family members and friends to a meal after the service and distribute sweets to friends, visitors and passers-by. In the same fashion, community members celebrate the name day of Saints, in whose name the village churches have been established by means of visiting the respective church (5.15). Following the tradition of dedicating religious institutions, such as churches and monasteries, to particular Saints, rural inhabitants may furthermore go on a pilgrimage to churches and other institutions located outside the community, often in remote areas, in order to venerate the respective Saint (*cf.* Kain Hart 1992; Van der Hoeven 1992; Van den Akker 2002).

In addition to a list of a specific number of name days, the annual cycle of the Greek Orthodox Church is divided into three major feasting and fasting periods, namely Easter, the Dormition of the Mother of God and Christmas. In particular, Easter, '*Paskha*', which according to ecclesiastical tables is celebrated on the Sunday after the Paschal Full Moon, is the most significant feast of the religious year. Traditionally, the celebrations are preceded by a fasting period of seven weeks known as 'Lent'. During the Holy Week, that is the last week before Easter, people attend church in the evening hours. On the evening of Holy Wednesday, the priest anoints people with the Holy Oil, while on Holy Thursday, a life-sized figure of Christ on the cross is brought to the centre of the church and held in an upright position allowing people to come forward and venerate Christ by means of kneeling in front of the cross and kissing the feet of the statue. The same evening, women stay in church after the liturgy in order to decorate the 'Epitaphios', an icon or embroidered cloth, which is placed on a wooden bier and adorned with flowers (*cf.* Illustration 5.6). The cloth and flowers are commonly held in red, which symbolises

the assassination and blood of Christ. Resembling the tomb of Christ, the 'Epitaphios' is placed in front of the entrance to the church during the liturgy of Good Friday where people exit the church after the liturgy by means of passing underneath the wooden bier.

Illustration 5.6 Icons and *Epitahphios* at the Church of Ayia Irini in Pirgos, Crete. Photograph by J. Aiglsperger (2011).

Subsequently, the church congregation follows the wooden bier, which is traditionally carried by four men, on a procession through the village, thereby engaging in songs and prayers. Naturally, people, who did not attend church, step outside their houses to witness the procession and to pass underneath the wooden bier, which is planted and lifted at several locations in the village. The celebrations held on Easter Sunday typically begin with a visit to church on Saturday shortly before midnight, during which candles are lit and after which people exchange the greeting of '*Christos anesti*', 'Christ is risen', to which they respond '*alithos anesti*', 'truly, He is risen'.

Illustration 5.7 Traditional Egg Tapping on Easter Sunday. Photograph by J. Aiglsperger (2011).

At this time, the church distributes bread and wine to the congregation. Hereafter, families typically gather during the night of Easter Sunday as well as on the day of Easter Sunday in order to consume a meal, which commonly consists of wine and roasted lamb. The Easter meal furthermore includes red-coloured eggs, which customarily are clinked together in the traditional game of 'egg tapping', '*Tsungkrisma*', before being eaten (*cf.* Illustration 5.7).

Including the three major feasting and fasting periods, the inhabitants of Crete observe a number of holy days and feasts, as well as fasting periods and days within the canon of the Greek Orthodox Church (5.16). During the feast of Pentecost, for example, which is traditionally celebrated 50 days after Easter, the inhabitants of Pirgos typically make a one-day pilgrimage to the church of the Holy Spirit, which is located on the southern slopes of the Asterousia Mountains along the road to Tris Ekklisies. Similarly, the nativity of Saint John the Baptist honoured on June 24th is commonly celebrated with bonfires, which symbolise the heat of the sun and the arrival of the summer. Religious celebrations, which are tied to specific moments in time within the canon of the Greek Orthodox Church, occasionally follow numerical cycles. The number '40' frequently appears throughout the religious year as a link between time, space and ritual action, whereupon ascension is celebrated 40 days after Easter; a child is considered polluted for 40 days after being born; and it is 40 days after death that the soul of the deceased is evaluated and given direction (*cf.* Kain Hart 1992; Van den Akker 2002).

The canon of the Greek Orthodox Church moreover encloses a number of collectively performed celebrations, which are not tied to a specific point in time in the religious year. Overall, these festivities include foundation ceremonies, baptisms and weddings, as well as funeral and memorial services. In particular, the foundation ceremony known as '*Eghkenia*' is conducted in order to bless the construction of churches, official institutions and other buildings. Furthermore, baptisms are celebrated in a way to minimise the pollution of the child and to communicate new life, as well as to award the child with a social personality and a licence for taking communion. Since baptisms are held in high esteem, virtually all community members are baptised and the celebration is generally well attended by family members and friends as well as fellow villagers. In the same fashion, weddings are celebrated extensively and commonly attended by not only family members and friends but also by the entire village population. The wedding celebration is usually preceded by an engagement ceremony, during which the couple exchanges engagement rings. In Crete, the parents of the couple may prepare the so-called '*Gamokuluro*', a wedding cake shaped in the form of a large ring, which is adorned with flowers and leaves made out of dough and is given to the couple as a present during the engagement ceremony. The wedding celebrations generally involve the firing of guns by male family members, the consumption of a heavy meal and the performance of dances, which commonly last until the early hours of the morning. During baptisms and weddings, additional family ties are established through the assignation of the godparent, the male '*Nonos*' or the female '*Nona*', and the appointment of the marriage witness, the male '*Kumbaros*' or the female '*Kumbara*' (*cf.* Greger 1985; Kain Hart 1992; Van den Akker 2002; Roudometof & Makrides 2010).

In contrast to the joy experienced during the celebration of foundation ceremonies, baptisms or weddings, the death of a community member is usually met with collective fear and openly demonstrated sadness (5.17). The death of a human being sheds light on the general proximity of the natural and supernatural to the human world, as it is a frequently discussed subject in traditional songs and laments. Death is frequently interpreted as an assault on the deceased as well as on the family, whereby the deceased is at times blamed for leaving family members and friends behind. Although systems of belief in life after death are rather diverse, the inhabitants of Crete generally regard 'evil' as an active component of village life and share the belief that good deeds during life have a positive effect on life expectancy and life after death. Traditionally, villagers pay their last respects to a fellow community member at the house of the deceased, in which the family gathers and female relatives commonly engage in laments, '*Miroloyia*'. Funerals are announced on posters, which show a picture of the deceased and are displayed across the village, and are generally attended by the entire village population. In addition to the

funeral service, the canon of the Greek Orthodox Church offers a number of memorial services, '*Mnimosina*', which are held on the request of the family of the deceased and are commonly performed 40 days and one year after death. On several occasions, family members may decide to hold a memorial service annually, notably on the anniversary of the death. Memorial services usually involve a visit to the cemetery and offerings of food, which are, however, not interpreted as nutrition for the deceased, but are served in remembrance of the dead. Women typically prepare '*Koliva*', a dish of boiled wheat (*Triticum vulgare* L.) sweetened and prepared with small pieces of nut and pomegranate seeds (*Punica granatum* L.), which is taken to church and subsequently offered to the attendants of the church as well as to family members and friends (*cf.* Blum & Blum 1965; Greger 1985; Kain Hart 1992; Van den Akker 2002; Herzfeld 2003). As Greger (1985: 65) argues: '*There seems to be some notion that the actual digestion of wheat, nut and fruit symbolizes purgation in the 'other' world outside* […]. *As the sins are purged so the dead person can be left increasingly distanced, and the danger of his jealousy clinging to life diminishes*'. Likewise, Kain Hart (1992: 134) claims that: '[…] *the wheat is treated as a sacred and protecting substance rather like holy water*'. During the first months or even years after death, close family members may moreover perform the task of preparing the *Prosforo* for the weekly liturgy and may resort to wearing black over a period of at least one year. Women, who experienced the death of a husband, child or grandchild, frequently maintain the custom of dressing in black for the rest of their life. On various occasions, family members may moreover decide to exhume the corpse after a specific period of time, notably dependent on the wish to prolong the mourning period, in order to examine the bones of the body and to bury the remains in communal holy ground (5.18) (*cf.* Greger 1985; Kain Hart 1992; Herzfeld 2003).

Overall, the canon of the Greek Orthodox Church forms an integral component of the everyday life of the population of rural Crete. In addition to their religious significance, rituals and celebrations provide a favourable environment in which young men and women meet, in which estranged parts of the family get together and in which the inhabitants of different villages express their common interest for each other and establish bonds of kinship and marriage (*cf.* Kain Hart 1992). As Greger (1985: 51) shows: '*Worship and religious ritual are community activities and individuals participate by expression of their social roles. As for self-restraint and periods of ascetic behaviour such as fasting, these too are social activities and individuals seem to have little sense of separation or tension between bodily or personal wants and their desire to emulate the holy ideals*'.

5.3.3 Spiritual Belief, Calendar and the Local Diet

In addition to adhering to the canon of the Greek Orthodox Church, the inhabitants of Crete share a certain level of spirituality and believe in a variety of elements, which give meaning and purpose to life (*cf.* Greger 1985; Kain Hart 1992; Sapountzi-Krepia *et al*. 2005). As Papadopoulos (2009: 127) indicates: '*Magical beliefs and the "irrational" have been part of Greek life since antiquity and in the study of* […] *modern Greek culture what matters is that "magic" took place in a setting of pluralistic community beliefs and customs regarding the supernatural*'. Local inhabitants believe to a certain extent in the power of supernatural spirits, '*Eksotika*', as well as in witchcraft and sorcery, which are practiced by humans. Women may predict the future by means of reading coffee cups, while men, particularly shepherds, may practice a form of divination known as 'Scapulomancy', in which the future is prophesied from the shoulder blades of a sheep (*cf.* Blum & Blum 1965; Kain Hart 1992). In this respect, Kain Hart (1992: 165) observes that: '[…] *the territory of "divination" has widened, while that of "magic" has continued to shrink*'.

Apart from these rather pagan systems of belief and practices, the inhabitants of rural Crete moreover rely on a popular socio-economic calendar, which is primarily rooted in activities of farming and animal husbandry. The socio-economic cycle functions as a 'naturally' given circumstance to the community members and forms a vivid component within the ritual year. In

an attempt to summarise the activities undertaken ritually and annually by the inhabitants of rural Crete, Figure 5.2 presents the socio-economic calendar of the inhabitants of Magoulas, a community on the Lasithi Plateau. In contrast to the population of the two research communities, the inhabitants of Magoulas migrate from settlements established at higher altitudes, 'above', to settlements established at lower altitudes, 'below', during the winter months and appear to be actively engaged in touristic activities from April until September. Nevertheless, the celebration of holy days and the observation of fasting periods, which are highlighted in the outer circle of the figure, as well as the practices of farming and animal husbandry presented, as they are followed in accordance with local climate conditions, overlap with the rituals performed int the research area of South-Central Crete (*cf.* Greger 1985) (5.19).

The local characteristics of landscape and climate in Crete divide the year into a period of agricultural activity and growth, which lasts roughly from September until May, and a period of agricultural deadlock, which occurs during the months of June, July and August, as they are typically marked by extensive heat and drought. In view of the widespread cultivation of olives (*Olea europaea* L. *sylvestris* Brot.) and grapes (*Vitis vinifera* L.), the cycle of agricultural activities largely centres on the olive harvest and the production of olive oil, which generally start in October and may last until March, as well as on the collection and processing of grapes, which typically begin at the end of August. On several occasions, the beginning of the grape harvest is marked by a local celebration, such as the 'Sultana-Festival', which is held during August in Sitia in North-Eastern Crete. In the same fashion, festivals are organised in a variety of places across rural Crete during the months of October and November to celebrate, notably with the consumption of alcohol, the annual production of raki, and as such to herald the end of the grape harvest. The festivities, which accompany the harvest of agricultural crops, are rather locally-specific and may differ from community to community. The inhabitants of Elos in West Crete, for example, celebrate the gathering of chestnuts during October and November with music, dancing, eating and drinking. In addition to organise harvest festivals, a number of villages in Crete honour the tradition of sheep shearing, which is commonly followed during the months of May and June. While the sheep are shorn, villagers and visitors gather to celebrate the occasion with alcohol, food and music. In addition to the festivities, which are more or less tied to specific moments during the year, the socio-economic calendar of the local population usually includes a number of events, which are organised randomly, most commonly by local institutions. These events may refer to: musical concerts presented in the auditorium of the primary school; musical and sportive performances given in the schoolyard by the students of local schools; theatres played in the auditorium of the primary school on the initiative of community members or the staff and members of the local KAPI (*cf.* Greger 1985; Kain Hart 1992; Rackham & Moody 1996).

Following the embeddedness of practices of farming and animal husbandry in the socio-economic calendar, the consumption of locally produced food generally has great physical, social and emotional significance for the local inhabitants. In general, traditional eating patterns, which have been developed by the population of rural Crete, pertain to the so-called 'Mediterranean Diet'. On the whole, the Mediterranean Diet refers to the dietary patterns, which have been developed by the population groups living in the olive-growing areas surrounding the Mediterranean Sea during the 1960s. Similarities in landscape and climate shared between the geographical regions of Crete, continental Greece and Southern Italy have prompted the development of common eating habits among the population groups. To some extent, the dietary patterns of the Cretan population date back to the early Minoan times, providing evidence of the historical dimension of these specific eating habits.

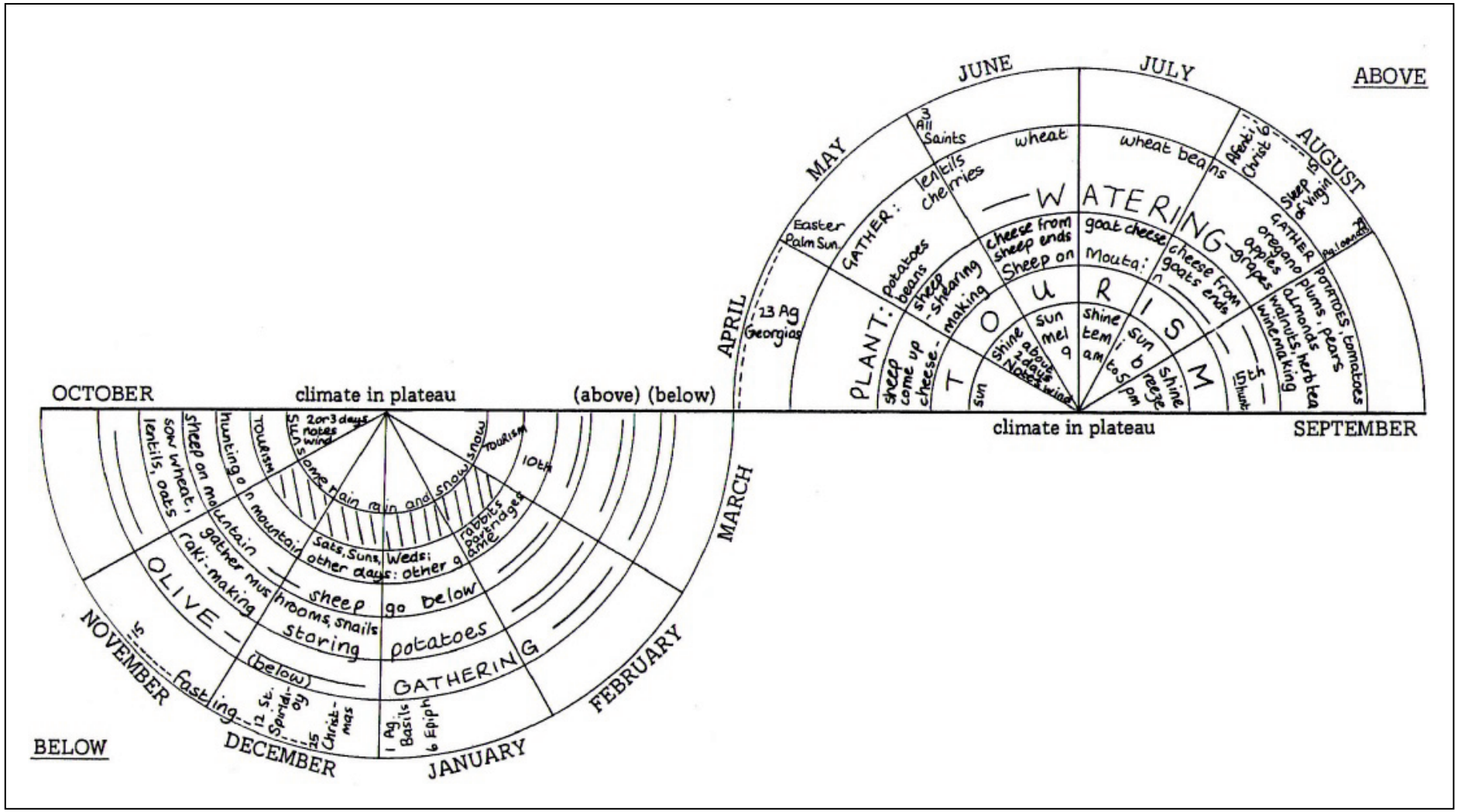


Figure 5.2 '*The Year for the Villagers of Magoulas*'.
Source: Greger (1985: 55) (*edited*).

In particular, the Cretan diet is characterised not only by the consumption of products, which are minimally processed, seasonally fresh and locally grown; but also by a high intake of plant foods, including vegetables, cereals and whole grain bread, legumes, nuts and fruits, which are traditionally eaten as dessert; a heavy consumption of mostly raw olive oil, which forms the principal source of fat; the utilisation of onions (*Allium cepa* L.), garlic (*Allium sativum* L.) and aromatic plants as condiments; a moderate intake of honey, which is used as sweetener; a moderate consumption of dairy products, such as milk, cheese and yoghurt; a weekly consumption of zero to four eggs; a moderate intake of white meat, fish and snails; a moderate intake of pure alcohol, such as wine, which is typically served during meals, or raki, which is traditionally served cold with starters, snacks or as a digestive with fruits after the meal; a low intake of red meat from mostly grazing animals; and a low consumption of sugar (*cf.* Blum & Blum 1965; Van der Hoeven 1992; Willett *et al*. 1995; Trichopoulou & Lagiou 1997; Giugliano *et al*. 2000; Simopoulos 2001; Riley 2002; Palstra 2003; Chatzi *et al*. 2007) (5.20).

In Crete, the consumption of certain beverages or meals has also a ritual and social function. Eating patterns differ between men and women, whereby the latter commonly abstain from consuming large quantities of alcohol, particularly in public. Men, however, consume alcohol rather frequently in large amounts as well as in public, whereby wine is generally drunk at home with the meal and raki is consumed at local coffeehouses. The consumption of alcoholic beverages is related to having a good time and functions as a means to engage in social interaction. Offering wine or raki to visitors forms a critical aspect of Cretan hospitality. In the same fashion, it is common practice among the inhabitants of rural Crete to invite fellow villagers and guests at home as well as at the coffeehouse to drink a cup of coffee. Visitors to people's home are moreover frequently treated to home-made snacks, which may include olives (*Olea europaea* L. *sylvestris* Brot. / *Olea europaea* L. *oleaster* (Hoffmanns. & Link) Negodi), pastries, such as '*Kulurakia*', or a spoon with sweet preserved fruits, known as '*Ghliko tu Kutaliu*', made from fruits coated with syrup and typically served in small amounts, namely in the size of a teaspoon, on a small crystal plate. The consumption of beverages and food is at times tied to specific moments within the ritual year, such as the celebration of name days, Easter or Christmas, as well as the festivities following the production of raki and the shearing of sheep. During the Easter period, for example, women traditionally prepare small rounded pies stuffed with Mizithra Cheese and various culinary herbs, which are known as '*Kalitsunia*' and are offered to family members and guests.

Notes

(5.1) During the 19th and 20th century, the operation of limekilns in the Mesara led to a gradual deforestation of areas surrounding the kilns (*cf.* Wartrous *et al*. 1993).

(5.2) From north to south, the axis runs as follows: Iraklion - Khoudetsi/Arkhanes - Tefeli - Ligortinos - Pirgos (*cf.* Kalokhristianakis 2009).

(5.3) Although rarely practised today, the raiding of animals, notably in secrecy, has been interpreted as a public test of manhood and as an initiation ritual for men towards reaching adulthood (*cf.* Herzfeld 1985).

(5.4) In 1983, the 'Council for Equality of the Sexes' has been established, which saw the recognition of women's rights to full pension and participation in agroindustrial cooperatives, as well as the introduction of civil marriage, while abolishing the system of dowry and the patriarchal notion of 'head of the family' (*cf.* Greger 1985).

(5.5) Abortion has been legalised in Greece in 1988 and is generally carried out secretly in private practices or special clinics. Women, who decide to abort, are mainly unmarried or do not wish to have any more children (*cf.* Van Bommel 1993).

(5.6) The characteristic ending of Cretan surnames has elsewhere been interpreted as a form of depreciation of Greek Christians among Ottoman occupants or of the Cretan population among their fellow Greeks (*cf.* Herzfeld 1999).

(5.7) The raiding and eating of animals, which are owned by members of a different patrigroup, has served as a means of expressing loyalty to the kin group. Although animals are generally stolen from someone other than an agnatic relative, raiding has moreover served as means of showing insubordination within one patrigroup and has been a frequent cause for family dispute (*cf.* Herzfeld 1985).

(5.8) In earlier times, failure to repay debts has occasionally resulted in the theft of natural, rather than material, goods, which is committed in order to restore social balance (*cf.* Blum & Blum 1965).

(5.9) In this respect, a member of the community of Pirgos has defined the local population as rather selfish. Greger (1985) has similarly observed a tendency of people to first defend what is theirs before cooperating with others.

(5.10) In contemporary rural Crete, inhabitants, who receive lower secondary education at the '*yimnasio*', are likely to enter higher secondary education provided by the '*likio*' instead of leaving school after the compulsory nine years.

(5.11) The region around Arkhanes south of Iraklion between the Psiloritis Mountain and the Dikti Mountains is known as a favourable wine-growing district (*cf.* Molenaar 1999).

(5.12) In Crete, the spirit made from the pomace of grapes is traditionally known as '*Tsikudia*'. Following the Ottoman occupation of Crete, the oriental term 'raki' has been used to refer to the locally brewed *Tsikudia*, whereby both names have since been used interchangeably across the island. Nevertheless, the name 'raki' has across Greece also been given to spirits made from the pomace of grapes, which have been refined with additional flavours, such as orange or apple, and hereby offer similarities to the Greek ouzo. The Cretan raki or *Tsikudia* is, however, solely made from grapes and hereby bears strong resemblance to the Greek *Tsipuro* (*cf.* Damer 1988; Fielding *et al*. 2005).

(5.13) The profession of the farmer frequently evokes memories among the inhabitants of rural Crete of a, notably poorer, past, in which the prosperity of the household depended almost exclusively on agricultural gains and community members enjoyed true hospitality, whereby the current abandonment of land is often viewed with great sadness (*cf.* Kain Hart 1992).

(5.14) In Crete, the following name days are of particular significance:

23rd of April:	Saint George, patron saint of the shepherds;
21st of May:	Saint Constantine and Saint Helena;
25th of August:	Saint Titus, patron saint of Crete;
6th of December:	Saint Nicholas, patron saint of the seafarers.

(5.15) In Pirgos, the main village church of Ayia Irini is celebrated on the 5th of May, whereas in Praitoria, the main village church of the Holy Trinity is celebrated during Pentecost.

(5.16) *cf.* Appendix IV for a selection of holy days, as well as fasting periods and days observed within the canon of the Greek Orthodox Church.

(5.17) Widely discussed in everyday village life, community members generally fear death and the deceased, as they reflect a transition to the 'other', unknown world (*cf.* Greger 1985; Kain Hart 1992).

(5.18) Community members interpret a rapid decay of flesh as an indication of the goodness of the deceased, whereas a slow decay of flesh sheds light on a person clinging on to the world of the living (*cf.* Greger 1985).

(5.19) The dates of the religious year are based on the year 1983 (*cf.* Greger 1985).

(5.20) In Crete, a since antiquity rather commonly consumed type of bread refers to the so-called '*Paksimadi*', a rusk, which is baked twice in a way to ensure its storage life and is dipped or sprinkled with water in order to melt it for consumption.

Chapter VI THE PLURAL MEDICAL SYSTEM IN RURAL CRETE

Following a rather detailed presentation of the two research communities and the study population, as well as an outline of the everyday life of community members, the present chapter introduces the plural medical system available in Pirgos and Praitoria. As Blum & Blum (1965: 20) argue: '*Health beliefs and practices must be viewed within the context in which they occur, since focusing on them in isolation distorts or detracts them from their meaning and function*'. Following a brief description of the historical development of the plural medical system in this part of Crete, the different medical systems available in the research area are presented in further detail. In this respect, the traditional medical system is introduced on the basis of the local concept of '*Yiatrosofia*', 'Medical Wisdom', which encompasses people's knowledge of the traditional medical system. As Clark (2002: 343) explains: '[…] [*Residents*] *have long relied for much of their medical treatment on their own extensive traditional healing knowledge, on the plant and animal resources of their landscape, and on the particular skills of certain "experts" in the community*'. Subsequently, the components of the traditional medical system, which include MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine, are highlighted. Although traditional medicine is nowadays primarily applied through practices of self-care, community members not only recall the integral position traditional health care providers occupied until recently, but also continue to consult traditional providers, namely wise women and religious specialists, to this day (*cf.* Van de Kerk 1993; Hagoort 1998; Legel 1998; Van den Akker 2002; Dijkstra 2005). In order to adequately characterise the traditional medical system, the different types of traditional health care providers are analysed. In addition to the traditional medical system, the transitional medical system and the modern medical system available in rural Crete are specified on the basis of historical processes, current developments, medical components, as well as health care institutions and providers. Overall, a detailed description of the plural medical system operating in this part of Crete highlights local systems of knowledge, practice and belief, which provide a sound basis for the subsequent analysis of local ideas of health and illness, as well as patterns of transcultural health care utilisation behaviour.

6.1 A Historical Perspective on Medicine in Crete

6.1.1 Early Forms of Medical Practice

In line with the different dimensions of daily community life presented in the previous chapter, forms of medical treatment, either practiced by the population of rural Crete itself or administered by health care professionals, are rather diverse. Particular features of the natural landscape and specific processes of history have favoured the development of a pluralistic configuration of medical treatment in rural Crete. Since the earliest days of human settlement, population groups have administered certain forms of medical treatment on the basis of their knowledge of: plant utilisation; nutrition and sleep; practices of agriculture, animal husbandry and bee-keeping; spiritual signs, spells and charms; weather conditions; astrology; and earthquake predictions. Furthermore, healing practices have since ancient times been undertaken by a variety of lay and professional health care providers. Archaeological remains of the civilisations of Minoan Crete and Mycenaean Greece, for example, shed light on patterns of domestic self-treatment, whereby the population residing outside the palaces in mostly rural areas reportedly applied a combination of natural and magical methods to treat illness. Furthermore, health care is provided to the population by a number of religious specialists, who treated the rich and poor, as well as by medical practitioners, who have been part of the social elite and limited their practices to the rich. Both groups of practitioners learned their profession through observation of the wounded whereupon they accumulated a repertoire of skills and knowledge of locally available remedies, including a number of native plants, which have been

used for medical purposes. Archaeological findings of certain instruments suggest that the skills of the Minoan and Mycenaean practitioners went beyond the knowledge of bone-setting and included practices of dental extractions as well as preparations of natural remedies (*cf.* Clark 2011).

The rather practically oriented knowledge of medical treatment, which has been shared by rural population groups as well as by medical specialists during the early periods of human settlement in Crete, has been primarily transferred orally from generation to generation. On several occasions, however, a number of mostly anonymous, male writers collected the knowledge of medical treatment in a way to make it available to the wider population in the form of specialised medical manuscripts (*cf.* Arnott 1996). As Papadopoulos (2009: 109) notes: '*Most of the manuscripts were written by a variety of individuals in an effort to provide practical therapeutic guidance to a community frequently deprived of easy access to academic physicians and lacking the financial means for professional medical treatment*'. Used as practical handbooks or manuals, the manuscripts generally contained references to popular knowledge and to the works of outstanding medical scholars of humoural medicine, such as Hippocrates, Dioscorides or Galen. In Byzantine Crete, the skills of medical treatment have been learned on the basis of individual experience as well as upon consultation of historical texts, which had been preserved, copied and edited in accordance with the medical standards of the time. To a certain extent, the Byzantine medical texts have been written by clerics, whereby a number of documents have been preserved in monasteries for the purpose of teaching even after the fall of Constantinople. In the same fashion, the practical handbooks have been secured in libraries or private collections housed by individual families and hereby served as significant sources of medical knowledge particularly during the Venetian and Ottoman occupation of Crete. Following the period of the Renaissance, which commenced under the Venetian rule, Byzantine medical texts have been copied extensively, whereas exile scholars, who had returned to Crete, introduced new, adapted versions of historical medical manuscripts. In this way, theories of medical treatment went beyond a mere interpretation of the works of historical scholars, such as Hippocrates and Galen, but incorporated topical sources of professional medical knowledge. Post-Byzantine medical manuscripts contained references to historical scholars as well as to the medical doctrines taught in Europe, particularly Italy, at the time. In the same fashion, indigenous knowledge systems of medicine, primarily of plant-based remedies, fell under the influence of the spread of historical texts, such as the work of Dioscorides, as well as of the emergence of contemporary medical specialists (*cf.* Papadopoulos 2009; Clark 2011).

In Crete, knowledge, practice and belief of medical treatment have moreover been significantly influenced by the doctrines of the Greek Orthodox Church and people's adherence to the religious canon. As noticed by Papadopoulos (2009: 114): '*In mutual intellectual support, Hippocrates and Galen stand shoulder to shoulder with the people's Christ and His saints* […]'. Throughout history, representatives of the Greek Orthodox Church engaged in preserving, copying and editing as well as authoring medical manuscripts, which in response to the involvement of religious representatives gained widespread credibility. In this way, the religious contribution to medical treatment is both theoretical and practical, as individuals have either applied medical treatment on the basis of information retrieved from the church or have received medical treatment from the clerics directly. The interplay between religion and medicine has strengthened the relationship between the representatives of the Greek Orthodox Church and the local faithful people, which grew particularly strong during periods of foreign occupation, such as the Ottoman rule in Crete. Although medical manuscripts have been preserved and copied in various Cretan monasteries and households during the period of Ottoman occupation, a substantial amount of medical knowledge is lost at that time not at least because of the large-scale emigration of medical scholars and students (*cf.* Papadopoulos 2009; Clark 2011).

Following the independence of Greece and the foundation of modern medical schools during the 19th century, forms of medical treatment came under the influence of modern medical doctrines taught at universities established elsewhere in Europe. Ideas of modern medicine

reached Crete through trading activities, through literary resources and eventually through forms of medical treatment administered by specialists, who have been educated abroad. Hereafter, long-established doctrines of medical treatment have been gradually revised and occasionally abandoned in favour of new pharmaceutical and technological discoveries whereupon the significance of prevailing systems of medical knowledge, practice and belief, including the content of medical manuscripts, is minimised. On the basis of a law, which was passed in Greece in 1939 and required that any provider of medical treatment obtained an official permission to practice medicine, the activities of medical specialists, who operated outside the scope of modern medicine, became largely illegal. Nevertheless, local, particularly rural, population groups have remained largely illiterate until the 20th century and have therefore continued to rely on popular systems of medical knowledge, practice and belief, as well as on the medical knowledge of local health care providers, such as traditional healers, religious healers or teachers. Traditional health care providers have moreover been consulted for the treatment of a number of illnesses, which have not been defined by official medical doctrines, such as the 'evil eye' or the bad pimple (*cf.* Blum & Blum 1965; Arnold 1986; Van der Hoeven 1992; Van de Kerk 1993; Hagoort 1998; Papadopoulos 2009; Clark 2011) (6.1).

6.1.2 The Development of the Plural Medical System

In view of the historical processes involved in the development of systems of medical knowledge, practice and belief in Crete, activities of medical treatment have been characterised by the interplay of traditional plant-based, spiritual, humoural, religious and modern medicine, as well as lay and professional health care delivery. In other words, examples of medical treatment practiced in Crete incorporate, as Clark (2011: 2) concludes: '[*The*] *honour accorded to great names of Greek medicine and the fragmentary remnants of their work, a deep respect for education and experience, a long familiarity with a landscape abounding in medicinal plants [and] strong oral traditions of healing charms and folk remedies*'. On the basis of these cultural-historical features, patterns of medical treatment shown by the population of rural Crete involve a pluralistic configuration of medicine, namely a plural medical system, which is composed of three different interacting and changeable medical systems (*cf.* Table 6.1).

Table 6.1 The Plural Medical System in Rural Crete (*cf.* Slikkerveer 1990; Fieldwork 2010; 2011).

Plural Medical System	
Traditional Medical System	Local Medical System of MAC Plants and Other Home Remedies as well as Forms of Religious and Spiritual Medicine
Transitional Medical System	Medical System of Commercial Pharmaceutical Medicines
Modern Medical System	Medical System of Modern Health Care Provision

Table 6.1 presents a simplified interpretation of the plural medical system operating in rural Crete, of which the components are presented in detail within Paragraphs 6.2, 6.3 and 6.4. In brief, the traditional medical system is identified on the basis of its local originality, its historical continuity, its non-commercial applicability and its cultural adaptability. Its components comprise systems of popular, indigenous knowledge of medical treatment, which have primarily been transferred orally and have occasionally been noted down in medical handbooks. In particular, the traditional medical system incorporates examples of medical treatment, which is applied in the form of MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine. Components of the traditional medical system have been applied by the population of Crete since the earliest days of human settlement in the island and have been taught outside the scope of modern medical schools. In this respect, the traditional medical system includes practices of self-treatment as well as the activities undertaken by traditional

health care providers, such as wise women or religious healers. On the other hand, the transitional medical system is distinguished on the basis of its commercial orientation, as it encloses forms of medical treatment, which are administered through the sale of pharmaceutical medicines. In general, the components of the transitional medical system include practices of self-treatment as well as the provision of medicines by transitional health care providers, particularly pharmacists and pharmacy assistants. Finally, the modern medical system is identified on the basis of forms of medical treatment, which are taught at modern medical schools and are administered through the network of modern medical institutions. The components of the modern medical system refer exclusively to the activities undertaken by modern health care providers. In view of the distinction of the different medical systems available in rural Crete, traces of humoural medicine may be found in the traditional as well as the modern medical system.

6.2 The Traditional Medical System

6.2.1 Traditional Medicine and *Yiatrosofia*

The abundance of natural resources in Crete and continuous patterns of human settlement in remote areas of the island have not only established a long-standing tradition of farming and shepherding, but have also provided a sound basis for an enduring application of components of the traditional medical system by the local population. As Greger (1985: 74) observes: '[*People's*] *knowledge seems to be, quite literally, built upon their landscape*'. The rich diversity of the natural environment, in which plants grow and mature in relation to a variety of other species and natural elements, offers an optimal ground for the identification and utilisation of medicinal, aromatic and cosmetic (MAC) plants (*cf.* Legel 1998; Clark 2002; 2011). As Clark (2002: 343) shows: '*Such diversity of topography and concomitant agricultural activities also means that the inhabitants of this region are familiar with and traditionally use, both as foodstuffs and as medicines, a great diversity of wild plants*'. Archaeological remains of the Minoan Civilisation suggest that the population has been widely familiar with the preparation and use of plants, such as Opium (*Papaver somniferum*), which has been known in Crete at least since 1250 B.C., for medical purposes, as well as with the production of essences and cosmetics on the basis of aromatic plants in remote laboratories. Natural resources as well as people's knowledge of MAC plants have been to a certain extent subject to the two-way trade between the civilisations of Minoan Crete and Ancient Egypt. The Minoans reportedly applied an array of religious and spiritual forms of medicine, which have been directed at the treatment of certain illnesses caused by supernatural agents. In this way, the civilisation worshipped a number of peak sanctuaries, which have been visited in order to establish a relationship with the deities and have been commonly decorated with votive offerings (*cf.* Arnott 1996; Liolios *et al*. 2010).

In Byzantine Crete, practices of traditional medicine have been to a certain extent identified as '*Yiatrosofia*', 'Medical Wisdom', a concept, which is still used in contemporary Crete in a way to define forms of traditional medicine (6.2). '*Yiatrosofia*' originally referred to the writings of a group of scholars in early Byzantine times, who have been known for their medical expertise and had acquired a certain level of medical knowledge and skills in discovering healing recipes and in applying MAC plants, charms and spells as well as other practices, such as bone-setting (*cf.* Clark 2011). As Clark (2011: 4) elaborates: '*By calling it* [*Yiatrosofia*] *it earned a special cachet; it took on weight, dignity and the value of ancient tradition*'. In the same fashion, '*Yiatrosofia*' moreover described collections of texts or healing recipes, which have been written by medical professionals and laymen alike and contained practical knowledge of medical treatment, as it is derived from a variety of sources. The medical handbooks made extensive reference to the historical texts of scholars, such as Hippocrates or Dioscorides, who continued to form an integral source of healing expertise for medical specialists in Byzantine Crete. In addition to historical references, the texts incorporated examples of popular healing knowledge,

as well as excerpts of the personal experience, observations and belief of the author. In general, '*Yiatrosofia*' combined historical, at times adapted, sources of medical knowledge with collective as well as personal accounts on healing practices (*cf.* Vokou *et al*. 1993; Clark 2002; 2011). As Clark (2002: 351) indicates: '*These works came to include not merely medical, astrological, magical, and religious lore (like their immediate sources), but also household and farmyard hints and veterinary advice*'. In an attempt to administer medical treatment, traditional health care providers at the time, as they included traditional healers, midwives, priests and monks, frequently consulted the medical manuscripts. Following the return of scholars, who had received medical education at universities established elsewhere in Europe, to Crete during the 17th century, '*Yiatrosofia*' has been refined with, at times newly interpreted, historical doctrines of healing lore (*cf.* Vokou *et al*. 1993; Clark 2002; 2011). As noticed by Clark (2002: 349): '*Through historical contact with other cultures, whether because of trade, education, or military occupation, the pharmacopeia of Cretan* [*Yiatrosofia*] *demonstrates a long history of selective accretion and expansion*'. In order to widen the applicability of medical texts among the population of Crete, changes in language and style, notably reflecting the social status and education of the writer, have been introduced to the historical sources of medical knowledge on several occasions. In view of its cultural adaptability and ability to provide the wider population with access to medical care, '*Yiatrosofia*' continued to enjoy great popularity, which increased particularly during the Ottoman occupation of Crete in the 18th and 19th century (*cf.* Clark 2011). As Clark (2011: 22) highlights: '*Crete's unique history provided conditions that worked ideally to encourage a rich iatrosophic condition*'.

In view of the development of '*Yiatrosofia*' in Crete, the concept has since not only been used to refer to historical manuscripts of healing lore but also to encompass people's knowledge of the traditional medical system. In 2010, the open care centre for the elderly (KAPI) in Kharakas, for example, issued a calendar entitled '*Yiatrosofia yia ton Anthropo*', 'Medical Wisdom for the Human', which contains information on various MAC plants and other home remedies in relation to their application to the treatment of certain illnesses, as it had been gathered from the visitors to the KAPI. In general, '*Yiatrosofia*' is defined as traditional medical knowledge, which serves the purpose of finding solutions for everyday health problems or small accidents and is nowadays mainly shared by older community members. Among the population of the two research communities, '*Yiatrosofia*' is similarly used to describe people's knowledge of MAC plants and other traditional home remedies whereupon the concept forms a vivid component of the traditional medical system operating in the research area. In general, the traditional medical system contains traces of historical healing doctrines and systems of popular, indigenous medical knowledge as well as components, which have been derived from the personal experience of the local inhabitants. The traditional medical system, which is identified in rural Crete, however, extends the focus of '*Yiatrosofia*' to include systems of knowledge, practice and belief in relation to the use of MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine. While the traditional medical system operating in the research area contains a number of historical components, it circumscribes a dynamic, rather than static, system, which is subject to continuous processes of change throughout history. In the contemporary setting, the traditional medical system falls under the constant influence of certain outside factors, such as environmental degradation, tourism, socio-political events, governmental policies or mass media. Around one third of the inhabitants of Pirgos and Praitoria state that advertisement, for example, has a high impact on patterns of MAC plant-utilisation behaviour shown by the population (*cf.* Illustration 6.1). In this respect, the villagers perceive the impact advertisement exerts on behavioural patterns as very positive. Overall, these findings are in line with the results gained from research conducted elsewhere in rural Crete, which demonstrated that the local inhabitants have a rather positive perception of the influence mass media, including the internet, have on patterns of MAC plant-use (*cf.* Van Bommel 1993; Dijkstra 2005; De Vries 2007).

As Clark (2011: 356) concludes: '*And now, in part because of the omnipresent media, and in part because of changing attitudes in the medical establishment, people in Amari, as elsewhere in Greece, are beginning to look again, with revitalized attention at their environment, and especially at the health-giving aspects of the traditional foodstuffs and medicines it provides*'.

Illustration 6.1 Book on MAC Plants offered with an Edition of the TiVo Magazine. Photograph by J. Aiglsperger (2011).

The study carried out in Kastellos moreover showed that villagers mostly disagree with the assumption that the local government discourages the use of MAC plants (*cf.* De Vries 2007). Hereafter, the majority of inhabitants of Pirgos and Praitoria report that local government policies have a low impact on patterns of MAC plant-utilisation behaviour, thereby expressing a negative attitude towards this non-involvement. Concurrently, the majority of respondents state that current economic developments in Greece exert a low impact on practices of MAC plant-utilisation. Community members, however, perceive the low impact of the current economic circumstances on behavioural patterns as very positive. In view of the influence of certain external factors on the traditional medical system, the inhabitants of rural Crete generally attach considerable significance to the preservation of systems of knowledge, practice and belief of traditional medicine, which is usually coupled with a widespread acknowledgement of the importance of environmental conservation. The calendar issued by the KAPI in Kharakas, for example, pays particular regard to locally available natural resources and provides a significant contribution to the collection and distribution as well as preservation of traditional medical knowledge (*cf.* Clark 2002). As Clark (2002: 352) points out: '*The overall impression given is that there exists at the same time in Cretan* [*Yiatrosofia*] *both a strong traditional core of knowledge and a creative attempt to maintain this body of knowledge in the face of changing circumstance*'.

The inhabitants of rural Crete have commonly attached considerable significance to the study, preservation and transfer of indigenous knowledge systems and have hereby contributed to the persistence of traditional healing practices, which have been followed since the earliest days of human settlement in the island. Villagers generally speak highly and proudly of the profound knowledge and expertise of traditional medicine, which is shared by older generations, and are concerned about an increasing disappearance of such knowledge systems (*cf.* Van de Kerk 1993; Molenaar 1999; Clark 2002; Van den Akker 2002; Clark 2011). In this way, the sample population of Pirgos and Praitoria commonly entertains a positive opinion on the traditional medical system (*cf.* Table 6.2). The vast majority of community members in Pirgos (55.2%, n=273) and Praitoria (70.2%, n=113) have a positive attitude towards the traditional medical system and hereby widely acknowledge its effectiveness and pleasantness in providing medical treatment.

Similar results have been found during previous research conducted in Spili and Katellos in the Prefecture of Rethymnon as well as in Pirgos, whereby the local population demonstrated a strong belief in the effectiveness of the traditional medical system (*cf.* Van Beelen 1990; Palstra 2003; De Vries 2007).

Table 6.2 Distribution of the Opinion on the Traditional Medical System of the Household Members of the Sample over the Two Research Communities (N=656).

Opinion	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
negative opinion	20	4.0	9	5.6	29	4.4
between negative and positive opinion	197	39.8	20	12.4	217	33.1
positive opinion	273	55.2	113	70.2	386	58.8
no opinion	5	1.0	19	11.8	24	3.7
Total	495	100.0	161	100.0	656	100.0

In addition to adopting a predominantly favourable opinion on the traditional medical system, the respondents share a rather profound knowledge of traditional medicine, namely of the components of the traditional medical system, which include MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine is rather profound (*cf.* Table 6.3). As Clark (2002: 339) explains: '*Three characteristics of Cretan traditional medicine are the key to its resilience: a respect for the authority of tradition, an ability to experiment and innovate, and an intimate knowledge of the resources of the local landscape*'.

Table 6.3 Distribution of the Knowledge of the Traditional Medical System of the Household Members of the Sample over the Two Research Communities (N=656).

Knowledge	Pirgos		Pretoria		Total	
	N	%	N	%	N	%
little knowledge	31	6.3	30	18.6	61	9.3
average knowledge	32	6.5	19	11.8	51	7.8
much knowledge	432	87.3	112	69.6	544	82.9
Total	495	100.0	161	100.0	656	100.0

The vast majority of inhabitants of both Pirgos (87.3%, n=432) and Praitoria (69.6%, n=112) demonstrate considerable knowledge of the identification, preparation and application of locally available MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine. People's knowledge of the traditional medical system is integrated into the routines of everyday life to such an extent that villagers are frequently unaware of its extension and validity. Although a number of books, which contain information on the application of MAC plants and other traditional home remedies as well as written prayers are available in several household and may be exchanged among inhabitants, the knowledge of the traditional medical system shared by the local population is primarily transferred orally (6.3). In this way, local inhabitants learn the lore of plant collection, preparation and utilisation mainly from their parents and grandparents as well as, notably less commonly, from friends or through personal observation. In rural Crete, the transfer of knowledge of traditional medicine appears to lie primarily in the hands of female community members, who pass their knowledge on to their daughters. While the majority of local inhabitants are familiar with the medicinal uses of a limited number of MAC plants, several community members demonstrate a rather detailed knowledge of traditional medicine, particularly with regard to the recitation of prayers or the application of practices directed at the treatment of certain illnesses, such as the 'evil eye' (*cf.*

Paragraph 7.1.3). By consequence, people's knowledge of the traditional medical system can be distinguished between different forms of common and expert knowledge, whereupon the latter is shared by mostly female community members of advanced age. The common knowledge of the traditional medical system, notably of MAC plants, is determined by the geographical location and topography of the research area, which to a certain extent confine the local availability of MAC plants and people's familiarity with such plants. Although respondents in the present as well as previous research conducted in Crete frequently referred to the expert knowledge of older, female inhabitants, no statistically significant differences in people's knowledge of the traditional medical system are found between the gender groups of the inhabitants of Pirgos and Praitoria. Nevertheless, the highest percentage of respondents, who reportedly have a low level of knowledge of the traditional medical system, belongs to the age category of 21 to 27 years. The difference between common and expert knowledge of the traditional medical system, however, becomes rather indistinct upon people's application of traditional medicine. The respondents largely disagree over the modes of applying commonly cited MAC plants. Furthermore, expert knowledge does not account for a greater variety in the application of traditional medicine as villagers, who reportedly demonstrate a more detailed knowledge of the traditional medical system, apply mostly commonly mentioned, locally available MAC plants (*cf.* Arnold 1986; Van Beelen 1990; Van de Kerk 1993; Legel 1998; Molenaar 1999; Clark 2002; Van den Akker 2002; Palstra 2003; Dijkstra 2005; De Vries 2007).

6.2.2 Between *Votana* and *Yities*: The Traditional Medical System

In the research area, MAC plants and other traditional home remedies form the most commonly applied components of the traditional medical system. In general, a number of locally available wild and cultivated herbs, vegetables and fruits as well as other home remedies are known for having a beneficial effect on health and longevity. In addition to being esteemed for their antioxidant properties, MAC plants and other traditional home remedies are widely renowned for their affordability, their general availability, their easily manageable application, their tendency to cause no side effects, as well as their embeddedness in the local landscape and the socio-cultural context of the community (*cf.* Van Beelen 1990; Kain Hart 1992; Koutis *et al*. 1993; Hagoort 1998; Lionis *et al*. 1998b; Molenaar 1999; Clark 2002; Van den Akker 2002; Palstra 2003; Mazokopakis *et al*. 2005; De Vries 2007). The inhabitants of Pirgos and Praitoria differentiate between MAC plants known as '*Votana*', 'herbs', and a variety of other traditional, and at times MAC plant-based, home remedies, which can be specified with the generic term '*Farmaka*', 'medicines'. In addition to making a differentiation between MAC plants and other traditional home remedies, community members moreover distinguish MAC plants on the basis of their applications and hereby assign plants to a number of traditionally labelled categories. In an attempt to summarise all categories used by the local population, Table 6.4 offers an emic classification of MAC plants and other traditional home remedies for the research area (6.4).

While all categories identified within the emic classification of MAC plants and other traditional home remedies include elements, which are known for their health beneficial effects, only the category of '*Votana*' refers exclusively to plants used for medical purposes. The categories of '*Aromatika*', '*Bakharika*' or '*Karikevmata*' as well as '*Mirodies*' and '*Aromatika Fita*' contain MAC plants, which not only serve the purpose of alleviating illness but also of providing taste, aroma and food. In this respect, any plant, which is categorised as spice, fragrance or aromatic plant within the classification also belongs to the category of '*Votana*'. In this way, the categories of '*Aromatika*', '*Bakharika*' or '*Karikevmata*' as well as '*Mirodies*' and '*Aromatika Fita*' can be interpreted as subcategories of the overall group of '*Votana*'. The categories of '*Aromatika*', '*Bakharika*' or '*Karikevmata*' and '*Mirodies*' contain MAC plants, which are primarily applied in their dried form. On the other hand, the category of '*Aromatika Fita*' comprises mostly fresh components, whereas the elements of the category of '*Votana*' are applied in both their dried and fresh form. Nevertheless, the first four categories within the emic

classification of MAC plants and other traditional home remedies are by no means exclusive, whereby one single plant can have a variety of uses and can consequently be assigned to more than one category. All MAC plants, as they belong to the first four categories within the classification, refer to crude plants. On the other hand, the category of '*Farmaka*' encloses various, mostly processed, compounds, which are generally available in a rural household and are known for having health beneficial effects. The term '*Farmako*', 'medicine', is rather descriptive and can be used to specify any product, which is applied for medical purposes. '*Farmako*' may characterise pharmaceutical medicines as well as forms of traditional medicine, such as MAC plants or other traditional home remedies. As Clark (2002: 356) indicates: '*"Ola ta votana ine farmaka." ("All* [*MAC*] *plants are medicines.")*'. Since the category of '*Votana*', however, implies that any crude plant, which belongs to it, is used for medical purposes, any household product, which is not specified as '*Votano*' and is applied as remedy within the traditional medical system, is identified as '*Farmako*'. In this way, the category of '*Farmaka*' refers to, mainly processed, traditional home remedies, which are derived from MAC plants as well as animals and other materials. Although the category of '*Farmaka*' is rather exclusive, all components, which are included within the emic classification, can be used in combination during practices of disease treatment (*cf.* De Vries 2007). Overall, the specifications of the emic classification are largely overshadowed by the distinction local inhabitants make between MAC plants, '*Votana*', and other traditional home remedies, '*Farmaka*'. In this way, the following paragraphs present a number of elements of the traditional medical system on the basis of distinguishing between MAC plants and other traditional home remedies.

Table 6.4 Emic Classification of MAC Plants and other Traditional Home Remedies (*cf.* Kain Hart 1992; Van Bommel 1993; Van den Akker 2002; De Vries 2007).

Local Name	English Name	Application
Votana	herbs	MAC plants used internally and externally as infusion, spice, food, decoction, embrocation, compress, poultice, extract, balm, steam, bath, wash and incense as well as during rituals and as decoration
Aromatika Bakharika Karikevmata	spices	MAC plants used internally as spice
Mirodies	fragrances	MAC plants used internally as spice and externally as incense
Aromatika Fita	aromatic plants	MAC plants used internally as spice and food
Farmaka	medicines	Traditional home remedies used internally and externally as beverage, spice, food, decoction, embrocation, compress, poultice, extract, balm, steam, bath, wash and incense as well as during rituals and as decoration

MAC Plants

Table 6.5 presents an overview of the 20 most commonly reported plant species, which have been identified by the local population as MAC plants, '*Votana*' (6.5). The plants are listed numerically according to their frequency of reference in a declining fashion, whereby the most commonly mentioned plant is named on the top. In the first column to the left, the local name of each plant is presented under reference to possible name alternatives, which are arranged in alphabetical order. Local plant names may not only have a distinguishable equivalent within the official Greek language, but may also differ locally from region to region as well as from village to village (*cf.* Clark 2002). Provided the local plant name is Cretan, it is highlighted in Table 6.3. In the same fashion, plants, which are endemic to Crete, as well as species, which are not found in Crete, are accentuated accordingly.

Table 6.5 List of Names of the 20 most frequently reported MAC Plants in the Area.

	Local Name	Latin Name	English Name
1	-Khamomili -Khamomilo	-*Chamomilla recutita* (L.) Rauschert -*Matricaria chamomilla* L. -*Matricaria recutita* L.	-Chamomile
2	-Faskomilia -Faskomilo	-*Salvia fruticosa* Mill. -*Salvia triloba* L. -*Salvia pomifera* L.	-Sage
3	-Dhiktamos[b] -Erondhas[a] -Stamatokhorto -Stomakhokhorto	-*Origanum dictamnus* L.	-Cretan Dittany
4	-Aghriomandzurana -Antonaidha -Mandzurana -Matzurana	-*Origanum majorana* L. -*Origanum microphyllum* (Bentham) Boiss.	-Marjoram
5	-Rigani	-*Origanum onites* L. -*Marjorana onites* (L.) Bentham or -*Origanum vulgare* L.	-Oregano
6	-Thimari -Thimos	-*Coridothymus capitatus* (L.) Rechenb. fil. -*Thymus capitatus* (L.) Hoffmans. & Link	-Thyme
7	-Abarsamos[a] -Barsamos[a] -Dhiosmos -Menda	-*Mentha longifolia* (L.) Hudson -*Mentha spicata* L.	-Spearmint
8	-Malotira -Tsai tu Vunu	-*Sideritis syriaca* L.	-Mountain Tea
9	-Arismari[a] -Dhendhrolivano	-*Rosmarinus officinalis* L.	-Rosemary
10	-Almbaroriza -Amberosa[a] -Armbaroriza	-*Pelargonium graveolens* L'Her.	-Rose Geranium
11	-Menda	-*Mentha piperita* L. -*Mentha pulegium* L.	-Peppermint
12	-Thrimba -Thrumba -Thrumbi	-*Satureja thymbra* L.	-Summer Savory
13	-Aghria Molokha -Molokha	-*Malva sylvestris* L.	-Mallow
14	-Luïza	-*Aloysia tripfylla* Britton -*Lippia citriodora* Kunth.	-Lemon Verbena
15	-Aloi	-*Aloe vera* (L.) Burm. fil.	-Aloe Vera
16	-Dhafni	-*Laurus nobilis* L.	-Laurel -Sweet Bay
17	-Efkaliptos	-*Eucalyptus globulus* Labill.	-Eucalyptus
18	-Tsuknidha	-*Urtica pilulifera* L.	-Nettle
19	-Vasilikos	-*Ocimum basilicum* L.	-Basil
20	-Gharifallo[c] -Kariofili[c]	-*Caryophyllus aromaticus* L. -*Eugenia aromatica* (L.) Baill. -*Syzygium aromaticum* (L.) Merrill & Perry	-Clove

[a]: Plant Name Cretan; [b]: Plant endemic to Crete; [c] Plant not found in Crete

The middle column highlights the corresponding Latin plant names, as they are accepted by official doctrines. The last column to the right in the table shows the English name of each plant, which is hereafter used in the text (*cf.* Vokou *et al*. 1993; Watrous *et al*. 1993; Simopoulos 2001; Clark 2002; MEDUSA Network 2002; Stamatis *et al*. 2003; Allen *et al*. 2006; Skoula & Johnson 2006; Botanic Garden and Botanical Museum Berlin-Dahlem 2007; Karousou *et. al* 2007; Pollio *et al*. 2008; Alibertis 2009; 2010; Bazeu 2011; Clark 2011; Kew Royal Botanic Gardens 2014).

Cretan Dittany (*Origanum dictamnus* L.), Marjoram (*Origanum majorana* L. / *Origanum microphyllum* (Bentham) Boiss.) and Oregano (*Origanum onites* L. or *Marjorana onites* (L.) Bentham / *Origanum vulgare* L.) belong to the genus *Origanum*, the species of which occur naturally in the mountainous zones of the Mediterranean Region (6.6). The name of the genus makes a literal reference to the Greek word for 'mountain', '*Oros*', and the Ancient Greek word for 'joy' or 'brightness', '*Ganos*'. Of the plants listed in Table 6.3, Cretan Dittany is the only species endemic to Crete. In the research area, the local names of Marjoram and Oregano moreover each encompass different plant species. Spearmint (*Mentha longifolia* (L.) Hudson or *Mentha spicata* L.) and Peppermint (*Mentha piperita* L. / *Mentha pulegium* L.) belong to the genus *Mentha*, which generally occurs in temperate zones and is known for its diverse smells. Mints have been used as medicine, spice and food since antiquity and have been included in a number of myths, stories and proverbs. In particular, mints contain the volatile oil menthol, which is known to be anti-spasmodic and antiseptic and to have a beneficial effect on human health. Menthol is moreover used as disinfectant, as massage oil and as ingredient in toothpaste and chewing gums as well as candies soothing the throat. Of the plant species listed in Table 6.5, one is furthermore endemic to Crete. Some plants appear to have been known in the research area for an extended period of time, as they are mentioned in ancient sources of medical knowledge. As Strataridaki (1988: 212) demonstrates: '*Epimenides' reputation as a seer and sage and his long life enable us to appreciate his expertise in plants and herbs, and their healing qualities*'. Various plants have presumably been introduced at a later stage, thereby demonstrating the adaptive nature of the traditional medical system operating in this part of Crete Hereafter, plants, such as Clove (*Caryophyllus aromaticus* L. / *Eugenia aromatica* (L.) Baill. / *Syzygium aromaticum* (L.) Merrill & Perry), for example, are not found in the research area but are known and used by the local population for their medicinal properties, notably as components of the transitional medical system, whereby they are mostly purchased from local shops (*cf.* Kain Hart 1992; Rackham & Moody 1996; Simopoulos 2001; Clark 2002; Van den Akker 2002; De Vries; Karousou *et al*. 2007; Liolios *et al*. 2010).

In the research area, a number of MAC plants, such as Spearmint (*Mentha longifolia* (L.) Hudson or *Mentha spicata* L.), Rose Geranium (*Pelargonium graveolens* L'Her.), Peppermint (*Mentha piperita* L. / *Mentha pulegium* L.), Aloe Vera (*Aloe vera* (L.) Burm fil.) or Basil (*Ocimum basilicum* L.), are commonly grown in home gardens. Nevertheless, it is standard practice among the population of rural Crete to gather certain plants from the mountains and lowlands surrounding the villages at specific times of the year whilst adhering to particular collection techniques. The inhabitants of Pirgos and Praitoria frequently search the southern slopes of the Asterousia Mountains, including the areas surrounding the settlements of Murnia and Prinias as well as the fertile Mesara Plain, and the riverbed of the Yeropotamos River in particular, for MAC plants. While places of collection are frequently kept secret in order to ensure the availability of plants, women tend to gather plants in pairs in order to ensure their safety. Studies conducted in rural Crete have shown that plants collected from the wild and particularly those, which are picked from the highest part of the mountain, are believed to be more effective than the ones cultivated at home (*cf.* Kain Hart 1992; Van de Kerk 1993; Legel 1998; Dijkstra 2005; De Vries 2007).

Although the time of collection during the year naturally depends on the flowering season of the plant, most plants are gathered during the mornings and afternoons of the spring and early summer months. The doctrines of Dioscorides emphasised the correct forms of collection and storage upon which MAC plants need to be observed throughout their stages of growth in order

to be able to collect them or extract their properties at the right moment. Healing properties are said to be enhanced when plants are collected in clear and dry weather conditions, at full moon, in the absence of shadow and particularly when the flowers are open. Plants are commonly cut with a knife, a practice, to which specific attention is paid in order to minimally disturb the plant's ecosystem and to ensure its continuing growth (6.7). In the research area, the part of the plant most frequently cut for further use refers to the leaves. Other parts used encompass the leaves and stems in combination, the flowers of the plant and the leaves and flowers in combination, as well as the plant as a whole. Plants are generally carried home in small plastic bags and are, on several occasions, subsequently filtered through a sieve for further preparation.

Illustration 6.2 Dried Chamomile (*Chamomilla recutita* (L.) Rauschert / *Matricaria chamomilla* L. / *Matricaria recutita* L.).
Photograph by J. Aiglsperger (2012).

While fresh plants are used immediately, plants, which are applied in their dried form, are generally spread and dried as long as needed on cotton sheets in the shadow, as the sun would have a negative effect on their essence and colour (*cf.* Illustration 6.2). Eventually, dried plants or plant parts are stored in air-impermeable and lightproof containers or pots. Within the writings

of Dioscorides, the shape and material of such repositories, which needed to be appropriate for each plant, are discussed in considerable detail (*cf.* Van der Hoeven 1992; Vokou 1993; Rackham & Moody 1996; Legel 1998; Molenaar 1999; Van den Akker 2002; Beck 2005; Dijkstra 2005; De Vries 2007).

In the research area, MAC plants are most commonly applied internally in the form of an infusion, which is made from dried plants or plant parts and is locally known as '*Vrastari*' or '*Rofima*'. Infusions are usually prepared using one single MAC plant or a combination of different MAC plants in their dried form, which are either brewed with water or are added to boiling water and are left to soak for a certain period of time. Subsequently, the water is strained from the plant or plant parts, thereby producing the infusion, which is generally drunk hot and frequently sweetened with honey or sugar. In addition to infusions, dried MAC plants are used internally as spices, namely as aromatic additives, which are applied as seasoning to local dishes, such as cooked vegetables, meat or fish. Fresh MAC plants are frequently consumed as aromatic plants, most commonly in the form of so-called '*Khorta*', 'wild greens' or 'wild vegetables', which are generally gathered from surrounding areas, such as riverbeds. '*Khorta*' usually refer to green, leafy plants, such as Parsley (*Petroselinum crispum* (Mill.) Fuss), Dill (*Anethum graveolens* L.) or Fennel (*Foeniculum vulgare* Mill.), which are boiled in water and seasoned with olive oil, lemon, salt and pepper (*Piper nigrum* L.) whereupon the plants, and at times their brew, are consumed as a main or side dish or as a main salad.

Apart from '*Khorta*', a variety of MAC plants, which are for the most part cultivated in the research area, are locally consumed fresh as food. Examples of such food-plants refer to: different types of vegetables, including onions (*Allium cepa* L.) and garlic (*Allium sativum* L.); a variety of fruits, such as olives (*Olea europaea* L. *sylvestris* Brot. / *Olea europaea* L. *oleaster* (Hoffmanns. & Link) Negodi), grapes (*Vitis vinifera* L.), lemons (*Citrus medica* L.), oranges (*Citrus sinensis* (L.) Osbeck) or wild strawberries (*Fragaria vesca* L.); a number of legumes, including broad beans (*Vicia faba* L.) and carob pods (*Ceratonia siliqua* L.); different kinds of nuts such as almonds (*Amygdalus communis* L.) and walnuts (*Juglans regia* L.); and several types of seeds, including mustard seeds (*Brassica nigra* (L.) Koch / *Sinapis alba* L.) (6.8). In this way, garlic, for example, has reportedly been applied in Greece during practices of treatment of disease and promotion of health since ancient times. Garlic found ample use as a medical substance among the lower classes of Ancient Greece, whereby it became associated with physical strength, as well as with human working and fighting capacities. The ripe pods of carob, for instance, are known for their nutrient-rich properties and are used in the research area, notably after having been pulverised in carob mills, as a substitute for chocolate and as animal fodder. While onions and wild strawberries are reportedly applied in a way to, for example, induce menstruation, oranges and mustard seeds have found use as means to counteract sterility (*cf.* Blum & Blum 1965; Arnold 1986; Van Bommel 1993; Vokou 1993; Hagoort 1998; Rivlin 2001; Simopoulos 2001; Van den Akker 2002; Fielding *et al*. 2005).

Apart from finding internal uses, MAC plants are furthermore applied externally, whereby they are generally placed on the affected body part. Dried MAC plants or plant parts can be boiled or soaked in liquids, such as water or alcohol, in order to produce a decoction, '*Afepsima*'. As Alibertis (2009: 9) elaborates: '*If we boil a plant or a part of one in alcohol we can speak of a tincture and if we boil it with sugar, of a syrup*'. The liquid obtained from a decoction can be used as an embrocation, in which the liquid is poured and massaged on the affected body part, or as a compress, in which a piece of cloth is soaked in the liquid and subsequently placed on the affected body part, such as the eyes, for example. In the same fashion, dried MAC plants or plant parts, at times wrapped in thin gauze, are placed as a poultice directly on the body. Fresh MAC plants, such as laurel (*Laurus nobilis* L.), for example, are moreover stored in glasses or ceramic jars, which are filled with a binding material, such as almond or olive oil, in order to produce plant extracts. Specific parts of the plant, such as the flowers, are cut with a kitchen machine and inserted in glasses filled with oil, which rest in the sun for several weeks and are shaken regularly whereupon the plants dissolve and ultimately produce a plant-based oil, which is

commonly used as a balm. Furthermore, dried MAC plants are boiled in water until half of the original amount of liquid remains and are used as steam, bath or wash. Finally, dried MAC plants are burned and used as incense, while fresh MAC plants are often used during rituals and as decoration. In particular, MAC plants form an integral element within the annual religious canon and the socio-economic calendar of the local population and are furthermore frequently sung about in traditional folk songs (*cf.* Arnold 1986; Van Beelen 1990; Kain Hart 1992; Van der Hoeven 1992; Van de Kerk 1993; Legel 1998; Molenaar 1999; Van den Akker 2002; Palstra 2003; Dijkstra 2005; De Vries 2007). As Kain Hart (1992: 237) observes: '*Every housewife grows basil for its aromatic and ritual uses: the purificatory connotations of herbs have secured for them a strategic place in Orthodox ritual, and they remain an essential link between the church and the home*. […] *Herbs, like incense, are not foods but substances that mediate (between house and church, sacred and mundane) and cure: they are compatible with fasting*'.

MAC plants are applied to the treatment of a variety of conditions, including headache, the common cold, cough, ailments of the stomach, indigestion, allergy, ailments of the nerves and high blood pressure as well as external wounds and skin infections. While certain plants are used for the treatment of one specific illness, the majority of MAC plants are known for their ability to treat multiple ailments. Particular types of disease, such as the common cold or Hepatitis A, for example, are often treated upon applying a combination of MAC plants rather than one specific plant alone. In addition to having curative features, MAC plants are generally regarded as exerting an overall positive effect on human health, particularly on the health of new-borns and babies. The population of the research area widely acknowledges the application of MAC plants for the purposes of disease prevention and health promotion. Furthermore, MAC plants are held in high esteem for their ability to generate energy and warmth, particularly during the winter months, as well as to enhance pleasant taste and beauty. In this respect, herbal infusions are drunk regularly during the day, notably during the morning and evening hours, as well as periodically during the year, particularly during the winter months. Apart from exerting a positive effect in human health, MAC plants are applied as veterinary medicine during practices of animal husbandry (*cf.* Van Beelen 1990; Kain Hart 1992; Van der Hoeven 1992; Van Bommel 1993; Van de Kerk 1993; Vokou 1993; Molenaar 1999; Bouma 2000; Clark 2002; Van den Akker 2002; Palstra 2003; Dijkstra 2005; De Vries 2007).

Other Traditional Home Remedies and Related Practices

Traditional home remedies refer to a number of mostly processed, and at times MAC plant-based, products, which are generally available in a rural Cretan household and are applied during practices of illness treatment, disease prevention and health promotion. In detail, a considerable number of traditional home remedies are consumed internally in the form of food and beverages, whereby the compounds are either consumed directly or are used as spices, which are added to local dishes. Traditional home remedies encompass various plant-based products, such as olive oil, wine, raki, vinegar and bread, as well as a number of products, including honey, milk, butter, eggs and salt, as they are derived from animals and other materials. In general, olive oil is cherished for its antioxidant properties and its nutritional benefits, whereby the oil is considered to significantly contribute to the promotion of people's health and longevity. Olive oil can be drunk with water every morning in a way to counteract constipation. The beneficial effects of olive oil have, however, not only been related to the overall positive effect the oil has on human health, but have also been linked to the central position the oil holds within the Cretan diet, in which it is associated with a large consumption of raw and cooked vegetables. While wine and raki are similarly consumed mostly cold during meals, the beverages are at times boiled and drunk hot during practices of medical treatment. Furthermore, a glass of wine drunk during meals is believed to counterbalance the heat of the day, while the consumption of boiled wine reportedly serves the purpose of cleaning the reproductive organs. As Damer (1988: 299) indicates: '*Local (draught) wine is regarded as being good for one's general health, for promoting a ripe old age, and healthy body functions*'. Raki is generally perceived to have an

overall beneficial effect on the human body and is consumed particularly when suffering from nausea or the common cold. Boiled with honey and pepper (*Piper nigrum* L.), raki is moreover consumed as so-called '*Rakomelo*', 'raki-honey', in a way to alleviate throat ache or to treat the common cold. In addition to plant-based products, traditional home remedies, such as honey or milk, which have long been esteemed for their medical properties and are a frequent subject in Greek mythology, are derived from materials other than plants. Honey and its by-products, namely the dark propolis and the rather transparent royal jelly, for example, are generally collected during the spring and summer months and are consumed directly, whereas honey is frequently added as sweetener to MAC plant-based infusions. While honey is usually applied during the treatment of disorders related to the throat and airways, as well as against the common cold, propolis and royal jelly are both renowned for their overall antibiotic properties. Furthermore, the honeycombs and bee pollen are eaten for their overall health beneficial effects. Milk is commonly used during the treatment of particular illnesses, such as dyspepsia (*cf.* Allbaugh 1953; Arnold 1986; Trichopoulou & Lagiou 1997; Legel 1998; Rivlin 2001; Bouma 2000; Riley 2002; Dijkstra 2005). Reminiscent of humoural doctrines, internally applied traditional home remedies are at times categorised according to their hot and cold qualities, as well as following their ability to treat illnesses on the basis of the principle of opposition. Illnesses, which are caused by hot or cold weather conditions, are treated on the basis of the principle of opposition. Furthermore, cold food and beverages, for example, have been interpreted as being able to treat hot illnesses, such as fever or vomiting. On the other hand, raki, which is generally regarded as offering 'hot' qualities, is applied during the treatment of 'cold' illnesses, such as nausea. In the same fashion, garlic (*Allium sativum* L.) is known to have 'hot' characteristics and is used for cleansing and purgation, for the treatment of pulmonary conditions and abdominal growths, as well as for the alleviation of constipation (*cf.* Arnold 1986; Van de Kerk 1993; Van Bommel 1993; Molenaar 1999; Rivlin 2001; Palstra 2003; De Vries 2007).

In addition to internally applied medicines, a number of traditional home remedies, such as almond oil and other products, which are primarily consumed as food or beverage, find use in external applications. Raki, for example, can be inhaled or massaged on the neck or chest when suffering from the common cold and can moreover be used to wash infants. In combination with onions (*Allium cepa* L.) and soap, raki is moreover used to treat a spraining. In the same fashion, vinegar is applied externally in a way to reduce fever, whereby a towel is soaked in a liquid made of vinegar and water and subsequently placed on the patient's forehead. Furthermore, olive oil can be rubbed on skin irritations, while yolk can be mixed with salt and placed on painful body parts. Traditional home remedies moreover enclose a variety of products, which are derived from animals or other materials and are commonly applied externally on the affected body part. These remedies include *i.a.* eggs, beeswax, the unwashed wool of a sheep, the wax of a candle, incense and petroleum. Forms of alcohol, such as raki, or oil furthermore find use in the locally rather widespread practice of '*Ventuzes*', which refers to the attachment of cups to affected body parts in a way to remove excess blood or other fluids. Evidence of an early use of '*Ventuzes*' by Hippocratic physicians, notably in a way to treat 'cold' illnesses, suggests that the practice of this type of 'Cupping' is one of the oldest forms of medical treatment in Crete. In general, 'Cupping' is administered by an intermediary, who attaches round cups or glasses to the skin of the patient, most commonly on the back, whereby up to 20 cups may be applied at once. In order to ensure that the cups stick to the skin, a flax or cotton is wrapped around a fork, dipped in a liquid, such as alcohol or oil, and burned inside the glass, which is then attached to the skin, thereby creating a vacuum. On several occasions, the skin of the patient is massaged with raki before the cups are applied, which are left on the body between 20 and 30 minutes. Nevertheless, it is rather standard practice during the application of '*Ventuzes*' to make a small incision into the skin of the patient prior to applying the cups and to hereby allow the cups to extract blood and other fluids from the body. In this way, the cups are left on the skin until they are filled with liquid, whereby the turning of the skin into a dark-red colour has locally been interpreted as an indicator of a serious illness. In the same fashion, difficulty in separating the glasses from the body reportedly suggests

that the illness is rather serious , whereas an easy separation of cups implies that the illness is less severe. In general, cups are believed to be able to extract 'unhealthy' fluids and to move body structures and are applied to a variety of conditions, including a sore throat, earache, swellings, overall pain and infertility. Apart from the application of '*Ventuzes*', traditional forms of medical treatment applied by the population of rural Crete include the cutting of parts of the skin, such as the lips or the head, presumably to treat Hepatitis A, as well as a number of practices, which commonly involve the use of traditional home remedies, and the recitation of prayers (*cf.* Arnold 1986; Van der Hoeven 1992; Hagoort 1998; Bouma 2000; Van den Akker 2002; Christopoulou-Aletra & Papavramidou 2008).

Religious and Spiritual Forms of Medicine

In Crete, religious faith has since antiquity had a rather strong influence on the healing practices of local inhabitants, whereby representatives of the Greek Orthodox Church have played a crucial role in the provision of medical treatment. Overall, having faith not only interferes with the mental state of people in terms of reinforcing willpower and positive thinking, which is particularly viable during episodes of illness, but it also involves a direct belief in the healing power of the Greek Orthodox Church. As Koutis *et al*. (1993: 57) note: '*Most of the* […] *respondents* [*believe*] *that religion could protect their health and that faith was able to cure their diseases*'. In general, a number of practices, which are mostly adopted by women, are perceived to be sources of power capable of alleviating pain, curing disease and restoring as well as promoting health. Incorporated in annual religious canon, such practices include: the invocation of God by means of signing the cross; saying of regular prayers; lighting of candles and burning of incense; offering of the '*Artos*'; fasting; as well as receiving the sacraments of Confession and the Holy Communion. Furthermore, the anointment with the Holy Oil on Holy Wednesday before Easter is said to have a beneficial effect on health and the human body. Overall, prayers either ask for a cure directly or invoke the healing powers of particular Saints, notably a namesake, the patron saint of a particular church or a saint known for having healing skills, in order to effect a cure for oneself or a beloved one. Within the Greek Orthodox Church, Saint Panteleimon, Saint Cyrus, Saint Cosmas and Saint Damianos are venerated as so-called 'Unmercenary Physicians', '*Anargiri*', as they administered medical treatment without accepting payment. In addition to practices, which are incorporated in the annual religious canon, patients or their relatives may moreover go on a pilgrimage or visit holy places, such as Mount Athos, in order to release religious healing powers. The inhabitants of Crete furthermore adhere to forms of religious medicine by means of placing jewellery and other votive offerings next to the icon of particular Saints (*cf.* Illustration 6.3).

Small metal plates, '*Tamata*', which either depict the illness-affected body part, such as a leg or an ear, or show the whole body of an adult or child, frequently adorn the icons in churches. In this way, the small metal plates are reminiscent of offerings, which have been made in Ancient Greece out of clay or stone and similarly resembled body parts (*cf.* Blum & Blum 1970; Vikan 1984; Arnold 1986; Van der Hoeven 1992; Koutis *et al*. 1993; Van Bommel 1993; Van de Kerk 1993; Duffin 1999; Chliaoutakis *et al*. 2002; Van den Akker 2002; De Vries 2007; Papadopoulos 2009). As Kain Hart (1992: 148) describes: '*Cures are sometimes enacted by bringing a token from the icon at church and placing it on the household* [*altar*] *and then returning it along with a new token; or by "tying" the sickness onto the saint*'. In case that the patient recovered, community members frequently continue to attend church on specific name days or to place offerings in the form of bread, flowers or '*Tamata*' next to the icon of the respective saint in order to express gratitude. As Vikan (1984: 67) explains: '[…] [*These*] *simple, anonymous votives acknowledge a successful healing by showing that part of the body which was formerly diseased*'.

Illustration 6.3 Votive Offerings in the Ayios Titos Cathedral in Iraklion.
Photograph by J. Aiglsperger (2010).

To a certain extent, forms of religious medicine have come to absorb pagan, namely spiritual, belief systems and practices of medical treatment. Although the doctrines of the Greek Orthodox Church have continued to differentiate between sacred and locally applied, natural and magical, healing practices, a number of religious incantations and rituals have come to involve local belief systems. The phenomenon of the 'evil eye', for example, is locally interpreted as a manifestation of the devil or as God's punishment for sins (*cf.* Greger 1985; Kain Hart 1992; Van der Houven 1992; Koutis 1993; Van den Akker 2002; De Vries 2007; Papadopoulos 2009). As Kain Hart (1992: 111) reports: '*An exorcism is required when "a person has a demon, the evil eye, or magic in him"*'. Hereafter, the Greek Orthodox Church has begun to acknowledge the skills of both men and women in performing rituals aimed at the treatment of the 'evil eye' (*cf.* Greger 1985; Kain Hart 1992) (6.9). As Greger (1985: 66) shows: '[*Rituals*] *of both established religion and more "fringe", possibly more ancient, practices relating to* [*the evil eye*]*, are used to "contain" ordered existence and to protect* […] *from chaotic and dangerous "outside" forces only partly comprehended*'.

The population of Crete adopts forms of spiritual medicine, namely a variety of prayers and practices, which are generally applied outside the scope of the Greek Orthodox Church but to a certain extent overlap with examples of religious medicine. Spiritual forms of medicine are locally known as '*Yities*', 'charms', and '*Ksorkia*', 'incantations'. Apart from overlapping with religious doctrines, spiritual forms of medicine frequently invoke elements within the spheres of astrology, flora and fauna. Combined forms of plant-based and spiritual medicine are occasionally specified as '*Mantzunia*', which is defined as 'Practical Medical Preparation' (*cf.* Mandala 1993). As a symbol of rebirth and renewal, snakes, for example, have been linked to a variety of spiritual and religious practices of healing. The ancient God of medicine and healing, Asclepius, is usually depicted with a rod entangled by a serpent, thereby presenting an image, which is to this day used as a symbol of medicine. Paying tribute to the medical significance of the snake, the inhabitants of Pirgos make use of the so-called '*Liokurno*', namely a small wooden pipe, which symbolises the horn of a snake (*cf.* Illustration 6.4). The '*Liokurno*' serves the purpose of detecting the presence and severity of the 'evil eye', whereby the pipe is placed in water in a way to generate bubbles. Hereafter, a considerable number of bubbles indicate that the patient is severely affected by the 'evil eye'. Overall, a substantial quantity of spiritual prayers and practices, which are adopted by the study population, are directed at the identification and alleviation of malignant spirits, such as the ''evil eye'' (*cf.* Paragraph 7.1.3).

Illustration 6.4 The '*Liokurno*' flanked by two branches of (*Origanum majorana* L. / *Origanum microphyllum* (Bentham) Boiss.)
Photograph by J. Aiglsperger (2011).

6.2.3 The Provision of Traditional Health Care

In rural Crete, traditional medicine in the form of MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine is nowadays principally applied through practices of self-care. To a lesser extent, components of the traditional medical system are administered through the intermediary of local specialists. In contrast to the nowadays rather minor role played by traditional specialists, traditional health care has since ancient times long been provided by a variety of professional practitioners, whose activities have been held in high esteem among the inhabitants of rural Crete. As Clark (2011: 14) argues: '*The historical functions of such healers are deserving of far more scholarly attention than they have received*'. Traditional health care providers held a rather influential position in rural communities, although their practices have been throughout history, and particularly under the Ottoman rule, often subject to prosecution. '*In times of great social distress - wars, revolutions, plague, famine, earthquake - healers outside the medical profession proper seem to have been not only tolerated, but highly valued*' (*ibid*.: 17). More recently, the advancement of modern medicine and the arrival of modern physicians and pharmacists in rural Crete, which accelerated particularly during the second half of the 20th century, have nevertheless created a general desire for assimilation to modern standards and a trend of retirement among traditional specialists. While traditional health care providers co-existed with modern physicians well until 1960s, health care providers, who have been educated in modern medical schools, have since gained considerable importance, particularly in urban areas.

Although the profession of the traditional health care provider is nowadays widely extinct, traditional specialists have at times remained a vital source of medical treatment for many rural Cretans beyond the 20th century. The inhabitants of the research area not only continue to consult a number of traditional health care providers about receiving medical treatment, but also appear to recollect the functionality of a variety of traditional practitioners, including practical doctors, bone-setters, traditional midwives, wise women as well as religious and spiritual healers. As Blum & Blum (1970: 50) highlight: '*If you take someone who has been hit by the exotica to the doctor they will not be cured, but if you take them to a priest they can be cured*'. Apart from offering specific types of medical treatment, the practices of traditional health care providers have long been held in high esteem for their general pleasantness and affordability. The providers have moreover been widely respected for taking time during consultation and for

showing a sense of familiarity, in which they share the language and social status of the patient (*cf.* Blum & Blum 1965; Van de Kerk 1993; Hagoort 1998; Clark 2002; Van den Akker 2002; Dijkstra 2005; Clark 2011).

The practical, empirical doctor, who is locally known as '*Praktikos Iatros*', '*Praktikos*' or '*Embirikos*' and whose profession is nowadays nearly extinct, has long occupied a rather formally established position as traditional specialist at the top of the community hierarchy of health care provision. The '*Praktikos Iatros*' has dealt primarily with the practical aspects of health care and has provided functional treatment, including herbal medicine, bone-setting or surgery, to conditions such as fractures or skin infections. Although the majority of the mostly male and sometimes female practical doctors had received a rather informal medical training, notably outside modern medical schools, these practitioners have continued to incorporate personal knowledge and experience within their medical routines. To a certain extent, practical doctors offered their services in hospitals, which have reportedly been present in Crete since Byzantine times. One of the earliest health care facilities, which offered not only medical treatment but also the teaching of medical doctrines, was established in the city of Gortyn during the Byzantine Era, whereas at least four hospitals have been available in Crete during the Venetian occupation of the island. Practical doctors have largely relied on an informal network of clients and on their professional reputation, whereby they have often played a decisive role in matters of local governance. In view of the long-established economy of gift exchange in rural Crete, it has moreover been standard practice among practical doctors to abstain from charging any fee for their services and to refuse any sort of compensation if the treatment is not successful. Until the 19th century, the profession of the practical doctor has been held in high esteem and remained an integral source of health care particularly for the inhabitants of rural, lowland communities. In urban areas, however, practical doctors soon co-existed with the emerging group of formally trained physicians, whereby traditional specialists and modern practitioners soon began to treat the same illnesses. At the beginning of the 20th century, advances in technology, education and international knowledge exchange effected a change in medical doctrines whereupon the services of traditional specialists gradually became subject to legal constraints. Since doctors hereafter had to obtain a permit for practicing medicine and patients had to sign an agreement prior to receiving any treatment, the profession of the practical doctor eventually made way for the profession of the modern physician physician (*cf.* Blum & Blum 1965; Arnold 1986; Hagoort 1998; Clark 2002; 2011). As Clark (2011: 21) indicates: '*Evidently, however, the austerity of the restrictions and the tensions between the two groups* […] *softened from time to time for the very practical reason of necessity in the wake of disastrous events*'.

In addition to the practical doctor, the profession of the '*Komboyiannitis*', 'bone-setter', which refers to a group of empirical and mostly male doctors, who are able to treat the patient with the sole use of their hands, is nowadays widely extinct. Although various explanations about its origin have been offered, the occupational title is most likely to originate from a combination of the words '*Kombos*', 'root', and '*Yiano*', 'to cure'. The profession is widely associated with male practitioners, who have been active during the time of the Ottoman rule in Crete. Following the itinerant nature of the profession and the more recent appearance of bone-setters, who attempted to make money on the basis of people's ignorance, the '*Komboyiannitis*' has since been viewed rather pejoratively as quack doctor or charlatan, who lacks medical knowledge (*cf.* Blum & Blum 1965; Arnold 1986; Mandala 1993; Vokou *et al.* 1993; Clark 2011).

While the professions of the practical doctor and bone-setter have been primarily practiced by men, women have long followed the occupation of the traditional, untrained midwife known as '*Mami*'. Playing a crucial role in assisting women during periods of pregnancy and delivery, traditional midwives have usually developed an extensive repertoire of knowledge of MAC plants and spiritual forms of medicine. In order to counteract difficulties in conceiving, for example, the midwife may fill a selection of, notably stimulating, MAC plants into a cotton bag,

which is inserted into the womb of the woman and removed again once the plants dissolved. In the same fashion, the midwife may administer pills made out of honey and plants, which function as a type of aphrodisiac, to women, who experience difficulties in conceiving as a consequence of fatigue. The services of traditional midwives may furthermore include: the running of a herbal bath for mother and child immediately after delivery; the washing of mother and child on the fortieth day after delivery with a mixture of 40 MAC plants known as '*Sarantavotano*' or '*Sarantadendhri*'; and the chanting of aphorisms and incantations, which are directed at the treatment of various medical complaints. Although traditional midwives have long formed an integral source of traditional health care, their practices are nowadays absorbed by the profession of the paediatrician, the nurse and the medically trained midwife, known as '*Mea*', who emerged during the 1960s (*cf.* Arnold 1986; Legel 1998).

Similarly practiced exclusively by women, the profession of the wise woman, who is locally referred to as '*Yiayia*', 'grandmother', forms a surviving trace of traditional health care provision in rural Crete. The wise woman is commonly known in the community for her medical skills, which generally involve expertise in mostly plant-based and spiritual medicine. Wise women are usually consulted about the application of MAC plants and other traditional home remedies, as well as about spiritual forms of medicine in order to treat particular illnesses, such as the 'evil eye', for example. The wise woman frequently acts as a mediator between the spirit and the bewitched person, as she tries to transfer the illness from the patient to herself by means of saying specific prayers and applying certain practices. Having acquired the skill of administering a successful cure of the 'evil eye' frequently forms the point of transition upon which female inhabitants are recognised as wise women within the community. Although they are widely respected for their medical expertise within the borders of the community, wise women generally have the same social status as their fellow community members and hereby adhere to similar ways of behaviour and dressing. Highlighted by the occupational title of '*Yiayia*', 'grandmother', wise women are treated as a socially equivalent female relative, neighbour or fellow community member, whereby the relationship between the health care provider and patient is rather personal. Accordingly, wise women are usually consulted at home or at communal gathering points, such as the KAPI (*cf.* Lykiardopoulos 1981; Arnold 1986; Kain Hart 1992; Van den Akker 2002).

Apart from the activities of practical doctors, bone-setters, traditional midwives and wise women, traditional health care has in rural Crete also been provided by a number of religious and spiritual healers, such as monks, priests, magicians and sorcerers. Representatives of the Greek Orthodox Church have followed occupations as health care providers from antiquity to this day whereas monasteries have been used as clinics, which offered treatment for illnesses related to both the body and soul, well until the 19th century. Monasteries furthermore served as repositories, in which classical medical texts have been collected and subsequently made available to clerics and visitors interested in the study of medicine. Monks have frequently functioned as authors of medical manuscripts, in which they incorporate both classical and practical medical knowledge, and have long been renowned for their medical expertise (*cf.* Arnold 1986; Kain Hart 1992; Clark 2011). The inhabitants of Pirgos proudly recall the healing lore of a monk, who, born and raised in the community, resides in the Monastery of Odiyitria in the Asterousia Mountains and offers treatment in the form of MAC plants and other, notably self-made, home remedies as well as religious medicine to visitors in search for medical cures.

The village priest is similarly known and respected for his ability to guide community members through episodes of illness, thereby seeking cure either indirectly through mediation between the patient and God or directly through particular healing practices. On the one hand, the priest acts as a mediator and offers treatment on the basis of the faith of the patient, namely through prayers or incantations, which are directed at God. On the other hand, the priest moreover takes the role of a healer and seeks cure by means of reading the bible, saying prayers, burning incense, sprinkling holy water, administering Communion or applying the Anointing of the Sick. The priest may read from the main liturgical book, '*Efkholoyion*', which, as

Papadopoulos (2009: 115) shows: '[…] *recommends prayers for "every disease", for "the ill and unable to sleep", and "those in the agony of death"*'. In the same fashion, the village priest engages in practices, which advocate the cure of particular illnesses, such as the 'evil eye', notably at critical moments during the liturgy, by means of saying the Lord's Prayer and by crossing the patient's forehead (6.10). Community members moreover consult the priest after the liturgy, particularly upon receiving the Holy Communion as well as during the celebration of particular feasts within the religious year, such as Easter, Christmas or the Dormition of the Mother of God. The village church herewith is the only official institution available in the research area, which offers traditional health care. In general, the practices of the priest serve the treatment of a variety of conditions, including psychological disorders, as well as life-threatening episodes of illness, whereby the priest may visit the patient at home. Although the profession of the village priest, who acts as a provider of traditional health care, has recently been in decline, representatives of the Greek Orthodox Church continue to offer advice on medical matters. Consequently, religious health care providers are not only renowned for their medical expertise but also for their contribution to the application of religious principles, the maintenance of moral order and the strengthening of community relations. In contrast to religious healers, the profession of spiritual healers, such as magicians and sorcerers, who both administer medical treatment in the form of magical words and rituals, has to a certain extent evoked feelings of fear among the population. In contemporary Crete, the occupation of the spiritual healer has moreover disappeared almost entirely (*cf.* Blum & Blum 1965; Van der Hoeven 1992; Van de Kerk 1993).

In the research area, traditional medicine is primarily sought through practices of self-care as well as through the intermediary of a number of lay and professional specialists. The profession of the traditional health care provider, which is faced with extinction, is to this day not only practiced by a number of wise women and religious healers, but has also survived within the recollection of the local inhabitants. On the whole, a substantial number of community members share considerable knowledge of the activities of different traditional health care providers, thereby suggesting that the profession has in rural Crete been practiced until recently (*cf.* Legel 1998). Following the administration of traditional medicine across the research area, the inhabitants of Pirgos and Praitoria perceive the accessibility of institutions of the traditional medical system, namely its geographical approachability, to be rather easy (*cf.* Table 6.6). In view of the different providers of traditional health care active in the research area, institutions, which are linked to the traditional medical system, include private homes, communal gathering points, such as the KAPI and religious institutions.

Table 6.6 Distribution of the Accessibility of Institutions of the Traditional Medical System perceived by the Household Members of the Sample over the Two Research Communities (N=656).

Accessibility	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
very difficult accessibility	5	1.0	2	1.2	7	1.1
difficult accessibility	3	0.6	5	3.1	8	1.2
average accessibility	4	0.8	0	0.0	4	0.6
easy accessibility	346	69.9	105	65.2	451	68.8
very easy accessibility	89	18.0	12	7.5	101	15.4
no institutions mentioned	48	9.7	37	23.0	85	13.0
Total	495	100.0	161	100.0	656	100.0

The vast majority of inhabitants in both research communities perceive the accessibility of institutions of the traditional medical system as easy (68.8%, n=451) or very easy (15.4%, n=101). Hereafter, 13.0% (n=85) of community members concluded that there are no institutions of the traditional medical system. While certain components of the traditional medical system,

such as MAC plants and other traditional home remedies, are generally available outside institutions, treatment in the form of religious or spiritual medicine, for example, may involve a visit to a traditional health care provider. In this respect, a number of, particularly older, inhabitants may encounter difficulties in undertaking visits to neighbouring houses or other institutions. The distribution of the perceived accessibility of institutions of the traditional medical system may moreover reflect the recent disappearance of the profession of the traditional health care provider in the research area. Components of the traditional medical system, such as MAC plants, are nowadays occasionally administered by modern and transitional health care providers. The modern physician may at times recommend the use of traditional medicine, notably on the basis of self-care, instead of or in addition to administering modern health care. Likewise, MAC plants can be bought at weekly markets, pharmacies, small grocers and supermarkets as well as at shops, which are specialised in the sale of MAC plants and other traditional home remedies (*cf.* Al-Windi *et al*. 2000; De Vries 2007) (*cf.* Illustration 6.5). In this way, the traditional medical system overlaps with the modern and the transitional medical system.

Illustration 6.5 Sale of MAC Plants at the weekly market in Iraklion.
Photograph by J. Aiglsperger (2012).

6.3 The Transitional Medical System

6.3.1 The Extension of the Transitional Medical System

Following the early discoveries of antibiotics at the beginning of the 20th century and the subsequent introduction of commercial pharmaceutical medicines in Greece, the majority of, particularly rural, population groups initially remained profoundly suspicious of the new medicines. To some extent, pharmaceuticals have been interpreted as foreign substances, which pollute the human body (*cf.* Blum & Blum 1965). As Blum & Blum (1965: 107) argue: '*One*

important factor in the refusal of prescribed medicines was the distrust of strange or 'foreign' substances. This distrust contrasts with the trust in natural and home-grown foods and drinks and in the recommendations made by trusted persons such as family or local folk healers'. Eventually, the establishment of the Greek National Health Care System in 1983, however, saw a rise in the national health expenditure on commercial pharmaceutical medicines. Concurrently, insurance coverage is extended, notably for agricultural employees, to include the use of medicines whereupon the consumption of pharmaceuticals in Greece increased significantly and has since become one of the highest in Europe. The rates of antibiotic prescription have been comparatively high, whereas the law in Greece allows clients to purchase antibiotics without prescription (*cf*. Skliros *et al*. 2010). Furthermore, a considerable number of medicines have been granted a status of over the counter-availability. Apart from experiencing an increase in the availability and accessibility of commercial pharmaceutical medicines, the Greek population has, however, had to cope with a variety of negative consequences, such as increased antibiotic resistance and adverse reactions to medicines, which have been largely caused by patterns of inappropriate self-medication and multiple medicine use. Adverse reactions to medicines, which have been provoked by the simultaneous intake of more than one medicine, have been identified as a frequent cause for admission to tertiary health care facilities in Greece. In addition to the health-related complications provoked by the wider availability of medicines, Greece has widely lacked a framework of regulation within the sector of commercial medicines, which has emerged as a lucrative market for pharmaceutical companies, thereby provoking an increase in the costs of medicines. In view of the current financial situation in Greece, economic adjustment programmes have stipulated a reduction in the expenses on pharmaceutical medicines, whereupon the price of certain generic medicines has been lowered considerably (*cf.* Hanepen 1997; Tzimis *et al*. 1997; Mossialos *et al*. 2005; Antonakis *et al*. 2006; Alexopoulou *et al*. 2007; Skliros *et al*. 2010; Kentikelenis & Papanicolas 2011; Kontarakis *et al*. 2011; Tsiligianni *et al*. 2012).

In Crete, the population has similarly been exposed to the ready availability of commercial pharmaceutical medicines and has to a certain extent developed patterns of improper use. The use of Over-the-Counter (OTC) medicines, for example, has frequently been accompanied by practices, which may have an adverse effect on human health, such as: the improper storage of medicines, which are not only accumulated during concurrent episodes of illnesses, but are also gathered in anticipation of future episodes of illness; the utilisation of medicines, which have remained from previous prescriptions; the application of medicines to conditions, which lay outside the medicines' primary area of treatment; the exchange of medicines between family members, neighbours and friends; the application of medicines, which have been issued to someone else, to conditions with similar symptoms; the intake of medicines with alcohol, coffee or tobacco; and discontinuity in the use of medicines, particularly once the symptoms have disappeared. In this way, the improper use of commercial pharmaceutical medicines is interpreted as a waste of financial resources. In addition to following patterns of improper usage, local inhabitants have occasionally shared the rather conflicting belief that non-prescribed medicines are safe because of their easy availability over the counter (*cf.* Van Bommel 1993; Van de Kerk 1993; Tzimis *et al*. 1996; Hanepen 1997; Antonakis *et al*. 2006; Skliros *et al*. 2010; Tsiligianni *et al*. 2012).

In line with the rather ambivalent nature of commercial pharmaceutical medicines, the inhabitants of the research area appear to have a primarily mixed opinion on the transitional medical system (*cf.* Table 6.7). The vast majority of community members in Pirgos (84.8%, n=420) and Praitoria (90.1%, n=145) entertain a rather mixed opinion on the transitional medical system. Concurrently, 12.2% (n=80) of inhabitants have a positive opinion on the transitional medical system, while only 1.2% (n=8) of respondents entertain a negative opinion on the transitional medical system.

Table 6.7 Distribution of the Opinion of the Household Members of the Sample on the Transitional Medical System over the Two Research Communities (N=656).

Opinion	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
negative opinion	6	1.2	2	1.2	8	1.2
between negative and positive opinion	420	84.8	145	90.1	565	86.1
positive opinion	66	13.3	14	8.7	80	12.2
no opinion	3	0.6	0	0.0	3	0.5
Total	495	100.0	161	100.0	656	100.0

On the one hand, the study population enjoys a ready and largely unregulated availability of commercial pharmaceutical medicines, which is supported by favourable reimbursement policies. The application of pharmaceutical medicines is largely perceived to be effective whereupon the inhabitants of rural Crete to a certain extent follow a passion for the newest kind of medicines. Nevertheless, the effectiveness of medicines has at times wrongly been linked to their price, whereby local inhabitants have reportedly perceived the medicine to be more effective the more expensive it is. On the other hand, the respondents, however, widely regard forms of commercial medicines as unpleasant and voice concern about the side effects the use of certain pharmaceuticals can have. In this respect, a previous study conducted in Greece has shown that respondents generally report a high degree of satisfaction with the transitional medical system although a percentage of, particularly chronically ill, clients have been dissatisfied with the medicine costs. Furthermore, research conducted in Crete has demonstrated that women may refuse to use contraceptives because of feelings of shame, fear of unknown substances or religious doctrines (*cf.* Arnold 1986; Van Bommel 1993; Van de Kerk 1993; Clark 2002; Geitona *et al*. 2008). In addition to expressing a rather mixed opinion, the sample population, however, has a fairly extensive knowledge of the transitional medical system (*cf.* Table 6.8).

Table 6.8 Distribution of the Knowledge of the Transitional Medical System of the Household Members of the Sample over the Two Research Communities (N=656).

Knowledge	Pirgos		Pretoria		Total	
	N	%	N	%	N	%
little knowledge	8	1.6	18	11.2	26	4.0
average knowledge	184	37.2	60	37.3	244	37.2
much knowledge	303	61.2	83	51.6	386	58.8
Total	495	100.0	161	100.0	656	100.0

Overall, a slight majority of community members in Pirgos (61.2%, n=303) and Praitoria (51.6%, n=83) demonstrate much knowledge of the transitional medical system and its components. In other words, a substantial number of inhabitants of the research area recognize different forms of commercial pharmaceutical medicines. Hereafter, a minor 4.0% (n=26) of respondents reportedly have little knowledge of the transitional medical system.

6.3.2 Local Examples of Commercial Pharmaceutical Medicines

In the research communities, the components of the transitional medical system refer primarily to forms of commercially available, *i.e.* prescribed and non-prescribed medicines. Prescribed medicines are generally issued by a medical doctor, who writes the prescription in a personal patient booklet, which the client then presents to the transitional health care provider in order to receive the medicines. Prescribed medicines can be obtained from a hospital or a pharmacy in

exchange for a fee, which is set at 25% of the price by the social insurance funds and is paid by the client. Exceptions to the 25% fee relate to the severity, namely the chronicity of diseases, as well as to the socio-economic status, namely the indigence, of the client, whereby medicines can be obtained for free or in exchange for a lower fee of 10% of the price. On several occasions, prescriptions are filled by an intermediary third person (*cf.* Hanepen 1997). Non-prescribed medicines are usually sold by the personnel employed at pharmacies as well as by retailers, who sell OTC medicines at weekly markets, small grocers, supermarkets, tobacconists or stores specialised in the sale of MAC plants. Furthermore, non-prescribed medicines include types of medicines, which have are stored at home in a way to make them available for future medical disorders. As Tsiligianni *et al*. (2012: 7) elaborate: '*Even when* [*medicines*] *were obtained on a past prescription they were considered to be "OTC" because the intention was to use them in the future without medical advice to treat similar symptoms* […]'. In the same fashion, non-prescribed medicines also encompasses medicines, which are obtained from lay people and non-professional health care providers, such as family members, friends or other community members, and may originally have been issued on prescription. In the research area, non-prescribed medicines are frequently specified as 'Depon', notably a reference to the brand name of an acetaminophen, which is immensely popular in Greece. In addition to Depon, the inhabitants of Pirgos and Praitoria reportedly buy a number of medicines, including Aspirin, over the counter. Aspirin is not only used internally as a treatment against the common cold, headache and general malaise, but is also applied externally to the skin. Apart from conventional OTC medicines, such as Depon or Aspirin, the sale of non-prescribed medicines also encloses a number of MAC plants, which are most commonly sold in their dried form as packaged goods. The availability of MAC plants on sale indicates that the transitional medical system to some extent overlaps with the traditional medical system available in the research area (*cf.* Arnold 1986; Van Beelen 1990; Tzimis & Kafatos 1999; Geitona *et al*. 2008; Tsiligianni *et al*. 2012).

6.3.3 The Provision of Commercial Pharmaceutical Health Care

To a certain extent, forms of commercial pharmaceutical medicines available in rural Crete are administered on the basis of self-care. The application of non-prescribed medicines, which are purchased over the counter, have been stored at home or have been obtained from fellow community members, involves both practices of self-treatment as well as the intermediary of lay people. Nevertheless, the components of the transitional medical system are primarily distributed through a network of providers, which encompasses the activities of pharmacy employees, shopkeepers, salesmen and retailers. The staff employed at local pharmacies, which commonly include the pharmacist as well as one or more pharmacy assistants, are the chief distributors of pharmaceutical medicines in the two research communities (*cf.* Illustration 6.6). In the research area, it is standard practice among inhabitants to fill any prescription issued by the medical doctor at the community pharmacy and to obtain the prescribed medicines primarily from the local pharmacist. In addition to forming the primary point of distribution of commercial pharmaceutical medicines, pharmacy employees have also come to play a decisive role in the administration of medical treatment. Local pharmacists not only provide the client with information and advice on the use of certain pharmaceuticals, but also offer medical consultation and even adopt minor medical procedures, such as measuring blood pressure or taking the pulse. Previous studies have shown that clients may at times feel less ashamed and find it more comfortable to confide medical complaints to the community pharmacist. Pharmacists usually maintain a rather close relationship with the physicians practicing in the community, which is not at least stimulated by the fact that pharmacists and medical doctors employed widely serve the same clientele (6.11). In this way, the close relationship between pharmacists and medical doctors, as well as the substantial role played by pharmacy employees in the distribution of prescribed medicines indicates that the transitional medical system to a certain extent overlaps with the modern medical system.

Illustration 6.6 The Pharmacy at the western edge of the Market Street in Pirgos. Photograph by J. Aiglsperger (2011).

In addition to having close ties with the community physicians, pharmacists moreover entertain a rather formal relationship with the representatives of pharmaceutical companies, who visit pharmacies at a regular basis in order to set the price of the medicines provided. The significant role played by the staff employed at local pharmacies in the context of health care provision is furthermore reflected in the widespread availability of pharmacies in Greece at large. The ratio of Greek pharmacists, as they are organised under the Panhellenic Pharmaceutical Association, '*Panellinios Farmakeftikos Silloghos (PFS)*', is one of the highest among the countries of the European Union. In the research area, two pharmacies are available in Pirgos, both of which are situated in the centre of the village at the eastern and western end of the market street respectively (*cf.* Map 5.2). While no pharmacies are available in Praitoria, the inhabitants of the community commonly visit the pharmacies established in surrounding villages, such as Pirgos, Asimi or Kharakas (*cf.* Arnold 1986; Tzimis *et al*. 1996; Hanepen 1997; Davaki & Mossialos 2005; Mossialos *et al*. 2005; Antonakis *et al*. 2006; Lionis & Philalithis 2008).

Apart from pharmacy employees, transitional health care in the form of commercial pharmaceutical medicines is moreover administered by a number of retailers. In the research area, conventional OTC medicines, such as Depon or Aspirin, are offered in Pirgos at various local supermarkets and tobacconists. Forms of CAM, including MAC plants, which are available on sale, are similarly offered at weekly markets and are provided by several small grocers and supermarkets in Pirgos as well as by both pharmacies in the village.

Specific types of CAM are moreover obtained from stores, which are specialised in the sale of particular commercial medicines and are generally available in urban areas. MAC plants, for example, can be purchased at several specially designed shops in Iraklion, which sell a substantial number of plants, most commonly in their dried form, and may additionally offer products derived from plants, such as beverages, food, dietary supplements, essential oils and cosmetics (*cf.* Illustration 6.7).

Illustration 6.7 A shop specialised in the sale of MAC Plants in Iraklion.
Photograph by J. Aiglsperger (2010).

The inhabitants of the two research communities moreover recall the availability of a local herbalist shop, which is located in the village of Kuses, southwest of the city of Mires, and offers a variety of dried MAC plants as well as beverages, food products and cosmetics (*cf.* Van de Kerk 1993; Dijkstra 2005).

In view of the different types of transitional health care providers and institutions, which are available in the wider research area, the inhabitants of Pirgos and Praitoria perceive the accessibility, namely the geographical approachability, of institutions of the transitional medical systems as rather easy (*cf.* Table 6.9). On the whole, the majority of community members in both Pirgos and Praitoria perceive the accessibility of institutions of the transitional medical system as easy (77.3%, n=507) or very easy (16.6%, n=109). Although commercial pharmaceutical medicines are readily available in both pharmacies and various shops in Pirgos, local inhabitants may occasionally encounter difficulties in reaching the institutions, particularly when on foot or when coming from Praitoria. All shops, which are locally known for their specialisation in the sale of MAC plants, are found in urban areas or in villages situated at a considerable distance from the two research communities.

Table 6.9 Distribution of the Accessibility of Institutions of the Transitional Medical System perceived by the Household Members of the Sample over the Two Research Communities (N=656).

Accessibility	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
very difficult accessibility	2	0.4	0	0.0	2	0.7
difficult accessibility	11	2.2	4	2.5	15	2.3
average accessibility	8	1.6	15	9.3	23	3.5
easy accessibility	386	78.0	121	75.2	507	77.3
very easy accessibility	88	17.8	21	13.0	109	16.6
no institutions mentioned	0	0.0	0	0.0	0	0.0
Total	495	100.0	161	100.0	656	100.0

6.4 The Modern Medical System

6.4.1 The Greek National Health Care System

Although the advance of modern medicine has to some extent varied across communities, the development of the modern medical system operating in rural Crete clearly overlaps with the emergence of modern medicine in Greece at large. In general, the first schools of higher medical education, such as the first Greek medical college, which was founded in Corfu in 1802, have been established during the 17th century. In addition to the creation of medical institutions, the return of medical students, who had received education elsewhere in Europe, to Greece around the same time laid the groundwork for the formation of a group of scholars, who have been educated in modern medicine. Initially, the services, which have been provided by the newly trained scholars, have been restricted to urban areas, whereby the first health centres have been established in the major cities of Crete in 1947, notably in order to meet requirements of immunisation against the spread of cholera. During the 19th and 20th century, modern health care has moreover been provided by occupational funds, which served a small proportion of inhabitants and favoured certain population groups, such as military officers and civil servants. In a first attempt to counteract the inequalities in the provision of modern health care, the Ministry of Hygiene and Welfare was established in Greece in 1922. In the same fashion, the first social insurance fund, namely the Social Insurance Organisation, '*Idrima Kinonikon Asfaliseon (IKA)*', which aimed at the coverage of employees in the private sector, was founded in 1932. Hereafter, additional funds, which covered certain professional groups, have been created during the 1940s. Socio-political events, such as the Second World War and the Greek Civil War, which occurred during the first half of the 20th century, however, not only aggravated socio-economic disparities, but also created a process of political polarisation among the Greek society. In view of the continuing disagreement between the centre-right and socialist party, attempts to reform the national health care system remained rather fruitless, while newly emerging client relations between the state and certain population groups led to an unequal distribution of privileges and funds, including social insurance payments (*cf.* Allbaugh 1953; Clark 2002; Davaki & Mossialos 2005; Mossialos & Allin 2005; Economou 2010; Clark 2011).

Although the first rural health posts have been established in Greece during the 1950s, the provision of modern health care remained largely ineffective due to shortages in personnel and supplies (*cf.* Davaki & Mossialos 2005). As Allbaugh (1953: 161) notes: '*Local health committees usually existed only on paper, and there were no local expenditures for health* […]. *Even the private village physicians were few and ill equipped, while the midwives were untrained*'. In a way to make use of modern health care providers and facilities, the rural population had to face high expenses and long travel distances as well as forms of social discrimination and anxiety, as visits to urban areas commonly evoked feelings of fear and disorientation (*cf.* Blum & Blum 1965). In 1961, the Agricultural Insurance Organisation,

'*Orghanismos Yeoryikon Asfalieson (OGA)*', which offered basic care and a pension scheme to the rural population, was created in an attempt to reduce regional inequalities in the provision of modern health care. Likewise, the Greek National Health Care System, '*Ethniko Sistima Iyias (ESI)*', was founded in 1983 as part of a national social reform, which aimed at the improvement of primary health care delivery across the country. In general, the ESI addresses the principles of equity, equal access and social cohesion as well as cost-effectiveness and efficiency in health care delivery. The reform saw the establishment of a universal health care system, which is free at the point of use and rooted in the principles of equity and efficiency, while offering greater access to the public hospital sector. Primary health care and hospital services were to be covered by a number of social insurance funds, while the delivery of primary health care services in rural areas fell under the authority of the Ministry of Health. Concurrently, modern health care delivery was to be supervised by Regional Health Councils among ten health regions in a way to prioritise the development of health infrastructure in rural areas and to reduce inequalities. Since priority has been given to the improvement and advancement of modern health care provision in rural areas, a system of referral has been created, which is based on the collaboration between the employees of urban hospitals as well as rural health centres and health posts (*cf.* Van de Kerk 1993; Bouma 2000; Davaki & Mossialos 2005; Mossialos & Allin 2005; Mossialos *et al*. 2005; Lionis *et al*. 2009; Oikonomou & Mariolis 2010). As Mossialos & Allin (2005: 424) indicate: '*In addition, a system of referral based on family doctors and a network of rural and semi-urban health clinics was meant to represent a first step towards organising a comprehensive system of primary care*'.

Nevertheless, the health care reform of 1983 has only partially been implemented, as it has largely been hindered by a lack of political will and consensus as well as by a number of factors, which aimed at meeting individual rather than universal needs, such as: a limited availability of funds; the slow training and shortage of general practitioners (6.12); the excess of medical doctors, who are specialised otherwise and whose practices are not subject to any regulation controlling the quality of their services; the serious shortage of qualified nurses; the lack of continuous medical education; the growing number of private, unregulated services; the tendency of medical doctors to accept bribes and gifts, upon which the allocation of funds in the public health care sector is influenced by political power relations; the fragmentation and unequal coverage of social insurance funds; the absence of a needs assessment mechanism; the absence of a national vaccination schedule; the concentration of high technology in the private sector coupled with strict regulations on the purchase of equipment in the public sector; the general shortage of technical capacities and expertise; the lack of management and planning; the overwhelming and weak bureaucratic administration; practices of tax evasion and informal payments; a heavy reliance on external inputs; and a poor national economy. Furthermore, the national health care system has lacked a well-functioning system of information transfer, which leads to a loss of continuity, incomplete medical records and a repetition of tests and prescriptions, while prohibiting an assessment of the quality of care and services provided. Furthermore, regional differences in modern health care delivery have continued to exist, whereby access to services as well as medical personnel and supplies have remained limited in rural areas leaving local health care facilities largely understaffed and malfunctioning. Owing to these differences, medical performance is reportedly better at urban hospitals than at rural health centres , whereas the efficiency of health centres is highest in centres located in the vicinity of hospitals. As a result, a fully operating system of referral has never been implemented whereupon the delivery of primary health care in Greece has remained largely unorganised (*cf.* Lionis *et al*. 1996; Mossialos 1997; Lionis *et al*. 1998a; Rovithis *et al*. 2001; Liangas & Lionis 2004; Lionis *et al*. 2004; Davaki & Mossialos 2005; Mossialos & Allin 2005; Mossialos *et al*. 2005; Constantinides & Barrett 2006; Xilomenos *et al*. 2006; Oikonomidou *et al*. 2010; Oikonomou & Mariolis 2010; Kentikelenis & Papanicolas 2011; Oikonomou & Tountas 2011a; 2011b; Sbarouni *et al*. 2012). As Kentikelenis & Papanicolas (2011: 4) argue: '*The combination of an absence of a functioning referral system and irrational pricing and reimbursement*

*mechanisms leads to poor coordination of care, large out-of-pocket payments and a sizeable black economy, impeding the system's ability to deliver equitable financing and access to service*s'. Resources have long been allocated on the basis of historical precedent and political negotiation rather than demand whereupon the provision of modern health care has been characterised by the unequal distribution of funds and services, which favour high-income, urban population groups (*cf.* Davaki & Mossialos 2005; Mossialos & Allin 2005; Mossialos *et al*. 2005).

During the decade after the health care reform, the focus of modern health care delivery shifted from primary health care to an expansion of the hospital sector. Subsequently, a second health care reform adopted between 2000 and 2002 aimed at improving the quality of modern health care delivery in rural areas. Communal units have been organised under a so-called 'Regional Health and Welfare Authority', '*Periferiako Sistima Iyias ke Pronias (PESIP)*', while 17 Regional Health Systems, '*Periferiaka Sistima Iyias (PESI)*' have been established in Greece, thereby shifting certain responsibilities of health care management from the centralised ESI onto the regional level. In 2006, the Regional Health and Welfare Authority was renamed the 'Health Region Administration', '*Diikisi Iyionomikis Periferias (DIPE)*', and was reorganised into seven regional units. Hereafter, Crete has been categorised as the seventh Health Region, '*Iyionomiki Periferia (IPE)*', which is responsible for the distribution of modern health care via a network of hospitals, health centres and health posts. Nevertheless, any implementation of national health care reforms has continued to be hindered by factors, which are tailored to meet individual needs, such as the interference of interest groups, whereupon attempts to improve the health care system and to integrate services by means of introducing regional health and welfare systems have been quickly abandoned (*cf.* Lionis *et al*. 2004; Mossialos & Allin 2005; Mossialos *et al*. 2005; Lionis *et al*. 2009; Economou 2010; Notara *et al*. 2010; Oikonomidou *et al*. 2010). As Lionis *et al*. (2009: 8) conclude: '*Thus, the* [*Primary Health Care*] *policy initiative in the region of Crete was short-lived, without any imitators*'. Furthermore, the fragmentation of the Greek National Health Care System has recently been exacerbated by the financial crisis, which saw austerity measures, financial regulations and economic adjustments (*cf.* Souliotis & Lionis 2004; Davaki & Mossialos 2005; Mossialos *et al*. 2005; Kentikelenis & Papanicolas 2011; Dervenis *et al*. 2013). While Greece spent approximately 10% of its gross domestic product on health care in 2006, health care expenses have been reduced to 9.3% of the gross domestic product in 2014. In this way, Greece went from being among the countries within the Organisation for Economic Co-operation and Development (OECD) with the highest spending on health care to being a country with an average quantity of expenses (*cf.* Geitona *et al*. 2007; OECD 2014). As Panagiotakos *et al*. (2008: 154) moreover notice: '*It has also been suggested that the ageing population and continuous immigration will put increasing pressure on healthcare resources in the near future*'.

In this way, current attempts to improve the system of health care delivery in Greece are largely the result of economic adjustments and aim at the achievement of greater efficiency as well as lower expenditures in the health care sector. Recent measures, which have been adopted within the ESI, include: the full-time operation of hospitals; the charging of fees following outpatient treatment during the afternoon shift; the co-payment of five Euro for all outpatient services; the collection of monthly-updated reliable data on hospital activities and expenditures; and the centralisation of the purchase of medical supplies. Furthermore, the Ministry of Health re-established the so-called 'Health Procurement Committee', '*Epitropi Promithion Iyias (EPI)*', which exerts strict control over tender procedures and procurements, thereby reducing costs and improving the exchange and management of products. Financial contributions, which have been made to certain health care sectors, such as mental health, or to services including the prevention and therapy of substance abuse, have decreased rapidly as a result of austerity measures (*cf.* Kentikelenis & Papanicolas 2011; Petmesidou 2012; Dervenis *et al*. 2013; Polyzos *et al*. 2013).

In order to further enhance efficiency and to reduce costs within the national health care system, the four largest public social insurance funds available in Greece, where social insurance

is complementary, have been merged into the National Organisation for the Provision of Health Care Services, '*Ethnikos Orghanismos Parohis Ipiresion Iyias (EOPII)*' in 2010 in an attempt to establish a unified and proportionate system of social insurance. Although around 30 different social insurance funds, which covered approximately 97% of the population, have been available in Greece, 95% of inhabitants have been covered by the four largest public insurance companies, namely by: IKA; OGA; the Social Insurance Organisation for the Self-Employed Professionals, '*Orghanismos Asfalisis Eleftheron Epangelmation (OAEE)*', which covers primarily professionals, small businesses and merchants; and the Civil Servants Health Insurance Fund, '*Orghanismos Perithalpsis Asfalismenon tu Dimosiu (OPAD)*', which covers civil servants. IKA forms the largest of the social insurance funds and covers approximately 50% of the Greek population, notably employees in the private sector. OGA provides the second largest social insurance fund and covers around 20% of the population, particularly employees of the agricultural sector (*cf.* Hanepen 1997; Souliotis & Lionis 2004; Mossialos *et al*. 2005; Lionis & Philalithis 2008; Lionis *et al*. 2009; Economou 2010). In the research area, only a minor percentage of inhabitants (1.7%, n=5) have no social insurance, whereas the vast majority of community members are covered by OGA (*cf.* Table 6.10).

Table 6.10 Distribution of the Social Insurance Coverage of the Household Members of the Sample over the Two Research Communities (N=656).

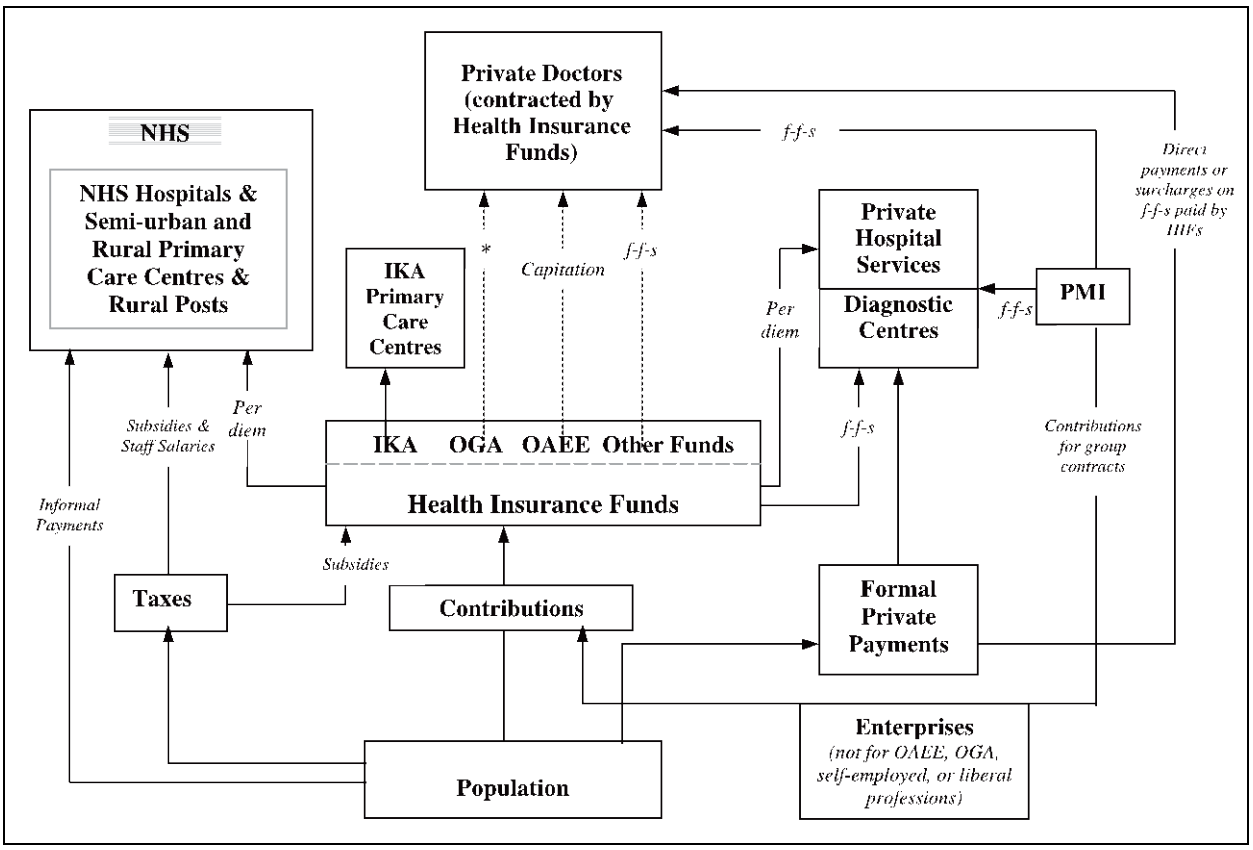
Insurance	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
IKA	52	10.5	12	7.5	64	9.8
OGA	358	72.3	123	76.4	481	73.3
OPAD	75	15.2	10	6.2	85	13.0
OAEE	2	0.4	0	0.0	2	0.3
other	2	0.4	6	3.7	8	1.2
no insurance	6	1.2	10	6.2	16	2.4
Total	495	100.0	161	100.0	656	100.0

In view of the extension of agricultural activity in the research area, 73.3% (n=481) of inhabitants in both communities are insured with OGA. Hereafter, 13.0% (n=85) of community members are covered by OPAD, whereby the percentage of OPAD-insurants is slightly higher among the inhabitants of Pirgos. Furthermore, 9.8% (n=64) of respondents are insured with IKA. While contributions to IKA, OAEE and OPAD have been equalised during the reorganisation of insurance funds, contributions to OGA have largely remained unchanged. Apart from public insurance funds, around 8% of the Greek population are moreover covered by private social insurance, which is usually targeted at young inhabitants. Citizens, who have no insurance or who are illegal immigrants, are offered access to primary health care under the ESI (*cf.* Hanepen 1997; Davaki & Mossialos 2005; Mossialos *et al*. 2005; Lionis & Philalithis 2008; Lionis *et al*. 2009; Economou 2010; Notara *et al*. 2010; Petmesidou 2012; Polyzos *et al*. 2013).

Nevertheless, out-of-pocket expenditures, which are made in the form of direct, informal payments to both public and private health care providers, notably in the sectors of primary and dental care, have always played a vital role in the delivery of modern health care in Greece (*cf.* Mossialos *et al*. 2005; Geitona *et al*. 2007; Notara *et al*. 2010; Oikonomou & Mariolis 2010; Kentikelenis & Papanicolas 2011; Petmesidou 2012; Polyzos *et al*. 2013). As Mossialos *et al*. (2005: 154) highlight: '*Out-of-pocket payments, mostly in the form of direct and informal payments, are the highest in the European Union (EU)*'. The provision of modern health care by practitioners employed under the ESI has not been subject to any form of state regulation, thereby rendering it difficult to adjust the cost of services to the quality of care provided. As a result, modern health care providers employed under the ESI frequently demand extra fees for their work or offer their services illegally at private clinics for further compensation, while patients regularly make out-of-pocket payments to private practitioners. Hereafter, Geitona *et al*.

(2007: 144) elaborate that: '[*possible*] *reasons for the high private spending are the fragmentation in the provision of primary healthcare, the lack of comprehensiveness in the social insurance coverage, limited access to healthcare provision, regional inequalities in resource allocation, and undersupply of technological equipment in the public sector*'. Likewise, it is rather common among patients to consult a specialist without the referral from a primary health care physician or to visit a private health care provider in addition to a contracted practitioner. In particular, a recent study indicated that a mere 20% of the rural population in Greece contact the ESI in a way to receive primary health care , whereas the majority of patients choose to use private and urban primary health care services (*cf.* Lionis *et al*. 2005; Oikonomidou & Tountas 2011b). The underlying reasons of such behaviour relate to, *i.a.* the wish to get a second opinion, a general dissatisfaction with the public health care system and a lack of financial resources available under the ESI and among social insurance funds. As Geitona *et al*. (2007: 149) theorise: '*Moreover, it is worth noting that healthcare provision in the country is structured and financed in a way that forces patients to use both public and private services concurrently* […]'. Patients, particularly insurants of IKA and OGA, are generally presented with limited possibilities regarding the choice of treatment in the public health care sector. In view of a shortage of public funds, the private sector has recently made substantial investments in outpatient care whereupon numerous private diagnostic centres have been established in Greece (*cf.* Souliotis & Lionis 2004; Mossialos *et al*. 2005; Geitona *et al*. 2008; Oikonomou & Mariolis 2010). According to Mossialos *et al*. (2005: 162): '*Although there is limited evidence on how informal payments affect access and utilisation of health services, it is clear that patients who cannot afford to pay cannot access the same level of services or have to wait longer for care*'. In general, voluntary payment for modern health care services is a widespread phenomenon in Greece, whereby the country has come to establish one of the most privatised health care systems among the countries of the European Union (*cf.* Lionis *et al*. 2009). Following the current financial situation, private services have not only become increasingly difficult to afford, but adjustment programmes have also given priority to the overall reduction of out-of-pocket expenditures, notably by means of introducing state regulations. Davaki & Mossialos (2005: 150), however, state: '*Paying the doctor directly is an embedded cultural practice in Greece, and the transfer of money to a third party may be seen as an unnecessary erosion of the patient-doctor relationship and as reducing the assurance of quality of care*'.

Although processes of reorganisation following the national financial crisis currently shape the structure of the Greek National Health Care System, Figure 6.1 presents an adequate overview of the flows of financing and delivery of modern health care, which are maintained in Greece. Despite several attempts to shift power onto regional units, the Greek National Health Care System, which provides primary and secondary modern health care free at the point of use, has to this day remained largely centralised and falls under the jurisdiction of the Ministry of Health. The ESI currently operates alongside a mandatory system of social insurance, which is structured according to employment, and a voluntary small-scale system of private insurance, as well as practices of out-of-pocket payments in the private sector. Overall, modern health care delivery in Greece is primarily funded by taxation, social and private health insurance money, as well as out-of-pocket payments. Concurrently, health care services are offered by the ESI and various public health organisations, which operate autonomously under the auspices of the Ministry of Health, as well as by social insurance funds and private practitioners. The majority of modern health care facilities and personnel operating in rural areas are provided by the ESI, while the services offered by public hospitals, which are mainly located in urban areas, are either offered by the ESI or by a social insurance fund, such as IKA. Furthermore, private health care services, of which the availability is largely restricted to urban and touristic areas, are even-handedly funded by public and private sources (*cf.* Hanepen 1997; Mariolis *et al*. 2008; Lionis *et al*. 2009; Notara *et al*. 2010; Kentikelenis & Papanicolas 2011; Petmesidou 2012; Polyzos *et al*. 2013).



* = OGA contracts Private Doctors for Repeat Prescriptions

Legenda:
HIF = Health Insurance Fund
f-f-s = Payment by fee-for-service
NHS = National Health System (ESI)
PMI = Private Medical Insurance

Figure 6.1 Flows of Financing and Delivery of Modern Health Care in Greece.
Source: Mossialos *et al*. (2005: 153).

6.4.2 The Availability of Modern Health Care in Rural Crete

In the research area, modern health care services are offered by a network of rural health posts and rural health centres, which operate under the authority of the national health care system. The modern health care facilities, which are available to the population of rural Crete, have to some extent been established as units within the referral system of primary health care envisaged in 1983. Although the institutions nowadays adhere to a level of collaboration and referral, modern health care delivery in Greece has lacked a gate-keeping system whereupon patients largely engage in patterns of self-referral (*cf.* Oikonomou & Mariolis 2010; Oikonomou & Tountas 2011a; Sbarouni *et al*. 2012). On the whole, around 1.422 health posts, which offer only primary equipment, thus no transportation facilities, have been established in rural communities across Greece (*cf.* Van Beelen 1990; Van de Kerk 1993; Lionis & Trell 1999; Molenaar 1999; Palstra 2003; Dijkstra 2005; Oikonomidou *et al*. 2010).

Locally known as '*Aghrotiko Iatrio*', a rural health post is available in both research communities and hereby forms the primary contact point for inhabitants seeking modern health care. The health post established in Pirgos is located along the northern edge of the market street in a one-storeyed building (*cf.* Map 5.2). The health post provides a rather large waiting room area, two separate examination rooms and an extra bed, which is arranged in one of the corners of the waiting room, notably secluded behind a wall, for particular treatments, such as

administration of oxygen (*cf.* Illustration 6.8). While a basic amount of medical equipment, including personal computers, is stored in the examination rooms, the health post in Pirgos moreover offers sufficient space in the waiting room area for the display of health pamphlets and magazines.

Illustration 6.8 The waiting room at the Health Post in Pirgos.
Photograph by J. Aiglsperger (2011).

The health post in Praitoria is located at the centre of the villages next to the Church of Archangel Michael (*cf.* Map 5.3). The health post provides a fairly small waiting room area and a single, rather poorly equipped, examination room, which lacks not only basic medical supplies but also adequate lighting and heating systems as well as telephone mainlines (*cf.* Illustration 6.9). Previous studies conducted in rural Crete have shown that rural health posts, which are at times used for purposes other than health care delivery, such as holding community gatherings, for example, offer a familiar environment in which community members do not feel the need to comply with certain ways of dressing or communicating (*cf.* Hagoort 1998).

Health posts, which have been established across a particular geographical region, are to some extent tied as satellite units to a rural health centre, '*Kendro Iyias*', as it forms a larger entity within the network of health care institutions and offers primary and secondary health care. Provided by either the ESI or by OGA, approximately 200 health centres are currently available in Greece, of which 14 are found in various communities in rural Crete. The first rural health centre established in Crete was founded in 1986 in the mountainous community of Spili south of Rethymnon. The health centre of Spili is linked to five rural health posts and has since distributed modern health care to the inhabitants of 26 surrounding villages. In the same fashion, the health posts of Pirgos and Praitoria have been tied to the health centre established in the neighbouring community of Kharakas.

Illustration 6.9 The waiting room at the Health Post in Praitoria.
Photograph by J. Aiglsperger (2011).

In contrast to rural health posts, health centres usually offer a variety of examination rooms and a patient room, which allows overnight treatment, issue vaccination schedules, notably for children, and provide research facilities. In particular, previous research conducted in Crete showed that a considerable number of patients visit the rural health centre for the purpose of disease prevention (*cf*. Koutis *et al*. 1991). Furthermore, rural health centres function as research institutes, in which data are collected, notably digitally, evaluated and published on a variety of topics, such as: the general health status of the population living in the surrounding villages; the local prevalence of particular diseases; rates of mortality; patterns of utilisation of health care services; the implementation of new equipment and technology; the introduction of a computerised system of data collection; or improvement of the organisation and institutionalisation of medical facilities. The health centre located in Spili, for example, has since its establishment served as a centre for research, which has been conducted on a variety of topics, particularly in relation to primary health care delivery and as a place, in which medical students undergo training, thereby establishing links with health care facilities across Europe (*cf*. Van Beelen 1990; Fioretos & Schersten 1991; Koutis *et al*. 1991; Isacsson *et al*. 1992; Koutis *et al*. 1993; Van Bommel 1993; Van de Kerk 1993; Wondimu 1993; Hanepen 1997; Lionis & Trell 1999; Molenaar 1999; Bouma 2000; Van den Akker 2002; Belos *et al*. 2005; Davaki & Mossialos 2005; Mossialos & Allin 2005; Constantinides & Barrett 2006; Lionis & Philalithis 2008; Trigoni *et al*. 2008; Lionis *et al*. 2009; Oikonomidou *et al*. 2010; Polyzos *et al*. 2013).

Rural health centres, which are situated across a particular geographical region, have originally been specified as decentralised units of a regional hospital within the overall referral system whereupon the facilities have continued to adhere to a certain degree of collaboration. Overall, patterns of collaboration between rural health centres and public hospitals, which have occasionally been supported by electronic networks of information and communication technology, serve the referral of patients as well as the exchange of medical opinions. Hospitals, which offer modern health care, have reportedly been available in Greece since the onset of the

Greek War of Independence in 1821, whereby the first hospital in Athens was opened in 1836. Today, public hospitals provide primary, secondary and tertiary care and offer a variety of clinical specialisations, including internal medicine, cardiology and orthopaedics. Around 132 public hospitals, which fall under the authority of the ESI, are currently available in Greece, whereby eight facilities are found in Crete, notably in the vicinity of larger cities and rather evenly distributed among the four regional units. The inhabitants of the research area generally visit one of the two public hospitals available in Iraklion, namely the University Hospital, '*Panepistimiako Yeniko Nosokomio Irakliu (PAYNI)*' or the Venizelio Hospital, '*Yeniko Nosokomio Irakliu Venizelio-Pananio*'. In particular, the PAYNI is linked to the Faculty of Medicine of the University of Crete, which is actively involved in research and training of medical students since its foundation in 1984, thereby focussing particularly on the advance of primary health care delivery in Crete. In fact, a four weeks-long course on primary health care delivery is included in the undergraduate curriculum whereupon the Faculty of Medicine, notably the Clinic of Social and Family Medicine, has long worked in collaboration with rural health centres in order to carry out research and to train medical students (*cf.* Arnold 1986; Van Beelen 1990; Van de Kerk 1993; Hanepen 1997; Lionis & Trell 1999; Bouma 2000; Belos *et al*. 2005; Dijkstra 2005; Mossialos *et al*. 2005; Constantinides & Barrett 2006; Lionis *et al*. 2009; Oikonomidou *et al*. 2010; Sbarouni *et al*. 2012).

Apart from public hospitals, modern health care is in urban Crete moreover provided by a number of institutions, which are linked to IKA and offer care through specialists employed at health centres, hospitals and polyclinics. Around 100 IKA health centres, which offer primary health care in mainly urban areas, are available in Greece. In the same fashion, modern health care is provided by various privately owned institutions, including a growing number of diagnostic centres, which offer their services in urban and semi-urban areas across Greece and frequently adhere to an informal referral system between public and private physicians (*cf.* Bouma 2000 ; Souliotis & Lionis 2004; Davaki & Mossialos 2005; Mossialos *et al*. 2005; Lionis & Philalithis 2008; Lionis *et al*. 2009). As Davaki & Mossialos (2005: 152) observe: '[…] [*Patients*] *are sent from public institutions to private providers for diagnosis and then often back to public hospitals, IKA or* [*public*] *health centres, or contracted doctors for treatment*'. Albeit the general availability of modern health care facilities in mainly urban areas of Crete, local inhabitants may at times visit institutions in Athens or outside Greece, particularly in order to receive specialist care for particularly rare and serious conditions (*cf.* Van Beelen 1990; Oikonomou & Mariolis 2010).

In view of the modern health care facilities, which are available to the population of rural Crete, local inhabitants generally hold a mixed opinion on the modern medical system (*cf.* Table 6.11). The majority of community members in both Pirgos and Praitoria (79.0%, n=518) entertain a mixed opinion on the modern medical system. Concurrently, 18.3% (n=120) of inhabitants hold a positive opinion on the modern medical system, while a minor 1.2% (n=8) entertain a negative opinion on the modern medical system.

Table 6.11 Distribution of the Opinion of the Household Members of the Sample on the Modern Medical System over the Two Research Communities (N=656).

Opinion	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
negative opinion	2	0.4	6	3.7	8	1.2
between negative and positive opinion	391	79.0	127	78.9	518	79.0
positive opinion	99	20.0	21	13.0	120	18.3
no opinion	3	0.6	7	4.3	10	1.5
Total	495	100.0	161	100.0	656	100.0

Previous studies conducted in Greece have shown that older inhabitants appear to have a more positive attitude towards the modern medical system. Nevertheless, the percentage of community members in Pirgos and Praitoria, who hold a positive opinion on the modern medical system, is rather equally distributed among age groups. As Kain Hart (1992: 139) indicates: '*Although there is prestige associated with hospitals, they are not viewed as a good place to die*'. In general, local inhabitants regard modern health care to be effective and hereby hold the services, which are offered at modern health care institutions, in high esteem. The reputation and medical expertise of the modern health care provider are generally held in high esteem and trusted, whereby villagers widely respect the education, knowledge and experience as well as confidence in diagnosis and treatment of the provider. In this way, the inhabitants of rural Crete to some extent share the belief that the results of medical treatment provided by the modern medical system are immediate. The payment of fees, particularly to private practitioners, may enforce people's trust in the effectiveness of modern health care. Villagers may at times consult local medical doctors outside visiting hours, notably on the street, in a way to ask questions about minor health complaints and general issues. In the same fashion, modern health care providers may at times receive small gifts, most commonly in the form of food or drinks, as a token of the patient's appreciation for their services.

To some extent, the modern medical system is, however, perceived to be unpleasant, as certain medical procedures evoke feelings of anxiety, namely of fear of pain, fear of the procedure itself or fear of a negative diagnosis, among the population. Previous studies conducted in Crete have shown that feelings of fear have been heightened in cases, in which local inhabitants or their close acquaintances had previously had a negative experience upon contacting the modern medical system. Since community members furthermore appear to attach considerable significance to the personality, social skills and ability to show personal interest of the modern health care provider, a state of dissatisfaction with the modern medical system has reportedly been related to people's concern about the inability of the provider to understand the importance of personal relationships and to establish personal contact with the patient. Furthermore, a negative opinion on the modern medical system is occasionally provoked by a lack of patient choice, inefficient opening hours, the frequent changing of health care providers and a general fear of strangers as well as large distances and long waiting times at modern health care institutions. Following a comparative study of the views of citizens on the modern medical system, Greece is among the countries, which showed the lowest level of satisfaction. In this respect, people have, however, positively acknowledged the limited waiting times at private institutions offering modern health care (*cf.* Blum & Blum 1965; Arnold 1986; Van de Kerk 1993; Mossialos 1997; Hagoort 1998; Lionis *et al*. 2004; Davaki & Mossialos 2005; Geitona *et al*. 2008; Mariolis *et al*. 2008; Trigoni *et al*. 2008; Oikonomou & Mariolis 2010; Kentikelenis & Papanicolas 2011; Oikonomou *et al*. 2011; Oikonomou & Tountas 2011b).

In contrast to holding a rather mixed opinion, the inhabitants of the two research communities appear to share a fairly polarised knowledge of the modern medical system (*cf.* Table 6.12.). While a slight majority of respondents demonstrate much knowledge of the modern medical system (35.8%, n=235), 34.1% (n=224) of inhabitants in both research communities share little knowledge of the modern medical system (*cf.* Koutis *et al*. 1991).

Table 6.12 Distribution of the Knowledge of the Modern Medical System of the Household Members of the Sample over the Two Research Communities (N=656).

Knowledge	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
little knowledge	170	34.3	54	33.5	224	34.1
average knowledge	149	32.1	38	23.6	197	30.0
much knowledge	166	33.5	69	42.9	235	35.8
Total	495	100.0	161	100.0	656	100.0

6.4.3 The Provision of Modern Health Care

In the research area, modern health care is most commonly provided by the male or female general practitioner, locally known as '*Iatros*', 'physician', who is employed at rural health posts and health centres. General practitioners, who receive a formal medical training at institutes of higher education, as they have been available in Greece since the 17th century, initially practiced in primarily urban areas. The providers have been long ranked according to their social status, which included their financial capacities, their level of expertise and experience, as well as according to their professional responsibilities. Following the gradual expansion of modern health care delivery, general practitioners subsequently spread to rural areas and came to occupy an integral position as health care providers across communities. Nevertheless, medical graduates soon created a process towards clinical specialisation, which has been advanced by innovations in medical technology and required a new corpus of medical knowledge, whereupon the field of general practice experienced a decline in popularity. In this way, general practitioners began to leave rural areas in a systematic fashion after the Second World War, not at least because of a growing interest in urban life as well as in the prestige and money associated with clinical specialisation. Although general practice was established as a clinical specialty in 1987, medical graduates continued to demonstrate a profound lack of interest in pursuing a career in general practice in rural areas, as it involved remote medical facilities and low payment. Consequently, rural areas across Greece suffered from a severe shortage of modern health care providers, which was eventually met with a new legislation adopted during the 1960s. The new legislation saw that medical graduates had to fulfil a mandatory one-year duty of employment in one of the newly established rural health care facilities as part of their last year of medical training (6.13). Although a more recent legislation, which further prioritised the employment of general practitioners in rural areas, was introduced in 1997, the rate of medical doctors, who follow an occupation as a general practitioner, has remained rather low in Greece although the number of medical doctors active in Greece has reportedly been among the highest in Europe. To this day, medical graduates and physicians practicing in Greece have held the field of general practice in rather low esteem (*cf.* Van de Kerk 1993; Hagoort 1998; Bouma 2000; Liangas & Lionis 2004; Davaki & Mossialos 2005; Mariolis *et al*. 2008; Economou 2010; Oikonomidou *et al*. 2010).

In the research area, modern health care is offered at the rural health posts by two female general practitioners, who, living in Iraklion, take turns in visiting the community of Pirgos at least two times a week from Monday to Friday and the community of Praitoria once a week. The physicians practice single-handedly at the rural health post available in both communities and offer their services from approximately 9 A.M. until 2 P.M. on the respective days. In addition to visiting the communities of Pirgos and Praitoria, both general practitioners are employed at the rural health centre in Kharakas, thereby working afternoon and overnight shifts as part of a team of health care providers. In general, the village physicians offer primary health care to, mostly chronically ill, patients in the form of general check-ups, first aid, prescription medicine and vaccinations as well as referral to other health care facilities. The majority of patients, who arrive at the health post, undertake a follow-up visit whereupon there is not much variety in the number and sort of patients, who consult the general practitioner on the day of her visit to the respective community. Since patients generally visit the facility without having made a specific appointment, consultations at the health post are usually held in chronological order, namely on a first come-first serve basis. In this way, patients either wait for the general practitioner outside the yet closed health post or gather in the waiting room shortly after her arrival. Although patients are treated individually, family members or friends may at times accompany the patient, whereby it is standard practice among the companions to enter the examination room together with the patient and to take part in doctor-patient conversations. At the beginning of the consultation, the general practitioner typically embarks on a conversation with the patient on current medical complaints , whereas the medical doctor may address certain topics, such as

general health status, personal constitution and family relations, at any stage during the session. On several occasions, the general practitioner serves the sole purpose of a conversational partner, with whom the patient discusses personal feelings, particularly following distressing events, such as the disease or death of a family member.

Most commonly, the general practitioner, however, proceeds with a general check-up or with a more detailed examination of the patient. Subsequently, the physician commonly terminates the session by means of issuing a prescription, offering verbal recommendation or referring the patient to another health care facility. The general practitioner generally calls and informs the staff at the respective medical facility about the condition of the patient prior to the referral. At the end of each session, the general practitioner records the scope and nature of each visit by hand in the book of registration, which functions as a sort of data filing system and is brought to the health post by the physician. On several occasions, the general practitioner may undertake home visits to patients, who are unable to walk to the health post, or may visit community members at home after service hours, usually in response to invitations received from the patients, in order to maintain personal relationships. Community physicians have long been actively involved in family and village matters and have held an integral position as communal advisors. Although general practitioners active in rural Crete today are only to some extent obliged to conform to communal norms and values, they continue to have a high social status within the community, upon which they are treated with respect and honour as well as with a sense of distance (*cf.* Blum & Blum 1965; Koutis *et al*. 1991; Van der Hoeven 1992; Koutis *et al*. 1993; Van de Kerk 1993; Wondimu 1993; Hagoort 1998; Molenaar 1999; Bouma 2000; Palstra 2003; Liangas & Lionis 2004; Lionis 2004 *et al*.; Davaki & Mossialos 2005; Dijkstra 2005; Trigoni *et al*. 2008; Clark 2011; Oikonomou *et al*. 2011) (6.14). As Clark (2002: 356) observes: '*A pervasive mistrust of modern physicians and their methods exists paradoxically alongside enormous enthusiasm for them*'.

The general practitioner is the chief distributor of pharmaceutical medicines on prescription in Crete. Representatives of pharmaceutical companies regularly visit rural posts in a way to present new medicines to the practicing physician and to hereby expand their activity radius. General practitioners usually associate with particular pharmaceutical companies and hereby come to play a rather crucial role in the distribution of pharmaceutical medicines. In view of the economic dimension of medicine distribution, modern health care providers at times adopt patterns of prescribing, which are cost-effective rather than evidence-based. In general, the physician issues medicines by means of writing a prescription into a booklet, which the patients usually bring along to the consultation, commonly in a correspondent bag, and which contains information on the medical history, health condition and previous medicine use of the patient. In this way, it is rather common practice among patients to consult the general practitioner, at times through engagement of a third person, without being examined for the sole reason of receiving or renewing prescriptions. As Lionis & Philalithis (2008: 320) indicate: '[…] [*There*] *is empirical evidence from rural Crete that the bulk of the work of rural health centres is devoted to repeat prescriptions, often through a third person, usually a family member or a friend*'. Previous studies, which have been conducted in Crete, have moreover demonstrated that patients to some extent buy medicines in order to satisfy the physician, to whom patients are generally connected through a close social network. In the same fashion, general practitioners may at times engage in certain practices, which aim at reducing the financial burden the purchase of medicine occasionally places on, particularly older, patients by means of: deliberately issuing prescriptions for cheaper pharmaceuticals; prescribing medicine, which is otherwise available over the counter; or omitting a specific issuing date on the prescription, thereby allowing the patient to pay the fee when money is at hand (*cf.* Tzimis *et al*. 1996; Hanepen 1997; Hagoort 1998; Liangas & Lionis 2004; Davaki & Mossialos 2005; Mossialos *et al*. 2005; Antonakis *et al*. 2006; Alexopoulou *et al*. 2007; Lionis & Philalithis 2008; Oikonomou & Mariolis 2010; Skliros *et al*. 2010; Kentikelenis & Papanicolas 2011; Kontarakis *et al*. 2011; Sbarouni *et al*. 2012; Tsiligianni *et al*. 2012). Although guidelines for prescribing have recently been introduced, Kentikelenis &

Papanicolas (2011: 4) state that: '[…] *progress in adopting e-prescriptions has been slow, the publication of a recommended price list for medicine was postponed, pharmacy rebates are below target, prescribing guidelines are not yet adopted and generic prescribing is around 12.5%, well below the target of 50%*'.

Although general practitioners form the primary source of modern health care delivery in rural Crete, a number of contracted specialists, such as cardiologists, orthopaedists, dermatologists, gynaecologists and internal specialists, who are generally paid on a salaried basis, function as modern health care providers in Greece. While the number of general practitioners active in Greece is rather limited, the country reportedly has one of the highest ratios of specialised physicians per inhabitants among the countries of the European Union. Rural health centres are generally staffed by a team of physicians, who are specialised in fields such as general practice, surgery, paediatrics, midwifery or dentistry. The inhabitants of Pirgos, for example, commonly consult the paediatrician employed at the health centre in Kharakas whereas the inhabitants of Praitoria visit the health centres established in Kharakas and Mires for paediatric care. In the same fashion, dental care is frequently sought at the rural health centre, whereby at least two dentists are, in this case, active in the community of Pirgos. In this way, the availability of dentists in the research area may reflect the high rate of dentists, which has similarly been recorded for Greece. The majority of modern health care providers, who are specialised in fields other than general practice, however, follow their occupations in urban areas and are employed either full-time at public hospitals, part-time at primary care centres offered by social insurance funds or autonomously at office-based facilities. To some extent, modern health care providers offer their services at more than one public facility at once or sustain an additional employment in the private sector (6.15). Owing to the fragmentation of the National Health Care System in Greece, numerous specialists have multiple jobs or change jobs frequently, thereby causing a lack of continuity of care, which prompts patients to adopt practices of self-referral. As Mossialos *et al*. (2005: 161) show: '*There is limited professional satisfaction for doctors or patient satisfaction because of the lack of continuity of care, limited user friendliness and inconvenience* […]'. Modern health care providers, notably University physicians, can moreover have a rather powerful influence on political matters, such as government and health policies (*cf.* Van Bommel 1993; Davaki & Mossialos 2005; Symvoulakis *et al*. 2006; Mariolis *et al*. 2008; Lionis *et al*. 2009; Notara *et al*. 2010; Oikonomou & Mariolis 2010).

In contrast to the oversupply of medical doctors, who are specialised in fields other than general practice, the provision of modern health care in Greece furthermore involves a severe shortage of nurses. The nurse personnel are usually faced with reduced possibilities of continuous education, a lack of guidelines and management, as well as the absence of a centralised national unit, which is directed at the organisation of the nursing staff. While the staff employed at rural health centres commonly includes one or two nurses, the nursing personnel active in Crete form an almost exclusively female group of workers, who at times encounter difficulties in balancing employment with family obligations. In addition to nurses, the provision of modern health care in the research area moreover encloses the activities of social workers, psychologists, microbiologists, lab assistants and administrative personnel, who are employed at rural health centres as well as at urban health care institutions. In view of the brief description of modern health care providers active in the research area, the delivery of modern health care is to some extent based on the collaboration of providers, who manage a network of health care facilities and offer primary, secondary and tertiary care (*cf.* Bouma 2000; Lionis *et al*. 2004; Davaki & Mossialos 2005; Mossialos *et al*. 2005; Markaki *et al*. 2006; Trigoni *et al*. 2008; Lionis *et al*. 2009; Notara *et al*. 2010; Oikonomidou *et al*. 2010; Kentikelenis & Papanicolas 2011; Sbarouni *et al*. 2012).

In view of the different types of modern health care providers, who offer their services to the inhabitants of the research area, the community members perceive the accessibility, namely the geographical approachability, of institutions of the modern medical system to be rather easy (*cf.* Table 6.13).

Table 6.13 Distribution of the Accessibility of Institutions of the Modern Medical System perceived by the Household Members of the Sample over the Two Research Communities (N=656).

Accessibility	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
very difficult accessibility	4	0.8	0	0.0	4	0.6
difficult accessibility	11	2.2	8	5.0	19	2.9
average accessibility	11	2.2	8	5.0	19	2.9
easy accessibility	416	84.0	117	72.7	533	81.2
very easy accessibility	53	10.7	28	17.4	81	12.3
no institutions mentioned	0	0.0	0	0.0	0	0.0
Total	495	100.0	161	100.0	656	100.0

The vast majority of inhabitants of both research communities perceive the accessibility of institutions of the modern medical system as easy (81.2%, n=533) or very easy (12.3%, n=81). The ready availability of a rural health post in both research communities as well as the relative vicinity of the rural health centre in Kharakas and the overall availability of modern health care facilities in Iraklion may stimulate the perception local inhabitants have of the accessibility of the modern medical system. In the research area, the local bus service, which connects the rural communities to Iraklion, moreover charges only half of the ticket price to passengers, who travel to Iraklion to visit the health care facilities. Additionally, a privately owned taxi services, which operates between Pirgos and Iraklion and stops in Praitoria on the way, offers inhabitants the possibility to travel to Iraklion.

The accessibility of the modern medical system has elsewhere been associated with the disease profile of particular population groups in Greece. Undersupply and inaccessibility of modern health care facilities reportedly contribute to the prevalence of particular conditions, such as hypertension or obesity, among the inhabitants of rural high-altitude areas (*cf.* Tyrovolas *et al*. 2011). Following the overall perception that the modern medical system is easily accessible, the modern health care services, which are provided to the population of rural Crete, are almost exclusively curative. Means of preventive health care delivery are mainly concentrated in urban areas and have remained largely unknown to patients, who seek care from rural health posts and health centres. The widespread absence of preventive modern health care is advanced by the isolation of rural health care facilities, as well as by the unequal distribution of transport facilities and clinical specialists, including nurses, between rural and urban areas. Although modern health care providers in Greece appear to actively engage in medical research, as evidenced by the collection of demographic data by the ESI every ten years, and hereby generate a considerable amount of information, which can be valuable for the expansion of preventive health care delivery, the modern medical system available in rural Crete emphasises primarily on curative medicine rather than on disease prevention, health promotion or home care (*cf.* Fioretos & Schersten 1991; Koutis *et al*. 1991; Isacsson *et al*. 1992; Bouma 2000; Liangas & Lionis 2004; Belos *et al*. 2005; Trigoni *et al*. 2008; Lionis *et al*. 2009; Oikonomou & Mariolis 2010; Oikonomou & Tountas 2011b; Sbarouni *et al*. 2012). Although they widely abstain from delivering preventive modern health care, modern health care providers, particularly community physicians, may occasionally acknowledge and recommend forms of transitional or traditional medicine. Modern health care providers are not only actively involved in the distribution of prescribed pharmaceutical medicines, but may occasionally also recommend an OTC medicine to the patient. In the same fashion, providers of modern health care may at times encourage the use of MAC plants for certain conditions (*cf.* Hagoort 1998).

Notes

(6.1) In the same fashion, the inhabitants of rural Crete have shared the common belief that modern health care providers have been unable to cure a number of modern diseases, such as cancer, HIV/AIDS, arthritis, diabetes, meningitis, hypertension and heart as well as psychological disorders (*cf.* Van der Hoeven 1992).

(6.2) The translation of '*Yiatrosofia*' or '*Iatrosofia*' into 'Medical Wisdom' is adapted from Clark (2002). The singular form '*To Yiatrosofi*' is defined as '*Praktiko Farmako*', 'practical medicine' by Mandala (1993).

(6.3) According to key-informants of both research communities, the work of Bazeou (2011) provides one of the most valuable sources of information on the application of MAC plants. In brief, the following books have reportedly been consulted by villagers upon seeking advice on the use of MAC plants: Alibertis, A. (2010). *Votana tis Kritis: Idiotites & Khrises ton Fiton*. Iraklion: Mystis Ekdhosis; Bazeu, K. (2011). *100 Votana 2000 Therapies*. Peristeri: Ekdhosis Bazeos; Sfikas, G. (1999). *Aghrioluluda tis Kritis*. Athens: Efastathiadis Group A.E.

(6.4) In this respect, it is crucial to mention that the present classification is not only restricted in its geographical sense, but is also limited in its general applicability as the categories have been constructed on the basis of information gathered individually from local key-informants rather than following a quantitative research approach.

(6.5) In addition to the 20 MAC plants presented in Table 6.4, Appendix V provides an overview of all 124 MAC plants, which have been reported by the local population during the time of the surveys. The plants are presented in a table, in which they are listed alphabetically in reference to their local name.

(6.6) The slightly different *Origanum heracleoticum* L. has occasionally been misapplied as a synonym to the species of Oregano mentioned here (*cf.* Rackham & Moody 1996; Alibertis 2009).

(6.7) Health promoting effects in the form of aromatherapy have been ascribed to the fluids of plants, which are released at the time of collection (*cf.* Legel 1998).

(6.8) While Blum & Blum (1965) report that the consumption of horse beans, '*Kukia*', reportedly has a rather positive effect on the health of pregnant women, a more recent study carried out in the Municipality oy Ayios Vasilios, Crete, has shown that the consumption of horse beans during pregnancy is perceived to be unhealthy (*cf.* Van Bommel 1993).

(6.9) Appendix VII offers an example of a prayer entitled '*Efhi kata tis Vaskanias*', 'Mercy on the Evil Eye', which is directed at the treatment of the 'evil eye'.

(6.10) At times, the patient may fall asleep during prayers, whereby it is said that cure can be found through dreams (*cf.* Kain Hart 1992).

(6.11) In this respect, a previous study carried out in Spili, Crete, on patterns of utilisation of commercial pharmaceutical medicines has shown that pharmacists occasionally use the relationship they entertain with the community physician in a way to help their clients, namely to reduce the financial burden the acquisition of medicines can bear for local inhabitants. In an attempt to lower the price of medicines, the pharmacist may ask the medical doctor to issue a prescription for a certain pharmaceutical, thereby referring the client to the physician or to prescribe a cheaper product. The study moreover indicated that a gap existed between official regulations and local patterns of medicine distribution. In view of these results, it is suggested that the provision of transitional health care in rural Crete would be hindered by social and economic inequalities if the rules of medical conduct have been applied. Transitional health care providers reportedly form part of a social network, in which their responsibility reaches beyond the mere issuing of medicines (*cf.* Hanepen 1997).

(6.12) The 'General Practitioner' refers to a physician, who is specialised in the field of general practice, elsewhere known as family practice or family medicine, which advances comprehensive primary health care delivery and specifically emphasises the family unit (*cf.* Britannica 2013). In other words, the general practitioner is '*a doctor based in the community who treats patients with minor or chronic illnesses and refers those with serious conditions to a hospital*' (*cf.* Oxford Dictionaries 2013).

(6.13) The quality of modern health care delivery in rural areas has hereby been affected by the lack of clinical experience of the practitioners. In this respect, a number of studies conducted in rural Crete have demonstrated that since they had to annually adjust to a new a mainly inexperienced physician, patients at times experienced difficulties in building trust in the general practitioner (*cf.* Van Bommel 1993; Hagoort 1998; Oikonomou & Mariolis 2010).

(6.14) Although the inhabitants of Pirgos and Praitoria have been fairly satisfied with the presence of the two general practitioners, they admitted to certain complications, which occurred when one of the physicians took maternity leave. Since no temporary position was created, the remaining physician had to cope with an increased workload, while visits to the community of Praitoria have been reduced to once every two weeks.

(6.15) Since employment at facilities offered by social insurance funds is usually poorly paid, physicians, who are under contract to these funds, may at times use their position to recruit patients for their private practices (*cf.* Davaki & Mossialos 2005).

Chapter VII COMMUNITY HEALTH CARE IN CRETE

Following a detailed description of the different medical systems available to the population of Pirgos and Praitoria, this chapter deals with the health profile and prevalence of disease, as well as with the general patterns of transcultural health care utilisation behaviour developed by the sample population. On the whole, Crete has since the second half of the 20th century formed an environment, which is rather attractive to scholars studying the health and disease profile of particularly rural inhabitants. The remarkably low rates of heart disease, which have been recorded among the population of Crete during research conducted in the mid-20th century, have stimulated successive research on local patterns of health and healing. In this respect, the present chapter identifies the prevalence of disease in Crete from a historical perspective and relates past findings to current features. In particular, this chapter gives an overview of local practices adopted by the inhabitants in Pirgos and Praitoria today in a way to promote health and presents local ideas about the causes of illness as well as a classification of illnesses, which are reported by the target population at the time of the surveys.

Hereafter, the general health status of the respondents and the prevalence of disease in the research area, which are measured over a recall period of 12 months preceding the surveys, are illustrated. The data provide a sound basis for the subsequent description of patterns of transcultural health care utilisation behaviour reported by the local inhabitants. In particular, this chapter assesses the overall utilisation rate of the plural medical system among all household members of the sample and in this way identifies not only patterns of multiple utilisation and practices of 'non-action' but also 'internal' and 'external' action and the role played by the illness management group. In addition, the patterns of utilisation of each medical system available in the research area are described. On the whole, this chapter focuses on the prevalence of disease in the research area and on the relation between perceived morbidity and the illness behaviour of all 'patients' of the sample. Although the present research accumulate a vast amount of data on the patterns of transcultural health care utilisation behaviour shown by all household members, findings on the local prevalence of disease are not sufficient for an overall explanation of the variations in people's behaviour. As Slikkerveer (1990: 232) notes: '*The variation in the extent to which patients use the plural medical system indicates* […] *that illness behaviour cannot solely be explained by an analysis of perceived morbidity and that other factors play a key role in addition to the nature and perception of illness*'. In this way, the present chapter provides a solid foundation for the subsequent analysis of patterns of illness behaviour on the basis of the multivariate model of transcultural health care utilisation.

7.1 Health and Illness in Rural Crete

7.1.1 General Profile of Health and Disease

In Greece, the average life expectancy at birth is estimated to be at 81 years for both genders, namely 79 years for men and 83 years for women, in 2011. The same year, the crude death rate per 1.000 inhabitants reportedly amounted to an average of 9.2 deaths, whereby the adult mortality rate, that is the probability of dying between 15 and 60 years of age, per 1.000 inhabitants is estimated to be at the medium of 73 for both genders. In particular, the average adult mortality rate for men amounted to 102 cases, while the medium rate for women is determined at 43 cases in 2011. The average child mortality rate, which refers to the probability of death per 1.000 live births, came to an under-five mortality rate of 5, an infant mortality rate of 4 and a neonatal mortality rate of 3 in 2012. While infant mortality has decreased significantly in Greece over the past 30 years, the causes of death of children under the age of five have primarily been associated with certain perinatal conditions. The maternal mortality rate per 100.000 life births are estimated to be at a medium of 3 in 2010. The crude birth rate reportedly stood at an average of 10.02 births in 2011, whereby the fertility rate amounted to a medium of

1.51 the same year. In line with the statistical data reported for Greece, the average life expectancy of the population of Crete at birth is measured at 81.4 years for both genders in 2011, whereby men and women reportedly reached an average age of 79.0 and 83.9 years respectively. Furthermore, the crude mortality rate for the population of Crete is ranked at a medium of 8.9 deaths per 1.000 inhabitants in 2009, whereby the mortality rate for men stood at 4.79 deaths and the mortality rate for women amounted to 4.11 deaths. The same year, the average child mortality rate per 1.000 live births for Crete totalled an infant mortality rate of 1.89 deaths and a neonatal mortality rate of 0.88 deaths. The data recorded for the population of Crete in 2009 moreover revealed that the number of life births per 1.000 inhabitants came to a medium of 13.01 births, notably the highest in Greece. In 2011, the average fertility rate in Crete is estimated to be at 1.7 (*cf.* Economou 2010; Eurostat 2013; *Iyionomikos Khartis tis Elladas* 2013; WHO 2013a; 2013b; 2014a).

In view of the average rates of life expectancy and mortality, which have been recorded for the population of Greece, as well as Crete in particular, an analysis of the main causes of death identified in Greece between 1990 and 2008 has shed light on the disease profile of the country (*cf.* Table 7.1).

Table 7.1 Main Causes of Death in Greece between 1990 and 2008 (standardised mortality rates/100 000 population).

Cause	1990	1995	2000	2005	2008
All Causes	739.87	719.01	704.65	641.96	595.53
Infectious and Parasitic Diseases	4.63	4.62	3.45	4.51	5.79
Tubercolosis	1.25	0.77	0.60	0.54	0.45
Malignant Neoplasm	158.85	163.74	163.34	160.49	157.18
Trachea/Bronchus/Lung Cancers	39.31	39.15	39.40	38.29	38.65
Malignant Neoplasms - Female Breast	21.26	22.74	21.63	21.70	21.67
Mental and Behavioural Disorders	6.63	9.40	9.92	8.30	8.69
Diseases of the Circulatory System	370.84	353.84	338.38	293.57	258.83
Ischaemic Heart Disease	95.59	91.71	87.45	78.78	67.28
Acute Myocardial Infarction	63.60	64.00	58.10	49.00	47.00[a]
Cerebrovascular Diseases	134.41	128.01	118.99	99.11	81.18
Diseases of the Respiratory System	39.35	39.78	51.84	48.37	53.45
Diseases of the Digestive System	17.89	18.29	17.69	15.46	14.56
External Causes	40.37	39.23	36.77	33.70	29.64
Transport Accidents	21.30	21.46	18.99	16.45	14.09

[a] Data for Year 2007.
Source: Economou (2010).

The population of Greece shares rather distinct patterns of morbidity, which are characterised by the prevalence of specific medical conditions, such as diseases of the circulatory system, malignant neoplasm, cerebrovascular diseases or ischemic heart diseases. Cases of tuberculosis and rates of mortality from HIV/AIDS have dropped significantly over the past decades although an increase in HIV/AIDS infections among injecting drug users has recently been reported. While traffic accidents have remained the primary cause of premature mortality, recent economic developments in Greece, which have created a rather poor and unstable living environment, have stimulated the prevalence of psychological conditions, such as depression. In this respect, a variety of studies have demonstrated that the inhabitants of Greece exhibit an overall rather excessive behaviour, which relates to an extensive consumption of tobacco and alcohol, as well as to unhealthy dieting habits. Unsound patterns of nutrition are the result of an increasing abandonment of the Mediterranean Diet, which is provoked by the recent socio-economic developments and has further been aggravated by the current financial crisis. In view of particular cultural habits and socio-economic developments, the Greek population has recently experienced an increment in health risk factors, such as high levels of cholesterol, hypertension

and obesity, which have come to shape the general profile of health and disease in urban as well as rural, high-altitude areas. By consequence, the inhabitants of Greece have become increasingly prone to diseases of the circulatory system, cerebrovascular diseases and ischemic heart diseases (*cf.* Blum & Blum 1965; Koutis *et al*. 1993; Bertsias *et al*. 2003; Mossialos *et al*. 2005; Lionis *et al*. 2009; Economou 2010; Tyrovolas *et al*. 2011; European Centre for Disease Prevention and Control 2013).

In line with the morbidity profile of Greece, the population of Crete has recently encountered an increase in health risk factors, which cumulated in an overall prevalence of diseases of the circulatory system. Prior to such developments, the inhabitants of Crete have, however, long provided a striking example of a population group, which shares healthy patterns of living and dieting and demonstrates a comparatively high rate of longevity. The disease profile of the Cretan population has throughout history been subject to numerous changes, whereby regionally distinguished patterns of disease have been identified as early as during Minoan and Byzantine times. Although the archaeological evidence, which had been gathered from human skeletal remains, had its limitations, it has nevertheless shed light on nutritional habits, as well as on regional patterns of health and disease shared by the Minoan and Byzantine civilisation of Crete. More recently, remarkably low rates of mortality from ischemic heart disease and cancer have been recorded in Crete, notably in comparison to other population groups in Europe, and have attracted great scholarly interest (*cf.* Arnott 1996; Fioretos & Schersten 1991; Kafatos *et al*. 1991; Lindholm *et al*. 1992; Simopoulos 2001; Bourbou 2003; Karalis *et al*. 2007; Bourbou 2010; Papandreou 2012). As Lindholm *et al.* (1992: 291) conclude: '*The population of Crete is of great interest from a public health point of view, since their mortality from ischaemic heart disease has been shown to be very low*'. The lowest rates of mortality and morbidity from heart disease, which have been analysed during a study carried out among seven countries between 1957 and 1960, have been recorded among a sample of men living in rural Crete. Possible reasons for the low prevalence of heart disease have been related to: the generally low level of cholesterol concentration among the population of Crete; the high physical activity of the majority of research subjects, who have the occupation of farmer, notably without receiving mechanical assistance; and the adherence of respondents to the traditional Cretan diet, which is low in saturated and high in mono-unsaturated fat, includes the intake of antioxidant plants and incorporates a number of fasting periods and days. Following the results gained from the Seven Countries Study, the patterns of living and dieting, which have been shared by the Cretan sample, have since been advocated as ideal methods of disease prevention and health promotion. Moreover, the population of Crete has become subject to further research conducted on the prevalence of diseases of the circulatory system, whereby significant changes in the health and disease profile of the inhabitants of Crete have since been identified (*cf.* Kafatos *et al*. 1991; Lindholm *et al*. 1992, 1993; Lionis *et al*. 1993; Voukiklaris *et al*. 1996; Kafatos *et al*. 1997; Lionis *et al*. 1998b; Moschandreas & Kafatos 1999; Simopoulos 2001; Sarri *et al*. 2004; Karalis *et al*. 2007; Vardavas *et al*. 2009; 2010; Papandreou 2012; Hatzis *et al*. 2013).

Recent socio-economic, cultural and scientific developments, which have led to an overall growth in prosperity, advancing competitiveness and materialism and creating a general shift from employment in the agrarian sector towards employment in business, notably the tourist sector, have introduced an increase in health risk factors. As Lindholm *et al*. (1992: 296) observe: '[…] [*The*] *dietary pattern and lifestyle in general have changed in Crete in a negative way possibly linked to the economic development of Crete and Greece*'. Patterns of physical activity, which have been stimulated by farming practices as well as by walks over considerable distances, have gradually been replaced by a more sedentary lifestyle, not at least advocated by the advance of motorised vehicles. Moreover, the inhabitants of Crete have come to consume rather large quantities of tobacco and alcohol. Furthermore, the traditional Cretan diet has to some extent been abandoned, whereupon local dieting habits have changed into a high consumption of saturated fat in the form of meat and cheese, and a low energy intake. Research has also shown that younger inhabitants are more likely to abandon the traditional dieting habits.

The recent change in patterns of behaviour has amounted to an increase in health risk factors, such as high levels of cholesterol, hypertension and diabetes, as well as to a prevalence of a high body mass index and obesity. Several studies demonstrate that hypertension and diabetes increased with age and commonly occurred among population groups aged 45 and older. High rates of diabetes have similarly been observed among female inhabitants in particular. In the same fashion, a high body mass index is observed among the female population of rural Crete, as women continue to look after their children and households and are as such less exposed to intense physical activity. Geographically, the highest rates of obesity and overweight in Greece have been recorded among the farming population living in the Mesara Plain in Central Crete in close vicinity to the research area. In view of the widespread occurrence of health risk factors, the health and disease profile of the Cretan population has recently deteriorated and has come to be characterised by a high prevalence of diseases of the circulatory system. As Lionis *et al*. (1993: 302) highlight: '[…] [*It*] *seems as if the incidence of ischaemic heart disease is increasing and that the Cretan population is no longer "immune" to this disease*'. Patterns of co-morbidity, in which a high body mass index reportedly forms the strongest predictor of developing hypertension and in which patients suffering from diabetes are more likely to contract hypertension and ischemic heart disease, have been observed. While the occurrence of health risk factors has been associated with a growing mortality from diseases of the circulatory system among the population of Greece, mortality rates have been comparatively low in Crete although events of death have occasionally been ascribed to the prevalence of diseases of the circulatory system (*cf*. Van Beelen 1990; Kafatos *et al*. 1991; Lindholm *et al*. 1992; Van der Hoeven 1992; Lindholm *et al*. 1993; Lionis *et al*. 1993; Renaud *et al.* 1995; Lionis *et al*. 1996; Tzimis *et al*. 1996; Voukiklaris *et al*. 1996; Kafatos *et al*. 1997; Hagoort 1998; Molenaar 1999; Moschandreas & Kafatos 1999; Bouma 2000; Lionis *et al*. 2001; Van den Akker 2002; Bertsias *et al*. 2003; Karalis *et al*. 2007; Panagiotakos *et al*. 2008; Vardavas *et al*. 2009; Lionis *et al*. 2010; Vardavas *et al*. 2010; Papandreou 2012).

Apart from diseases of the circulatory system, growing rates of mortality from cancer, primarily affecting the gastrointestinal, the urinary and the respiratory system, have been recently recorded among the population of Crete. Disorders of the bones, joints and muscles have commonly occurred in rural Crete, where they have been associated with the harsh working hours and intense physical activity of farming practices. Archaeological evidence suggests that the male population of Byzantine Crete has similarly been exposed to a demanding lifestyle, which is based on difficult working conditions, environmental stress, hard work to be carried out inside and outside the household, as well as on the experience of violent attacks, thereby provoking a high prevalence of joint diseases. Although the Byzantine civilisation adhered to a diet, which is high in plant tissue and low in carbohydrates, notably exerting a positive effect on oral hygiene, unhealthy nutritional patterns and dental conditions reportedly caused a number of diseases, such as scurvy (*cf*. Molenaar 1999; Simopoulos 2001; Bourbou 2003; Vardavas *et al*. 2009; Bourbou 2010; Vardavas *et al*. 2010; Papandreou 2012; Hatzis 2013).

Archaeological remains indicate that infectious diseases, such as dysentery, hookworm and tetanus, have been present among the civilisations of Minoan and Byzantine Crete. The population of Minoan Crete reportedly suffered from unhealthy living conditions, including overcrowding, poor sanitation and contaminated drinking water, which emerged from the high concentration of people living in small but densely populated urban areas outside the ancient palaces. Trading activities overseas may moreover have contributed to the spread of infectious organisms imported from abroad to the Minoan civilisation. With the exception of the inhabitants, who resided in the ancient Minoan palaces and enjoyed rather high standards of health and sanitation at the time, it is assumed that the population living in rural areas was considerably healthier than the inhabitants of urban centres. In Byzantine Crete, the population has reportedly been faced with poor standards in health, nutrition and hygiene, as well as with inadequate care and a restricted access to medical treatment. Also, poor maternal health and improper management of complications during pregnancy and delivery, for example, resulted in

rather high rates of child and infant mortality. More recently, reports of travellers, who visited the region during the 18th century, shed light on the presumably endemic prevalence of malaria in various parts of Greece, including Crete, whereby cases of malaria reportedly occurred well until 1947. In the same fashion, leprosy remained common in Crete until the mid-20th century, whereby the Island of Spinalonga off the north coast of Crete next to the town of Elunda was used as a leper colony for patients from Crete and Greece as well as beyond between 1903 and 1957. The island not only had one of the last active leper colonies of Europe, but has since its closing also become an attractive tourist destination and a popular subject in modern Cretan culture. From the different infectious diseases, including malaria, leprosy or anthrax, also referred to as 'the bad pimple', which have affected the population of Crete since the earliest days of human settlement, gastroenteritis has continued to present a common medical condition among particularly rural inhabitants. Furthermore, a high prevalence of Hepatitis A is recorded among younger age groups living in Southern Crete. The elevated levels of Hepatitis C antibodies, which are likely to have contributed to the growing number of hospital discharges of patients suffering from liver diseases, have been observed among older age groups (*cf.* Arnott 1996; Rackham & Moody 1996; Lionis *et al*. 1997; Bourbou 2003; Lionis *et al*. 2005; Papadopoulos 2009; Bourbou 2010).

The prevalence of certain diseases of the digestive system, such as dyspepsia or irritable bowel syndrome has, however, been relatively low among the population of Crete. The rather uncommon occurrence of these conditions is related to the beneficial effect of people's socio-cultural environment and nutritional habits on their health. The female inhabitants of Crete have reportedly been exposed to a number of diseases, including conditions related to pregnancy and childbirth, urinary incontinence and sexually transmitted diseases, which are frequently contracted by the generally older husbands during their previous relationships. Since the inhabitants of rural Crete to some extent marry within the community, the population has been exposed to a number of hereditary disorders. In the same fashion, mental disorders, such as depression, which are rather common among the population of Greece at large, have also been recorded among the inhabitants of Crete and have been related to the loneliness, which people experience after the loss or absence of family members. Furthermore, the population of rural Crete has suffered from feelings of stress, general tiredness and exhaustion, which to some extent are caused by the harsh working hours and intense physical activity involved in farming practices. As the result of the current difficult economic development in Greece, the Cretan population has recently been confronted with a growing prevalence of certain mental conditions, such as anxiety, depression and stress, which are caused by the general fear of inability to secure one's income and personal future. While accidents are reportedly a rather common cause of death among the civilisation of Byzantine Crete, the inhabitants of contemporary Crete continue to be exposed to mortality and morbidity from external causes, including traffic accidents (*cf.* Van de Kerk 1993; Molenaar 1999; Bouma 2000; Lionis *et al*. 2001; Bourbou 2003; Dijkstra 2005; Lionis *et al*. 2005; 2009; Bourbou 2010).

7.1.2 The Perception and Promotion of Health

In the Greek language, the term 'Health', '*Iyia*', is commonly used colloquially during the exchange of greetings and the giving of compliments (7.1). Usage of the term 'health' in ordinary language implies a rather broad understanding of the concept of health, which goes beyond the mere explanation of feeling physically well. The doctrines of humoural medicine have defined the concept of health as an entity of a fully satisfied and balanced life. Hippocrates viewed every human as a psychosomatic unit, whereby a state of health depends on not only physical but also on social and environmental factors. As Chliaoutakis *et al*. (2002: 429) note: '*In this view, a physician's intervention aims at restoring the order of the universe rather than removing unpleasant symptoms*'. In the same fashion, the Greek Orthodox Church adopts a rather holistic interpretation of the concept of health, upon which the human body has great

significance, as every organ and its function relate to a particular spiritual condition. In this way, the female menstruation, for example, is associated with a state of pollution. Religious doctrines furthermore link a state of health to people's active participation in local community matters. In the research area, 'being healthy', '*ime kala*', is associated with a state of physical, '*fisikos*', also referred to as biological, '*violoyikos*', or somatic, '*somatikos*', and psychological, '*psikholoyikos*', well-being. In this respect, a psychological state of health is related to the 'healthy' and 'balanced' relationship, which people maintain with their family members and fellow community members, as well as with the natural and spiritual environment. A state of health appears to be influenced by the physical characteristics of each individual, as well as by the social and cultural characteristics of the community at large. In this way, the human body not only forms an aggregate, in which physical health is derived from the successful control of body boundaries, but it also forms a microcosm of the family and the community, in which boundaries must be similarly protected and controlled in order to promote psychological health. As a result, the concept of health has locally been defined as an accumulation of different components, which constitute an all-encompassing notion of being healthy (7.2). Research conducted elsewhere in rural Crete has shown that 'health' is widely acknowledged as the primary of all human needs, whereby the experience of a state of health is considered to be not only 'good' but also 'right'. Community members discuss 'health' rather openly and include the promotion of a state of health, both consciously and unconsciously, in a number of local habits and customs (*cf.* Arnold 1986; Hagoort 1998; Bouma 2000; Chliaoutakis *et al*. 2002).

In general, local practices, which are followed by the population of rural Crete in a way to maintain and promote health, also incorporate an overall principle of moderation, which may be reminiscent of the humoural doctrines. As such, a state of health is improved through various habits and customs, which are directed at the minimisation of extremes and include: dietary patterns, which are balanced in quality and quantity and involve the high intake of certain foods, such as vegetables and fruits, along with the low consumption of other products, such as red meat and sugar; the avoidance of an excessive consumption of tobacco and alcohol; adherence to considerate working hours; the prevention of stress; the escape of pollution and extreme weather conditions; the circumvention of negative emotional expressions; and the avoidance of an overall extravagant lifestyle. In addition to the avoidance of extremes, a state of health is enhanced through additional life-style factors, such as enough sleep, the maintenance of contact with the 'right' people, the regular saying of prayers and the participation in socio-religious rituals as well as the administration of vaccinations and regular health check-ups (*cf.* Blum & Blum 1965; Van der Hoeven 1992; Van Bommel 1993; Chatziarsenis *et al*. 1999; Molenaar 1999; Van den Akker 2002; Dijkstra 2005; De Vries 2007).

Traditional practices of food preparation and consumption adopted by the inhabitants of rural Crete largely pertain to the principles of the Mediterranean Diet and have as such a positive effect on human health. Overall, the beneficial influence of the Mediterranean Diet on health is documented by a number of studies on eating habits as well as on rates of mortality and longevity, which have been carried out among a variety of population groups after the Second World War. In 1948 the Greek government invited the American Rockefeller Foundation to conduct research on the nutritional habits of the Cretan population, notably in an attempt to improve the livelihood of the war-torn communities. The study demonstrates that the inhabitants of Crete maintained a dieting pattern, which was based on a high intake of quality fats, antioxidant vitamins, nutrients and fibres, and has eventually been interpreted as a fundamental cause for the remarkably good state of health reported among the Cretan population at that time. Subsequently, the 'Seven Countries Study', carried out during the 1950s and 1960s similarly demonstrates that the comparatively lowest prevalence of heart disease, which was reported for the sample population of Crete, is to some extent stimulated by local eating habits. As Koutis *et al*. (1991: 300) observe: '*It has been previously established that the disease panorama differs between countries in Northern and Southern Europe*'. Further research conducted during the second half of the 20th century revealed similar dietary patterns among population groups living

in the olive-growing areas surrounding the Mediterranean Sea, which came to constitute the so-called 'Mediterranean Diet'. As Willett *et al*. (1995: 1405S) elaborate: '*The Mediterranean diet constitutes a centuries-old tradition that contributes to excellent health, provides a sense of pleasure and well-being, and forms a vital part of the world's collective cultural heritage*'. Although the characteristics of the Mediterranean Diet differ throughout the region and more than one model of healthy eating have acknowledged that the traditional Cretan diet is identified as being particularly compatible with the maintenance and promotion of health. Local dieting habits reportedly contribute to a reduction of risk factors of cardiovascular diseases as well as to lowering rates of mortality and morbidity from conditions such as heart disease, cancer, allergies and wheezing (*cf*. Blackburn 1986; Lindholm *et al*. 1992; Van der Hoeven 1992; Van Bommel 1993; Renaud 1995; Willett *et al*. 1995; Trichopoulou & Lagiou 1997; Hagoort 1998; Molenaar 1999; Kafatos *et al*. 2000; Simopoulos 2001; Giugliano *et al*. 2002; Riley 2002; Van den Akker 2002; Sarri *et al*. 2003, 2004; Trichopoulou *et al*. 2003; Chatzi *et al*. 2007; De Vries 2007; Karalis *et al*. 2007; Lionis *et al*. 2010). As Lionis *et al*. (1998b: 1988) state: '[…] [*Epidemiological*] *evidence suggests that the association between a largely vegetarian diet and low incidence of cancer and cardiovascular disease, may be attributed to antioxidants*'.

Apart from these findings, the correlation between low rates of mortality and the close adherence to the traditional Cretan diet is reportedly more significant among the older inhabitants (*cf*. Molenaar 1999; Palstra 2003; Sarri *et al*. 2003; Trichopoulou *et al*. 2003). As Trichopoulou & Lagiou (1997: 384) point out: '[…] [*It*] *is* […] *intriguing that most centenarians in the Mediterranean region have been inclined to attribute their longevity to diet in general and to olive oil and wine - two key ingredients in the Mediterranean diet - consumption in particular*'. Although a number of socio-economic, cultural and scientific developments have recently caused a gradual abandonment of traditional patterns of food consumption, whereupon the diet of mostly younger community members is characterised by a growing intake of saturated fats, the traditional eating habits have prevailed in several, primarily rural, areas (*cf*. Trichopoulou & Lagiou 1997; Kafatos *et al*. 2000, Sarri *et al*. 2004; Chatzi *et al*. 2007).

In addition to the health beneficial effects of its components, the positive influence the traditional Cretan diet has on human health has moreover been linked to various lifestyle factors, which accompany practices of food consumption. According to Willett *et al*. (1995: 1405), health is reportedly enhanced by: '*the social support and sense of community that accompanies sharing food with family and friends; lengthy meals that provide relaxation and relief from daily stress; delicious meals, carefully prepared, that stimulate enjoyment of healthy diets; and postlunch siestas (afternoon naps) that also provide an opportunity for rest and relaxation*'.

Furthermore, the rather widespread consumption of magnesium-rich water is identified as a factor, which may advance the well-being of the Cretan population. In the same fashion, the custom of playing with '*Komboloi*', worry beads, which is traditionally maintained by men, may furthermore contribute to stress release and relaxation. Actually, the good state of health, which was recorded among the inhabitants of Crete during the 1960s, is associated with frequent physical activity, a minimal exposure to pollution and stress as well as with a then low unemployment rate. Although engagement in physical activity has since diminished and the exposure to stress has increased, not at least because of recent socio-economic developments, the inhabitants of Crete reportedly continue to recognize clear air as well as a steady involvement in intense physical activity as having a positive effect on health. Likewise, a state of health is reportedly advanced by the favourable weather conditions, to which the Cretan population is exposed. Nevertheless, extreme temperatures are considered to have a rather adverse effect whereupon it is common practice among the inhabitants of Crete to avoid extremes of heat and cold. Hereafter, people shield themselves from the sun by means of wearing hats or sitting in the shadow and generally stay inside between approximately 12 A.M. and 5 P.M. during the summer months. Concurrently, coldness is counteracted by appropriate ways of dressing as well as by means of consuming hot beverages and applying special skin balms. Overall, clothes are moreover changed on a regular basis in order to foster sanitation and promote health. Finally, the

maintenance of extended family relations and friendships, as well as participation in a tight social network, which includes the regular gatherings of men at local coffeehouses, have furthermore been identified as providing a positive contribution to the general health status of the Cretan population. As Koutis *et al*. (1993: 57) highlight: '*In fact, social support and the tightly knit social network has been suggested as one explanation for the low cardiovascular mortality in Greece.*' (*cf*. Blackburn 1986; Lindholm *et al*. 1992; Van der Hoeven 1992; Renaud *et al*. 1995; Willett *et al*. 1995; Trichopoulou & Lagiou 1997; Chliaoutakis *et al*. 2002; Van den Akker 2002; Karalis *et al*. 2007; Lionis *et al*. 2010).

Apart from social participation, church membership and religious as well as spiritual faith can act as stimuli to the maintenance and promotion of people's health. Naturally, the majority of the Cretan population rather homogenously belongs to the Greek Orthodox Church, which has a considerable influence on the health behaviour of local, particularly rural, inhabitants. The annual canon of the Greek Orthodox Church observes a number of fasting periods, which involve the voluntary abstinence from particular foods. The fasting periods cumulate in a total of 180 to 200 fasting days per year, on which adherents consume a greater quantity of plant-based meals and abstain from primarily animal-based, oil-containing and heavily processed products, such as meat, cheese, milk, eggs and olive oil (7.3). Consequently, the observance of religious fasting periods reportedly stimulates low levels of cholesterol and obesity and has a generally positive effect on the human body (*cf*. Blackburn 1986; Lindholm *et al*. 1992; Van der Hoeven 1992; Van de Kerk 1993; Renaud *et al*. 1995; Willett *et al*. 1995; Trichopoulou & Lagiou 1997; Molenaar 1999; Chliaoutakis *et al*. 2002; Van den Akker 2002; De Vries 2007; Karalis *et al*. 2007; Lionis *et al*. 2010). As Sarri *et al*. (2004: 283) show: '*The Christian Orthodox diet is an important characteristic of the Mediterranean diet of Crete, which contributes greatly to the good health and nutritional status of the population*'.

In addition to fostering physical cleansing, practices of fasting enforce willpower and discipline among the respondents. In this way, having faith and holding religious belief have been identified as factors, which encourage resoluteness and patterns of positive thinking and are hereby able to contribute to the prevention of disease. Furthermore, religious rituals, such as praying, performing sacrifices, reading omens and making a pilgrimage, as well as the administration of the sacraments of the Confession and Holy Communion, have been specified as means of protection against evil spirits, who punish the irreligious with disease, infertility or famine (*cf*. Greger 1985; Kain Hart 1992; Chliaoutakis *et al*. 2002; Lazarou & Matalas 2010). As Blum & Blum (1965: 125) theorise: '*The villager is likely to contend that life proceeds more satisfactory if one has the blessing of God, and that failure to earn that blessing increases one's vulnerability to misfortune*'. Participation in socio-religious activities and events not only strengthens communal ties, but also regulates the everyday life of community members offering a daily routine, which may limit the development of unhealthy habits. Overall, active members of the Greek Orthodox Church reportedly gain a high level of physical and mental strength, which is reinforced by healthy dietary patterns, good personal hygiene, relaxation and life satisfaction as well as by low levels of stress and anxiety. In this respect, the religious faith shared by the population of Crete is known to promote a state of health and to lower rates of morbidity and mortality (*cf*. Blum & Blum 1965; Van Bommel 1993; Chliaoutakis *et al*. 2002; Van den Akker 2002; Sarri *et al*. 2003; De Vries 2007; Lionis *et al*. 2010). Nevertheless, a number of studies have claimed that adherence to religious belief and rituals is disadvantageous at times and not always contributes to the promotion of health. As Chliaoutakis *et al*. (2002: 434), however, indicate: '*The* [*Greek Orthodox Church*]*, as do other religions in other populations, continues to play a vital role in the lives of many Greeks and its influence on health-promoting behaviour appears to be an issue that is worthy of further study*'.

7.1.3 Local Concepts of Illness

The different habits and customs maintained by the inhabitants of rural Crete in a way to prevent disease and to promote health shed light on a number of phenomena, which are locally identified as causes of illness. As Kain Hart (1992: 235) explains: '*Illness and death are often linked to the consumption of rotten foods or foods eaten under the wrong circumstances (consumed too quickly, or at the wrong time of day, eaten cold when they should have been hot, or warm when they should have been cool)*'. To some extent, local ideas of the particular causes of illness are rooted in the doctrines of humoural medicine. Cited in Schiefsky, Hippocrates (2005: 79) concludes: '[*If*] *foods that are too strong are ingested, the human constitution will be unable to overcome them, and from these foods themselves will come suffering, diseases, and death, while from all those foods that the human constitution can overcome will come nourishment, growth, and health*'. Likewise, the intake of heavy liquors, which stands in contrast to the rather regular consumption of beverages, such as wine, raki or beer, is believed to increase health risks. In this way, the experience of extreme feelings, such as boredom or stress, is interpreted as probable cause of health disorders, including alcoholism (*cf.* Van der Hoeven 1992; Hagoort 1998; Molenaar 1999; Van den Akker 2002). Overall, causes of illness are frequently related to an excessive lifestyle as well as to non-participation in socio-religious activities and the consequent violation of, particularly sacred, doctrines. Furthermore, particular groups of community members, such as young mothers as well as spiritual agents, are believed to be able to cause great harm or to bring death to others. Illness can, however, also be stimulated by external crises, which interrupt daily routines and cause anxiety about the future (*cf.* Blum & Blum 1965; Van Bommel 1993). In brief, the following phenomena have been identified as potential causes of illness among the study population:

1. Environmental and local living conditions, including extreme weather conditions and changes, insufficient heating or lighting, a lack of furniture, bare floors, external bathrooms and exposure to harsh working hours;
2. Age and heredity;
3. Poor personal hygiene and failure of taking care of oneself;
4. Bad smells and the consumption of unhealthy beverages or food (7.4);
5. Addictions;
6. Extreme feelings, such as stress or anxiety as well as boredom;
7. Negative emotions, which are evoked by personal difficulties, such as family enmities;
8. Accidents and harmful actions by others, including sorcery;
9. Confrontation with feelings of jealousy, envy or competitiveness on the part of others (7.5);
10. Supernatural powers, namely the harmful intervention of religious and spiritual agents (7.6);
11. Socio-economic developments, as they advance hunger and poverty

(*cf.* Blum & Blum 1965; Van Beelen 1990; Van der Hoeven 1992; Van den Akker 2002) (7.7).

Clearly, the different causes of illness identified by the local inhabitants refer to both naturalistic and personalistic phenomena. With the exception of harmful actions by others, feelings of jealousy, envy or competitiveness on the part of others and the intervention of supernatural powers, the majority of elements cited describe naturalistic concpets of illness. Following an identification of the different phenomena, which are locally believed to offer causes of illness, the population of rural Crete distinguishes between different, notably naturalistic and personalistic, concepts of illness. As Blum & Blum (1965: 136) highlight: '[…] [*Villagers*] *may express a scientifically accepted doctrine while at the same time, on another level, they continue to hold and act on a strong and widespread magical belief*'. The inhabitants of the research area maintain ideas about different types of illness, which are embedded in the natural and cultural environment of the community and only to some extent overlap with the diseases identified in modern medical doctrines (*cf.* Van den Akker 2002).

In addition to the formulation of locally defined concepts of ill-health, events of illness reportedly inspire an array of culturally specific feelings among the inhabitants of Crete. The prevalence of mental and behavioural disorders, including hereditary conditions, such as congenital paralysis, for example, evokes a general feeling of shamefulness among the local population. In the same fashion, gynaecological conditions, including menstruation, are commonly considered to be 'dirty'. Overall, 'shameful' or 'dirty' illnesses can threaten the family honour and can stimulate social distrust and rejection as well as commitments of suicide among individuals, who suffer from these illnesses. Studies conducted elsewhere in rural Crete have indicated that the indigenous knowledge of the nature of 'shameful' disorders is, however, rather limited. The experience of leprosy, for instance, which has long been incurable and widely believed to be contagious, has been regarded as 'shameful' and prompted communities to expel the sufferers. The introduction of new therapies, as it has been the case with a number of diseases, eventually altered local perceptions. As Blum & Blum (1965: 66) argue: '[*One*] *of the most important ways for public-health authorities to overcome the many damaging social customs and dangerous health practices associated with the 'shameful' ills* […] [*has been*] *to educate villagers on the nonhereditary nature of most of these disorders and their treatability*'. To this day, villagers have nevertheless remained reluctant to discuss certain 'shameful' illnesses with their fellow community members or with the local physician whereupon the conditions to some extent lack adequate medical treatment. Furthermore, sufferers may travel considerable distances to health care facilities in order to conceal the nature of the illness from their fellow community members (*cf.* Blum & Blum 1965; Arnold 1986; Bouma 2000).

In Crete, older people, infants and women, who are pregnant or have recently given birth, as well as inhabitants, who suffer from stress or anxiety or who, for the most part, have an overall bad character, are furthermore believed to be at a greater risk of becoming ill (*cf.* Dijkstra 2005). In particular, infants and women, who have recently given birth, are widely considered to be unclean and to be particularly exposed to a number of illnesses, such as contaminations, infections and fever, as well as to be prone to the harm of evil spirits. Surely, children's diseases, for instance, are caused by both naturalistic and personalistic phenomena, which include: extreme weather conditions; exposure to cold, dirty places as well as to aggressive cleaning products; the consumption of bad food or cold, dirty water; environmental pollution in the form of both physical and mental pollution; feelings of fear and stress, which are usually inspired by the troubled relationship between the mother and her husband; and negative energies generated by others, such as the 'evil eye' (*cf.* below) (7.8). In this way, the sudden death of an infant can be the result of environmental pollution or of the consumption of unhealthy beverages or food or can be caused by the possession of the child by evil spirits (*cf.* Blum & Blum 1965; Van Bommel 1993).

In view of the local ideas about children's diseases, the Greek Orthodox Church plays a rather significant role in the protection and medical care of infants and children. In order to enhance health and protection, it is rather common for infants and mothers in, mainly rural, Crete, to introduce the child to the community only after having received the blessing of the priest and to hereby stay inside the house until the fortieth day after delivery. During the 40 days, women may decide to wear sachets filled with plants attached to their body in a way to protect the reproductive organs from harmful influences. On the fortieth day, the child is taken to church, where it is cleaned and blessed by the priest through a practice known as '*Sarantizo*', which eventually prepares the child for social interaction. Traditionally, the mother hereby kneels in the narthex of the church holding the child, while the priest says a lengthy prayer. In case that the infant is male, it is subsequently taken to the sanctuary and carried around the altar by the priest, who continues to say prayers. In case that the infant is female, however, the priest remains at a distance from the sanctuary and altar. Elsewhere in Crete, the male child moreover kisses the holy table, while the female child kisses an icon, as it is not allowed to kiss the holy table (*cf.* Arnold 1986; Kain Hart 1992; Van Bommel 1993).

In an attempt to further prevent children's diseases, such as contaminations and infections, which are caused by naturalistic elements, water from the tab, as it widely perceived to be unhealthy, is boiled before given to the child. Moreover, a relatively high percentage of children in Crete are vaccinated against infectious diseases, such as diphtheria, tetanus and polio. Research has, however, shown that vaccinations against pertussis or whooping cough are administered less frequently, presumably out of fear of possible side effects, whereupon only a minor percentage of children receive the required dosage of vaccines against pertussis. The number of vaccinations against measles, mumps and rubella has reportedly been very low mainly following the parents' belief that children would be better immunized once they had suffered from the disease (*cf.* Lionis *et al*. 1998a). As Blum & Blum (1965: 53) elaborate: '*These illnesses are considered "compulsory diseases"; children are purposely exposed to them*'. Apart from the fear of possible side effects and the belief in 'compulsory' children's diseases, compliance with a rather extensive and complex vaccination schedule and a lack of opportunities to administrate vaccinations during consultations with the physician have stimulated an immunisation profile among the population of Crete, which has remained rather inadequate despite continuous improvements. Nevertheless, rates of immunisation have recently demonstrated that the number of vaccinations administered against diseases such as diphtheria, tetanus, pertussis and measles, has increased in Greece over the past 25 years (*cf.* Arnold 1986; Kain Hart 1992; Van Bommel 1993; Lionis *et al*. 1998a; Economou 2010; WHO 2013b).

In view of the locally specific concepts of illness, as well as the different examples of 'shameful' and children's diseases, Table 7.2 introduces a classification of local illnesses, which incorporates the different types of illnesses recalled by the inhabitants of Pirgos and Praitoria over the course of fieldwork carried out in the area. The illnesses are arranged alphabetically in accordance to the respective disease categories, which have been designed by the World Health Organisation (WHO) in its 10th revision of the International Classification of Diseases (ICD) (*cf.* WHO 2014b).

The first category of certain infectious and parasitic diseases comprises the conditions of the intestinal infectious gastroenteritis and the bacterial whooping cough. Since whooping cough has locally been referred to as '*Vikhas*', 'cough', the illness needs to be distinguished from the condition of cough included in the category of symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified. In the research area, neoplasms are commonly defined as '*Karkinos*', 'Cancer'. Containing a reference to the shape of skin moles, the term '*Elies*', 'olives', is locally used to describe the benign melanocytic neavi. The subsequent category of endocrine, nutritional and metabolic diseases comprises several disorders of the thyroid and pituitary gland, including goitre, as well as a number of metabolic disorders, such as hypercholesterolemia and hypocalcaemia, whereby the latter is circumscribed as a lack of calcium, '*Asvestis*', in the body. While mental and behavioural disorders are commonly identified with the generic term of '*psikholiyiko*', 'psychological', the category furthermore includes the individual conditions of anxiety, depression and stress. Medical conditions, which are related to nervousness, nerve pain or paralysis and include disorders of the brain as well as specified diseases, such as Parkinson's disease and migraine, are classified as diseases of the nervous system. Furthermore, the category of diseases of the eye and adnexa comprises a number of specific disorders, such as conjunctivitis, optic nerve damage, strabismus and skin irritations caused by a stye. In this way, diseases of the eye and adnexa are frequently identified with the generic term of '*Mati*', 'eye', and hereby need to be distinguished from the condition of the 'evil eye', similarly referred to as '*Mati*', which is included in the category of unspecified diseases. Similarly, diseases of the ear and mastoid process are frequently circumscribed with the collective term '*Afti*', 'ear', and relate to the experience of hearing loss and earache. To a considerable extent, diseases of the circulatory system refer to heart diseases also known as 'cardiovascular diseases', namely to the incidence of a heart attack, as well as to the prevalence of tachycardia and valvular heart disease. In addition to specific heart diseases, the category comprises the conditions of high blood pressure or hypertension, thrombosis and hemorrhoids, as

well as the incidence of a stroke. The subsequent category of diseases of the digestive system includes a considerable variety of illnesses, such as allergies, asthma, bronchitis, the common cold, cough, the flu and pneumonia. Diseases of the digestive system not only relate to disorders of the bowel and gall, thereby including constipation and stomach ulcers, but also enclose conditions of the oral cavity, salivary glands and jaws, namely gingivitis and toothache. Illnesses associated with skin abnormalities, such as acne, furuncles, psoriasis and sunburn, are categorised as diseases of the skin and subcutaneous tissue.

Table 7.2 Local Classification of Illnesses (*cf.* WHO 2014b).

Disease Category	Local Name of Illness
Certain Infections and Parasitic Diseases	Ghastrenderitida, Vikhas
Neoplasms	Elia, Karkinos
Endocrine, Nutritional and Metabolic Diseases	Asvesti, Ipofisi, Kholisterini, Thireoidis, Vronkhokili
Mental and Behavioural Disorders	Ankhos, Katathlipsi, Psikholoyiko
Diseases of the Nervous System	Imikrania, Kefali, Nevro, Paralisi, Parkinson
Diseases of the Eye and Adnexa	Kritharaki, Mati
Diseases of the Ear and Mastoid Process	Afti, Varikoïa
Diseases of the Circulatory System	Emorroïdes, Engkefaliko, Kardia, Kiklos, Piesi, Thromvosi
Diseases of the Respiratory System	Alleryia, Anapnefstiko, Asthma, Gripi, Krioma/Krioloyima, Pnevmonia, Vikhas, Vronkhitida
Diseases of the Digestive System	Diskiliotita, Dondi, Elkos, Endero, Kholi, Ulo
Disease of Skin and Subcutaneous Tissue	Derma, Engkavma, Kaloyeros, Psoriasi, Spiri
Diseases of the Muscoskeletal System and Connective Tissue	Afheniki Mielopathia, Arthritida, Ghonato, Kokkalo, Mesi, Osteoporosi, Plati, Podi, Revmatismos, Spondhilos, Tenontitida
Diseases of the Genitourinary System	Nefro, Prostatis, Urolimoksi
Pregnancy, Childbirth and the Puerperium	Child Birth
Certain Conditions Originating in the Perinatal Period	Anapiria, Anapoda
Congenital Malformations, Deformations and Chromosomal Abnormalities	Nefro
Symptoms, Signs and Abnormal Clinical and Laboratory Findings, not elsewhere classified	Diarria, Emetos, Ilingos, Kefali, Kilia, Lemos, Piretos, Stomakhi, Vikhas, Zakhari
Injury, Poisoning and certain other Consequences of External Causes	Alleryia, Ematoma, Kapsimo, Pliyi
External Causes of Morbidity and Mortality	Atihima, Khtipos
Unspecified	Asvestis, Elkos, Iosi, Kistis, Mati

Hereafter, diseases of the muscoskeletal system and connective tissue are frequently identified with a reference to ailments of particular body parts, such as the back, the bones, the knees, the legs or the vertebras. The fairly diverse category, however, also comprises individual conditions, including arthritis, cervical myelopathy, osteoporosis, rheumatism and tendinitis. While illnesses related to the kidneys, prostate and urinary tract are categorised as disease of the genitourinary system, conditions associated with childbirth are found within the category of pregnancy, childbirth and the puerperium. In the research area, conditions originating in the perinatal period refer to abasia as well as to certain types of disablement, whereas the prevalence of a solitary

kidney is identified as the only component within the category of congenital malformations, deformations and chromosomal abnormalities. The subsequent category includes any symptom, sign and abnormal clinical and laboratory finding, which has not been classified elsewhere, and hereby comprises the conditions of cough, diarrhoea, headache, high blood sugar or hyperglycaemia, fever, stomach ache, throat ache and throat disorders, vertigo and vomiting. Skin allergies and burns as well as wounds and bruises are hereafter categorised as injury, poisoning and certain other consequences of external causes, while percussions and accidents, including transport accidents, are similarly classified as external causes of morbidity and mortality. Finally, the last category of unspecified illnesses comprises a variety of conditions, which have not been specified within the 10th revision of the International Classification of Diseases and include processes of calcification, the incidence of colitis, the appearance of cysts and ulcers, viral infections and the 'evil eye' or '*Mati*' presented in detail below.

The '*Evil Eye*'

The 'evil eye' refers to a type of human gaze, which is believed to be able to harm someone's life and properties, and involves both a religious belief in the devil, as well as a non-religious belief in malignant human energy. Exposure to the 'evil eye', which generally follows the interaction with a person casting the 'evil eye', can result in a rapid decrease of health. In this respect, the 'evil eye' is both physically experienced and spiritually communicated, whereby the state of bodily distress caused by the 'evil eye' is interpreted as a crossing of boundaries and a subsequent state of ill-health of the body, '*soma*', the spirit, '*pnevma*' and the soul, '*psyche*' alike. As Roussou (2011: 146) explains: '*Through practising the evil eye, they challenge the dichotomized stereotype that seems to stubbornly pursue the somatic and the spiritual*. […] *By spiritually perceiving and somatically believing the evil eye, they transcend the obstacles that stand between body, soul and spirit*'. The symptoms of the 'evil eye' cover a wide range of conditions, such as headache, dizziness, growing pains, fatigue, yawning, insomnia, stomach ache, vomiting, loss of appetite, eye-related problems, fever and general malaise. Affliction of the 'evil eye' can moreover result in sterility, miscarriage, mental illness, accidents, disabilities, complete destruction and death. In addition to physical disorders, the sufferer can experience a weak spirit and a heavy soul or a sense of spirit- and soul-loss, which is caused by the devil or by the malignant human energy. The 'evil eye' can furthermore cause damage to personal properties, including animals, houses, plants, cars or commodities, such as homemade bread or cheese (*cf.* Lykiardopoulos 1981; Greger 1985; Arnold 1986; Van der Hoeven 1992; Van Bommel 1993; Molenaar 1999; Van den Akker 2002; De Vries 2007; Roussou 2011).

In view of its characteristics, the belief in the 'evil eye', as it is identified among a number of ancient as well as modern civilisations, including the early Greco-Roman and the present-day Greek population, is specified as one of the oldest components of local belief systems in numerous communities. The belief is rather widespread and while it incorporates an abundance of local varieties, the phenomenon of the 'evil eye', characterised as one common feature among the countries bordering the Mediterranean Sea. In Greece, the 'evil eye' is commonly associated with a form of demonic energy, which is connected with the devil but lies outside the socio-religious organisation of the community and can result in personal damage. As Greger (1985: 66) theorises: '*Outside the* [*community*] *lies the numinous, the mysterious, which must be controlled by the Church, through the office of a priest. Within the Church establishment it is generally agreed that vascania exists, and is dangerous*'. In the Greek language, the 'evil eye' is known as '*Vascania*', notably a doctrinal term coined by the Greek Orthodox Church, which is almost exclusively used by religious healers. Concurrently, the 'evil eye' is referred to as '*Matiasma*', namely a practical term applied by the local population, which derives from the Modern Greek word for 'eye', '*Mati*', and is accepted by religious doctrines. Within the Cretan dialect, the 'evil eye' is occasionally described as '*Ftarmos*' or '*Thiarmos*'. In the research area, community members colloquially defined the 'evil eye' as '*Mati*' or '*Kako Mati*', 'bad eye', whereby a state of suffering from the 'evil eye' is referred to as '*ekho mati*', 'to have the eye'.

In line with the term '*Mati*', the processes of casting and curing the 'evil eye' are locally known as '*Matiazo*', 'to enchant', and '*Ksematiazo*', 'to disenchant', respectively whereupon the ritual healing process of disenchanting is described as '*Ksematiasma*' (*cf.* Herzfeld 1981; Lykiardopoulos 1981; Gilmore 1982; Greger 1985; Arnold 1986; Hagoort 1998; Van den Akker 2002; Roussou 2011).

In general, possession of the 'evil eye' refers to both the casting of the eye by the giver and the suffering from the eye by the receiver. The belief in the 'evil eye' holds that the ability to possess the 'evil eye' as a giver can be inherited and can be interpreted as a flaw of character. Nevertheless, any person under the influence of envy, jealousy, meanness or generally bad feelings is assumingly capable to cast the eye and cause damage. Throughout the Mediterranean Region, people with blue or odd eyes, as it may refer to deep-set eyes or closely spaced eyebrows, as well as strangers or monks have had the reputation of being specifically prone to transfer the 'evil eye'. Likewise, older, childless women as well as poor or physically deformed people are reportedly more likely to develop feelings of jealousy and to cast the 'evil eye'. Furthermore, menstruating women, as they are possessed by spiritual powers, can be particularly prone to, notably unintentionally, transmit the 'evil eye'. On the whole, any form of extensive praise or admiration, which is directed towards a person or object, can stimulate feelings of envy and jealousy and can invite the powers of the 'evil eye'. In this way, the eye is usually transmitted through gazing, gossiping, hearing, smelling or tasting (*cf.* Herzfeld 1981; Lykiardopoulos 1981; Arnold 1986; Van der Hoeven 1992; Molenaar 1999; Van den Akker 2002; Roussou 2011). As Blum & Blum (1965: 42) indicate: '*The one who envies* […] *is known to be dangerous. His admiration is a weapon in his hands, for it becomes the evil eye, a witchcraft force that visits illness or disaster upon the one admired*'. Although the process of casting the 'evil eye' usually involves the conscious wish of the giver to harm the other, beholders are not necessarily aware of their possession of the 'evil eye' and can fascinate others unconsciously or even unintentionally (*cf.* Blum & Blum 1965; Lykiardopoulos 1981; Greger 1985; Arnold 1986; Kain Hart 1992; Van der Hoeven 1992; Van Bommel 1993; Molenaar 1999; Roussou 2011). As Herzfeld (1981: 564) argues: '*In this way, one has the evil eye as an innate characteristic* […]*, but what gives this condition away to others is the "bad habit"* […] *of exhibiting excessive curiosity*'. Overall, habits of casting the 'evil eye' violate social norms and boundaries and present a danger to the integrity of the community whereupon inhabitants, who knowingly transfer the 'evil eye', are to a certain degree stigmatised and avoided by their fellow community members. The belief in the 'evil eye' is embedded in the socio-cultural context of the community and hereby effectuates indigenous concepts of inclusion and exclusion (*cf.* Herzfeld 1981; Van der Hoeven 1992; Van Bommel 1993; Molenaar 1999; Van den Akker 2002; De Vries 2007). In view of the specific phenomena, which can provoke a transmission of the 'evil eye', certain population groups, such as infants, pregnant women, new mothers, prominent people as well as those, who are enjoying youth and beauty, a special quantity of luck and happiness or are in a rite-of-passage, are believed to be most vulnerable to the effects of the malicious eye. Following the vulnerability of children, young mothers greatly fear the eye and adopt a number of practices, which are aimed at the protection of their children from the powers of the 'evil eye'. The practices of protection known across Greece include: the habit of strangers to spit on the face of the child in order to declare their harmless intentions, which is reminiscent of the custom of people to spit on anyone expressing admiration; smearing the blackening of a pan behind the ear of the child before it attends church in order to ward off the gaze of others; rubbing cold or lukewarm ashes on the child, while occasionally drawing a cross on its back; or attaching a blue bead to the body or clothes of the child. Showing a variation of the blue bead, the inhabitants of Greece and Crete, in particular, commonly make use of a blue-eyed amulet, which is similarly believed to enhance protection from the 'evil eye', by means of wearing it as a necklace or bracelet or by hanging it against the wall of a room or at the mirror of a car.

According to Lykiardopoulos (1981: 228), it is the aim of the eye amulet: '*to cause the harmful glance to expend its evil force on something which will be unaffected, or which may itself accept the potential harm in place of the person or thing needing protection*'. The amulet is regarded as something rather personal, whereby its protective effects are restricted to the individual. The blue colour, which is widely perceived to stimulate defensive powers against the harm of the 'evil eye', moreover finds use in the practice of painting the frames of doors and windows in blue in order to enhance protection. Apart from the blue-eyed amulet, a number of charms and items, which are commonly worn on the body or are attached to the clothes, are known in Greece and Crete for their protective nature against the 'evil eye'. In particular, these ornaments include: a range of religiously themed symbols or amulets, such as cross necklaces with mostly small, wooden pendants; particular wooden cross amulets, which are carved at monasteries out of specific types of wood, are folded, notably mixed with plants and incense, into a three-point shaped cloth and are worn underneath the clothes close to the heart, as frequently done by children; images of the Mother of God, which are attached to the clothes, as it is commonly applied to children; and small, vividly coloured pillows of a length of two centimetres in the shape of a heart with a stitched-on cross, which are made in monasteries and are worn among one's clothes.

Moreover, adults may wear the horn of a wild mountain goat as a symbol of protection from the 'evil eye'. In addition to wearing charms, the inhabitants of Greece and Crete, in particular, are familiar with a number of household products, which serve the means of protection from the 'evil eye'. These products include: salt; dormant bulbs, which symbolise the 'evil eye' but act as magic charms and are hung against the walls of houses or fences; and garlic (*Allium sativum* L.), which is similarly hung against walls or is worn among one's clothes, as frequently done by children. Resembling garlic, a white, ceramic hanger with wooden sticks attached at its bottom, of which the top symbolises the shape of the eye, can likewise be hung against walls or inside busses or cars in an attempt to ward off the 'evil eye' (*cf.* Lykiardopoulos 1981; Arnold 1986; Kain Hart 1992; Van Bommel 1993; Molenaar 1999; Van den Akker 2002; Fielding *et al*. 2005).

In addition to the different means of protection, an affliction of the 'evil eye' is commonly treated by a combination of religious and spiritual forms of medicine, which are known in Greece and Crete. Treatment practices usually involve the intermediation of one or multiple human mediators and serve, at times simultaneously, the detection and alleviation of the 'evil eye'. Known as '*Ksematiasma*', the ritual healing process is rich in religious symbolism and involves the saying of sacred prayers, while engaging the services of both religious and lay specialists alike (7.9). The prayers, which are either secret or refer to official prayers, such as the Nicene Creed or the prayers of Saint Basil or Saint Kyprianos, usually require a transmission and repetition of words between different genders, that is from woman to man or man to woman. From the array of practices, which are reportedly known as forms of treatment of the 'evil eye', the inhabitants of rural Crete commonly described the following two methods of detecting the 'evil eye': (1) the mediator drips several drops of oil into a bowl filled with water; provided that the drops unite, the subject is afflicted by the 'evil eye'; provided that the drops separate, the subject has not been afflicted by the 'evil eye'; (2) the elbow of the subject is placed in the corner and along the edge of a tea towel; the mediator sprinkles some salt on the place where the tip of the middle finger of the subject meets the cloth; the mediator grabs the tea towel at the height where the salt is sprinkled, thereby saying a prayer and making the sign of the cross with the towel grabbed in front of the subject's forehead; the operation of placing the elbow on the towel is repeated; provided the tip of the middle finger of the subject does not meet the salt, the subject is afflicted by the 'evil eye'; provided the tip of the middle finger meets the salt, the subject has not been afflicted by the 'evil eye'. In addition to these practices, the mediator can moreover detect the 'evil eye' by means of mumbling secret prayers or incantations and by making the sign of the cross repeatedly, thereby aiming at the transfer of the 'evil eye' from the subject to the mediator. If the subject is afflicted the 'evil eye', the mediator experiences a feeling of malaise and fatigue, which is usually accompanied by continuous yawning or even

crying. Through the flowing of divine energy, the mediator hereby absorbs the malaise of the subject, who in turn is expected to experience an immediate relief of symptoms.
Overall, the 'evil eye' is alleviated through invoking the powers of God through holy words and numbers and through hereby rendering the subject undesirable to demonic spirits. Cure is affected by a variety of practices, which are usually administered after or while detecting the 'evil eye' and include: the saying of secret prayers, which can also be offered over the phone; the making of the sign of the cross; the burning of incense; the administration of MAC plants; spitting; as well as the sprinkling of salted or holy water over the subject. In order to enhance treatment, the subject may moreover consume some water, which is mixed with olive oil, or may drink from a glass of water, which had been blessed by means of immersing a cross into the liquid (*cf.* Lykiardopoulos 1981; Arnold 1986; Kain Hart 1992; Molenaar 1999; Van den Akker 2002; De Vries 2007; Roussou 2011).

7.2 Reported Illnesses and related Patterns of Health Care Utilisation

7.2.1. Health and Illness in the Research Area

Following a brief description of the general profile of health and disease in rural Crete, as well as an analysis of local concepts of health and illness in the research area, this paragraph deals with the general health status and different illness episodes experienced by the sample population. Accordingly, Table 7.3 presents the distribution of the general health status of all household members of the sample according to the two research communities.

Table 7.3 Distribution of the General Health Status of the Household Members of the Sample over the Two Research Communities (N=656).

General Health Status	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
poor	35	7.1	23	14.3	58	8.8
average	65	13.1	25	15.5	90	13.7
well	395	79.8	113	70.2	508	77.4
Total	495	100.0	161	100.0	656	100.0

The vast majority of inhabitants in both research communities (77.4%, n=508) reportedly have a good general health status. 79.8% (n=395) of respondents in Pirgos and 70.2% (n=113) of respondents in Praitoria perceive their health as rather positive , whereas only 7.1% (n=35) of respondents in Pirgos and 14.3% (n=23) of respondents in Praitoria report a fairly poor health status. In view of these results, it is highly likely that local habits and customs, such as dietary patterns, social group membership and adherence to the annual religious canon, which are maintained by the inhabitants of Pirgos and Praitoria, contribute to the overall positive health profile of the sample population. In spite of the good general health status declared by the respondents, approximately half of all household members of the sample (51.5%, n=338) experienced an episode of illness during the 12 months preceding the household surveys. In particular, 59.2% (n=200) of 'patients' of the sample are female and although the numbers of 'patients' are rather evenly distributed among age groups, the highest percentages of respondents, who suffered from a disease during the recall period, are found in the age categories from 70 to 76 and 77 to 83 years. To some extent, the episodes of illness have been accompanied by a number of symptoms, of which the feeling of pain and the experience of a head cold or sore throat as well as of dizziness or fever have been reportedly the most common. Furthermore, a considerable percentage of illnesses (44.4%, n=150) have been perceived to be not severe as opposed to mildly severe (19.2%, n=65), moderately severe (19.5%, n=66) and highly severe (16.9%, n=57) by the respondents. In addition to the differences in severity of the reported illness episodes, it appears that 59.2% (n=200) of all conditions lasted longer than one month,

hereafter identified as chronic diseases, while 40.8% (n=138) of all disorders lasted less than one month, hereafter classified as acute diseases. In this way, Table 7.4 offers the list of reported illnesses, which the respondents experienced as main episode of illness over a recall period of 12 months. The conditions are listed in the middle column in a descending order following their frequency of prevalence, which is illustrated in the columns to the right. The diseases in the table are presented under reference to names accepted in the tenth revision of the International Classification of Diseases (ICD), which is elaborated by the WHO (2014b).

Table 7.4 List of reported illnesses in the Research Area (N=338) (*cf.* WHO 2014b).

	Accepted Name of Disease	Frequency	
		n	%
1	The Common Cold	79	23.4
2	Essential (Primary) Hypertension	43	12.7
3	Ischaemic or other Form of Heart Disease	19	5.6
4	Abdominal and / or Pelvic Pain	13	3.8
5	Elevated Blood Glucose Level	12	3.6
6	Back Pain or other Dorsopathy	11	3.3
7	Disorder of the Thyroid Gland	10	3.0
8	Metabolic Disorder	10	3.0
9	Influenza or Pneumonia	10	3.0
10	Pain in the Lower Limb or other Soft Tissue Disorder	9	2.7
11	Disorder of Bone, Bone Density and / or Structure	9	2.7
12	Viral Infection or other Unspecified Disorder	9	2.7
13	Chronic Lower Respiratory/other Disease of Respiratory System	8	2.4
14	Other Disease of the Digestive System	8	2.4
15	Disease of the Nervous System	7	2.1
16	Arthropathy or other Disease of the Muscoskeletal System and Connective Tissue	7	2.1
17	Dizziness and Giddiness or other Symptom, Sign or Abnormal Clinical or Laboratory Finding, not elsewhere classified	7	2.1
18	Mental and / or Behavioural Disorder	6	1.8
19	Disease of the Intestines	6	1.8
20	Disorder of Prostate or other Disease of the Genitourinary System	6	1.8
21	Disease of the Eye and / or Adnexa	5	1.5
22	Allergic Rhinitis	5	1.5
23	Disease of the Skin and / or Subcutaneous Tissue	5	1.5
24	Disease of the Ear	4	1.2
25	Certain Condition originating in the Perinatal Period	4	1.2
26	Certain Infectious or Parasitic Disease	3	0.9
27	Neoplasm	3	0.9
28	Accident	3	0.9
29	Cerebrovascular or other Disease of the Circulatory System	2	0.6
30	Injury or certain other Consequence of External Causes	2	0.6
31	the Evil Eye	2	0.6
32	Childbirth	1	0.3
33	Congenital Malformation	1	0.3
34	Unknown	9	2.7
Total		338	100

In general, a considerable number of ‘patients’ (23.4%, n=79) of the sample reportedly suffered from the common cold, also known as ‘Acute Nasopharyngitis’, during the recall period of 12 months, thereby determining the condition as the most frequently experienced disease among the

study population. Locally known as '*Krioma*' or '*Krioloyima*', notably a reference to the Greek adjective 'cold', '*krios*', the causes of the common cold have been related to cold weather conditions and changes in temperature. The symptoms of the common cold have been identified as head cold, sore throat, cough, mucous secretion, headache, pain in the body and fever as well as diarrhoea. The common cold is generally perceived to be not severe and is identified as a predominantly acute disease, which typically persists over a period of time from one to 14 days (*cf.* Van Beelen 1992).

Essential (primary) hypertension or high blood pressure, which is commonly specified as '*Piesi*', 'pressure', in the research area, accounts for 12.3% (n=43) of all illness episodes reported by the respondents. In general, the consumption of unhealthy, namely salty and greasy, food, harsh working hours, feelings of worry as well as age and heredity have been identified as causes of high blood pressure. Although 'patients' experiencing essential (primary) hypertension may display no particular symptoms, it appears that the condition has occasionally been accompanied by feelings of vertigo, anxiety, headache and general malaise. High blood pressure is predominantly regarded as not or mildly severe and has moreover been characterised as an exclusively chronic disease, which may last from five months to several years (*cf.* Van Beelen 1990).

Among the 'patients' of the sample, 5.6% (n=19) reportedly suffered from an ischemic or other form of heart disease during the recall period. Episodes of ischemic and other forms of heart disease include the incidence of a heart attack, as well as the prevalence of tachycardia and valvular heart disease. Since the prevalence of heart attacks among the 'patients' experiencing an ischemic or other form of heart disease is relatively low (15.7%, n=3), the present research links up with an earlier study conducted in Crete, which showed that albeit the fairly high risk factors for ischemic heart disease the number heart attacks has remained rather low (*cf.* Koutis *et al.* 1993). As Koutis *et al.* (1993: 57), however, add: '*Due to the increasing levels of cholesterol and other risk factors in Cretan men* […]*, one may predict that in the years to come the incidence of myocardial infarction may increase considerably*'. Research conducted in Anoyia, Crete, moreover revealed that forms of cardiovascular or heart disease are greatly feared by the local population. The causes of heart diseases have been related to the prevalence of high blood pressure and high levels of cholesterol as well as to smoking and unhealthy dietary patterns (*cf.* Bouma 2002). Although patients may at times exhibit no particular symptoms, the disorders may be accompanied by feelings of pain in the arm, shoulder or nerves as well as a racing heartbeat and anaemia. Ischaemic and other forms of heart disease are generally considered to be highly severe and since the conditions typically persist over several months or years they have been specified as exclusively chronic diseases.

Feelings of abdominal and pelvic pain, as they are categorised as symptoms and signs involving the digestive system and abdomen, amount to 3.8% (n=13) of illness episodes reported by the respondents. The experience of abdominal and pelvic pain is largely believed to be not severe and although the condition occasionally appears to last less than one month, it is specified as primarily chronic disease, which tends to persists over several years.

The prevalence of elevated blood glucose level, which is defined as an abnormal finding on the examination of blood and is commonly known as 'High Blood Sugar' or 'Hyperglycaemia', accounts for 3.6% (n=12) of illness episodes among the 'patients' of the sample. Locally referred to as '*Zakhari*', 'sugar', 'patients' experiencing elevated blood glucose levels usually display no particular symptoms but may at times suffer from feelings of vertigo, tremble and pain the arm. The perceived severity of elevated blood glucose levels is rather equally distributed, whereby the condition is considered to be not severe, mildly severe, moderately severe or highly severe. The experience of elevated blood glucose levels has moreover been characterised as an exclusively chronic condition, which commonly last for several years.

Hereafter, 3.3% (n=11) of 'patients' of the sample reportedly suffered from back pain or another dorsopathy, namely the feeling of pain in the vertebras or the prevalence of cervical

myelopathy, during the recall period. The symptoms of the disorder typically relate to feelings of pain and the inability to walk.
Furthermore, back pain and other dorsopathies are primarily perceived to be moderately severe and have been specified as predominantly chronic diseases, which persist over several months and years. Across the sample population, the prevalence of disorders of the thyroid gland or metabolic disorders, as they are examples of endocrine, nutritional and metabolic diseases, each amount to 3.0% (n=10) of illness episodes recorded. In particular, 'patients', who suffer from a disorder of the thyroid gland, either exhibit a number of symptoms, including pain, pain in the arm, anxiety, vertigo, nervousness and weakness or display no particular symptoms. The condition is commonly regarded as not severe and is identified as a primarily chronic disease lasting for years. Metabolic disorders, which relate mostly to high levels of cholesterol also known as 'Hypercholesterolemia', are likewise accompanied by no particular symptoms although 'patients' may at times suffer from vertigo. Moreover, metabolic disorders are similarly perceived to be not severe and have been distinguished as exclusively chronic diseases, which persist over years.

Episodes of influenza and pneumonia, which equally account for 3.0% (n=10) of reported disorders, generally present a variety of symptoms, such as breathing difficulties, cough, mucous secretion, fever and weakness. The level of severity of influenza and pneumonia is regarded as rather low, while the conditions, as they last mainly between two to 14 days, have been specified as largely chronic diseases.

In the research area, 2.7% (n=9) of 'patients' reportedly suffered from pain in the lower limb, namely in the legs or knees, or experienced another soft tissue disorder, such as tendinitis. While the symptoms of the conditions relate mostly to feelings of pain, the majority of 'patients', who suffer from pain in the lower limb and other soft tissue disorders, regard the condition as highly severe. Although the illness occasionally persists over a couple of weeks, the disorder is defined as primarily chronic disease, whereby episodes last from two months up to several years. Similarly representing examples of diseases of the muscoskeletal system and connective tissue, disorders of the bone, bone density and structure, which relate primarily to the prevalence of osteoporosis, equally amount to 2.7% (n=9) of illness episodes among 'patients' of the sample. Usually accompanied by feelings of pain, the conditions are generally perceived to be either moderately or highly severe and have been distinguished as exclusively chronic diseases, which typically last several years.

Among the 'patients' of the sample, 2.7% (n=9) seemingly experienced an unspecified disease, which may relate to a viral infection, to the appearance of an ulcer or cyst or to the process of calcification at large. The symptoms of illnesses, which have been identified as unspecified, range from no particular symptoms to the experience of head cold, throat ache, headache, fever, overall pain and exhaustion. The majority of illness episodes, which have remained unspecified, are considered to be not severe and have been characterised as acute diseases although the conditions may at times persist over several months.

Episodes of illness, which have been classified as chronic lower respiratory diseases or other diseases of the respiratory system, and include various conditions, such as asthma, bronchitis and cough, while excluding other diseases of the respiratory system, such as the common cold, influenza and pneumonia, account for 2.4% (n=8) of disorders reported by the respondents. The prevalence of such illnesses is usually accompanied by the experience of breathing difficulties, cough and mucous secretion. Chronic lower respiratory diseases and other diseases of the respiratory system are moreover regarded as mostly mildly or moderately severe and although episodes of illness to some extent persist less than one month, the conditions have been specified as primarily chronic diseases lasting for several years.

Across the sample population, 2.4% (n=8) of 'patients' moreover experienced a disease of the digestive system, which has not been categorised as disease of the intestines. In particular, respondents have suffered from various conditions, including stomach ulcers, disorders of the gall, toothache and gingivitis, thereby exhibiting mainly symptoms of pain. While the diseases

are commonly regarded as not or mildly severe, they have been defined as almost exclusively acute conditions, which persist over less than one month.

Diseases of the nervous system, which relate to disorders of the brain, migraine, nerve pain, nervousness, paralysis and Parkinson's disease, amount to 2.1% (n=7) of illness episodes experienced by 'patients' of the sample. The symptoms of diseases of the nervous system range from no particular symptoms to feelings of overall pain and the experience of stomach ache and headache. While the majority of respondents, who suffer from a disease of the nervous system, consider the illness to be highly severe, the conditions have moreover been distinguished as predominantly chronic disorders lasting for several years.

In general, arthropathies and other diseases of the muscoskeletal system and connective tissue, as they relate primarily to episodes of arthritis and rheumatism, exclude any condition defined as back pain or other dorsopathy, as pain in the lower limb or other soft tissue disorder or as disorder of the bone, bone density and/or structure. Studies conducted elsewhere in rural Crete have shown that arthritis and rheumatism are seemingly caused by hard work, cold weather conditions and the consumption of bad food. The diseases account for 2.1% (n=7) of all illness episodes recorded among the sample population and are usually accompanied by symptoms of back pain, as well as pain in the legs and body at large. The prevalence of arthritis and rheumatism is commonly perceived to be highly severe, whereby the conditions have been distinguished as exclusively chronic diseases, which typically persist over several months and years, and have been interpreted as causes of an overall unhealthy way of living (*cf.* Van den Akker 2002).

Among the respondents, 2.1% (n=7) furthermore suffered from dizziness and giddiness or from another symptom, sign or abnormal clinical or laboratory finding, which has not been classified elsewhere, such as cough, headache or throat ache. Clearly, the conditions are associated with feelings of dizziness and pain, as well as with the experience of cough and vomiting. The vast majority of episodes of dizziness and giddiness as well as other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified are considered to be not severe or moderately severe. The disorders are moreover defined as both acute, namely lasting for several days or weeks, and chronic, namely persisting over several months or years.

Although the results of a recent study conducted in the area around Anoyia west of Iraklion revealed a low prevalence of diseases such as anxiety, depression and insomnia, mental and behavioural disorders, which refer to anxiety, depression and stress, as well as to other unspecified mental and/or behavioural disorders, amounted to a total of 1.8% (n=6) of diseases reported by the 'patients' in Pirgos and Praitoria. In particular, the causes of depression have been linked to both boredom and stress, while a state of stress may be caused by certain socio-cultural factors, such as family enmities (*cf.* Van den Akker 2002; Antonakis *et al*. 2006). The symptoms of the conditions relate to the experience of anxiety, headache, stress and tremble. Furthermore, the perceived severity of mental and behavioural disorders is rather evenly distributed and ranges from mildly to moderately and highly severe. Any condition, which is classified as mental and/or behavioural disorder, moreover appears to last for several years and has hereafter been distinguished as exclusively chronic disease.

Diseases of the intestines, as they relate to disorders of the bowel and episodes of constipation, similarly account for 1.8% (n=6) of illnesses experienced by the respondents. Patients suffering from a disease of the intestines commonly exhibit symptoms of pain as well as toilet urge and other problems of digestion. While the conditions are usually perceived to be not severe or mildly severe, diseases of the intestines have been specified as predominantly chronic disorders although they may occasionally last less than one month.

In the research area, 1.8% (n=6) of inhabitants reportedly suffered from a disorder of the prostate or other disease of the genitourinary system, such as kidney pain, renal failure or urinary tract infections. While 'patients', who experienced a disorder of the prostate, usually displayed symptoms of bloody urine or urinary incontinence, other diseases of the genitourinary system have been generally accompanied by pain or bleeding. The level of severity of the conditions is

rather evenly distributed, whereby the conditions are perceived to be mildly, moderately or highly severe.

Disorders of the prostate as well as kidney pain, renal failure and urinary tract infections have moreover been defined as exclusively chronic diseases, which last for several years. Apart from the 20 most frequently reported illnesses in the research area, the 'patients' of the sample reportedly suffered from: diseases of the eye and adnexa, such as optic nerve damage, strabismus and the appearance of a stye; allergic rhinitis; diseases of the skin and subcutaneous tissue, including acne, the appearance of a furuncle, psoriasis and sunburn; diseases of the ear, such as hearing loss and earache; certain conditions originating in the perinatal period, namely abasia and other disablements; certain infectious and parasitic diseases, including gastroenteritis and whooping cough; neoplasms; accidents; cerebrovascular and other diseases of the circulatory system, including the incidence of stroke, which exclude ischemic and other forms of heart disease as well as essential (primary) hypertension; injuries and certain other consequences of external causes, such as skin allergies and skin burns; the 'evil eye'; disorders related to childbirth; and congenital malformations, namely the presence of a solitary kidney. In the research area, no cases of measles, mumps, chickenpox or similar children's diseases have been reported, whereby these findings are likely to be rooted in common perception that such diseases are compulsory. Although the region of South-Central Crete is generally prone to seismic activity, no casualties incurred by seismic activities have to this day been reported for the communities of Pirgos and Praitoria.

In the research area, the prevalence of certain diseases, such as abdominal and pelvic pain, viral infections and other unspecified disorders, diseases of the intestines and other diseases of the digestive system, dizziness and giddiness and other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified as well as mental and behavioural disorders is rather evenly distributed among genders. Yet, it appears that the male 'patients' of the sample experience a number of conditions, including chronic lower respiratory and other diseases of the respiratory system, ischemic and other forms of heart disease, elevated blood glucose levels as well as disorders of the prostate and other diseases of the genitourinary system more frequently than the female 'patients' (*cf.* Koutis *et al*. 1993). On the other hand, women seemingly suffer from disorders of the thyroid gland, metabolic disorders, essential (primary) hypertension, diseases of the nervous system, the common cold as well as influenza and pneumonia more commonly than men (*cf.* Koutis *et al*. 1993). Likewise, conditions such as arthropathies and other diseases of the muscoskeletal system and connective tissue, disorders of the bone, bone density and structure, back pain and other dorsopathies as well as pain in the lower limb and other soft tissue disorders affect almost exclusively female respondents. Apart from the distribution of the disease prevalence across genders, the experience of illness reportedly differs across age groups. A number of disorders, including elevated blood glucose levels, disorders of the bone, bone density and structure, arthropathies and other diseases of the muscoskeletal system and connective tissue as well as disorders of the prostate and other diseases of the genitourinary system and neoplasms, appear to predominantly affect 'patients' aged 56 and older.

Furthermore, metabolic disorders and disorders of the thyroid gland affect almost exclusively respondents aged 49 and over, while essential (primary) hypertension and ischemic and other forms of heart disease prevail among 'patients' aged 42 and over (*cf.* Koutis *et al*. 1993). Although diseases of the nervous system are rather evenly distributed among age groups, a considerable number of 'patients' are found in the age category of 77 to 83 years. Patients, who suffer from back pain and other dorsopathies or from pain in the lower limb and other soft tissue disorders, are predominantly aged 21 and over. In general, it appears that certain conditions, such as diseases of the intestines and other diseases of the digestive system, which are found exclusively among respondents aged 76 and under, affect primarily younger 'patients'. In this way, the highest percentage of 'patients', who experienced a mental and/or behavioural disorder, belongs to the age category of 35 to 41 years. In addition to the increased prevalence of certain

diseases among particular age groups, a number of conditions, including the common cold, abdominal and pelvic pain, influenza and pneumonia, chronic lower respiratory and other diseases of the respiratory system as well as dizziness and giddiness as well as other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified, are rather evenly distributed among age groups.

7.2.2 Utilisation of the Plural Medical System

Following a brief description of the nature, severity and duration of the different episodes of illness, which the respondents experienced during the recall period, 95.9% (n=324) of the 338 'patients' of the sample reportedly took action to treat the particular disease. In other words, 4.1% (n=14) of 'patients' abstained from contacting the plural medical system available in the research area and from receiving any form of medical treatment for the reported illness. In view of the different medical systems available to the population of Pirgos and Praitoria, a considerable number of 'patients' contacted more than one medical system in a way to advance treatment, thereby taking multiple steps within the process of health care utilisation (*cf.* Arnold 1986). In this way, an earlier study conducted in rural Greece has indicated that humans and nature are integrated in the same dynamic system whereupon a fracture, for example, can be treated with a combination of home remedies, prayers and pilgrimages as well as consultation with a traditional and a modern health care provider (*cf.* Blum & Blum 1965). As Slikkerveer (1990: 226) observes: '*Such multiple utilisation or "healer shopping" may be simultaneous or successive and may involve different medical systems or be within the same system*'. Following the limited patterns of repeated contacts with one medical system, the present study, however, focuses on the patterns of multiple utilisation of different medical systems and excludes a quantitative description of patterns of multiple utilisation within the systems. In addition to the 324 'patients' of the sample, who took a first step within the search for treatment, 117 (36.1%) contacted the plural medical system a second time, while 11 (3.4%) 'patients' took three steps, thereby using each of the available medical systems in order to receive treatment. Figure 7.1 illustrates the decisions made by the 'patients' of the sample towards seeking treatment and towards contacting the different medical systems operating in the research area.

In view of the different steps the respondents took in order to seek treatment, the patterns of utilisation of the plural medical system maintained by all 324 'action patients' of the sample amount to a total of 452 utilisation rates. Strictly speaking, the inhabitants of Pirgos and Praitoria, who had experienced an episode of illness during the recall period and decided to seek action in a way to receive treatment, contacted the plural medical system available in the research area a total of 452 times, namely a first time in 324 cases, a second time in 117 cases and a third time in 11 cases. As Slikkerveer (1990: 231) explains: '*It is clear, that the shift in utilisation rates is caused by multiple utilisation and referral of patients between the systems for the treatment of the same illness episode*'. Table 7.5 sheds light on the rates of utilisation of the plural medical system. Patients, who successively use different medical systems, have been identified as 'Flow-Through Cases' (*cf.* Slikkerveer 1990).

From 324 'action patients' of the sample, 45.8% (n=207) contacted the plural medical system one time, while 36.1% (n=117) took a second step to seek treatment. Hereafter, 23.4% (n=106) of the 117 respondents ended the search for treatment after the second step, whereas 3.4% (n=11) of 'patients', that is 9.4% (n=11) of 'patients', who took a second step, contacted the plural medical system a third time. In view of the availability of three different medical systems in the research area, none of the eleven respondents, who contacted the plural medical system three times, took an additional step in a way to receive treatment. Following the calculation of the rate of utilisation of the plural medical system operating in the research area, Table 7.6 similarly explains the process of transformation of the number of 'patients' of the sample into the frequency of utilisation of the different medical systems.

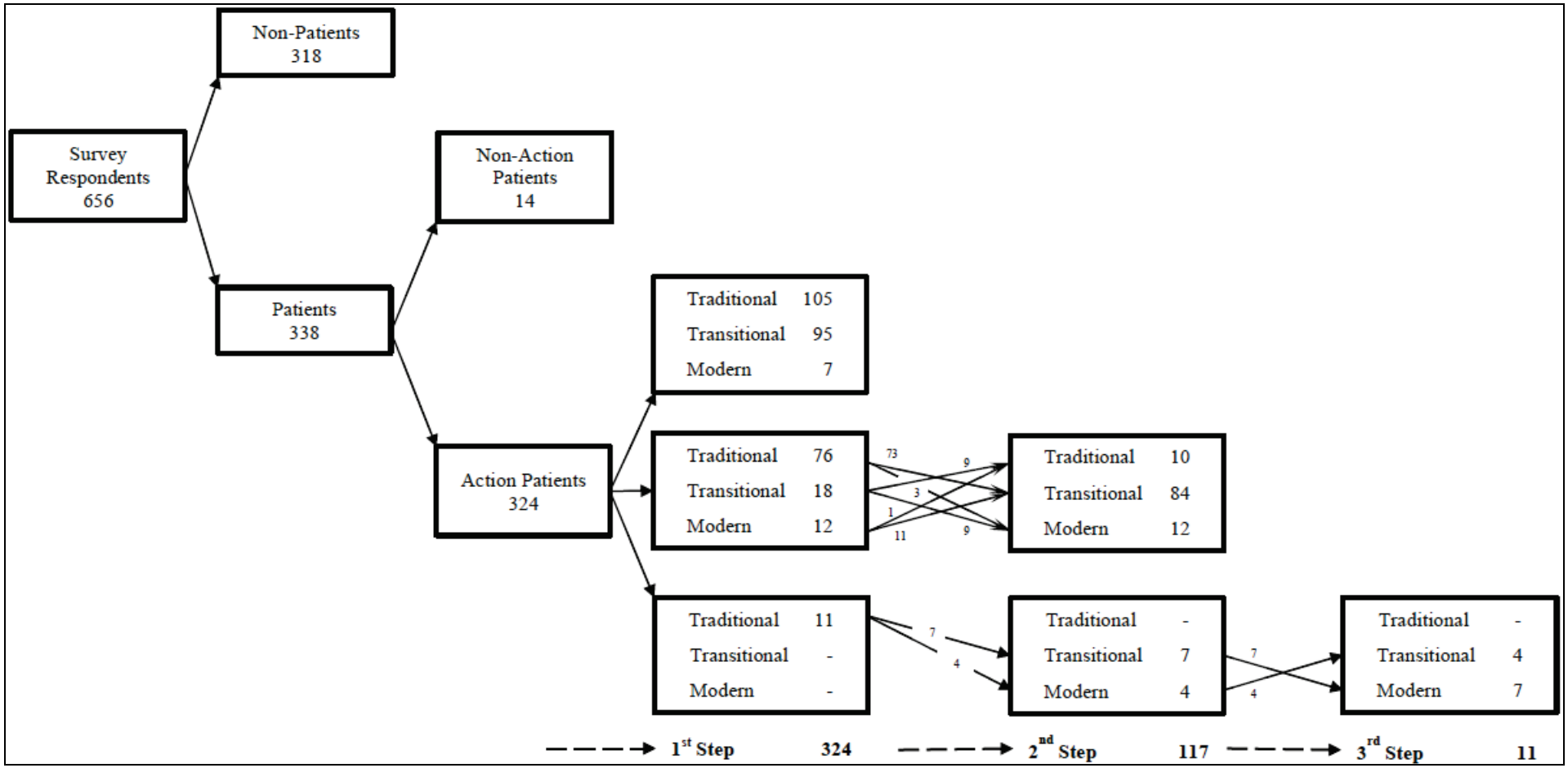


Figure 7.1 Decision Tree Illustrating the Patterns of Health Care Utilisation of all Patients of the Sample (N=656).

Table 7.5 Rates of the Household Members' Utilisation of the Plural Medical System (N=452).

Patients	Non-Action Patients	Action Patients								Medical System	Utilisation Rates	
		First Step		Flow-Through Cases	Second Step		Flow-Through Cases	Third Step				
N	N	N	%	N	N	%	N	N	%		N	%
338 →	14											
		192	59.2	→ 87	→ 10	8.5	→ 0	→ 0	-	→ Traditional	→ 202	44.7
		113	34.9	→ 18	→ 91	77.8	→ 7	→ 4	36.4	→ Transitional	→ 208	46.0
		19	5.9	→ 12	→ 16	13.7	→ 4	→ 7	63.6	→ Modern	→ 42	9.3
Total		324	100.0	117	117	100.0	11	11	100.0		452	100.0

Table 7.6 Frequency of the Utilisation of the Plural Medical System by the Household Members (N=452).

	Number of Patients	Number of Steps	No Action	Rates of Utilisation of the Plural Medical System						Frequency of Utilisation	
				Traditional Medical System		Transitional Medical System		Modern Medical System			
				N	%	N	%	N	%	N	%
	14	0	14								
	207	1		105	50.7	95	45.9	7	3.4	207	100.0
	106	2		86	40.6	102	48.1	24	11.3	212	100.0
	11	3		11	33.3	11	33.3	11	33.3	33	100.0
Total:	338			203	44.7	208	46.0	41	9.3	452	100.0

Table 7.6 demonstrates in which way the 106 'patients', who took a second step within the process of health care utilisation, account for a total of 212 utilisation rates. Hereafter, the 11 respondents, who contacted the plural medical system three times, amount to a total of 33 utilisation rates. Added to the 207 cases, in which 'patients' took only one step to receive treatment, the overall frequency of utilisation among the 'patients' of the sample results in a final utilisation rate of 452. Overall, 45.8% (n=207) of 'patients' contacted the plural medical system only once, whereby the majority of 'patients' (50.7%, n=105), who made a single contact, sought treatment from the traditional medical system. In general, these findings are in line with the results of previous studies conducted elsewhere in rural Crete, which demonstrated that a considerable number of 'patients', who take a single step within the process of health care utilisation, contact the traditional medical system (*cf.* Van de Kerk 1993; Legel 1998; Molenaar 1999; Dijkstra 2005). In the research area, patterns of behaviour, in which the respondents contacted the traditional medical system only once, have been mainly stimulated by episodes of the common cold as well as abdominal and pelvic pain. Likewise, a single contact with the transitional medical system has to a significant extent been prompted by episodes of essential (primary) hypertension, metabolic disorders as well as mental and/or behavioural disorders, while a single contact with the modern medical system is fairly frequently provoked by the experience of disorders of the thyroid gland as well as influenza and pneumonia.

Apart from the rates of utilisation, which involve a single contact, the most common pattern of utilisation of the plural medical system developed by the 'patients' of the sample, however, refers to a double contact (46.9%, n=212). The majority of respondents (48.1%, n=102), who contacted the plural medical system twice, made use of the transitional medical system. Consequently, the largest proportion of 'patients' (36.6%, n=164), who took two steps within the

process of health care utilisation, sought treatment in the form of a combined contact with the transitional and the traditional medical system. On the whole, these results are in line with previous studies conducted elsewhere in rural Crete, which illustrated that the traditional medical system is to a considerable extent used in combination with a different medical system, particularly with the transitional medical system (*cf.* Van de Kerk 1993; Legel 1998; Van den Akker 2002; Dijkstra 2005) (7.10). With respect to the prevalence of disease in the research area, a double contact with the transitional and traditional medical system is primarily stimulated by episodes of essential (primary) hypertension and the common cold, as well as by the experience of viral infections and other unspecified disorders. To a lesser extent, the 'patients' of the sample, who contacted the plural medical system twice, used the transitional medical system in combination with the modern medical system. Practices of combined contact with the transitional and the modern medical system commonly follow the patients' experience of ischemic and other forms of heart disease, arthropathies and other diseases of the muscoskeletal system and connective tissue, disorders of the bone, bone density and structure as well as disorders of the prostate and other diseases of the genitourinary system. Among all patterns of double contact developed by the patient of the sample, practices of using the traditional medical system in combination with the modern medical system have been the least common. Nevertheless, respondents, who experienced pain in the lower limb and other soft tissue disorders, diseases of the digestive system other than diseases of the intestines as well as dizziness and giddiness and other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified, sought treatment in the form of a combined contact with the traditional and the modern medical system.

Hereafter, 7.3% (n=33) of 'patients' contacted the plural medical system three times and hereby made use of each medical system available in the research area. On the whole, these patterns of utilisation have been to a considerable extent provoked by the patients' experience of back pain and other dorsopathies, diseases of the nervous system, chronic lower respiratory and other diseases of the respiratory system as well as viral infections and other unspecified disorders. Following this brief analysis of single and multiple patterns of health care utilisation, Table 7.7 highlights to what extent the 'patients' of the sample contact the plural medical system operating in the research area.

Table 7.7 Distribution of the Utilisation of the Plural Medical System of all Patients of the Sample over the Two Research Communities (N=452).

Medical System	Pirgos		Praitoria		Total	
	N	%	N	%	N	%
Traditional Medical System	144	45.1	58	43.6	202	44.7
Transitional Medical System	148	46.4	60	45.1	208	46.0
Modern Medical System	27	8.5	15	11.3	42	9.3
Total	319	100.0	133	100.0	452	100.0

Overall, the transitional medical system forms the most frequently contacted medical system available in the research area. 46.0% (n=208) of all 'patients' of the sample sought medical treatment from the transitional medical system , whereas a slightly minor percentage of respondents (44.7%, n=202) contacted the traditional medical system in a way to receive treatment. In this way, utilisation of the modern medical system amounts to 9.3% (n=42) of the overall frequency of utilisation rendering the modern medical system the least frequently contact medical system in Pirgos and Praitoria. In comparison to the average of 9.3% of utilisation rates, the percentage of community members, who contacted the modern medical system, is slightly higher among the inhabitants of Praitoria (11.3%, n=15). The results of the treatment offered by the plural medical system to the respondents have been perceived to be widely positive, whereby only 3.1% (n=14) of 'patients' regarded the quality of the medical treatment received as rather negative. On the whole, it appears that 50.0% (n=7) of all cases, in which the result of the

treatment is considered to be negative, relate to patterns of utilisation of the transitional medical system. In general, these findings are in line with a study conducted in Greece, which revealed that patients perceive the contribution of medicine treatment to their overall health status as rather moderate (*cf.* Geitona *et al*. 2008). Accordingly, the lowest percentage of 'patients' (21.4%, n=3), who perceived the quality of the medical treatment received to be rather negative, is found among respondents, who contacted the traditional medical system. The lowest percentage of community members (8.4%, n=37), who regarded the quality of the medical treatment offered as positive, however, relates to 'patients', who contacted the modern medical system.

7.2.3 Specific Patterns of Illness Behaviour

Following an analysis of the overall patterns of health care utilisation developed by all 'patients' of the sample, the results of this research have demonstrated that a total of 4.1% (n=14) respondents, who experienced an episode of illness during the recall period, abstained from seeking any action to treat the reported illness. The number of community members, who refrained from taking any step within the process of health care utilisation and are hereafter distinguished as 'non-action patients', is equally distributed among men and women. Although cases of non-action are moreover rather evenly spread among age groups, it appears that the highest percentage of 'non-action patients' belongs to the age category of 35 to 41 years (28.6%, n=4). In this way, a fairly considerable number of respondents, who abstained from seeking medical treatment, are found in the age groups of 42 to 48 (21.4%, n=3), 28 to 34 (14.3%, n=2) and 49 to 55 (14.3%, n=2) years, thereby suggesting that patterns of non-action are primarily maintained by community members in early and middle adulthood. In view of the general age of 'non-action patients', it is likely that respondents, who follow an occupation, are increasingly inclined to refrain from contacting the plural medical system available in the research area. Clearly, the experience of episodes of illness stimulates concern not only about one's health but also about the probable inability to comply with family and professional obligations (*cf.* Blum & Blum 1965; Van de Kerk 1993). Among the sample population, only one out of 14 'patients', who abstained from seeking medical treatment, is unemployed, whereby the professional inactivity of the patient in question followed an inability to work due to a condition, which originated in the perinatal period and resulted in abasia. In addition to the specific distribution of age and occupation, a total of 21.4% (n=3) of 'non-action patients' assume a nationality other than Greek, thereby exceeding the percentage of 5.8% (n=38) of non-Greeks, which is recorded for the wider study population.

Apart from the socio-demographic characteristics of 'non-action patients', the decision to refrain from taking any step towards receiving medical treatment is primarily made by respondents, who experienced symptoms of teeth loss, as well as feelings of burning and itchiness but whose condition remained unknown. Among the medical disorders, which have been identified by the 'patients', patterns of non-action have been to a greater extent stimulated by mental and behavioural disorders, including stress (14.3%, n=2). Furthermore, cases of 'non-action patients' are found among community members, who reportedly suffered from: certain infectious and parasitic diseases; diseases of the eye and adnexa; diseases of the ear; essential (primary) hypertension; the common cold; influenza and pneumonia; allergic rhinitis; disorders related to childbirth; and certain conditions originating in the perinatal period. In this way, the results of a study conducted in Crete showed that women are generally reluctant to seek treatment for urinary incontinence and that physicians frequently miss the opportunity to diagnose the condition (*cf.* Lionis *et al*. 2000). Other studies carried out in Sellia and Arkhanes, Crete, indicated that the reasons why patients decide not to take any action towards seeking medical care include feelings of fear or perceived non-severity of the reported illness (*cf.* Van de Kerk 1993; Molenaar 1999). In the research area, none of the diseases, which prompted patients to refrain from seeking any action, have been perceived to be highly severe. Hereafter, it can be

assumed that a certain number of 'non-action patients' wait until the condition disappears (*cf.* Van de Kerk 1993). Nevertheless, the majority of illness episodes (71.4%, n=10), which triggered patterns of non-action among the sample population, have been categorised as chronic diseases.

In contrast to the respondents, who refrained from taking any action in a way to treat the reported illness, 95.9% (n=324) of 'patients' of the sample contacted the plural medical system available in the research area, thereby generating a total of 452 utilisation rates. Overall, action is always sought upon the experience of: neoplasms; disorders of the thyroid gland; metabolic disorders; diseases of the nervous system; ischemic or other forms of heart disease; cerebrovascular or other diseases of the circulatory system; chronic lower respiratory or other diseases of the respiratory system; diseases of the intestines; other diseases of the digestive system; diseases of the skin and subcutaneous tissue; back pain and other dorsopathies; pain in the lower limb and other soft tissue disorders; arthropathies and other diseases of the muscoskeletal system and connective tissue; disorders of the bone, bone density and structure; disorders of the prostate and other diseases of the genitourinary system; congenital malformations; dizziness and giddiness as well as other symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified; elevated blood glucose levels; abdominal and pelvic pain; injuries and certain other consequences of external causes; accidents; viral infections and other unspecified disorders; and the 'evil eye'.

In particular, 44.9% (n=203) of all contacts between the 'patients' and the plural medical system resulted in the provision of internal care. In other words, the 'patients' took internal action and thus received a type of illness treatment, which is based on practices of self-care or the administration of treatment by a non-professional health care provider, such as a household or family member (7.11). In the research area, patterns of internal action relate primarily to respondents, hereafter known as 'internal action patients', who applied practices of self-care and refrained from consulting a non-professional, as well as professional intermediary within the process of health care utilisation. To a lesser extent, 'internal action patients' received treatment from a non-professional health care provider, namely from another member of the household or a friend. Patterns of internal action are rather evenly distributed across genders. Nevertheless, it appears that practices of internal action prevail among younger community members, as the majority of respondents in the age categories of seven and younger, 7 to 13, 14 to 20, 28 to 34 as well as 35 to 41 years follow internal action more frequently than external action. In line with the distribution of age among 'internal action patients', a considerably higher percentage of respondents, who are single, choose internal over external action. Accordingly, a general tendency towards taking internal action is found among community members, who are self-employed, practice the profession of an artist or entertainer, follow an occupation as provider of food, beverage or accommodation or are employed as head officer or researcher as well as among students and inhabitants practicing a non-paid profession and among community members, who are not in labour force or who work in the private sector. The decision to seek internal action is moreover predominantly made by respondents, who reportedly have an overall good health status.

In the research area, internal care is to a greater extent applied to the condition of the common cold, whereby a majority of 'patients', who suffered from the common cold during the recall period, sought treatment in the form of self-care or care administered by a non-professional health care provider. In this way, the vast majority of respondents, who experienced injuries and certain other consequences of external causes, such as skin allergies and skin burns, the 'evil eye', diseases of the skin and subcutaneous tissue, diseases of the digestive system other than diseases of the intestines, certain infectious and parasitic diseases, abdominal and pelvic pain, viral infections and other unspecified disorders, as well as chronic lower respiratory and other diseases of the respiratory system similarly took internal action to treat the reported illness.

In comparison to patterns of internal action shown by the sample population, 55.1% (n=249) of contacts between the 'patients' and the plural medical system stimulated forms of external care, namely a type of illness treatment, which involves consultation with a professional health care provider. In the research area, external care is offered by wise women as providers of traditional health care and by pharmacists, salespeople and specialist vendors, such as homeopaths, as providers of transitional health care. On the other hand, the provision of modern health care, which is exclusively based on the intermediary of a professional, is made by a variety of professionals, including physicians and nurses as well as orthopaedists, physiotherapists, pulmonologists and rheumatologists. In accordance with patterns of internal action, the percentage of 'patients' seeking external care, hereafter referred to as 'external action patients', is rather evenly distributed among genders. The decision to take external action, however, appears to prevail among older community members, whereby respondents aged between 56 and 62, 63 and 69, 70 and 76, 77 and 83, 84 and 90 as well as 90 or more years take external action more frequently than internal action. In this way, a considerably higher percentage of 'patients' of the sample, who are widowed, follow practices of external action. Accordingly, a slightly higher percentage of community members, who are unemployed or retired, follow an occupation as driver or carrier or are employed as educator, human health and social worker, servant to buildings, priest or personal servant, public administrator or defence personnel, (stock) farmer or homemaker chose external over internal care in a way to treat the reported illness.

Concurrently, 'patients', who suffered from mental and/or behavioural disorders, cerebro-vascular or other diseases of the circulatory system or a certain condition originating in the perinatal period, consult a professional health care provider within the process of health care utilisation. In the same fashion, conditions such as disorders of the thyroid gland, diseases of the ear, elevated blood glucose levels, diseases of the eye and adnexa, allergic rhinitis, metabolic disorders, disorders of the prostate and other diseases of the genitourinary system, arthropathies and other diseases of the muscoskeletal system and connective tissue, ischemic and other forms of heart disease, essential (primary) hypertension, neoplasms, diseases of the nervous system, disorders of the bone, bone density and structure, back pain and other dorsopathies, dizziness and giddiness as well as other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified, influenza and pneumonia, pain in the lower limb and other soft tissue disorders as well as diseases of the intestines stimulated treatment primarily in the form of external care. The majority of first steps taken by the 'patients' of the sample within the process of health care utilisation refer to patterns of internal action. Concurrently, the vast majority of second steps and all third steps taken within the process of health care utilisation refer to patterns of external action. Overall, these findings suggest that patients are likely to follow internal with external action and to discontinue their medical treatment after choosing external care (*cf.* Slikkerveer 1990).

Apart from developing specific patterns of non-action as well as internal or external action, the 'patients' of the sample run through particular stages of illness behaviour and hereby interact with a lay-referral system or illness management group (*cf.* Paragraph 2.3.2). The members of the illness management group accept the disease and excuse the patient from family and social tasks; offer the patient advice on the choice of treatment; assist the patient during the completion of the treatment; accept the patient's resumption of family and social tasks after recovery; or assume the patient's new role as a chronically ill individual or long-term rehabilitee (*cf.* Van der Hoeven 1992; Van de Kerk 1993). While the illness management group generally accepts any form of disease, 'patients', who suffered from certain conditions originating in the perinatal period, such as abasia or disablement, during the recall period, are to some extent shielded from the wider community.

With respect to the role played by the illness management group, studies carried out elsewhere in rural Crete have shown that patients are likely to seek advice and support from the nuclear family as well as from female community members. The results of previous research demonstrated that the majority of family members, who are responsible for the management of

illness episodes and the administration of medicine, are female. In this way, the lay referral system of women usually consists of other women, namely of the mother and sisters, provided that they live close, as well as of the mother-in-law and the sisters-in-law, whereas the husband plays only a minor role within the illness management group. To a significant extent, the choice of treatment among patients in Crete is based on the recommendations and previous experiences of the members of the lay referral system (*cf.* Barnes *et al*. 1999; Simoens *et al*. 2009). Hereafter, it has moreover been revealed that the more confident individuals grow about a specific medical treatment upon consultation with the lay referral system the sooner they contact the respective medical system. The results of the present and previous research conducted in Crete have moreover indicated that it is rather common for members of the same family to accompany the patient on visits to health care facilities, particularly outside the confinement of the community. On the whole, studies have revealed that local inhabitants fuel an overall mistrust towards professional health care providers employed outside the village, not at least because they are strangers. In case that the health care institution is located at a long distance, family members tend to stay with the patient until the day of discharge (7.12). Furthermore, it is standard practice among adult community members to take care of their parents during episodes of illness and to hereby invite them to their homes (7.13). In the same fashion, members of the same family, household or community frequently support each other during illness episodes by means of visiting the patient, gathering the patient's medicines from the pharmacy or shop, taking the patient to see a health care provider or performing the patient's family, social or professional duties. In general, hospitalisation of a patient increases the workload of other household and family members (*cf.* Arnold 1986; Van de Kerk 1993; Molenaar 1999; Van den Akker 2002; Tsiligianni *et al*. 2012).

7.3 Utilisation of the Plural Medical System

7.3.1 Utilisation of the Traditional Medical System

In view of the overall utilisation of the plural medical system by the study population of Pirgos and Praitoria, a total of 44.2% (n=202) of utilisation rates related to contacts between the respondents and the traditional medical system. The traditional medical system available in the research area is predominantly contacted by community members, who suffered from the common cold during the recall period, whereby a considerable majority of 79.1% (n=72) of cases of the common cold have been reportedly treated with components of the traditional medical system. Likewise, it appears that 'patients', who experienced an injury or certain other consequence of external causes (100.0%, n=2), a disease of the skin and/or subcutaneous tissue (80.0%, n=4), a disease of the digestive system other than a disease of the intestines (77.8%, n=7), a certain infectious or parasitic disease (66.7%, n=2), abdominal and/or pelvic pain (58.8%, n=10) as well as a chronic lower respiratory or other disease of the respiratory system (54.5%, n=6) contact the traditional medical system more frequently than the transitional or modern medical system. In this respect, a considerable number of survey respondents stated that the condition of the 'evil eye' could only be treated with components of the traditional medical system whereupon all 'patients', who suffered from the 'evil eye' during the recall period (100.0%, n=2), sought treatment from the traditional medical system. In line with the patterns of utilisation of the traditional medical system in the research area, the community members moreover revealed that the traditional medical system is better suited to treat diseases of the skin and subcutaneous tissue, as well as the condition of the common cold. To some extent, components of the traditional medical system are believed to be similarly better applicable to the treatment of: dizziness and giddiness as well as other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified, such as cough, headache and stomach ache; the appearance of skin moles; diseases of the eye, such as conjunctivitis; diseases of the intestines; rheumatism; diseases of the genitourinary system; as well as unspecified disorders, such as

colitis and allergies. While the traditional medical system is regarded as having a somewhat overall positive effect on human health, the inhabitants of Pirgos and Praitoria moreover acknowledge that the traditional medical system offers particularly effective forms of treatment for conditions, which are perceived to be less severe.

In the research area, utilisation of the traditional medical system, as it offers treatment in the form of MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine, refers primarily to the application of MAC plants (7.14). In other words, the utilisation of MAC plants accounts for the vast majority of contacts between 'patients' and the traditional medical system available in Pirgos and Praitoria. 91.5% (n=65) of all cases of the common cold, for which care is sought from the traditional medical system, have been treated with MAC plants. In the same fashion, MAC plants have been relatively often administered to certain infectious and parasitic diseases, diseases of the digestive system, diseases of the skin and subcutaneous tissue, episodes of abdominal and pelvic pain and accidents, for which treatment is received from the traditional medical system. In view of the different MAC plants known to the local population, Chamomile (*Chamomilla recutita* (L.) Rauschert / *Matricaria chamomilla* L. / *Matricaria recutita* L.), Sage (*Salvia fruticosa* Miller or *Salvia triloba* L. / *Salvia pomifera* L.), Aloe Vera (*Aloe vera* (L.) Burm. fil.), Marjoram (*Origanum majorana* L. / *Origanum microphyllum* (Bentham) Boiss.) and Cretan Dittany (*Origanum dictamnus* L.) have been identified as the plants most frequently applied to episodes of illness reported by the 'patients' of the sample. In addition to MAC plants, treatment offered by the traditional medical system involved the application of other traditional home remedies, which have been to a greater extent administered as treatment for chronic lower respiratory and other diseases of the respiratory system as well as for injuries and certain other consequences of external causes. Of the different household products, which are locally used as home remedies, milk and *Rakomelo*, a mixture of raki and honey, are most commonly applied to the illnesses experienced by the respondents. In the research area, forms of religious and spiritual medicine, particularly prayers, have been solely administered during practices of treatment of the 'evil eye', for which care is sought exclusively from the traditional medical system.

In view of the different types of treatment offered by the traditional medical system, 98.0% (n=198) of all contacts between 'patients' and the traditional medical system involved patterns of internal action. As a consequence, the different types of diseases, for which treatment is sought primarily from the traditional medical system, share considerable similarities with the episodes of illness treated mostly through practices of internal action. 62.4% (n=126) of all therapies received from the traditional medical system have been applied by the respondents themselves, namely in the form of self-care. While treatment is to a lesser extent offered by non-professional health care providers, such as other members of the household and friends, 2.0% (n=4) of all therapies administered within the traditional medical system involved the intermediary of a professional traditional health care provider. In the research area, all cases of external action taken within the process of utilisation of the traditional medical system refer to episodes of the common cold and involve the subsequent provision of health care by a wise woman. In line with the provision of treatment within the traditional medical system, a considerable majority of 99.5% (n=201) of therapies have been administered in the environment of the patient's household, whereby the remaining therapies (0.5%, n=1) have been applied in a different household in the research community. In general, treatment received from the traditional medical system is not associated with any costs. Overall, contact with the traditional medical system and the subsequent provision of treatment appear to be tightly embedded within the context of the household and the community. In this respect, research conducted elsewhere in rural Crete has demonstrated that community members, who move from the village to urban areas, abandon patterns of utilisation of the traditional medical system, not at least because of the absence of family and community relations and a subsequent lack of knowledge of traditional medicine (*cf.* Van den Akker 2002).

Apart from the specific characteristics of the medical treatment received from the traditional medical system, 95.0% (n=192) of contacts between 'patients' and the traditional medical system have been made as a first step within the overall process of utilisation of the traditional medical system. Among all first steps taken by the respondents in a way to seek treatment from the plural medical system, utilisation of the traditional medical system accounts for a majority of 59.3% (n=192). The findings are in line with the results of previous studies conducted elsewhere in rural Crete, which revealed that the traditional medical system is most commonly contacted during a first rather than a second or third step within the process of health care utilisation (*cf.* Arnold 1986; Van de Kerk 1993; Legel 1998; Molenaar 1999; Dijkstra 2005). On the whole, the traditional medical system forms an integral source of first contact, whereby a considerable number of 'patients' of the sample seek internal care from the traditional medical system, notably in consultation with the illness management group, during their first step of health care utilisation (7.15). In this way, the traditional medical system is contacted as a second step in ten cases, which amounts to 0.5% of contacts between 'patients' and the traditional medical system, as well as to 8.5% of all second steps taken by the community members during the process of health care utilisation. The majority of cases (90%, n=9), in which treatment is sought from the traditional medical system in a second step, follow a first contact with the transitional medical system. In the research area, the traditional medical system is contacted exclusively during the first and second step of health care utilisation, whereby none of the third steps taken by the 'patients' in a way to seek treatment involved the utilisation of the traditional medical system.

7.3.2 Utilisation of the Transitional Medical System

In the research area, contact with the transitional medical system accounts for 46.0% (n=208) of utilisation rates rendering the transitional medical system the most commonly used medical system among the population of Pirgos and Praitoria (*cf.* Djikstra 2005). Following the prevalence of disease across the two research communities, treatment from the transitional medical system is sought primarily in cases of elevated blood glucose levels (75.0%, n=12) and essential (primary) hypertension (67.2%, n=39). Moreover, the transitional medical system is contacted for the majority of episodes of metabolic disorders (66.7%, n=10), disorders of the prostate and other diseases of the genitourinary system (60.0%, n=6), disorders of the bone, bone density and structure (57.1%, n=8) as well as viral infections and other unspecified disorders (52.9%, n=9). In the same fashion, all cases of mental and behavioural disorders (100.0%, n=4) and certain conditions originating in the perinatal period (100.0%, n=3) as well as cerebrovascular and other diseases of the circulatory system (100.0%, n=2) experienced by 'patients' of the sample, for which care is sought, have been treated with components of the transitional medical system (*cf.* Tzimis & Kafatos 1999).

In view of the different forms of treatment offered by the transitional medical system, the vast majority of therapies relate to the utilisation of prescribed medicine, which accounts for a total of 87.5% (n=182) of treatment methods provided by the transitional medical system. In the research area, the utilisation of prescription medicine typically involves an initial consultation with a modern health care provider, who issues the prescription. In this respect, it is very probable that any contact between 'patients' and the transitional medical system, during which treatment is administered in the form of prescribed medicines, proceeds from a first contact with the modern medical system. In this way, studies have shown that patients in rural Crete rather frequently contact the modern medical system for the main and at times sole purpose of receiving a prescription (*cf.* Antonakis *et al.* 2006; Tsiligianni *et al.* 2012). With regard to the utilisation of prescription medicines, the survey respondents, however, rarely made an explicit reference to the initial consultation with a modern health care provider (*cf.* Van de Kerk 1993). From a community perspective, the focal point of treatment, namely the distribution of prescribed medicine, largely remains with a representative of the transitional medical system. For this reason as well as for the fact that prescribed medicines qualify as commercial pharmaceutical

medicines, utilisation of prescribed medicines is identified as an example of the patient's contact with the transitional medical system. Prescribed medicines are administered in all cases of elevated blood glucose levels, metabolic disorders and disorders of the prostate and other diseases of the genitourinary system as well as in 97.4% (n=38) of episodes of essential (primary) hypertension and in 87.5% (n=7) of cases of disorders of the bone, bone density and structure (*cf.* Tzimis & Kafatos 1999; Geitona *et al*. 2008; Panagiotakos *et al*. 2008). To a lesser extent, treatment from the transitional medical system is received in the form of non-prescribed or Over-the-Counter (OTC) medicine, which includes the use of plant-based products and essential oils. In this respect, a considerable number of viral infections and other unspecified disorders have been treated with OTC medicine. Furthermore, non-prescribed medicines are used during the treatment of cases of the common cold and diseases of the nervous system. In the same way, a recent study conducted in rural Greece revealed that practices of self-medication are most commonly stimulated by symptoms suggestive of the common cold, including throat ache and bronchitis (*cf.* Skliros *et al*. 2010). Research carried out in Greece moreover indicates that practices of self-medication are fairly common among patients experiencing minor symptoms (*cf.* Geitona *et al*. 2008). In the research area, mental and behavioural disorders have been, notably exclusively, treated with both prescribed and non-prescribed medicine.

In only three cases of illness episodes, namely an episode of back pain or other forms of dorsopathy, essential (primary) hypertension and a disorder of the bone, bone density and/or structure, 'patients' used a combination of prescribed and non-prescribed medicines in order to treat the reported illness. Nevertheless, it can be assumed that a considerable number of 'patients' in the research area receive treatment in the form of a combination of medicines. Similar studies conducted in Crete report that cardiovascular diseases are usually treated with more than one medicine at once and that clients, who visit the pharmacy in an effort to fill a prescription, are likely to purchase an additional OTC product (*cf.* Tzimis *et al*. 1997; De Vries 2007). Since the present research, however, adopts a community perspective, it follows the patients' indication to whether the reported illness is treated with prescribed or non-prescribed medicines. In view of the fairly limited number of illness episodes, which are reportedly treated with a combination of prescription and OTC medicine, a further analysis of possible combinations of medicines is not conducted. Nevertheless, it is almost certain that patterns of utilisation of prescribed as well as non-prescribed medicines, as highlighted within the research, refer to both the utilisation of one singular type of medicine as well as the utilisation of plural, *i.e.* more than one type of medecine at the same time.

In line with the different types of diseases treated primarily with components of the transitional medical system, 97.6% (n=203) of contacts between 'patients' and the transitional medical system incorporate practices of external action. Consequently, a number of conditions, including essential (primary) hypertension, elevated blood glucose levels, metabolic disorders as well as mental and behavioural disorders, for which treatment is mainly sought from the transitional medical system, share certain similarities with the types of diseases treated mostly through patterns of external action. The vast majority of therapies provided by the transitional medical system (95.2%, n=198) are administered through the intermediary of the pharmacist or pharmacy assistant, who act as the main distributors of both prescribed and non-prescribed pharmaceutical medicines in the research area (*cf.* Skliros *et al*. 2010). Although it is the modern health care provider, who issues a prescription, pharmacy employees handle the final distribution of prescribed medicines and are distinguished as solitary providers of prescription medicines. Apart from the intermediary of pharmacy employees, commercial pharmaceutical medicines are, albeit less frequently, distributed by a salesperson, a nurse or a specialist vendor. In case that that the recipient of commercial pharmaceutical medicines is a child or someone otherwise unable to collect the medicines from the pharmacy or shop, the provision of medicines frequently involves the additional mediation of a third person, most commonly a household or family member, who receives the medicines from the distributor and delivers it to the patient (*cf.* Hanepen 1997). In particular, a study conducted in rural Crete has shown that a relatively large number of 'patients'

aged between 73 and 75 years received their, notably prescribed, medicine through the intervention of a third person (*cf.* Antonakis *et al*. 2006). In this respect, Antonakis *et al*. (2006: 8) comment: '*Although aging and geographical remoteness may partly explain this, it is uncertain* […] *to what extent cultural and sub-cultural characteristics have a potential impact on patient's behaviour*'. Since the focal point of distribution, however, remains with a professional health care provider, namely a pharmacist or salesperson, such cases have been identified as examples of external rather than internal care.

Nevertheless, utilisation of the transitional medical system occasionally involves patterns of internal action, after which 'patients' seek treatment from a non-professional health care provider, notably another member of the household, or apply forms of self-care. Patterns of self-care frequently involve the utilisation of medicines, which have remained from previous prescriptions and had been stored at home (*cf.* Skliros *et al*. 2010). In this respect, a recent study conducted in rural Crete has shown that the local population is likely to store cardiovascular medicines at home (*cf.* Tsiligianni *et al*. 2012). In the research area, internal action performed during contact with the transitional medical system is taken in response to the experience of viral infections and other unspecified diseases, diseases of the nervous system as well as pain in the lower limb and other soft tissue disorders.

In accordance with the provision of transitional health care, the vast majority of therapies have been administered outside of the household, namely in the community (64.9%, n=135), in the municipality (26.8%, n=56) or elsewhere in Crete (5.7%, n=12), whereas only a minor percentage of treatments have been received within the household (2.4%, n=5). Utilisation of the transitional medical system, particularly the provision of external care, generally involves the payment of costs or the disbursement of the overall price of medicines on the part of the clients. In this way, the majority of medicines (47.6%, n=99) have been issued in exchange for a payment, which falls within the price range of 10 to 50 Euro (*cf.* Geitona *et al*. 2008). At times, the costs of prescriptions amounted to a payment of more than 50 or less than 10 Euro, whereby medicines have been free of charge in only a minor percentage of cases (2.9%, n=4). Accordingly, the price of OTC medicines, which are never free of charge, is rather evenly distributed and ranged from less than ten Euro to 100 Euro.

In view of the overall patterns of utilisation of the plural medical system shown by the sample population, 54.3% (n=113) of contacts with the transitional medical system are made as a first step within the overall process of health care utilisation, thereby accounting for 34.9% (n=113) of all first steps taken by the 'patients' of the sample. Thereafter, the transitional medical system is contacted during a second step in 43.8% (n=91) of contacts with the transitional medical system, whereby the majority of rates of utilisation of the transitional medical system as a second step (89.0%, n=81) follow an initial contact with the traditional medical system. Among all second steps taken by the respondents in a way to receive treatment, utilisation of the transitional medical system amounts to a majority of 77.8% (n=91). In the research area, 1.9% (n=4) of contacts with the transitional medical system are made as a third step, notably following a second step of contact with the modern medical system, accounting for 36.4% (n=4) of all third steps taken within the overall process of health care utilisation.

7.3.3 Utilisation of the Modern Medical System

While the majority of patterns of utilisation of the plural medical system shown by the population of Pirgos and Praitoria relate to contacts with the tranditional and transitional medical system, contact with the modern medical system amounts to a relatively small amount of 9.3% (n=42) of utilisation rates. To a greater extent, 'patients' contact the modern medical system in a way to receive treatment for a variety of conditions, including: dizziness and giddiness as well as other symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified (25.0%, n=2); disorders of the thyroid gland (23.1%, n=3); arthropathies and other diseases of the muscoskeletal system and connective tissue (23.1%, n=3); pain in the lower limb and other

soft tissue disorders (20.0%, n=3); diseases of the intestines (20.0%, n=2); ischemic and other forms of heart disease (18.4%, n=7); back pain and other dorsopathies (18.2%, n=4); diseases of the nervous system (16.7%, n=2) as well as influenza and pneumonia (15.4%, n=2).

The majority of therapies offered by the modern medical system (45.2%, n=19) relate to an examination or general check-up of the patient by the modern health care provider, as it is applied particularly to episodes of ischemic and other forms of heart disease, back pain and other dorsopathies, pain in the lower limb and other soft tissue disorders as well as arthropathies and other diseases of the muscoskeletal system and connective tissue. Apart from practices of examination, health care is at times administered in the form of operations, X-rays or vaccinations, through specific treatments, such as chemotherapy, as well as through the offering of recommendations concerning primarily dietary patterns and other lifestyle habits (*cf.* Van de Kerk 1993).

In accordance with the specific characteristics of the modern medical system, treatment is administered exclusively through external action. 85.7% (n=36) of contacts between the 'patients' and the modern medical system involves the intermediary of a general practitioner, whereby modern health care is to a lesser extent offered by specialists, namely by an orthopaedist, a rheumatologist, a physiotherapists or a pulmonologist. Since an overwhelming majority of modern health care providers, who serve the population in the research area, perform in the public sector, the results of the household surveys do not distinguish between public and private services. 71.4% (n=30) of therapies provided by the modern medical system have been administered elsewhere in Crete, while only a few 'patients' have sought treatment within the confinement of the community or the municipality. Nevertheless, the general practitioners, who visit the rural health posts in both communities, are consulted more frequently than the staff working at the health centre of Kharakas within the municipality (*cf.* Hagoort 1998). In view of the extension of insurance coverage and the central role played by public health care providers in the research area, treatment received from the modern medical system is generally not associated with any costs, although 'patients' occasionally pay a service fee, which ranges from 10 to 50 Euro.

The modern medical system is contacted as a first step in 45.2% (n=19) cases, which accounts for a total of 5.9% (n=19) of all first steps taken by the 'patients' of the sample in a way to receive treatment from the plural medical system. Hereafter, utilisation of the modern medical system as a second step amounts to 38.1% (n=16) of contacts between the respondents and the modern medical system as well as to 13.7% (n=16) of all second steps taken within the overall process of health care utilisation in the research area. In this way, utilisation of the modern medical system as a second step follows an initial contact with the transitional medical system in 56.2% (n=9) cases and initial contact with the traditional medical system in 43.8% (n=7) cases. The modern medical system is moreover contacted as a third step in 16.7% (n=7) of cases of utilisation of the modern medical system, accounting for a majority of 63.6% (n=7) of all third steps taken by the 'patients' of the sample. In this respect, a previous study conducted in Anoyia, Crete, similarly revealed that contacts with the modern medical system are rarely followed by an additional step (*cf.* Dijkstra 2005). All contacts with the modern medical system, which were made as a third step, follow a contact with the transitional medical system during the second step within the process of health care utilisation.

Notes

(7.1) The term 'Health', '*Iyia*', including its abbreviated form '*Yia*', is colloquially used as a form of salutation referring to both 'hello' and 'goodbye'. The informal '*yia su*' as well as the formal '*yia sas*', which indicate an abbreviation of the term 'to your health', '*stin iyia su*' or '*stin iyia sas*' respectively, are similarly exchanged as greetings. Furthermore, '*stin iyia mas*' or simply '*yia mas*', which translates as 'to our health', describes a common form of cheering.

(7.2) The all-encompassing notion of being healthy has locally been described as '*ola mazi*', 'all together', or '*to pan*', 'everything'.

(7.3) Nevertheless, it is permitted to consume olive oil on Fridays and Saturdays during Lent, on Saturdays and Sundays in August and during Advent.

(7.4) The consumption of food, which is too salty or too greasy, has been regarded as having a negative effect on people's health (*cf.* Van Beelen 1990).

(7.5) While the harmful will of others is believed to be able to cause illness, it is rather uncommon to relate a state of illness to one's self or to explain it as the result of one's personal moral sin (*cf.* Blum & Blum 1965).

(7.6) The 'bad hour', for example, which refers to a group of spirits or demons in the shape of animals, is specified as a spiritual phenomenon capable of causing certain diseases. In this respect, an event of illness, which results from the harmful intervention of supernatural beings, has reportedly been associated with a state of 'being ill', while an episode of illness, which is provoked by a conflict between humans, is related to a state of 'being hurt' (*cf.* Blum & Blum 1965).

(7.7) In view of the different causes of illness identified by the local population, a study conducted elsewhere in rural Crete has demonstrated that older community members distinguish between different causes of illness, while younger inhabitants, as they have seemingly become more acquainted with modern medicine, specify a limited number of phenomena, such as bacteria, as common causes of illness.

(7.8) To some extent, the inhabitants of Crete share the belief that clothes, which are hung to dry outside the house during the night can become possessed by evil spirits or ghosts, '*Fantasmata*', whereupon the laundry of children is commonly dried during the day (*cf.* Van Bommel 1993).

(7.9) Knowledge of different practices, which are followed during the ritual healing process, is generally transmitted orally from generation to generation, whereby women are not allowed to learn the '*Ksematiasma*' prior to their first menstruation or while menstruating (*cf.* Roussou 2011).

(7.10) Following research carried out in French Guiana on people's knowledge, attitudes and practices regarding antimalarial remedies, it appeared that patients preferably combine the use of plant-based medicines with the use of pharmaceutical medicines. In this way, plant-based medicines are known to be able to 'heal', while pharmaceutical medicines is known to be able to 'cure' (*cf.* Vigneron *et al*. 2005).

(7.11) In this respect, the results of a study conducted in the United States revealed that a relatively small percentage of illness episodes trigger patterns of contact with professional health care providers, whereby a rather large number of patients apply practices of self-care prior to consulting a professional health care provider (*cf.* Sleath *et al*. 2001).

(7.12) At the time of the household surveys, a member of the community of Pirgos left Crete together with his parents in an effort to seek medical treatment for his condition in Austria.

(7.13) In this respect, it has been suggested that the experience of illness strengthens the mutual support among family members and hereby enhances the family unit (*cf.* Van de Kerk 1993).

(7.14) In view of the rather widespread utilisation of MAC plants, the results of a study conducted elsewhere in rural Crete, which distinguished between people's utilisation of medicinal and aromatic plants, indicated that the more frequently community members use medicinal plants the more likely they are to use aromatic plants (*cf.* De Vries 2007).

(7.15) The practice of using components of the traditional medical system during the first step of health care utilisation in the form of internal care has locally been described as '*Yiatroporevome*', which is loosely translated as the application of first, provisional help.

Chapter VIII PATTERNS OF TRANSCULTURAL HEALTH CARE UTILISATION BEHAVIOUR

On the basis of the foregoing chapter, which offers an overview on patterns of transcultural health care utilisation behaviour shown by all household members of the sample, the present chapter presents a more detailed analysis of the behavioural patterns of respondents of the sample. In particular, the data, which have been collected for the different variables identified as determinants of patterns of transcultural health care utilisation behaviour in the multivariate model, are presented in relation to the statistical programme for data analysis used in this study. In this respect, any process of data manipulation, to which certain variables have been subjected prior to running a statistical analysis, is highlighted and described in detail. As Gifi (1990: 61) explains: '*The main safeguard is that in reporting the analysis we should also report and motivate our deletions and other manipulations*'. The present chapter proceeds with a brief description of the processes and variables involved in a bivariate and mutual relations analysis, which are presented thereafter. Although a bivariate analysis generally offers a good overview on the significance value of the different determinants of people's transcultural health care utilisation behaviour, all variables are subsequently subjected to a multivariate analysis.

This chapter not only describes the techniques, processes and variables involved in the multivariate analysis, but it also highlights to which extent each variable, notably in interaction with all other variables in the model determines local patterns of health care utilisation behaviour. Hereafter, the processes and variables involved in the multiple regression analysis are highlighted, which explains the overall explanatory value of the multivariate mode. By means of a multiple regression analysis, it is possible to construct and eventually present the final model of transcultural health care utilisation for the sample population of Pirgos and Praitoria. In the light of previous research conducted in Crete and beyond, the results, which have been gained from statistical analysis, are hereafter summarised and interpreted. In general, the present chapter seeks to link any explanation of specific patterns of behaviour, which have been developed by the sample population, to the quantitative and qualitative collected data and presented in the previous chapters. In this way, Chapter VIII also paves the way for the concluding Chapter IX, in which the general aim and specific objectives of the present study are highlighted and discussed in relation to the qualitative and quantitative analysis of data gathered in the course of this research.

8.1 Preparation of the Data Set

8.1.1 Factors and Variables

By means of two quantitative household surveys conducted in the research area, it is possible to collect an extensive amount of data on the perceived morbidity, namely the experience of illness, and patterns of health care utilisation reported by all household members of the sample. In addition to this information, as it is presented in Chapter VII, data have been collected on a number of other factors, which have been identified as determinants of people's illness behaviour. Information is gathered on the basis of the multivariate model of transcultural health care utilisation in a way to substantiate the individual blocks of factors within the model, which are distinguished as determinants of local patterns of transcultural health care utilisation behaviour (*cf.* Paragraph 3.1.2). Overall, data on the blocks of factors identified within the model have been collected for all household members of the sample. Consequently, the preparation of data for the subsequent statistical analysis of patterns of health care utilisation behaviour is based on the number of utilisation rates of all household members identified as 'patients' (N=452). As noticed by the identification of utilisation rates for all 'patients' of the sample, as it is explained in Paragraph 7.2.2, Table 7.5 illustrates to what extent the 'patients' of the sample (N=338) account for a total of 452 utilisation rates. The data, which have been collected on each block of

factors identified within the model, have been gathered for a total of 452 cases, namely for the rates of utilisation of the plural medical system maintained by all household members identified as 'action patients' of the sample. In order to prepare the information collected for the subsequent statistical analysis of behavioural patterns, each block of factors, as it is composed of real-life data, is translated into a number of variables, which are inserted into the conceptual model of transcultural health care utilisation (*cf.* Ambaretnani 2012). In general, the data, which have been gathered for each household member, are too extensive to be translated directly into variables within the conceptual model. For this reason, the different blocks of factors are transformed into measurable variables and are adapted to the categories and values, which have been identified during the process of operationalisation of the conceptual model (*cf.* Paragraph 3.1.3). In an effort to define the different variables, the raw answers, which have been provided by the respondents during the household surveys, are cleaned and corrected for misspellings and inconsistencies. Subsequently, the answers are organised according to the categories and values of each variable, whereby numerical codes are assigned to the answer categories. Since a number of variables have been measured with more than one question, multiple answers are coded in an effort to comply with the pre-defined categories and values. Hereafter, rank orders of answers are arranged from 'little' to 'much' and from 'negative' to 'positive' as well as from 'difficult' to 'easy'. Data are eventually inserted into the statistical programme for data analysis, in which variables are labelled and organised in accordance with the respective block of variables identified within the multivariate model. Concurrently, the level of measurement is indicated for each variable within the model.

Overall, variables are measured at the highest possible level, whereby the variables within the analysis are measured either at the nominal or at the ordinal level. A nominal level of measurement refers to a variable with two or more categories, which are not brought into a rank order, whereas an ordinal level of measurement relates to a variable with two or more categories, which follow a rank order. Since the categories of both nominal and ordinal variables are mutually exclusive, whereby an answer can belong to only one category, the types of variables are known as 'categorical variables' (*cf.* Bernard 2002; Field 2009). In this way, the numbers, which are assigned to the categories of nominal and ordinal variables, form denominations rather than quantities. Although the categories of ordinal variables are brought into a rank order, it has not been possible to establish the exact difference between categories and as such to create an equally distributed distance between the categories, notably a characteristic of variables measured at the interval level. In other words, none of the variables, which have been assessed within the multivariate model, are measured on an interval level, as equal intervals between categories could not be assumed. Consequently, the ordinal level of measurement forms the highest level of measurement of the variables identified within the model (*cf.* Bernard 2002; Leurs 2010). Following the first data entry, all cases are verified for further inconsistencies, that is for outliers and missing values, by means of showing the frequency distribution of each variable in the model. While no significant outliers have been detected among the cases in the data set, missing values have primarily been treated as such and have been distinguished with a numerical code unique for each variable. In view of a substantial amount of missing information, seven households had to be excluded from the data set, reducing the original target of 300 to 293 households (*cf.* Bernard 2002; Leurs 2010; Bryman & Cramer 2011; Ambaretnani 2012).

On the basis of the frequency distribution of all variables in the model, variables, which needed additional coding in order to match the predefined categories and values, have been identified and subjected to data manipulation. As Action & Miller (2009: 101) state: '*In many cases, data manipulation forms an essential preliminary step in the overall process of data analysis*'. In general, the majority of variables within the model are measured with a single question, whereby the answering options match the predefined categories and values identified for each variable and forestall a recalculation of codes. Nevertheless, a number of variables are measured with more than one question and thus required a recalculation or manipulation of answer categories in order to achieve a consensus with the predefined codes.

Table 8.1 Block of Factors, Names and Labels of all 30 Variables identified within the Multivariate Model of Transcultural Health Care Utilisation.

Block of Factors	Name of Variable	Label
Socio-Demographic Factors	Community	*NamCom*
	Household Size	*HouseMem*
	Household Composition	*Relatio*
	Gender	*Gender*
	Age	*Age*
	Place of Birth	*PlaoB*
	Nationality	*Natio*
	Religion	*RelAff*
	Education	*LevEduc*
	Marital Status	*MariStat*
	Occupation	*Occupat*
Psycho-Social Factors	Knowledge of the Traditional Medical System	*KnowTrad*
	Knowledge of the Transitional Medical System	*KnowTran*
	Knowledge of the Modern Medical System	*KnowMod*
	Opinion on the Traditional Medical System	*OpiTrad*
	Opinion on the Transitional Medical System	*OpiTran*
	Opinion on the Modern Medical System	*OpiMod*
Enabling Factors	Annual Income	*AnnInco*
	Annual Expenses for Health Care	*AnnExp*
	Insurance	*Insuran*
	Socio-Economic Status	*SES*
Perceived Morbidity Factors	Health Status	*HeaStat*
	Reported Disease	*RepDis*
	Severity of the Reported Disease	*SevRepDis*
	Duration of the Reported Disease	*DurRepDis*
Institutional Factors	Accessibility of Institutions of the Traditional Medical System	*AccTrad*
	Accessibility of Institutions of the Transitional Medical System	*AccTran*
	Accessibility of Institutions of the Modern Medical System	*AccMod*
Intervening Factors	Impact of the Current Economic Situation	*EcoSit*
Health Care Utilisation Factors	Utilisation of the Plural Medical System	*HeaCare*

In this way, the answer categories are subjected to processes of recoding and mathematical computations, which are effectuated through the statistical programme for data analysis. Processes of recoding allow for an assignation of new codes to the answer categories, notably without changing the values of the variable. Consequently, recoding facilitates the merging of answer categories into larger aggregates, as it is applied to variables, which contain a considerable number of answer categories and consequently produce a statistically insufficient number of cases in each category (*cf.* Acton & Miller 2009). Mathematical computations, on the other hand, enable the combination of sets of questions, as they have been used for the measurement of certain variables. In an effort to incorporate all questions into one variable, answer categories are counted, thereby offering a scale of codes, in which the lowest and highest values are determined by the sample population rather than by theoretical determinants and allow

as such a fairly realistic assessment of the variable. In case that answer categories are measured on the same level, values are either counted within cases, notably in an attempt to assess the number of 'yes' or 'no' answers, or are computed by means of mathematical techniques, whereby the number of each code is treated as quantity (*cf.* Acton & Miller 2009; Leurs 2010). In view of the variables within the multivariate model of transcultural health care utilisation, values have been counted in order to assess the respondent's level of knowledge, while mathematical techniques have been applied in a way to address the respondent's opinion and perceived accessibility of institutions of the plural medical system.

Following the processes of calculation and recalculation of codes, the data set, which is based on the rates of utilisation of the plural medical system reported by all household members, are identified as 'action patients' of the sample (N=452), and comprise information on a total of 30 variables. Table 8.1 presents a list of all variables in the model and illustrates the block of factors, to which the respective variables belong, as well as the particular label, which is assigned to each variable within the statistical programme for data analysis. Paragraph 8.1.2 offers more detailed information on each independent variable in the model, namely on processes of initial coding and recoding, levels of measurement and the final answer categories. Hereafter, Paragraph 8.1.3 describes the rather complex procedures involved in identifying the 3 dependent variables, which are identified as 'Utilisation of the Traditional Medical System', 'Utilisation of the Transitional Medical System' and 'Utilisation of the Modern Medical System'. In this way, the variables provide a sound basis for the subsequent statistical analyses, which are performed on the data in the set in an effort to highlight the determinants of patterns of transcultural health care utilisation behaviour shown by the population of Pirgos and Praitoria.

8.1.2 Independent and Intervening Variables

Following the preparation of the data set of utilisation rates maintained by all household members distinguished as 'action patients' of the sample, a number of independent variables have been identified as determinants of local patterns of health care utilisation behaviour. The data set encompasses the following predisposing, notably socio-demographic and psycho-social, enabling, perceived morbidity, institutional and intervening variables:

Community
The variable 'Community' contains a direct reference to the names of the two research communities in the Municipality of Arkhanes-Asterousia, which had been chosen as the setting for the household surveys. The variable is measured at the nominal level, whereby the initial answer categories 'Pirgos' and 'Praitoria' are not subjected to processes of recalculation.

Household Size
The concept of 'Household Size' addresses the number of members living in the household at the time of the surveys. The variable is assessed with an open question, of which the original answers are grouped into the predefined categories of '1 member', '2 members', '3 members', '4 members' and '5 and more members', thereby generating an ordinal level of measurement.

Household Composition
In addition to the household size, the variable 'Household Composition', namely the relationship of each household member to the household head, is determined with a single question on a nominal level. On the basis of the identification of the household head, respondents have been asked to indicate the nature of the relationship of each household member to the household head. Hereafter, the original answering options were reduced to the following seven categories: household head; partner; son/daughter; grandchild; parent; brother/sister; and parent-in-law.

Gender
Measured at the nominal level, the answer categories of the variable 'Gender', namely 'male' and 'female', did not require any form of recalculation.

Age
The variable 'Age' is measured at the ordinal level on the basis of two questions, which serve the control of the reported answers, as well as the prevention of inconsistencies. The first question relates to the reported age of each respondent on the last birthday expressed in number of years alive, while the second question assesses the date of birth of each respondent. The reported answers have been arranged among the age groups of '<7', '7-13', '14-20', '21-27', '28-34', '35-41', '42-48', '49-55', '56-62', '63-69', '70-76', '77-83', '84-90' and '>90' years.

Place of Birth
Measured at the nominal level, 'Place of Birth' determines the geographical location of the community, in which the respondent is born. In this way, respondents could choose between the following answering options: 'this community', referring to either Pirgos or Praitoria; 'this municipality', namely the Municipality of Arkhanes-Asterousia; 'somewhere else in Crete'; 'somewhere else in Greece'; and 'other', which refers to any place of birth outside Greece. In order to establish the extension of migration within the Municipality of Arkhanes-Asterousia and to assess the bonds between the research and surrounding communities, respondents, who had selected 'this municipality' as their answer, have been asked to name the community, in which they were born. All reported names have subsequently been compared to the official data available on the Municipality of Arkhanes-Asterousia in a way to confirm the respondents' answers and to check for inconsistencies. Apart from verifying the reported answers, the answer categories of 'Place of Birth' have not been subjected to processes of recalculation.

Nationality
The variable 'Nationality' is measured at the nominal level and is addressed with a single question, which includes a closed and open answer category allowing respondents to choose between 'Greek' and a different type of nationality. Following a recalculation of open answers, the variable eventually offered four categories, namely 'Greek', 'Albanian', 'Bulgarian' and 'Rumanian'. The frequency distribution of the variable 'Nationality', however, shows that a vast majority of respondents (98.2%, n=444) assume the Greek nationality, thereby generating a fairly asymmetric distribution, which is positively skewed. Since the degree of skewness of the distribution exceeds the minimum threshold and would consequently cause undue effects on any correlation involving the variable 'Nationality', the variable is excluded from the subsequent statistical analysis (*cf.* De Vaus 2002) (8.1).

Religion
Similar to 'Nationality', the variable 'Religion', which is measured at the nominal level, offers an open and a closed answer category, whereby respondents are able to choose between 'Greek Orthodox' and any other form of religious affiliation. Hereafter, open answers have been organised into aggregates whereupon the variable eventually comes to incorporate the following five answer categories: 'Greek Orthodox'; 'Bulgarian Orthodox'; 'Rumanian Orthodox', 'non-Orthodox Christian'; and 'non-Christian'. Comparable to the variable 'Nationality', the vast majority of respondents (98.0%, n=443) follow the Greek Orthodox religion and as such produce a frequency distribution, which is positively skewed with values of skewness above the chosen limit. In order to avoid a distortion of results during the subsequent statistical analyses, as it can be caused by a high degree of skewness, the variable 'Religion' is dropped from the set of variables.

Education
Measured at the ordinal level, 'Education' addresses the level of formal education completed by each respondent. In line with the educational system operating in Greece, the answering options of the variable comprise the categories 'no formal education', 'primary school', 'middle school to high school', 'university' and 'other'. While answers falling into the category of 'other' have been recalculated, and the different names of schools, which have been occasionally reported by the respondents, have been verified in accordance with the official data and inserted into the appropriate category. Hereafter, the categories 'no formal education', 'primary education', 'secondary education' and 'post-secondary education' have been assigned to the variable 'Education'.

Marital Status
The variable 'Marital Status', which is measured at the nominal level, originally incorporated the answering options 'single', 'co-habiting', 'married', 'separated', 'divorced' and 'widowed'. Because of the rather limited number of respondents, who are 'co-habiting' or 'separated', these categories have been collapsed into larger aggregates and have been merged, notably on the basis of similarity, with the categories of 'married' and 'divorced'. In this way, the variable 'Marital Status' comes to include four answer categories, namely 'single', 'married/co-habiting', 'divorced/separated' and 'widowed'.

Occupation
Measured at the nominal level, the variable 'Occupation' addresses the main occupation of each household member and is addressed by a single question, which includes three closed and one open answer categories. Respondents have been able to choose between the close categories of 'unemployed', 'non-paid/student' and 'homemaker' or could select the open category, as it accommodates any other type of occupation. Answers falling into the open category have been rather abundant and have hereafter been merged into larger aggregates. In this respect, the reported occupations have been categorised among the predefined groups of professions, which were adapted from the 'International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4', developed by the Statistics Division of the United Nations (*cf.* United Nations 2013). Although the predefined answer categories follow the main industrial sectors listed within the classification to a considerable extent, the categories have to a certain degree been adapted to the characteristics of the research area. In particular, industrial sectors, such as 'Mining and Quarrying' or 'Real Estate Activities', for example, are rather inexistent in the research area and have been consequently omitted from the list of occupations. Concurrently, other professions, such as the occupation of priest, which bears considerable relevance in the research area, have been accentuated accordingly. Since the initial list of industrial sectors available in the research area, however, became rather extensive, a number of categories have been combined, as denoted by '/', in an effort to avoid statistically insufficient numbers of cases within categories. As a result, the variable 'Occupation' eventually came to include a total of 17 categories, that is: 'student/non-paid'; 'homemaker'; '(stock) farmer'; 'manufacturer'; 'construction worker'; 'retailer'; 'provider of food, beverage, accommodation'; 'insurance agent'; 'head officer/researcher'; 'servant to building'; 'public administrator/defence personnel'; 'educator'; 'human health, social worker'; 'artist/entertainer'; 'priest/personal servant'; 'employee of the private sector'; and 'unemployed/retired'. On the basis of the occupational profile of the wider study population, as it is presented in Paragraph 5.2.3, it could be assumed that a state of retirement corresponds to a state of unemployment rather than actual retirement from a profession.

Knowledge of the Traditional Medical System
'Knowledge of the Traditional Medical System' is assessed on the basis of asking the respondent a series of questions. In particular, respondents have been asked to identify different components

of the traditional medical system, namely to describe a number of phenomena, which are related to MAC plants and other traditional home remedies as well as to religious and spiritual forms of medicine. In case that the respondents have been able to describe the respective element, their answer is distinguished with 'yes', while any inability to specify the component is marked with 'no', thereby generating a set of 'yes' and 'no' codes. Answers of 'don't know', which suggest that the respondent is unable to identify the component, have been treated as 'no'-answers. In an effort to estimate the respondents' knowledge of the traditional medical system, the 'yes'-codes have been counted by means of running a mathematical computation, which eventually offered a scale indicating the knowledge of all respondents of the sample. Following the categorisation of 'yes'-values across larger aggregates, the variable 'Knowledge of the Traditional Medical System', which is measured at the ordinal level, came to include three answer categories, which ranked from 'little knowledge' to 'average knowledge' and 'much knowledge'. The variable is rather positively skewed, as a considerable majority of respondents (91.2%, n=412) demonstrate much knowledge of the traditional medical system and thus generate a frequency distribution with values of skewness above the threshold. Since 'Knowledge of the Traditional Medical System' is, however, fairly essential to the analysis of patterns of health care utilisation behaviour, the variable is included in the subsequent statistical analyses.

Knowledge of the Transitional Medical System

Similar to 'Knowledge of the Traditional Medical System', the variable 'Knowledge of the Transitional Medical System' is measured with a series of questions. In this respect, respondents have been urged to directly provide a 'yes' or 'no' answer to questions related to different components of the transitional medical system, such as the distribution and sale of pharmaceutical medicines. Positive answers have been subsequently computed into a scale, which addresses the respondents' level of knowledge of the transitional medical system. Measured at the ordinal level, the variable is comprised of three answer categories, namely 'little knowledge', 'average knowledge' and 'much knowledge'.

Knowledge of the Modern Medical System

In order to address the respondents' level of knowledge of the modern medical system, respondents have been asked to similarly answer a series of 'yes'- and 'no'-questions, which have been linked to components of the modern medical system, namely practices of prescribing and the provision of modern health care. Positive answers have been counted and computed into a scale whereupon the final variable 'Knowledge of the Modern Medical System', as it is measured at the ordinal level, came to comprise the following answer categories: 'little knowledge'; 'average knowledge'; and 'much knowledge'.

Opinion on the Traditional Medical System

The variable 'Opinion on Traditional Medical System' is measured with two questions assessing both, the pleasantness and effectiveness of the traditional medical system as perceived by the respondent. In this way, respondents have been asked to indicate their perception of pleasantness and effectiveness on scales ranking from 1, 'very unpleasant' or 'very ineffective' to 5, 'very pleasant' to 'very effective'. Concurrently, both scales offered an answering option of 0, 'no answer provided', which allowed respondents to abstain from indicating the pleasantness and effectiveness of the traditional medical system and is treated as missing value. By means of a mathematical computation, the values of both scales, as they formed quantities, have been added and arranged into a scale, which eventually included a missing value of 0 and ranked from a minimum value of 2 to a maximum value of 10. In an effort to avoid small numbers of cases within categories, the scale is later regrouped into four categories, namely 'negative opinion', 'neutral opinion', 'positive opinion' and 'no opinion'. Because of the answer category of 'no opinion', which indicates a missing value, the variable is measured at the nominal rather than the ordinal level.

Opinion on the Transitional Medical System
As noticed by the coding of the variable 'Opinion on the Traditional Medical System', the same methods of calculation and recalculation of values have been applied to the variable 'Opinion on the Transitional Medical System', which is similarly measured at the nominal level and came to include the following answer categories: 'negative opinion'; 'neutral opinion'; 'positive opinion'; and 'no opinion'.

Opinion on the Modern Medical System
In the same fashion, the processes of calculation and recalculation of values, which are applied to the variables 'Opinion on the Traditional Medical System' and 'Opinion on the Transitional Medical System', are used to assess the variable 'Opinion on the Modern Medical System'. Measured at the nominal level, the answer categories 'negative opinion', 'neutral opinion', 'positive opinion' and 'no opinion' have been assigned to the variable.

Annual Income
The variable 'Annual Income' addresses the average amount of the household's annual income in Euro as reported by the respondent. In view of the fairly sensitive nature of the variable, the answering options available formed to closed categories and allowed respondents to indicate the estimated annual income on a scale, which, notably covering equal intervals, ranked from the minimum values of '<10.000 Euro' and '11.000-20.000 Euro' to the maximum values of '91.000-100.000 Euro' and '>100.000 Euro'. Respondents could furthermore refrain from giving an answer, thereby choosing the answer category 'no income reported', which is treated as missing value. Following an initial calculation of values, it became evident that respondents rarely reported an annual income above 40.000 Euro whereupon the income scale is resized into a total of five categories. Measured at the nominal level, notably because of missing value-category, the variable 'Annual Income' incorporates the following answer categories: '<10.000'; '10.000-20.000'; '21.000-30.000'; '31.000-40.000'; '>40.000'; and 'no income reported'.

Annual Expenses for Health Care
In addition to an assessment of the household's annual income, the variable 'Annual Expenses for Health Care' estimates the average amount of expenses for health care in Euro, which each household meets over the course of one year. The variable is measured with a single open question asking the respondent to indicate the approximate amount of money spent annually on health care. On the basis of reported answers, a scale of values is constructed, which is ultimately divided into groups of answer categories. Furthermore, respondents have been able to select the answering option 'no expenses reported', which gave respondents the opportunity to abstain from giving an answer and is subsequently treated as missing value. The variable 'Annual Expenses for Health Care' is measured at the nominal level and includes six answer categories, namely '<250', '250-500', '501-750', '751-1.000', '>1.000' and 'no expenses reported'.

Insurance
Following an estimation of the average amount of the household's annual expenses for health care, respondents have been subsequently asked to provide an indication of the means of coverage of their health care expenses. For this reason, the respondents have been first invited to answer a general question on the means of cost recovery and to hereby choose one of the following answering options: 'private funds'; 'public funds'; 'insurance'; and 'other'. Hereafter, an initial calculation of answers revealed that the sample population is extensively covered by social insurance. In a second question, which eventually formed the basis for the construction of the variable 'Insurance', respondents have been consequently asked to name their insurance company. Following a first assessment of answers received, the results demonstrated that a considerable number of respondents are covered by one out of three major social insurance funds available in Greece. Accounting for the, albeit limited, number of respondents, who are not

covered by insurance, the variable, which is measured at the nominal level, ultimately included five answer categories, namely 'IKA', 'OGA', 'OPAD', 'other' and 'no insurance'. While the category 'other' comprises any type of social insurance other than the three major funds listed, the category 'no insurance' indicates a lack of coverage and is treated as missing value.

Socio-Economic Status (SES)
The variable 'Socio-Economic Status' is measured with two questions, of which the first is answered by the respondent and the second is answered by the researcher. Respondents were asked to indicate their perceived level of their socio-economic status on a scale offering the categories 1 'very poor', 2 'poor', 3 'average', 4 'rich' and 5 'very rich'. Concurrently, respondents have been able to refrain from providing an answer by choosing the category 'no answer provided'. In order to reach a level of comparison between the subjective answers to the perceived level of socio-economic status, the researcher provided an additional indication of the subject's socio-economic status, notably by using the same scale. The researcher's indication is mainly based on a personal impression of the quantity of possessions and the extension of additional assets ownership of each household as well as the size and state of the house. Following this somewhat external perception of the socio-economic status of the respondents, the answers, which have been provided by the respondents, could be compared and eventually brought on a similar level. Hereafter, the variable 'Socio-Economic Status' is measured at the ordinal level and incorporates the answer categories of 'poor', 'average' and 'rich'.

Health Status
Similar to the variable 'Socio-Economic Status', respondents have been invited to indicate their perceived level of general health status on a scale comprising the categories 1 'very poor', 2 'poor', 3 'average', 4 'well' and 5 'very well'. After an initial calculation of answers, the scale is collapsed into larger aggregates in an effort to avoid small numbers of cases within categories. The variable 'Health Status', which is measured at the ordinal level, eventually came to include three answer categories, namely 'poor', 'average' and 'well'.

Reported Disease
During the quantitative household surveys, the variable 'Reported Disease' determined the number of respondents, who had experienced an episode of illness over a recall period of 12 months preceding the surveys. In this way, the variable distinguishes the 'patients' from the 'non-patients' of the sample and hereby provides the basis for establishing the rates of utilisation of the plural medical system maintained by all 'patients' of the sample. In order to gather information on the number of 'patients' of the sample and on the particular illness episode experienced, respondents have been asked to indicate whether they had suffered from a disease during the recall period by means of choosing 'yes' or 'no' as well as 'no answer provided'. In case that the respondent chose the first category, two subsequent open questions assessed the type and accompanying symptoms of the main illness episode, which the respondent experienced. At this point, the respondents have been given the opportunity to refrain from describing the nature of the disease, as it may at times evoke uncomfortable feelings among the respondents. Hereafter, a limited number of respondents, who have been subsequently distinguished as 'non-patients', chose to abstain from providing an answer. Nevertheless, the positive answers to the type and symptoms of illness episodes generated a considerable amount of information, which is later organised among a number of disease categories. The categories have been created and ordered on the basis of local data and the specific disease categories, which have been designed by the World Health Organisation (WHO) in its 10th revision of the International Classification of Diseases (ICD) (*cf.* WHO 2014b). The disease categories, which had to be merged in a way to avoid statistically insufficient numbers of cases within categories, ultimately formed the basis for constructing the variable 'Reported Disease'. Measured at the nominal level, the answer categories of the variable reflect a locally specific classification of

illnesses and amount to a total of 20 groups of diseases, including: 'neoplasm'; 'disorder of the thyroid gland or metabolic disorder'; 'mental and/or behavioural disorder'; 'disease of the nervous system'; 'disease of the eye and/or adnexa', 'ischemic or other form of heart disease'; 'essential (primary) hypertension or other disease of the circulatory system'; 'the common cold'; 'other disease of the respiratory system'; 'disease of the digestive system'; 'disease of the skin and/or subcutaneous tissue'; 'disease of the muscoskeletal system and connective tissue'; 'disease of the genitourinary system'; 'congenital malformation'; 'symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified'; 'elevated blood glucose level'; 'abdominal and/or pelvic pain'; 'accident'; 'the evil eye'; and 'unspecified/unknown'. The last category refers to illness episodes, which have not been included in any of the listed categories or remained unknown.

Severity of the Reported Disease

Based on the variable 'Reported Disease', 'Severity of the Reported Disease' assesses the level severity of the reported illness episode, as perceived by the respondent. Measured at the ordinal level, respondents have been invited to specify the perceived level of severity on a scale ranking from 1 to 4 and to hereby choose between one of the following categories: 'not severe'; 'mildly severe'; 'moderately severe'; and 'highly severe'. The answer categories have not been subjected to any process of recalculation.

Duration of the Reported Disease

In order to further determine the characteristics of the reported illness episode, respondents have been subsequently asked provide an indication of the perceived duration of the disease. The duration of the disease is measured with an open question, which allowed respondents to report any particular period of time, during which they suffered from the reported illness. Hereafter, answer have been recalculated in a way to distinguish between illness episodes, which lasted up to one month and are hereafter specified as acute, and illness episodes, which lasted longer than one month and are thus identified as chronic. The final variable 'Duration of the Reported Disease' is measured at the nominal level and eventually came to comprise the answer categories of 'acute' and 'chronic'.

Accessibility of Institutions of the Traditional Medical System

The variable 'Accessibility of Institutions of the Traditional Medical System' determines the perceived geographical accessibility of any institution linked to the traditional medical system. In this way, the respondents have been invited to estimate the perceived geographical accessibility of the respective institutions on a scale comprising the categories 1 'very difficult', 2 'difficult', 3 'average', 4 'easy' and 5 'very easy'. Simultaneously, respondents have been able to select the answering option 'no institutions reported', which implies a perceived absence of institutions of the traditional medical system and is treated as missing value. In view of the missing value-category, the variable is measured at the nominal level. Hereafter, the variable came to include six answer categories, namely 'very difficult accessibility', 'difficult accessibility', 'average accessibility', 'easy accessibility', 'very easy accessibility' and 'no institutions reported'.

Accessibility of Institutions of the Transitional Medical System

Similar to 'Accessibility of Local Institutions of the Traditional Medical System', the variable 'Accessibility of Institutions of the Transitional Medical System' assesses the geographical accessibility of any institution linked to the transitional medical system, as perceived by the respondent. Likewise, the variable is measured at the nominal level and offers the following answer categories: 'very difficult accessibility'; 'difficult accessibility'; 'average accessibility'; 'easy accessibility'; 'very easy accessibility'; and 'no institutions reported'. The last category refers to the absence of institutions, as perceived by the household head, and is treated as missing value.

Accessibility of Institutions of the Modern Medical System
Calculation of the variable 'Accessibility of Institutions of the Modern Medical System', which assesses the geographical accessibility of institutions of the modern medical system, similarly resulted in the construction of the answer categories 'very difficult accessibility', 'difficult accessibility', 'average accessibility', 'easy accessibility', 'very easy accessibility' and 'no institutions reported'. Since the last category, which suggests a general absence of institutions, is treated as missing value, the variable is measured at the nominal level.

Impact of the Current Economic Situation
The intervening variable 'Impact of the Current Economic Situation' assesses the level of impact, which the current economic situation in Greece has on patterns of health care utilisation behaviour, as perceived by the respondent. In particular, respondents have been invited to indicate to which extent they disagree or agree with the fact that the current economic situation has an impact on local patterns of health care utilisation behaviour. In this way, the respondents have been asked to highlight their answer on a scale, which comprises the categories 1 'completely disagree', 2 'disagree', 3 'neutral', 4 'agree' and 5 'completely agree'. In addition to the five categories, respondents have been able to select the answering option 'no impact reported', which implies that the respondents generally disprove the assumption about how the current economic situation has an impact on people's health care utilisation behaviour. In an attempt to adjust the answers to the predefined categories, the values on the scale are renamed accordingly, while the category 'no impact reported', which is treated as missing value, is added to the scale. In view of the missing value-category, the final variable is measured at the nominal level and offers the following categories: 'very low impact'; 'low impact'; 'average impact'; 'high impact'; 'very high impact'; and 'no impact reported'.

8.1.3 Dependent Variables

In addition to the independent and intervening variables presented above, the data set of utilisation rates, which are reported by all household members identified as 'patients' of the sample, includes the 3 dependent variables: 'Utilisation of the Traditional Medical System', 'Utilisation of the Transitional Medical System' and 'Utilisation of the Modern Medical System'. In general, the dependent variables determine the number of contacts between 'patients' and the three medical systems available in the research area to enable 'patients' to seek treatment for their reported illness. On the basis of the independent variable 'Reported Disease', it is possible to distinguish the 'patients' from the 'non-patients' of the sample and to subsequently measure the extent of the dependent variables among 'patients' rather than all household members. In this way, the calculation of the dependent variables directly follows the calculation of variables, which are included in the block of perceived morbidity factors. A slight majority of household members (51.5%, n=338) provided a positive answer to the question as to whether they had experienced an illness episode over the recall period of time and have hereafter been specified as 'patients'. In order to estimate the rates of utilisation of the plural medical system, 'patients' have been asked to indicate in which way treatment is sought for the reported illness. Overall, 4.1% (n=14) of 'patients', hereafter identified as 'non-action patients', refrained from taking any action in order to seek treatment and have consequently been excluded from the process of calculation of the dependent variables. The remaining number of 'patients' of the sample amounts to a total of 324 respondents, who reportedly contacted the plural medical system in a way to seek treatment for the reported illness.

On the whole, the remaining 'patients' of the sample not only admitted to taking action in a way to seek treatment for the reported illness episode, but also gave an indication as to which medical system they contacted. In accordance with the plural medical system available in the research area, respondents were invited to choose one of the following answer categories: 'traditional medical system'; 'transitional medical system'; or 'modern medical system'. The

answers, which have at this point been provided by the respondents, illustrate the extension of the first steps taken by the 'patients' of the sample in a way to seek treatment. Since patterns of health care utilisation behaviour, however, may include multiple contacts between 'patients' and the plural medical system, respondents have also been asked to indicate whether they had taken a second step in the process of seeking treatment. Accordingly, respondents have been invited to select one out of four answer categories, namely 'traditional medical system', 'transitional medical system', 'modern medical system' or 'no further step taken'.

The number of 'patients', who chose the last category, reveals the quantity of respondents, who reportedly took only one step within the process of health care utilisation. In the same fashion, all respondents, who took two steps, have subsequently been asked to report whether they had taken a third step in order to seek treatment. Likewise, respondents had to select an answer from the categories 'traditional medical system', 'transitional medical system', 'modern medical system' or 'no further step taken'. The number of 'patients', who chose to take no further step, highlights the quantity of respondents, who took two steps within the process of seeking treatment, while all remaining 'patients' have been categorised as respondents, who took three steps in a way to receive treatment. Since respondents could take a maximum of three steps, notably conforming to the number of medical systems available in the research area, no further questions have been asked.

In order to elaborate the dependent variables, the different steps, during which the 'patients' contacted the plural medical system, have been translated into an overall rate of utilisation (*cf.* Table 7.5). Thereafter, the dependent variables have been calculated on the basis of the utilisation rates reported by all 'patients' of the sample. Since the requirements of the subsequent statistical bivariate and multivariate analyses differ to a considerable extent, the final dependent variables have been constructed in two different ways. The dependent variables, which are used in the bivariate analysis of patterns of health care utilisation behaviour have been incorporated in the overall variable 'Utilisation of the Plural Medical System'. The variable is measured at the nominal level and eventually came to comprise the following answer categories: 'utilisation of the traditional medical system'; 'utilisation of the transitional medical system'; and 'utilisation of the modern medical system'. However, in order to meet the requirements of the multivariate analysis of data, which demands dependent variables with no more than two categories, the dependent variables are arranged into three separate variables with two answer categories, namely into 'Utilisation of the Traditional Medical System', 'Utilisation of the Transitional Medical System' and 'Utilisation of the Modern Medical System'. Each of the variables is measured at the nominal level and includes the answer categories 'yes' and 'no', whereby 'yes' denotes the actual utilisation of the respective medical system and 'no' implies that a medical system other than the one in question is contacted.

In general, 45.8% (n=207) of the utilisation rates refer to a single contact with the plural medical system, 46.9% (n=212) of the utilisation rates imply a double contact with the plural medical system and 7.3% (n=33) of the utilisation rates relate to the number of 'patients', who have taken three steps in order to seek treatment. Furthermore, the majority of the utilisation rates reported by the household members (46.0%, n=208) refers to contacts with the transitional medical system, rendering the transitional medical system the most commonly used medical system in the research area. In this respect, a slightly smaller percentage of utilisation rates (44.7%, n=202) highlights the extent, to which 'patients' contacted the traditional medical system. Accordingly, only 9.3% (n=42) of contacts between 'patients' and the plural medical system relate to patterns of utilisation of the modern medical system, which hereby forms the least frequently contacted medical system in the research area.

8.2 Quantitative Data Analysis

8.2.1 Bivariate and Mutual Relations Analysis

In general, a bivariate analysis tests the relationship between two variables by means of explaining the strength, direction and shape of the correlation. The results of a bivariate analysis, however, give no indication of the direction of causality, namely of which variable causes the other to change, not at least because the results could be affected by other measured or unmeasured variables. Consequently, any interpretation of results, which a bivariate analysis produces, requires considerable caution (*cf.* Field 2009). Based on the calculation and recalculation of variables identified in the multivariate model of transcultural health care utilisation, as presented in the previous paragraphs, the following variables have been selected for the subsequent bivariate analysis:

Independent Variables:

1. Predisposing Socio-Demographic Variables: 'Community', 'Household Size', 'Household Composition', 'Gender', 'Age', 'Place of Birth', 'Education', 'Marital Status', 'Occupation';
2. Predisposing Psycho-Social Variables: 'Knowledge of the Traditional Medical System', 'Knowledge of the Transitional Medical System', 'Knowledge of the Modern Medical System', 'Opinion on the Traditional Medical System', 'Opinion on the Transitional Medical System', 'Opinion on the Modern Medical System';
3. Enabling Variables: 'Annual Income', 'Annual Expenses for Health Care', 'Insurance', 'Socio-Economic Status';
4. Perceived Morbidity Variables: 'Health Status', 'Reported Disease', 'Severity of the Reported Disease', 'Duration of the Reported Disease';
5. Institutional Variables: 'Accessibility of Institutions of the Traditional Medical System', 'Accessibility of Institutions of the Transitional Medical System', 'Accessibility of Institutions of the Modern Medical System';

Intervening Variables:

6. Intervening Variable: 'Impact of the Current Economic Situation';

Dependent Variables:

7. Health Care Utilisation Variable: 'Utilisation of the Traditional Medical System', 'Utilisation of the Transitional Medical System', 'Utilisation of the Traditional Medical System'.

On the whole, a bivariate analysis forms the point of embarkation for performing a quantitative analysis on the data set of utilisation rates reported by all household heads identified as 'patients' in the sample. In this respect, a bivariate analysis displays the relative influence each independent and intervening variable, which are included in the multivariate model of transcultural health care utilisation, has on the dependent variables. Since methods of bivariate analysis generally depend on the level of measurement, which is assigned to the variables, the present data set demands a technique, which is applicable to categorical, namely nominal and ordinal, variables. While a bivariate analysis of categorical data usually employs a measurement of frequencies, the technique of 'cross-tabulation' is selected as an appropriate method to perform a bivariate analysis on the present data. The method of cross-tabulation arranges the distribution of two categorical variables by means of displaying frequencies, which hereafter illustrate the total number of elements in each combination of categories (*cf.* Field 2009; Leurs 2012). Literally, cross-tabulation refers to a frequency table, in which the number of categories of variables is reflected in the number of rows and columns of the table. In this way, the method of cross-tabulation is used to analyse the relationship each independent variable identified in the model maintains with the dependent variables.

In order to further explain the relationship between two categorical variables, namely the association the independent variables maintain with the dependent variables, the Pearson's chi-square test (χ^2) is applied to each cross-tabulation. On the whole, the Pearson's chi-square test analyses the relationship between two categorical variables on the basis of comparing the frequencies observed in certain categories to the frequencies, which are expected to occur by chance. In other words, the test calculates the degree of probability, to which the relationship between the variables occurs by chance. Accordingly, the more significant the results of the chi-square test are, the less likely it is that the relationship between variables occurs by chance (*cf.* Bernard 2002). The significance values of the Pearson's chi-square test are arranged along the following scale:

χ^2>.15 'non-significant';
χ^2=.15-.10 'indication of significance';
χ^2=.10-.05 'weakly significant';
χ^2=.05-.01'strongly significant';
χ^2=.01-.001 'very strongly significant';
χ^2<.001 'most strongly significant'
(*cf.* Agung 2005; Leurs 2010; Djen Amar 2010; Ambaretnani 2012; Chirangi 2013).

Following the assumptions of the chi-square test, each respondent of the sample contributes to only one cell within the cross-tabulation. Furthermore, the majority of expected frequencies per cross-tabulation are either all above 1 or, provided that the number of respective frequencies remain below 20%, above 5. If the variables identified in the model fail to meet the second assumption, an exact test is applied to the cross-tabulation. On the basis of Pearson's chi-square test, the strength of each significant association between variables is further explored with Cramer's V. The values of Cramer's V range from 0 to 1, whereby 0 implies that no relationship exists between variables and 1 indicates that variables are perfectly associated (*cf.* De Vaus 2002; Field 2009; Ambaretnani 2011; Bryman & Cramer 2011).

The results of the overall bivariate analysis of the present data are presented in Tables 8.2 to 8.7, which are ordered in accordance with the different blocks of variables identified in the model. The tables show the relationship, which each independent variable included in the respective block of variables maintains with the dependent variables. In particular, the names of the independent variables in each block are shown on the left side of the table. The dependent variables are organised along the columns of the cross-tabulation, as indicated at the top of each table. The significance values of the Pearson's chi-square test (χ^2) are displayed below the name of each independent variable. The information presented between brackets indicates, whether the value refers to an asymptotic significance value ('Asymp. Sig.'), or to an exact significance value ('Monte Carlo Sig.'), whereby the latter implies that an exact test has been applied to the data in the cross-tabulation. Moreover, the information explains that the chi-square test is two-sided ('2-sided') and abstains from providing any indication of the direction of causality. In case that the values of the chi-square test are significant, the distribution of each pair of variables is extended in a way to illustrate the cross-tabulation of data. In particular, the categories of the independent variable are arranged accordingly among the rows underneath the name of the variable, while the total extension of the dependent variables is highlighted in the last cell of each column. Hereafter, the values of Cramer's V (V) are displayed next to the, notably significant, Pearson's χ^2-values. Furthermore, the observed frequencies and percentages of each distribution are presented, whereby percentages are provided for each row, which generates a row total for each cell. The results of the bivariate analysis are subsequently discussed for each significant relationship between variables below the respective table. Since percentages are better suitable than frequencies to detect variations in the data, they are used in the discussion of the results (*cf.* Field 2009). The row percentages within each column of the table are compared to the total number of utilisation rates of the plural medical system, as they are indicated in the last

cell of each column. Since the total values indicate the average distribution of utilisation rates, variations in the data can be detected in the extent, to which cell percentages deviate from the total distribution of values. On the whole, the more cell percentages differ from the total values, notably above and below, the stronger the relationship between variables appears to be. Overall, it is, however, the Pearson's χ^2-value rather than degree of deviation between cell percentages and total values, which provides an indication of significance. Statistically significant associations between variables can *de facto* occur despite proportionally small differences in cell frequencies (*cf.* Field 2009).

Bivariate Analysis of Socio-Demographic Variables and Dependent Variables (Table 8.2)

Table 8.2 Distribution of the Socio-Demographic Variables of Respondents of the Sample over the Dependent Variables (N=452).

Variable	Utilisation of the Plural Medical System						Total	
	Traditional Medical System		Transitional Medical System		Modern Medical System			
	N	%	N	%	N	%	N	%
Community								
Pearson's χ^2 (Asympt. Sig., 2-sided) = .643								
Household Size								
	N	%	N	%	N	%	N	%
1 Member	30	29.4	58	56.9	14	13.7	102	100.0
2 Members	81	41.8	95	49.0	18	9.3	194	100.0
3 Members	20	39.2	26	51.0	5	9.8	51	100.0
4 Members	36	65.5	16	29.1	3	5.5	55	100.0
5 and more Members	35	70.0	13	26.0	2	4.0	50	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0
Pearson's χ^2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .194								
Household Composition								
	N	%	N	%	N	%	N	%
Household head	104	40.2	130	50.2	25	9.7	259	100.0
Partner	49	41.2	56	47.1	14	11.8	119	100.0
Son/Daughter	45	73.8	14	23.0	2	3.3	61	100.0
Grandchild	1	100.0	0	0.0	0	0.0	1	100.0
Parent	3	33.3	5	55.6	1	11.1	9	100.0
Brother/Sister	0	0.0	1	100.0	0	0.0	1	100.0
Parent-in-law	0	0.0	1	100.0	0	0.0	1	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .007 / Cramer's V = .181								

Within the block of socio-demographic factors, the distribution of the variable 'Household Size' (χ^2 = .000) over the dependent variables demonstrates a most strongly significant relationship. The value of Cramer's V (V=.194) reveals that there is a weak association between the variables. On the whole, the majority of respondents, who live in a household composed of 5 and more members (70.0%, n=35), contact the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. In the same fashion, 65.5% (n=36) of respondents, who live in a 4 member-household, seek treatment from the traditional medical system more frequently than average. On the contrary, the results of cross-tabulation indicate a trend among 'patients', who

contact the transitional medical system in a way to receive treatment. Respondents, who live in a 1 member-household (56.9%, n=58), use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. Hereafter, the variables in the table indicate that the more members a household has the less frequently respondents contact the transitional medical system. In particular, respondents, who live in households composed of four members (29.1%, n=16), use the transitional medical system less frequently than average, *i.e.* below the average of 46.0%. In the same fashion, members of households with 5 and more members (26.0%, n=13) seek treatment from the transitional medical system less frequently than average. Concurrently, a considerable number of respondents, who live in a 1 member-household (13.7%, n=14), contact the modern medical system more frequently than average, *i.e.* above the average of 9.3%. In this respect, a rather low number of respondents, who live in a household composed of 5 and more members (4.0%, n=2), seek treatment from the modern medical system. In addition to the size of the household, the distribution of the variable 'Household Composition' (χ^2 = .007) over the dependent variables, which is measured with an exact test, reveals a very strongly significant relationship. The value of Cramer's V (V=.181) similarly indicates that the variables are weakly associated. On the whole, the distribution shows that household members, whose nature of relationship to the household head refers to grandchild (100.0%, n=1) as well as to son or daughter (73.8%, n=45), use the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Respondents, who are related to the household head as a parent (33.3%, n=3), however, contact the traditional medical system less frequently than average. Accordingly, the majority of household members, whose nature of relationship to the household head refers to parent (55.6%, n=5), use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. Hereafter, respondents, who are related to the household head as son or daughter (23.0%, n=14), contact the transitional medical system less frequently than average. Although the relationship between the household head and his or her partner is rather evenly distributed over the dependent variables, a slight majority of partners (11.8%, n=14) use the modern medical system more frequently than average, *i.e.* above the average of 9.3%.

Gender
Pearson's χ^2 (Asympt. Sig., 2-sided) = .668

Age

	N	%	N	%	N	%	N	%
<7	18	81.8	3	13.6	1	4.5	22	100.0
7-13	12	75.0	3	18.8	1	6.2	16	100.0
14-20	5	100.0	0	0.0	0	0.0	5	100.0
21-27	16	45.7	15	42.9	4	11.4	35	100.0
28-34	13	61.9	8	38.1	0	0.0	21	100.0
35-41	10	58.8	6	35.3	1	5.9	17	100.0
42-48	13	46.4	12	42.9	3	10.7	28	100.0
49-55	15	42.9	15	42.9	5	14.3	35	100.0
56-62	10	25.0	22	55.0	8	20.0	40	100.0
63-69	22	40.0	29	52.7	4	7.3	55	100.0
70-76	31	44.3	35	50.0	4	5.7	70	100.0
77-83	29	37.2	43	55.1	6	7.7	78	100.0
84-90	6	28.6	12	57.1	3	14.3	21	100.0
>90	2	22.2	5	55.6	2	22.2	9	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .003 / Cramer's V = .236
Place of Birth
Pearson's χ^2 (Asympt. Sig., 2-sided) = .254

Education
Pearson's χ^2 (Asympt. Sig., 2-sided) = .523

Marital Status

	N	%	N	%	N	%	N	%
Single	54	60.7	28	31.5	7	7.9	89	100.0
Married/Co-habiting	122	43.9	129	46.4	27	9.7	278	100.0
Divorced/Separated	1	33.3	1	33.3	1	33.3	3	100.0
Widowed	25	30.5	50	61.0	7	8.5	82	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .006 / Cramer's V = .146

Occupation

	N	%	N	%	N	%	N	%
Not in labour force	14	77.8	3	16.7	1	5.6	18	100.0
Student/non-paid	23	76.7	6	20.0	1	3.3	30	100.0
Self-employed	2	66.7	1	33.3	0	0.0	3	100.0
Homemaker	33	41.8	39	49.4	7	8.9	79	100.0
(Stock) Farmer	83	40.7	104	51.0	17	8.3	204	100.0
Manufacturer	5	41.7	6	50.0	1	8.3	12	100.0
Construction worker	3	50.0	2	33.3	1	16.7	6	100.0
Retailer	12	48.0	8	32.0	5	20.0	25	100.0
Driver/Carrier	0	0.0	3	75.0	1	25.0	4	100.0
Provider of food, beverage, accomm.	4	80.0	1	20.0	0	0.0	5	100.0
Insurance agent	1	100.0	0	0.0	0	0.0	1	100.0
Head officer/Res.	3	75.0	1	25.0	0	0.0	4	100.0
Servant to building	1	33.3	2	66.7	0	0.0	3	100.0
Public adm./Defence	6	37.5	8	50.0	2	12.5	16	100.0
Educator	4	25.0	8	50.0	4	25.0	16	100.0
Health/Social worker	1	16.7	5	83.3	0	0.0	6	100.0
Artist/Entertainer	2	100.0	0	0.0	0	0.0	2	100.0
Priest/Personal servant	1	33.3	2	66.7	0	0.0	3	100.0
Employee private sect.	4	57.1	3	42.9	0	0.0	7	100.0
Unemployed/Retired	0	0.0	6	75.0	2	25.0	8	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .021 / Cramer's V = .255

The distribution of the variable 'Age' (χ^2 = .003) over the dependent variables is measured with an exact test and reveals a very strongly significant relationship between the two variables. The value of Cramer's V (V=.236) shows a moderately strong association. In particular, a considerable majority of respondents, who are found in the age groups of <7 (81.8%, n=18), 7-13 (75.0%, n=12) and 14-20 (100.0%, n=5) as well as 28-34 (61.9%, n=13), seek treatment from the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Furthermore, respondent aged 55 and below use the transitional medical system less frequently than average, *i.e.* below the average of 46.0%, while respondents aged 56 above contact the transitional medical system more frequently than average. Concurrently, household members, who are found in the age groups of 49-55 (14.3%, n=5), 56-62 (20.0%, n=8), 84-90 (14.3%, n=3) and >90 (22.2%, n=2), seek treatment from the modern medical system more frequently than average, *i.e.* above the average of 9.3%.

The cross-tabulation of 'Marital Status' (χ^2 = .006) and the dependent variables, to which an exact test is applied, shows a very strongly significant relationship. In addition to the chi-value,

the value of Cramer's V (V=.146) indicates an association between the variables. In general, single respondents (60.7%, n=54) use the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Hereafter, respondents, who are widowed (30.5%, n=25), seek treatment from the traditional medical system less frequently than average. On the other hand, single respondents (31.5%, n=28) contact the transitional medical system less frequently than average, *i.e.* below the average of 46.0%, while widowed respondents (61.0%, n=50) use the transitional medical system more frequently than average. Furthermore, respondents, who are single (7.9%, n=7), contact the modern medical system less frequently than average, *i.e.* below the average of 9.3%.

The distribution of the variable 'Occupation' (χ^2 = .021) over the dependent variables indicates a strongly significant relationship. In line with these results, the value of Cramer's V (V=.255) shows that the variables are moderately strongly associated. Overall, the distribution illustrates that respondents, who are employed as artists or entertainers (100.0%, n=2), insurance agents (100.0%, n=1), providers of food, beverage or accommodation (80.0%, n=4) as well as head officers or researchers (75.0%, n=3), seek treatment from the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Likewise, respondents, who are not in labour force (77.8%, n=14), are active as students or non-paid labourers (76.7%, n=23), are self-employed (66.7%, n=2) or are employed in the private sector (57.1%, n=4), contact the traditional medical system more frequently than average. On the other hand, respondents, who practice the profession of a human health and social worker (16.7%, n=1), educator (25.0%, n=4), servant to building (33.3%, n=1) as well as priest or personal servant (33.3%, n=1), use the traditional medical system less frequently than average. Hereafter, respondents, who follow the occupation of a human health and social worker (83.3%, n=5), driver or carrier (75.0%, n=3), servant to building (66.7%, n=2) as well as priest or personal servant (66.7%, n=2), seek treatment from the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. Respondents, who are not in labour force (16.7%, n=3), are active as students or non-paid labourers (20.0%, n=6), are employed as head officers or researchers (25.0%, n=1), retailers (32.0, n=8) as well as construction workers (33.3%, n=2) or are self-employed (33.3%, n=1), however, contact the transitional medical system less frequently than average. Furthermore, respondents, who are employed as drivers or carriers (25.0%, n=1), educators (25.0%, n=4), retailers (20.0%, n=5) as well as construction workers (16.7%, n=1) use the modern medical system more frequently than average, *i.e.* above the average of 9.3%. Concurrently, respondents, who are active as students or non-paid labourers (3.3%, n=1) or are not in labour force (5.6%, n=1), seek treatment from the modern medical system less frequently than average. Finally, community members, who are unemployed or retired, widely abstained from using the traditional medical system (0.0%, n=0) but appear to contact the transitional (75.0%, n=6) and the modern (25.0%, n=2) medical system more frequently than average.

Within the block of psycho-social variables, the distribution of the variable 'Knowledge of the Traditional Medical System' (χ^2 = .022) over the dependent variables, which is measured with an exact test, shows a strongly significant relationship. The value of Cramer's V (V=.148) indicates an association between the variables. Since an overwhelming majority of respondents demonstrate much knowledge of the traditional medical system, the distribution is positively skewed and is calculated with an exact test. Although the results are consequently based on a generally low number of cases within the categories of little and average knowledge, the variable holds considerable significance for the present study and is thereupon subject to statistical analysis. In general, respondents, who show little knowledge of the traditional medical system (29.4%, n=5), contact the traditional medical system less frequently than average, *i.e.* below the average of 44.7%. Accordingly, respondents, who have little knowledge of the traditional medical system (58.8%, n=10), use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%.

Nevertheless, respondents, who have average knowledge of the traditional medical system (39.1%, n=9), use the transitional medical system less frequently than average. Respondents demonstrating little (11.8%, n=2) or average (13.0%, n=3) knowledge of the traditional medical system furthermore contact the modern medical system more frequently than average, *i.e.* above the average of 9.3%.

Bivariate Analysis of Psycho-Social Variables and Dependent Variables (Table 8.3)

Table 8.3 Distribution of the Psycho-Social Variables of Respondents of the Sample over the Dependent Variables (N=452).

Variable	Utilisation of the Plural Medical System						Total	
	Traditional Medical System		Transitional Medical System		Modern Medical System			
	N	%	N	%	N	%	N	%
Knowledge of the Traditional Medical System								
	N	%	N	%	N	%	N	%
Little knowledge	5	29.4	10	58.8	2	11.8	17	100.0
Average knowledge	11	47.8	9	39.1	3	13.0	23	100.0
Much knowledge	186	45.1	189	45.9	37	9.0	412	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .022 / Cramer's V = .148								
Knowledge of the Transitional Medical System								
Pearson's χ^2 (Asympt. Sig., 2-sided) = .589								
Knowledge of the Modern Medical System								
	N	%	N	%	N	%	N	%
Little knowledge	45	37.5	61	50.8	14	11.7	120	100.0
Average knowledge	64	49.2	53	40.8	13	10.0	130	100.0
Much knowledge	93	46.0	94	46.5	15	7.4	202	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0
Pearson's χ^2 (Asympt. Sig., 2-sided) = .036 / Cramer's V = .141								
Opinion on the Traditional Medical System								
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .761								
Opinion on the Transitional Medical System								
	N	%	N	%	N	%	N	%
Negative opinion	2	50.0	2	50.0	0	0.0	4	100.0
Neutral opinion	189	46.7	179	44.2	37	9.1	405	100.0
Positive opinion	10	25.0	25	62.5	5	12.5	40	100.0
No opinion	1	33.3	2	66.7	0	0.0	3	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .073 / Cramer's V = .152								
Opinion on the Modern Medical System								
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .726								

The distribution of the variable 'Knowledge of the Modern Medical System' (χ^2 = 0.36) over the dependent variables similarly reveals a strongly significant relationship. The value of Cramer's V (V=.141) indicates an association between the two variables. In contrast to the previous distribution, respondents, who have little knowledge of the modern medical system (11.7%, n=14), contact the modern medical system more frequently than average, *i.e.* above the average of 9.3%. Concurrently, respondents showing much knowledge of the modern medical system (7.4%, n=15) use the modern medical system less frequently than average. Respondents, who demonstrate little knowledge of the modern medical system (37.5%, n=45), moreover contact the traditional medical system less frequently than average, *i.e.* below the average of 44.7%.

Among the variables measuring the respondent's opinion on the plural medical system, only the distribution of the variable 'Opinion on the Transitional Medical System' (χ^2 = .073) over the dependent variables, which is assessed with an exact test, is weakly significant. The value of Cramer's V (V=.152) indicates that a weak association exists between both variables. Overall, respondents, who have a positive opinion on the transitional medical system (62.5%, n=25), use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. Furthermore, respondents, who have a negative opinion on the transitional medical system (50.0%, n=2), contact the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. In line with these results, respondents, who share a positive opinion on the transitional medical system (25.0%, n=10), use the traditional medical system less frequently than average. On the other hand, respondents, who have a positive opinion on the transitional medical system (12.5%, n=5), contact the modern medical system more frequently than average, *i.e.* above the average of 9.3%.

Bivariate Analysis of Enabling Variables and Dependent Variables (Table 8.4)

Table 8.4 Distribution of the Enabling Variables of Respondents of the Sample over the Dependent Variables (N=452).

Variable	Utilisation of the Plural Medical System						Total	
	Traditional Medical System		Transitional Medical System		Modern Medical System			
	N	%	N	%	N	%	N	%
Annual Income								
	N	%	N	%	N	%	N	%
<10.000	40	33.1	68	56.2	13	10.7	121	100.0
10.000-20.000	85	49.1	76	43.9	12	6.9	173	100.0
21.000-30.000	34	43.6	38	48.7	6	7.7	78	100.0
31.000-40.000	13	52.0	9	36.0	3	12.0	25	100.0
>40.000	3	42.9	3	42.9	1	14.3	7	100.0
No income reported	27	56.2	14	29.2	7	14.6	48	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .094 / Cramer's V = .133

The results of Table 8.4 show that the distribution of the variable 'Annual Income' (χ^2 = .094) over the dependent variables, which is measured with an exact test, is weakly significant. The value of Cramer's V (V=.133) indicates an association between the two variables. Respondents, who report an annual household-income below 10.000 Euro (33.1%, n=40), contact the traditional medical system less frequently than average, *i.e.* below the average of 44.7%. Accordingly, respondents, who reportedly have an annual household-income between within the range of 31.000 to 40.000 Euro (52.0%, n=13), use the traditional medical system more frequently than average. Furthermore, 36.0% (n=9) of survey respondents, who have an annual household-income between 31.000 and 40.000 Euro, contact the transitional medical system less

frequently than average, *i.e.* below the average of 46.0%. Furthermore, respondents, who report an annual household-income below 10.000 Euro (56.2%, n=68), use the transitional medical system more frequently than average. Hereafter, respondents, who reportedly have an annual household-income within the range of 10.000 to 20.000 Euro (6.9%, n=12), contact the modern medical less frequently than average, *i.e.* below the average of 9.3%. Concurrently, respondents with an annual household-income above 40.000 Euro (14.3%, n=1), as well as between 31.000 and 40.000 Euro (12.0%, n=3), use the modern medical system more frequently than average. The 'patients' of the sample, who have an annual household income of less than 10.000 Euro (10.7%, n=13), similarly contact the modern medical system more frequently than average.

Annual Expenses for Health Care

	N	%	N	%	N	%	N	%
<250	71	48.6	67	45.9	8	5.5	146	100.0
250-500	19	32.8	31	53.4	8	13.8	58	100.0
501-750	13	36.1	19	52.8	4	11.1	36	100.0
751-1.000	11	47.8	7	30.4	5	21.7	23	100.0
>1.000	8	38.1	12	57.1	1	4.8	21	100.0
No expenses reported	80	47.6	72	42.9	16	9.5	168	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .143 / Cramer's V = .128

Insurance
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .410

Socio-Economic Status (SES
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .492

The distribution of the variable 'Annual Expenses for Health Care' (χ^2=.143) over the dependent variables provides an indication of significance. The value of Cramer's V (V=.128) similarly indicates an association between the variables. Overall, respondents, whose annual expenses for health care are below 250 Euro (48.6%, n=71), contact the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Hereafter, respondents, whose annual expenses for health care range between 250 and 500 Euro (32.8%, n=19), contact the traditional medical system less frequently than average. In line with these results, the 'patients' of the sample, whose annual expenses are above 1.000 Euro (57.1%, n=12), use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. Survey respondents, who have annual expenses for health care within the range of 751 and 1.000 Euro (30.4%, n=7), however, seek treatment from the transitional medical system less frequently than average. Respondents with annual expenses for health care within the same range (21.7%, n=5) contact the modern medical system more frequently than average, *i.e.* above the average of 9.3%. Hereafter, community members, whose annual expenses for health care are above 1.000 Euro (4.8%, n=1), contact the modern medical system less frequently than average.

The distributions of the variables within the block of the perceived morbidity factors all reveal most strongly significant results. The distribution of the variable 'Health Status' (χ^2 = .000) over the dependent variables is most strongly significant. The value of Cramer's V (V=.170) shows a weak association between the variables. Respondents, who report a generally poor (28.9%, n=26) or average (36.3%, n=41) health status, contact the traditional medical system less frequently than average, *i.e.* below the average of 44.7%. Accordingly, respondents, who enjoy a good health status (54.2%, n=135), contact the traditional medical system more frequently than average. On the other hand, survey respondents, who reportedly have a generally poor (54.4%, n=49) or average (56.6, n=64) health status, use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. In this way, respondents, who enjoy a generally

good health status (38.2%, n=95), contact the transitional medical system more frequently than average. In the same fashion, the 'patients' of the sample, who reported a generally poor (16.7%, n=15) health status, use the modern medical system more frequently than average, *i.e.* above the average of 9.3%. Hereafter, respondents, whose health status is average (7.1%, n=8) or well (7.6%, n=19), contact the modern medical system less frequently than average.

Bivariate Analysis of Perceived Morbidity Variables and Dependent Variables (Table 8.5)

Table 8.5 Distribution of the Perceived Morbidity Variables of Respondents of the Sample over the Dependent Variables (N=452).

Variable	Utilisation of the Plural Medical System						Total	
	Traditional Medical System		Transitional Medical System		Modern Medical System			
	N	%	N	%	N	%	N	%
Health Status								
	N	%	N	%	N	%	N	%
Poor	26	28.9	49	54.4	15	16.7	90	100.0
Average	41	36.3	64	56.6	8	7.1	113	100.0
Well	135	54.2	95	38.2	19	7.6	249	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .170

The distribution of the variable 'Reported Disease' (χ^2 = .000) over the dependent variables, which is calculated with an exact test, is most strongly significant. In addition to the chi-value, Cramer's V (V=.358) demonstrates that there is a very strong association between the variables. Overall, respondents, who reportedly suffered from the 'evil eye' (100.0%, n=2), a disease of the skin and/or subcutaneous tissue (80.0%, n=4), the common cold (79.1%, n=72), a certain infectious or parasitic disease (66.7%, n=2), abdominal and/or pelvic pain (58.5%, n=10) or a disease of the digestive system (57.9, n=11) during the recall period, contact the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Furthermore, respondents, who experienced a disease of the ear (20.0%, n=1), a disorder of the thyroid gland or metabolic disorder (21.4%, n=6), a disease of the nervous system (25.0%, n=3), a disease of the eye and/or adnexa (25.0%, n=1), an elevated blood glucose level (25.0%, n=4), an ischemic or other form of heart disease (31.6%, n=12) or a disease of the muscoskeletal system and connective tissue (34.4, n=22), seek treatment from the traditional medical system less frequently than average.

The 'patients' of the sample, who suffered from a mental and/or behavioural disorder (100.0%, n=4), a congenital malformation (100.0%, n=1), an elevated blood glucose level (75.0%, n=12), essential (primary) hypertension or another disease of the circulatory system (68.3%, n=41), a disorder of the thyroid gland or metabolic disorder (64.3%, n=18), a disease of the ear (60.0%, n=3) or a disease of the genitourinary system (60.0%, n=6), use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. Accordingly, survey respondents, who experienced an episode of the common cold (19.8%, n=18), a disease of the skin and/or subcutaneous tissue (20.0%, n=1), a disease of the digestive system (26.3%, n=5) or an accident (25.0%, n=1), contact the transitional medical system less frequently than average. Community members, who suffered from a neoplasm (33.3%, n=1), a disease of the eye and/or adnexa (25.0%, n=1), an accident (25.0%, n=1), symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified (25.0%, n=2) or a disease of the ear (20.0%, n=1), seek treatment from the modern medical system more frequently than average, *i.e.* above the average of 9.3%. Likewise, 'patients' suffering from a disease of the muscoskeletal tissue

and connective tissue (17.2%, n=11) or a disease of the respiratory system other than the common cold (10.7%, n=3) contact the modern medical system more frequently than average. Hereafter, respondents, who experienced an episode of the common cold (1.1%, n=1) or abdominal and/or pelvic pain (5.9%, n=1), use the modern medical system less frequently than average.

Reported Disease	N	%	N	%	N	%	N	%
Certain infectious or parasitic disease	2	66.7	1	33.3	0	0.0	2	100.0
Neoplasm	1	33.3	1	33.3	1	33.3	3	100.0
Disorder of the thyroid gland or metabolic disorder	6	21.4	18	64.3	4	14.3	28	100.0
Mental and/or behavioural disorder	0	0.0	4	100.0	0	0.0	2	100.0
Disease of the nervous system	3	25.0	7	58.3	2	16.7	12	100.0
Disease of the eye and/or adnexa	1	25.0	2	50.0	1	25.0	4	100.0
Disease of the ear	1	20.0	3	60.0	1	20.0	5	100.0
Ischaemic or other form of heart disease	12	31.6	19	50.0	7	18.4	38	100.0
Primary hypertension or other disease of the circulatory system	19	31.7	41	68.3	0	0.0	60	100.0
The common cold	72	79.1	18	19.8	1	1.1	91	100.0
Other disease of the respiratory system	12	42.9	13	46.4	3	10.7	28	100.0
Disease of the digestive system	11	57.9	5	26.3	3	15.8	19	100.0
Disease of the skin and / or subcutaneous tissue	4	80.0	1	20.0	0	0.0	5	100.0
Disease of the musco-skeletal system	22	34.4	31	48.4	11	17.2	64	100.0
Disease of the genitourinary system	3	30.0	6	60.0	1	10.0	10	100.0
Congenital malformation	0	0.0	1	100.0	0	0.0	1	100.0
Abnormal clinical and laboratory findings, not elsewhere classified	3	37.5	3	37.5	2	25.0	8	100.0
Elevated blood glucose level	4	25.0	12	75.0	0	0.0	16	100.0
Abdominal/pelvic pain	10	58.5	6	35.3	1	5.9	17	100.0
Accident	2	50.0	1	25.0	1	25.0	4	100.0
The evil eye	2	100.0	0	0.0	0	0.0	1	100.0
Unspecified/Unknown	10	40.0	12	48.0	3	12.0	25	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .000 / Cramer's V = .358

Severity of the Reported Disease

	N	%	N	%	N	%	N	%
Not severe	108	60.3	63	35.2	8	4.5	179	100.0
Mildly severe	35	43.2	39	48.1	7	8.6	81	100.0
Moderately severe	30	31.6	54	56.8	11	11.6	95	100.0
Highly severe	29	29.9	52	53.6	16	16.5	97	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .202

Duration of the Reported Disease

	N	%	N	%	N	%	N	%
Acute	115	69.3	40	24.1	11	6.6	166	100.0
Chronic	87	30.4	168	58.7	31	10.8	286	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .000 / Cramer's V = .379

The distribution of the variable 'Severity of the Reported Disease' (χ^2 = .000) over the dependent variables is similarly most strongly significant. The value of Cramer's V (V=.202) indicates that the variables are moderately associated. In general, respondents, who indicated that the reported illness is not severe (60.3%, n=108), contact the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Hereafter, the more severe respondents perceived the illness episode to be the less frequently they appear to make use of the traditional medical system. In comparison, the 'patients' of the sample, who noted that the reported illness episode is not severe (35.2%, n=63), contact the transitional medical system less frequently than average, *i.e.* below the average of 46.0%. In this respect, respondents, who experienced a mildly severe (48.1%, n=39), moderately severe (56.8%, n=54) or highly severe (53.6%, n=52) illness episode, use the transitional medical system more frequently than average. In the same fashion, respondents suffering from an illness episode, which is perceived to be non-severe (4.5%, n=8), contact the modern medical system less frequently than average, *i.e.* below the average of 9.3%. Respondents, who, however, experienced a moderately (11.6%, n=11) or highly (16.5%, n=16) severe illness episode, use the modern medical system more frequently than average.

The distribution of the variable 'Duration of the Reported Disease' (χ^2 = .000) over the dependent variables is most strongly significant. Likewise, the value of Cramer's V (V=.379) indicates that the variables are very strongly associated. The 'patients' of the sample, who experienced an acute illness (69.3%, n=115), use the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Owing to this result, the respondents, who suffered from a chronic disease (30.4%, n=87), contact the traditional medical system less frequently than average. In contrast to these findings, respondents, who reportedly experienced an acute episode of illness (24.1%, n=40), use the transitional medical system less frequently than average, *i.e.* below the average of 46.0%. Accordingly, respondents suffering from a chronic disease (58.7%, n=168) contact the transitional medical system more frequently than average. Likewise, the 'patients' of the sample, who suffered from an acute condition (6.6%, n=11), use the modern medical system less frequently than average, *i.e.* below the average of 9.3%. Respondents, who, however, experienced a chronic disease (10.8%, n=31), contact the modern medical system more frequently than average.

Bivariate Analysis of the Institutional Variables and the Dependent Variables (Table 8.6)

The distribution of the variable 'Accessibility of Institutions of the Traditional Medical System' (χ^2 = .011) over the dependent variables, which is assessed with an exact test, is strongly significant. The value of Cramer's V (V=.161) shows that the variables are weakly associated. Overall, respondents, who perceive the accessibility of institutions of the traditional medical

system to be very difficult (28.6%, n=2) or difficult (9.1%, n=1), contact the traditional medical system less frequently than average, *i.e.* below the average of 44.7%. In this way, respondents, who report that the accessibility of institutions of the traditional medical system is difficult (63.6%, n=7), use the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. In line with these results, respondents, who perceive the accessibility of institutions of the traditional medical system to be very difficult (28.6%, n=2) or difficult (27.3%, n=3), contact the modern medical system more frequently than average, *i.e.* above the average of 9.3%. Respondents, who report that the accessibility of institutions of the traditional medical system is easy, use the traditional medical system (47.9%, n=148) more frequently than average but contact the modern medical system (6.8%, n=21) less frequently than average.

Table 8.6 Distribution of the Institutional Variables of Respondents of the Sample over the Dependent Variables (N=452).

Variable	Utilisation of the Plural Medical System						Total	
	Traditional Medical System		Transitional Medical System		Modern Medical System			
	N	%	N	%	N	%	N	%
Accessibility of Institutions of the Traditional Medical System								
	N	%	N	%	N	%	N	%
Very difficult accessibility	2	28.6	3	42.9	2	28.6	7	100.0
Difficult accessibility	1	9.1	7	63.6	3	27.3	11	100.0
Average accessibility	3	50.0	3	50.0	0	0.0	6	100.0
Easy accessibility	148	47.9	140	45.3	21	6.8	309	100.0
Very easy accessibility	25	37.3	29	43.3	13	19.4	67	100.0
No institutions reported	23	44.2	26	50.0	3	5.8	52	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .011 / Cramer's V = .161								
Accessibility of Institutions of the Transitional Medical System								
	N	%	N	%	N	%	N	%
Very difficult accessibility	1	33.3	2	66.7	0	0.0	3	100.0
Difficult accessibility	7	30.4	13	56.5	3	13.0	23	100.0
Average accessibility	9	34.6	16	61.5	1	3.8	26	100.0
Easy accessibility	152	45.5	155	46.4	27	8.1	334	100.0
Very easy accessibility	33	50.0	22	33.3	11	16.7	66	100.0
No institutions reported	0	0.0	0	0.0	0	0.0	0	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .124 / Cramer's V = .118								
Accessibility of Institutions of the Modern Medical System								
Pearson's χ^2 (Monte Carlo Sig., 2-sided) = .158								

The distribution of the variable 'Accessibility of Institutions of the Transitional Medical System' (χ^2 = .124) over the dependent variables, which is similarly calculated with an exact test, provides an indication of significance. Nevertheless, the value of Cramer's V (V=.118) illustrates that no association exists between the variables. Overall, it appears, however, that the 'patients' of the sample, who consider the accessibility of institutions of the transitional medical system to

be very difficult (33.3%, n=1) or difficult (30.4%, n=7), contact the traditional medical system less frequently than average, *i.e.* below the average of 44.7%. Consequently, respondents, who report that the accessibility of institutions of the transitional medical system is very easy (50.0%, n=33), use the traditional medical system more frequently than average. In line with these results, respondents, who consider the accessibility of institutions of the transitional medical system to be very difficult (66.7%, n=2), difficult (56.5%, n=13) or average (61.5%, n=16), contact the transitional medical system more frequently than average, *i.e.* above the average of 46.0%. Concurrently, survey respondents, who report that the accessibility of institutions of the transitional medical system is very easy (33.3%, n=22), use the transitional medical system less frequently than average. Respondents, who perceive the accessibility of institutions of the transitional medical system to be average (3.8%, n=1), contact the modern medical system less frequently than average, *i.e.* below the average of 9.3%. Hereafter, respondents, who report that the accessibility of institutions of the transitional medical system is very easy (16.7%, n=11), use the modern medical system more frequently than average. In contrast, however, respondents, who perceive the accessibility of institutions of the transitional medical system to be difficult (13.0%, n=3), similarly seek treatment from the modern medical system more frequently than average.

Bivariate Analysis of the Intervening Variable and the Dependent Variables (Table 8.7)

Table 8.7 Distribution of the Intervening Variable of the Respondents of the Sample over the Dependent Variables (N=452).

Variable	Utilisation of the Plural Medical System						Total	
	Traditional Medical System		Transitional Medical System		Modern Medical System			
	N	%	N	%	N	%	N	%
Impact of the Current Economic Situation								
	N	%	N	%	N	%	N	%
Very low impact	97	45.1	97	45.1	21	9.8	215	100.0
Low impact	29	59.2	17	34.7	3	6.1	49	100.0
Average impact	11	64.7	4	23.5	2	11.8	17	100.0
High impact	26	37.1	38	54.3	6	8.6	70	100.0
Very high impact	9	60.0	4	26.7	2	13.3	15	100.0
No impact reported	30	34.9	48	55.8	8	9.3	86	100.0
Total	202	44.7	208	46.0	42	9.3	452	100.0

Pearson's χ^2 (Asympt. Sig., 2-sided) = .109 / Cramer's V = .132

The distribution of the intervening variable 'Impact of the Current Economic Situation' (χ^2 = .109) over the dependent variables is weakly significant. The value of Cramer's V (V=.132), however, shows that no association exists between the variables. Nevertheless, the results of the cross-tabulation indicate that respondents, who perceived the impact of the current economic situation on local patterns of health care utilisation behaviour to be average (64.7%, n=11) or very high (60.0%, n=9), contact the traditional medical system more frequently than average, *i.e.* above the average of 44.7%. Hereafter, survey respondents, who reportedly perceived the impact of the current economic situation as average (23.5%, n=4) or very high (26.7%, n=4), use the transitional medical system less frequently than average, *i.e.* below the average of 46.0%. Community members, who, however, report that the impact of the current economic situation is high (54.3%, n=38), contact the transitional medical system more frequently than average. On the other hand, community members, who perceived the impact of the current economic situation to be very high (13.3%, n=2) or average (11.8%, n=2), seek treatment from the modern medical system more frequently than average, *i.e.* above the average of 9.3%. Furthermore, respondents

reporting a low impact of the current economic situation (6.1%, n=3) contact the modern medical system less frequently than average. Finally, respondents, who stated that the current economic situation has no impact on local patterns of health care utilisation behaviour, use the traditional medical system (34.9%, n=30) less frequently than average and contact the transitional medical system (55.8%, n=48) more frequently than average.

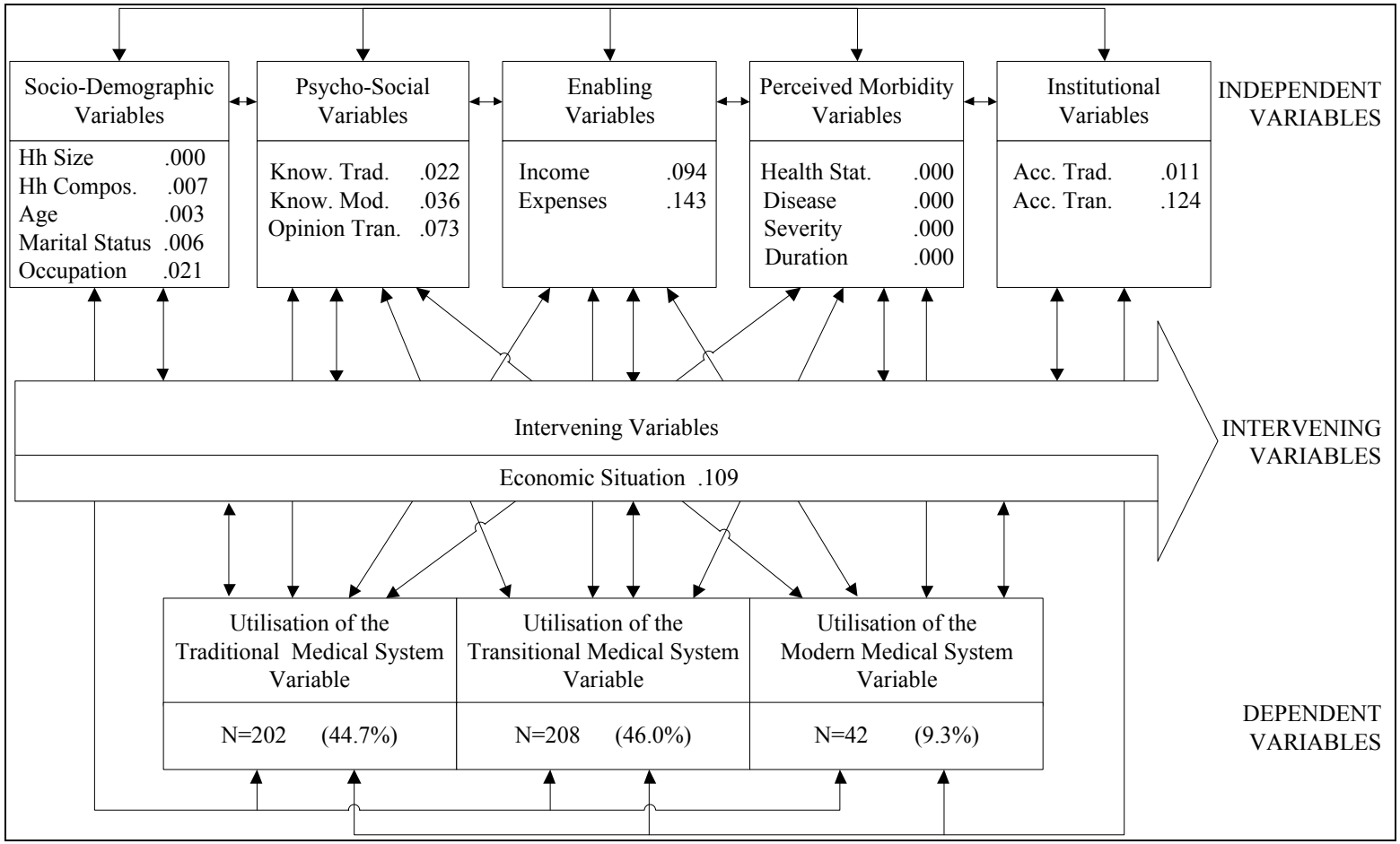
In an attempt to summarise the results of the bivariate analysis and to present the findings in relation to the different blocks of factors within the multivariate model of transcultural health care utilisation, Figure 8.1 shows the statistically significant mutual relations between variables within the model.

The independent variables, for which a statistically significant distribution over the dependent variables is calculated, are displayed in the respective block of factors under reference of the chi-value. The significant mutual relations displayed in Figure 8.1 anticipate the complexity of a multivariate analysis of data, in which all variables identified in the model are included, notably irrespective of their significance value revealed within the bivariate analysis. In general, a bivariate analysis provides a basic overview on the significance of the relationships the independent variables maintain with the dependent variables. Nevertheless, additional data are required in a way to assess the overall extension of determinants of people's patterns of transcultural health care utilisation behaviour.

8.2.2 Nonlinear Canonical Correlation Analysis: OVERALS

In order to gain a more detailed insight into the determinants of the 'patients' illness behaviour, a multivariate analysis extends the focus of a bivariate analysis and assesses the interrelationships and interactions between all variables, which have been defined as determinants of behavioural patterns. On the whole, the multivariate model of transcultural health care utilisation presented in Paragraph 3.1.2 shows that the variables in the model are grouped in different, notably interacting, blocks of variables. In this respect, an extended analysis of determinants of people's transcultural health care utilisation behaviour not only assesses the relationship of each independent and intervening variable with the dependent variables, but also evaluates the interaction between variables of the same block of variables as well as between variables of different blocks of variables. Since a bivariate analysis of all possible correlations of variables would result in a vast series of tables, the technique of multivariate analysis, as it forms an extension of bivariate procedures, offers an appropriate method for studying complicated data sets, while using a single form of analysis (*cf.* Tabachnick & Fidell 2001). In order to meet the requirements of the present data, the multivariate statistical method applied to this study refers to a type of nonlinear canonical correlation analysis, known as 'OVERALS'. The OVERALS algorithm is defined by Gifi (1990), Van der Burg *et al*. (1984; 1988), Van der Burg (1988) and Van der Burg *et al*. (1994) as 'overall' or 'master programme', of which the previously developed methods of CANALS and PRINCALS form specific branches (*cf.* Gifi 1990). In particular, the OVERALS programme is designed specifically to meet the requirements of an analysis of different sets of variables at once, as well as of categorical variables, and as such forms a method of multivariate data analysis, which is appropriate for the present research.

OVERALS manages sets of variables, which differ in number and definition, and hereafter treats all sets of variables symmetrically rather than hierarchically (*cf.* Van de Geer 1993b; Van der Burg *et al*. 1994). Following the initial univariate analysis of all variables, which have been identified within the multivariate model of transcultural health care utilisation, one set of independent and intervening, and one set of dependent variables have been distinguished among the present data. The independent and intervening, as well as dependent set include six and three different blocks of factors respectively.



Legenda:

Hh Size	Household Size	Opinion Tran.	Opinion on the Transitional Medical System
Hh Compos.	Household Composition	Health Stat.	Health Status
Know. Trad.	Knowledge of the Traditional Medical System	Acc. Trad.	Accessibility of Institutions of the Traditional Medical System
Know. Mod.	Knowledge of the Modern Medical System	Acc. Tran.	Accessibility of Institutions of the Transitional Medical System

Figure 8.1 Model of the Mutual Relation Analysis of the Blocks of Variables.

The variables within each block of factors have been labelled and operationalised as follows:

Set of Independent and Intervening Variables

1. Predisposing Socio-Demographic Variables: 'NamCom', 'HouseMem', 'Relatio', 'Gender', 'Age', 'PlaceoB', 'LevEduc', 'MariStat', 'Occupat';
2. Predisposing Psycho-Social Variables: 'KnowTrad', 'KnowTran', 'KnowMod', 'OpiTrad', 'OpiTran', 'OpiMod';
3. Enabling Variables: 'AnnInco', 'AnnExp', 'Insuran', 'SES';
4. Perceived-Morbidity Variables: 'HeaStat', RepDis', 'SevRepDis', 'DurRepDis';
5. Institutional Variables: 'AccTrad', 'AccTran', 'AccMod';
6. Intervening Variable: 'EcoSit';

Set of Dependent Variables

7. Utilisation of the Traditional Medical System Variable: 'TradCare'
8. Utilisation of the Transitional Medical System Variable: 'TranCare'
9. Utilisation of the Modern Medical System Variable: 'ModCare'

In addition to assessing different sets of variables at once, the OVERALS method expects variables to be discrete and hereby evaluates variables, which can assume only certain values, mostly whole numbers (*cf.* Field 2009). Concurrently, the programme allows variables to be measured at the nominal, ordinal or interval level but requires variables to have positive integers, namely no negative or zero values (*cf.* Van der Burg 1994).

Following the theories of generalized canonical analysis, OVERALS selects weights for each set of variables in a way to maximise the canonical correlation between variables. Hereafter, a weighted sum vector, a so-called 'canonical variate', is extracted from each set of variables (*cf.* Van de Geer 1993b). Since sets of variables generally produce an array of possible correlations between variables, the method of analysis compares the variates to an orthogonal representation of objects known as 'object scores'. In other words, OVERALS requires variables to be as similar as possible to the object scores. In this respect, the analysis is run on the same number of dimensions, on which the maximally correlated canonical variates can be distinguished (*cf.* Van der Burg 1988). OVERALS furthermore produces the eigenvalue for each dimension, which is defined as the sum of squared correlations between the object scores and the weighted sum vectors and describes the total 'fit' of the overall model to the data (*cf.* Van de Geer 1993b).

In addition to assessing the correlation between sets of variables, OVERALS evaluates the correlations between the canonical variates and the original variables, which are known as 'canonical' or 'component loadings'. The component loadings indicate to which extent each variable contributes to the variance within the canonical variate, thereby estimating the significance of each variable in the overall model. In order to optimize correlation, the variables are assigned optimal weights and quantifications. As Van de Geer (1993b: 6) notes '[…] *relations among variables may show to better advantage after an optimal quantification of their categories*'. OVERALS employs the technique of optimal scaling, which applies a nonlinear transformation to each variable, hereafter treating variables as continuous variables, in order the maximize correlation. The nonlinear transformations depend on the original level of measurement of each variable, whereby categories are retained when transforming nominal variables and the order of categories is taken into account when transforming ordinal variables. Based on the number of dimensions chosen, OVERALS allows nominal variables to have the level of measurement fixed separately for each dimension, which results in multiple transformations hereafter referred to as multiple nominal quantifications (*cf.* Van der Burg 1988). Overall, the technique of optimal scaling highlights to which extent it is crucial to accordingly indicate the number of dimensions as well as the measurement level and the number of categories of each variable prior to running the OVERALS analysis (*cf.* Van der Burg *et al.* 1988; Van der Burg *et al.* 1994; Agung 2005; Leurs 2010).

Once variables are entered into the statistical programme for data analysis, notably in accordance with the sets of variables defined previously, OVERALS will on request deliver an extensive output. Since the present study, however, aims at verifying the significance of each variable identified within the multivariate model, the results of the multivariate analysis presented below focus on the correlation of each variable with the other variables in the model. In this way, Table 8.8 presents the results of the OVERALS analysis in terms of component loadings of the two sets of variables for which two dimensions have been chosen, as they frequently suffice to give a fairly clear indication of significant effects in the data (*cf.* Gifi 1990). The left column in the table illustrates the number of the set of variables. Hereafter, the variables are listed in the middle column, whereby the optimal scaling level and the characteristics of the projection of each variable on the object space are indicated after each label and are explained at the bottom of the table.

On the basis of the results gained from a bivariate analysis, one variable is assigned a multiple nominal rather than a single nominal level. In this way, the variable, which is measured on a multiple nominal level, has a different quantification on each dimension and hereby produces four instead of two component loadings. Hereafter, the variable moreover shows an additional column at the centre of the table in which the dimensions are indicated. In general, the choice of the measurement level is based on the value of significance, which is estimated during the bivariate analysis. In view of its most strongly significant chi-value as well as its overall significance for the present study, the variable 'Reported Disease' is measured on a multiple nominal level, thereby producing two dimensions of measurement. Finally, the two columns to the right display the component loadings of each variable on both dimensions. In general, the higher the component loading of the single variable the more significant is the variable's contribution to the overall model of transcultural health care utilisation. In this respect, positive and negative values of ± .3 reveal a medium effect, while positive and negative values of ± .5 indicate a large effect in the variable. The strong and medium independent and intervening variables are highlighted in a descending order for each dimension, whereby the rank of each variable is indicated with a number in brackets after the component loading.

In addition to Table 8.8, Figure 8.2 presents a graphical representation of the OVERALS solution, in which dimension 1 is presented horizontally and dimension 2 is presented vertically. The component loadings serve as coordinates of the vectors, which constitute each variable, and are projections of each variable's correlations with all other variables in the canonical space. The distance between the vector points and the origin of the scatter plot illustrates the significance of each variable within the overall model. In order to highlight the effects of the dependent variables in the model, the distance between the vector points of the three dependent variables and the origin have been marked in the graph with a straight line. In this way, Figure 8.2 may give a clearer impression of the complex relationships between the selected variables, which have been arranged between two sets of variables and have been spread over two dimensions, as groups of variables and underlying dimensions within the model may be easier to detect (*cf.* Van der Burg *et al.* 1984; Gifi 1990; Ambaretnani 2012). On the whole, OVERALS produces the eigenvalue for each dimension and hereby evaluates the 'fit' of the overall model to the collected data. In particular, the eigenvalue for the first dimension is .781 and the eigenvalue for the second dimension is .705, which results in a total fit of 1.486. Since the maximum eigenvalue equals the number of dimensions chosen, the results indicate a fairly strong correlation between the first and second set of variables and a relatively good 'fit' of the model to the data (*cf.* Van der Burg 1994).

Table 8.8 Component Loadings of the two Sets of Variables with a Total of 30 Variables on two Dimensions (N=452).

Set	Variable		Dimension 1	Dimension 2
1	NamCom (a, b)		.042	.072
	HouseMem (b, c)		-.371 (4)	.087
	Relatio (a, b)		.286 (6)	-.143
	Gender (a, b)		.039	-.070
	Age (b, c)		.323 (5)	-.241
	PlaoB (a, b)		-.054	-.083
	LevEduc (b, c)		.034	.083
	MariStat (a, b)		.011	-.117
	Occupat (a, b)		.232	.044
	KnowTrad (b, c)		-.070	-.017
	KnowTran (b, c)		-.159	.013
	KnowMod (b, c)		-.063	-.087
	OpiTrad (a, b)		.084	-.122
	OpiTran (a, b)		.124	-.035
	OpiMod (a, b)		.033	.179
	AnnInco (a, b)		-.062	.025
	AnnExp (a, b)		.087	.251
	Insuran (a, b)		-.089	.157
	SES (b, c)		-.071	.087
	HeaStat (b, c)		-.279 (7)	-.061
	RepDis (d, e)	Dimension 1	.608 (1)	-.204
		Dimension 2	-.091	.530 (1)
	SevRepDis (b, c)		.436 (3)	-.010
	DurRepDis (a, b)		.541 (2)	-.322 (2)
	AccTrad (b, c)		-.275 (8)	-.254 (4)
	AccTran (b, c)		-.039	.295 (3)
	AccMod (b, c)		.077	.084
	EcoSit (a, b)		.164	-.128
2	TradCare (a, b)		.838	-.267
	TranCare (a, b)		-.539	.666
	ModCare (a, b)		-.510	-.686

a = Optimal Scaling Level: Single Nominal
b = Projections of the Single Quantified Variables in the Object Space
c = Optimal Scaling Level: Ordinal
d = Optimal Scaling Level: Multiple Nominal
e = Projections of the Multiple Quantified Variables in the Object Space

Hereafter, the following eight variables, which are marked in a descending order in Table 8.8, have a large or medium effect on the first dimension of the OVERALS solution: 'RepDis'; 'DurRepDis'; 'SevRepDis'; 'HouseMem'; 'Age'; 'Relatio; 'HeaStat' and 'AccTrad'. On the second dimension, the variables 'RepDis', 'DurRepDis', 'AccTran' and 'AccTrad' show a medium to large effect. Across both dimensions, the strongest variables, which thus have a component loading above .3, highlight the medical dimension of the present study indicated by the results of the bivariate analysis. The variable 'Reported Disease', which is measured on a multiple nominal level and produces a component loading of .608 on the first dimension and a component loading of .530 on the second dimension, has the largest effect among the variables identified within the multivariate model of transcultural health care utilisation. Hereafter, the variable 'Duration of the Reported Disease', which has a component loading of .541 on the first dimension and a component loading of -.322 on the second dimension, forms the second

strongest variable in the model. On the first dimension, the variable 'Severity of the Reported Disease' (SevRep: .436) moreover demonstrates a medium effect. In addition to the variables within the block of perceived morbidity factors, the variables 'Household Size' (HouseMem: -.371) and 'Age' (Age: .323) show a medium effect on the first dimension. Hereafter, the variables 'Household Composition' (Relatio: .286) and 'Health Status' (HeaStat: -.279) similarly have a medium effect on the first dimension. The variable 'Accessibility of Institutions of the Traditional Medical System' reveals a medium effect on the first (AccTrad: -.275) and the second (AccTrad: -.254) dimension. Furthermore, 'Accessibility of Institutions Of the Transitional Medical System' (AccTran: .295) has a medium effect on the second dimension. On the whole, the results support the findings of the bivariate analysis, in which the distribution of the variables 'HouseMem', 'Age', 'Relatio', 'HeaStat' and 'AccTrad' over the dependent variables is significant and the distribution of the variable 'AccTran' over the dependent variables provides an indication of significance.

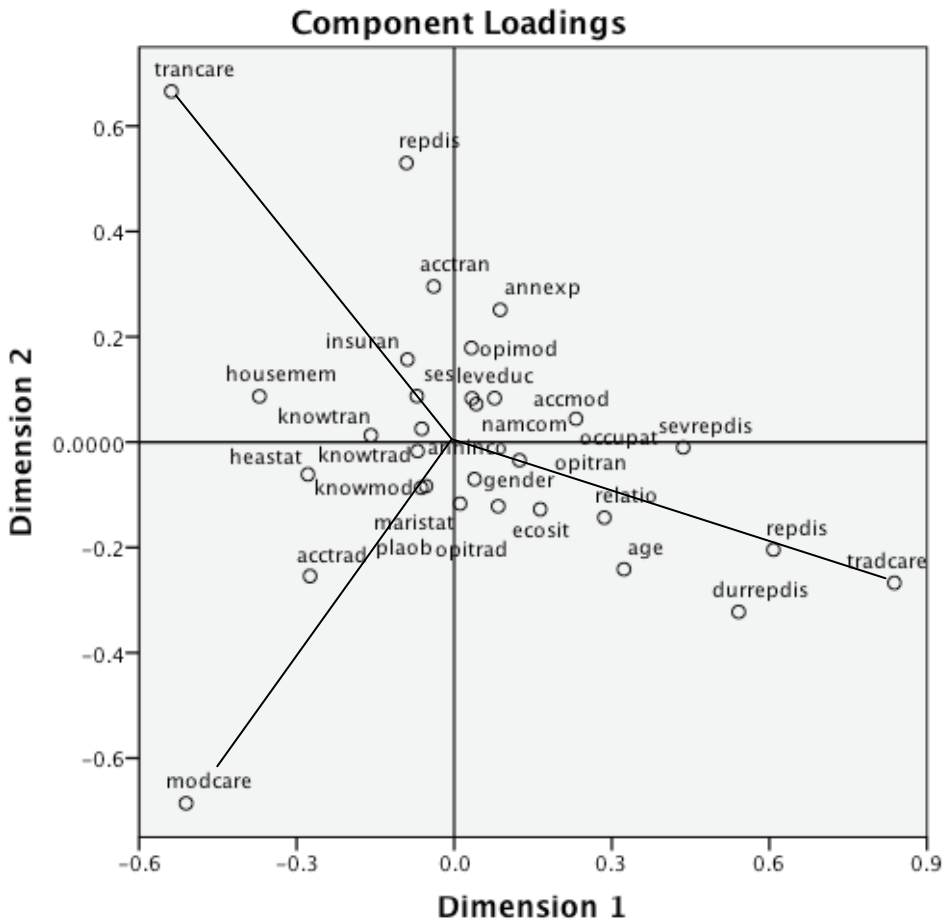


Figure 8.2 Graphic Representation of the Projection of the Component Loadings of the two Sets of Variables onto the Canonical Space with a Total of 30 Variables on two Dimensions (N=452).

Within the OVERALS solution, the strongest component loadings are, however, found among the set of dependent variables, thereby indicating a strong correlation among the dependent variables as well as between both sets of variables. The variable 'Utilisation of the Traditional Medical System' reveals the largest effect among all variables on the first dimension (TradCare: .838) and has a medium effect on the second dimension (TradCare: -.267). The variable 'Utilisation of the Transitional Medical System' demonstrates a large effect on the first (TranCare: -.539) and second dimension (TranCare: .666).

In the same fashion, the variable 'Utilisation of the Modern Medical System' shows a large effect on the first (ModCare: -.510) and the second dimension (ModCare: -.686). In line with the values of the component loadings of the dependent variables, Figure 8.2 demonstrates that the variable 'TradCare' dominates the first dimension. The Figure furthermore shows that the second dimension is largely dominated by the variables 'TranCare' and 'ModCare'. On the whole, the vector points of the dependent variables are to a considerable extent opposing each other and hereby illustrate patterns of exclusive utilisation of one medical system at the time. In addition to the dependent variables, the variable 'RepDis' hereafter forms the most dominant of all independent variables on both the first and second dimension. The variable 'DurRepDis' similarly scores significantly high on the first as well as the second dimension, while the variable 'SevRepDis' shows a strong loading on the first dimension.

As illustrated in Figure 8.2, the variables 'RepDis' on the first dimension, 'DurRepDis' and 'SevRepDis' relate to the dependent variable 'TradCare' in strength and direction, thereby suggesting that these variables are significant determinants of the patient's contact with the traditional medical system. In view of the results gained from a bivariate analysis, it appears that treatment for certain diseases, such as the common cold or abdominal and pelvic pain, is primarily sought from the traditional medical system. Concurrently, illness episodes, which are perceived to be acute and not severe, are to a considerable extent treated with components of the traditional medical system. In addition to the variables within the block of perceived morbidity factors, Figure 8.2 indicates that the variables 'Age' and 'Relatio' relate to the dependent variable 'TradCare'. Overall, it appears that younger 'patients' contact the traditional medical system more frequently than older 'patients'. Furthermore, 'patients', whose nature of relationship to the household head is that of a grandchild or child, use the traditional medical system rather frequently.

Hereafter, the variable 'RepDis' appears to relate, notably on the second dimension, to the dependent variable 'TranCare' in both strength and direction. Following the results of the bivariate analysis, the 'patients' of the sample seek treatment from the transitional medical system for a number of specific diseases, including elevated blood glucose levels as well as essential (primary) hypertension and other diseases of the circulatory system. In addition to the variable 'RepDis', Figure 8.2 indicates that the variable 'HouseMem' as well as the variable 'AccTran' relate to the dependent variable 'TranCare' on the first and second dimension respectively. In general, it appears that community members, who live in 1-member households, make extensive use of the transitional medical system. Furthermore, inhabitants, who find the accessibility of institutions of the transitional medical system rather difficult, contact the transitional medical system rather frequently.

Following the results displayed in Figure 8.2, it moreover becomes clear that the variables 'HeaStat' and 'AccTrad' relate to the dependent variable 'ModCare' in strength and direction. It can be assumed that 'patients', who have a generally poor health status, seek treatment from the modern medical system rather frequently. Hereafter, community members, who find the accessibility of institutions of the traditional medical system rather difficult, similarly make extensive use of the modern medical system.

In general, the OVERALS solution not only reveals which variables play a significant role as determinants of people's behaviour within the multivariate model of transcultural health care utilisation, but it also indicates which variables cluster together in a rather meaningful way. In this way, the multivariate analysis identified certain patterns of behaviour, which highlight people's contact with the plural medical system available in the research area but go beyond a mere interpretation of distributions of the independent variables over the dependent variables. In this way, the clusters of variables in the OVERALS solution make an indirect reference to the different blocks of factors, which have been identified in the multivariate model and which can be used to assess the overall validity of the model for the present study.

8.2.3 Multiple Regression Analysis

In general, the multivariate analysis can be extended to develop an explanatory, analytical model of transcultural health care utilisation by means of assessing the correlation between the different blocks of factors identified in the model. While bivariate and multivariate analyses have so far illustrated the relationship between different variables in the model, this paragraph seeks to calculate the maximum correlation between blocks of factors (*cf.* Agung 2005; Leurs 2010). The relationship between different blocks of factors is assessed by means of a multiple regression analysis, as it forms a most appropriate method for calculating the correlation between observed values and the values predicted by the model. In other words, a multiple regression analysis estimates the significance of the overall model by means of comparing observed to predicted values and hereafter expressing each association between blocks of factors with a multiple correlation coefficient (ρ), notably for each dimension. Following the operationalisation of the multivariate model as well as an initial univariate analysis of all variables, the following nine blocks of factors have been specified for the multiple regression analysis:

Blocks of Independent and Intervening Variables

1. the Block of Predisposing Socio-Demographic Factors including the Variables: 'NamCom', 'HouseMem', 'Relatio', 'Gender', 'Age', 'PlaceoB', 'LevEduc', 'MariStat', 'Occupat';
2. the Block of Predisposing Psycho-Social Factors including the Variables: 'KnowTrad', 'KnowTran', 'KnowMod', 'OpiTrad', 'OpiTran', 'OpiMod';
3. the Block of Enabling Factors including the Variables: 'AnnInco', 'AnnExp', 'Insuran', 'SES';
4. the Block of Perceived Morbidity Factors including the Variables: 'HeaStat', 'RepDis', 'SevRepDis', 'DurRepDis';
5. the Block of Institutional Factors including the Variables: 'AccTrad', 'AccTran', 'AccMod';
6. the Block of Intervening Factors including the Variable: 'EcoSit';

Blocks of Dependent Variables

7. the Block of Utilisation of the Traditional Medical System Factors including the Variable: 'TradCare'
8. the Block of Utilisation of the Transitional Medical System Factors including the Variable: 'TranCare'
9. the Block of Utilisation of the Modern Medical System Factors including the Variable: 'ModCare'

In order to calculate all possible correlations between blocks of factors and to hereafter distinguish the maximum association, a multiple regression analysis uses the eigenvalue (E) of each correlation, which is derived from running an individual OVERALS analysis on all possible combinations of blocks of factors. On the whole, OVERALS produces an eigenvalue for each dimensions (E_d) of the solution, which hereby forms the basis for the subsequent calculation of the multiple correlation coefficient (ρ_d) for each dimension. The formula, which is applied to the calculation of the multiple correlation coefficient using the eigenvalue, reads: '$\rho_d = 2 \times E_d - 1$' (*cf.* Van der Burg 1988; Agung 2005; Ibui 2007; Leurs 2010; Djen Amar 2010; Ambaretnani 2012).

Table 8.9 presents a list of all multiple correlation coefficients, which have been calculated separately for all possible combinations of blocks of factors for each dimension. Overall, a stepwise manner of running a multiple regression analysis allows for a close assessment of the overall distribution of the blocks of factors and, more specifically, of the distribution of the different blocks of independent factors over the blocks of dependent factors. The first column of Table 8.9 to the left highlights the numbers of the respective blocks of factors, to which an OVERALS analysis is applied. Hereafter second column indicates the dimension of the solution,

for which the multiple correlation coefficient is calculated. The formula used to calculate the multiple correlation coefficient is presented in the third column from the left and is reconstructed for each correlation using the corresponding eigenvalues. Finally, the values of ρ are presented for each dimension in the last column to the right, whereby values of ρ = .10 reveal a weak correlation, values of ρ = .30 reveal a moderate correlation and values of ρ = .50 reveal a strong correlation (*cf*. Field 2009).

Table 8.9 List of Multiple Correlation Coefficients (ρ) calculated by means of a Multiple Regression Analysis of the Nine Blocks of Factors on two Dimensions (N=452).

Block←→Block	Dimension	Calculation[a] ($\rho_d = 2 \times E_d - 1$)	Multiple Correlation Coefficient (ρ)
1←→2	1	2 x 0.809 - 1 =	0.618
	2	2 x 0.791 - 1 =	0.582
1←→3	1	2 x 0.879 - 1 =	0.758
	2	2 x 0.868 - 1 =	0.736
1←→4	1	2 x 0.884 - 1 =	0.768
	2	2 x 0.807 - 1 =	0.614
1←→5	1	2 x 0.799 - 1 =	0.598
	2	2 x 0.794 - 1 =	0.588
1←→6	1	2 x 0.836 - 1 =	0.672
1←→7	1	2 x 0.696 - 1 =	0.392
1←→8	1	2 x 0.646 - 1 =	0.292
1←→9	1	2 x 0.636 - 1 =	0.272
2←→3	1	2 x 0.796 - 1 =	0.592
	2	2 x 0.735 - 1 =	0.470
2←→4	1	2 x 0.745 - 1 =	0.490
	2	2 x 0.719 - 1 =	0.438
2←→5	1	2 x 0.952 - 1 =	0.904
	2	2 x 0.773 - 1 =	0.546
2←→6	1	2 x 0.745 - 1 =	0.490
2←→7	1	2 x 0.602 - 1 =	0.204
2←→8	1	2 x 0.584 - 1 =	0.168
2←→9	1	2 x 0.581 - 1 =	0.162
3←→4	1	2 x 0.793 - 1 =	0.586
	2	2 x 0.753 - 1 =	0.506
3←→5	1	2 x 0.720 - 1 =	0.440
	2	2 x 0.666 - 1 =	0.332
3←→6	1	2 x 0.786 - 1 =	0.572
3←→7	1	2 x 0.614 - 1 =	0.228
3←→8	1	2 x 0.610 - 1 =	0.220
3←→9	1	2 x 0.600 - 1 =	0.200
4←→5	1	2 x 0.770 - 1 =	0.540
	2	2 x 0.719 - 1 =	0.438
4←→6	1	2 x 0.764 - 1 =	0.528
4←→7	1	2 x 0.728 - 1 =	0.456
4←→8	1	2 x 0.705 - 1 =	0.410
4←→9	1	2 x 0.647 - 1 =	0.294
5←→6	1	2 x 0.771 - 1 =	0.542
5←→7	1	2 x 0.593 - 1 =	0.186
5←→8	1	2 x 0.577 - 1 =	0.154
5←→9	1	2 x 0.612 - 1 =	0.224
6←→7	1	2 x 0.554 - 1 =	0.108
6←→8	1	2 x 0.587 - 1 =	0.174
6←→9	1	2 x 0.503 - 1 =	0.006

[a] = The values in the formula are the eigenvalues for each dimension.

On the whole, the eigenvalues show, for each dimension, to which extent the correlation between two blocks of factors can be explained by the model as opposed to having occurred by chance. In

this respect, the sum of the eigenvalues on both dimensions of each correlation refers to the total 'fit' of the model to the respective variables, whereby a perfect 'fit' equals the number of dimensions chosen (*cf.* Van der Burg 1994; Leurs 2010). Table 8.9 refrains from providing any indication on the relationship between Block 7, Block 8 and Block 9, namely the blocks of the dependent variables, as these correlations are out of the scope of the multivariate model. Although not presented in Table 8.9, the correlation between Block 7 'Utilisation of the Traditional Medical System Factors' and Block 8 'Utilisation of the Transitional Medical System Factors' is very strong (ρ_1 = 0.915), which reflects the tendency of the majority of 'patients', who took two steps within the process of health care utilisation, to seek treatment in the form of a combined contact with the traditional and the transitional medical system.

The relationship between Block 1 'Predisposing Socio-Demographic Factors' and Block 3 'Enabling Factors' produces the highest sum of eigenvalues and strong correlation coefficients on both the first (ρ_1 = .758) and the second (ρ_2 = .736) dimension. Hereafter, an OVERALS analysis of the relationship between Block 1 'Predisposing Socio-Demographic Factors' and Block 4 'Perceived Morbidity Factors' generates the second highest sum of eigenvalues and reveals similarly strong correlation coefficients for the first (ρ_1 = .768) and the second dimension (ρ_2 = .614). Overall, these findings support the results gained from a bivariate as well as multivariate analysis, which illustrate a strong association between perceived morbidity and the patient's choice of treatment. The relationship between Block 1 and Block 2 'Predisposing Psycho-Social Variables' produces the third highest sum of eigenvalues as well as strong correlation coefficients on the first (ρ_1 = .618) and the second (ρ_2 = .582) dimension.

The correlation between Block 2 and Block 5 'Institutional Factors' generates the strongest correlation coefficient on the first dimension (ρ_1 = .904) as well as a strong correlation coefficient on the second dimension (ρ_2 = .546). Block 2 and Block 3 similarly correlate strongly on the first (ρ_1 = .592) and the second (ρ_2 = .470) dimension , whereas a strong correlation is moreover found between Block 2 and Block 4 on the first (ρ_1 = .490) and the second (ρ_2 = .438) dimension supporting the medical dimension of the present study. Furthermore, a strong correlation exists between Block 2 and Block 6 'Intervening Factors' on the first (ρ_1 = .490) dimension.

Following Block 2, Block 3 and Block 4 are strongly correlated on the first (ρ_1 = .586) and the second dimension (ρ_2 = .506), while Block 3 and Block 5 appear to be moderately correlated on the first (ρ_1 = .440) and the second dimension (ρ_2 = .332). Hereafter, a strong correlation exists between Block 3 and Block 6 on the first dimension (ρ_1 = .572). The correlation between Block 4 and Block 5 shows a strong effect on the first dimension (ρ_1 = .540) as well as a moderate to strong effect on the second dimension (ρ_2 = .438). Likewise, Block 4 and Block 6 correlate strongly on the first dimension (ρ_1 = .528). Block 6 furthermore correlates strongly with Block 6 on the first dimension (ρ_1 = .542). In general, the correlations between the different blocks of independent factors indicate a strong coherence between the variables of the respective blocks and support the overall distinction between the different blocks of factors in the model.

In view of the correlations between the blocks of independent factors and the blocks of the dependent factors, the results of the multiple regression analysis show that the strongest correlation is found between Block 4 and Block 7 (ρ_1 = .456), whereby the variable 'Reported Disease' is dominant. Similarly, a moderate to strong correlation exists between Block 4 and Block 8 (ρ_1 = .410) in which Block 4 is dominated by the variable 'Reported Disease'. In line with these results Block 4, as it is dominated by the variable 'Reported Disease', and Block 9 'Utilisation of the Modern Medical System Factors' correlate moderately (ρ_1 = .294). Overall, these findings support the medical dimension of the present study, which is identified during the previous bivariate and multivariate analysis.

In addition the block of the perceived morbidity factors, the OVERALS solution reveals a moderate correlation between Block 1 and Block 7 (ρ_1 = .392), whereby the block of the predisposing socio-demographic factors is largely dominated by the variables 'Age', 'Occupation' and 'Household Size'. In the same fashion, a moderate correlation exists between

Block 1 and Block 8 (ρ_1 = .292) in which Block 1 is dominated by the variables 'Age' and 'Household Size'. Furthermore, Block 1 and Block 9 (ρ_1 = .272) correlate moderately , whereas Block 1 is dominated by the variables 'Household Size', 'Occupation', 'Marital Status', 'Age' and 'Household Composition'. The results of the analysis moreover demonstrate a moderate correlation between Block 3 and Block 7 (ρ_1 = .228) in which the block of the enabling factors is dominated by the variable 'Annual Income'. In the same fashion, a moderate correlation exists between Block 3 and Block 8 (ρ_1 = .220), whereby the block of the enabling factors is largely dominated by the variables 'Annual Income' and 'Insurance'. Block 3, as it is dominated by the variables 'Annual Expenses for Health Care' and 'Insurance', moreover correlates moderately with Block 9 (ρ_1 = .200). In addition to Block 3, Block 2 correlates moderately with Block 7 (ρ_1 = .204), whereby Block 2 is largely dominated by the variables 'Opinion on the Transitional Medical System'. Finally, a moderate correlation exists between Block 5, which is dominated by the variable 'Accessibility of Institutions of the Traditional Medical System', and Block 9 (ρ_1 = .224).

On the whole, the results of the multiple regression analysis show that the block of the perceived morbidity factors and the block of the predisposing socio-demographic factors correlate strongly with all blocks of independent factors and moderately with all blocks of dependent factors. Furthermore, the block of the intervening factors, which includes the variable 'Impact of the Current Economic Situation', correlates rather strongly with all blocks of independent factors. Likewise, the block of the predisposing psycho-social factors correlates strongly with the blocks of independent factors. On the basis of the results gained from a multiple regression analysis, Figure 8.3 presents the final analytical model of transcultural health care utilisation behaviour. The groups of variables, which have been identified as determinants of patterns of behaviour, are shown in the respective block of factors and the correlations (r) between the different blocks of factors, which have been identified during the multiple regression analysis, are illustrated accordingly. In this way, the correlations displayed in the model highlight the validity of the multivariate model, which is applied to the present data, and hereby produce the final, explanatory model of transcultural health care utilisation behaviour for the sample population of Pirgos and Praitoria in rural Crete. In addition to illustrating the generally strong coherence between blocks of independent factors, Figure 8.3 moreover highlights the predictive value of the different blocks of independent factors on the blocks of dependent factors, namely on people's behaviour of transcultural health care utilisation.

8.3 Results of the Analysis and Interpretation of Findings

8.3.1 The Differential Utilisation of the Plural Medical System

On the whole, the results gained from the quantitative analysis of the data collected during the household surveys show that the 'patients' of the sample contact the transitional medical system more frequently than the traditional or the modern medical system. The findings are supported by a study conducted elsewhere in rural Crete, which similarly revealed that commercial pharmaceutical medicines provides the form of medical treatment most frequently used by the local population. In the same fashion, Slikkerveer (1990) observed that patterns of health care utilisation behaviour developed by the population in the Horn of Africa show a tendency towards under-utilisation of the traditional medical system and towards over-utilisation of the transitional and the modern medical system. Since patterns of utilisation of the transitional medical system involve both the use of prescribed as well as non-prescribed medicines, the administration of commercial pharmaceutical medicines to a considerable extent involves an initial consultation with a modern health care provider, that is with the modern medical system, who issues the prescription.

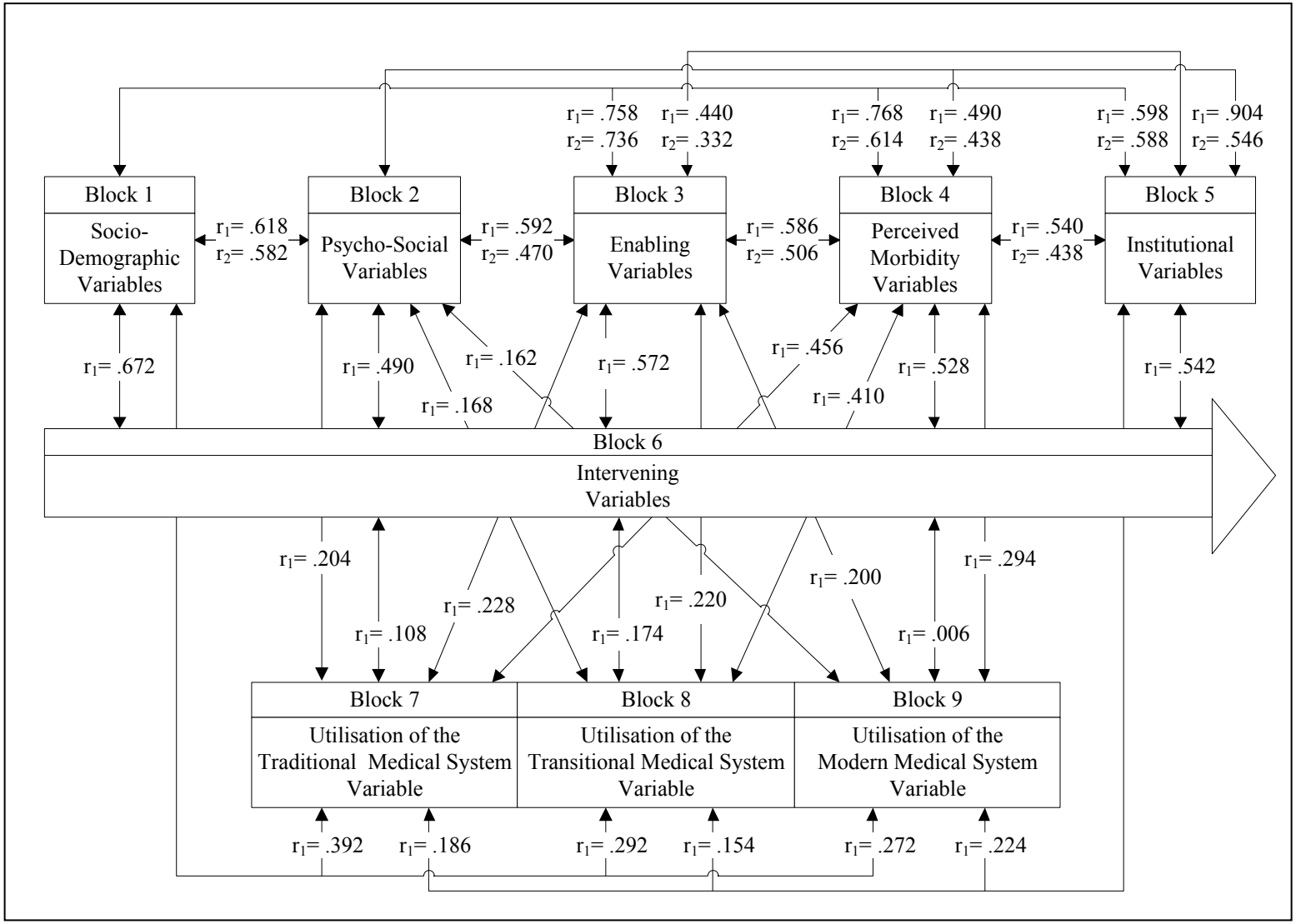


Figure 8.3 The Final Model of Transcultural Health Care Utilisation indicating the Strength of the Correlations between the Blocks of Variables.

Although the focal point of consultation, notably from a community perspective, remains with the transitional health care provider, who eventually distributes the medicine to the client, this research indicates that the transitional and the modern medical system available in the research area are closely intertwined. As Blum & Blum (1965: 177) elaborate: '*The decreased use of priests as healers is no doubt associated with the availability of physicians and the opportunity to use the hospitals and clinics* […]'. Furthermore, the prescription of medicines appears to be a fairly common choice of treatment among modern health care providers across Crete and Greece at large. As Antonakis *et al*. (2006: 2) observe: '*Drug therapy is the most commonly used method of any disease treatment in general practice*'.

The fact that prescription medicine has throughout this study been defined as component of the transitional rather than the modern medical system may hereby foster patterns of over-utilisation of the transitional medical system and patterns of under-utilisation of the modern medical system in the research area. Nevertheless, a comparative study of patterns of use of primary health care in Spili, Crete, and Dalby, Sweden, highlights that the inhabitants of Crete generally contact the local health centre less frequently than the patients in Sweden (*cf.* Koutis *et al*. 1991).

In contrast to the substantial overlap between the transitional and the modern medical system, the traditional medical system only shares a marginal affinity with the transitional and the modern medical system available in the research area. In particular, examples of overlap, in which components of the traditional medical system are purchased and hereby qualify as components of the transitional medical system or in which modern health care providers recommend treatment in the form of traditional medicine, have remained rare. In the research area, utilisation of the traditional medical system primarily involves patterns of self-care. In this way, is may be possible to characterise the traditional medical system as a somewhat more individual medical system, which stands in opposition and only in marginal relation to the, notably closely intertwined, transitional and modern medical systems. The traditional medical system moreover forms the second most frequently contacted medical system in the research area, whereby the difference of utilisation between the transitional and the traditional medical system is rather minimal. The number of 'patients', who contact the transitional medical system, exceeds the number of 'patients', who seek treatment from the traditional medical system, by 1.2% (n=6) (*cf.* Table 7.7). Hereafter, the rather individual character of the traditional medical system, adds significance to the overall rate of utilisation of the traditional medical system in the research area. In line with the results of the present study, Blum & Blum (1965) highlight that the population of rural Greece uses MAC plants and other traditional home remedies as well as religious and spiritual forms of medicine, notably in the form of self-care, more frequently than components of the modern medical system. In particular, patterns of utilisation of the traditional medical system exceed practices of consultation with the local physician, consultation with a modern health care provider in Athens and hospitalisation in Athens as well as consultation with a traditional health care provider.

8.3.2 Determinants of Health Care Utilisation Behaviour

In addition to illustrating the general patterns of health care utilisation developed by the sample population of Pirgos and Praitoria, an analysis of the present data sheds light on a number of determinants, which influence people's decision-making behaviour towards seeking treatment. The results of the statistical analysis show that patterns of health care utilisation developed by the sample population are strongly influenced by the number of members of each household, that is by the household size. On the whole, the results of this study indicate that the more members a household has the more frequently household members make use of the traditional medical system. Since the majority of 'patients', who contact the traditional medical system, resort to practices of self-care, it is likely that patterns of utilisation of the traditional medical system follow an exchange of knowledge between members of the same household. Concurrently,

statistical analysis reveals that the less members a household has the more frequently household members contact the transitional medical system. Furthermore, only a minor number of 'patients', who live in a household composed of 5 and more members, use the modern medical system. In contrast to patterns of utilisation of the traditional medical system, these findings suggest that the choice of seeking treatment from the transitional and the modern medical system is the result of individual decision-making. Following the household size, the composition of each household appears to significantly influence local patterns of health care utilisation behaviour. In general, households with children or grandchildren make considerable use of the traditional medical system. To some extent, these findings are in line with the differences in household size, as households with 4 or more members are likely to be constituted by parents and their children.

Although gender has not been identified as a significant determinant of local patterns of health care utilisation behaviour among the study population, the statistical results are in line with earlier research conducted elsewhere in Crete and Greece, which demonstrated that more women than men seek treatment from the transitional medical system (*cf.* Arnold 1986; Legel 1998; Tzimis & Kafatos 1999; Sleath *et al*. 2001; Geitona *et al*. 2007).

In contrast to gender, people's age is identified as a strongly significant determinant of patterns of health care utilisation behaviour across the sample population. The results of this research show that younger inhabitants contact the traditional medical system more frequently than inhabitants aged 56 and more. To some extent, these findings may be a natural consequence of the recent trend among young people towards moving or returning to rural areas, not at least in order to live with family members, which is reinforced by economic instability and growing rates of unemployment among the younger population. Hereafter, younger community members may develop a new interest in traditional, locally available and more affordable, forms of medical treatment. In this respect, a previous study conducted in Kastellos in the Prefecture of Rethymnon similarly indicated that young inhabitants make substantial use of MAC plants, thereby relating these findings to the increasing number of young people living in rural areas and to a renewed interest in MAC plants among young people (*cf.* De Vries 2007).

Hereafter, the present study moreover demonstrates that inhabitants aged 56 and more contact the transitional medical system more frequently than younger inhabitants (*cf.* Sleath *et al*. 2001). The findings are in line with the results of a recent study conducted in rural Crete on patterns of prescribing, which revealed that patients aged 72 and more generally use a higher number of medicines on prescription than younger patients (*cf.* Antonakis *et al*. 2006) (8.2). Likewise, research carried in Crete on practices of medicine utilisation showed that around one-third of medicines are prescribed to older individuals (*cf.* Tzimis & Kafatos 1999). To some extent, Antonakis *et al*. (2006: 6) related the increased use of prescribed medicines among older patients to '*different attitudes towards drug therapy, both among doctors and patients*'.

The diverse patterns of health care utilisation behaviour developed by the study population across age groups are somewhat in line with the differences in household size and household composition (*cf.* Van den Akker 2002). Households with four and more members, as they make substantial use of the traditional medical system, are likely to be constituted by parents and their children. Furthermore, household members, whose nature of relationship to the household head is that of a grandchild or child, appear to contact the traditional medical system rather frequently. On the other hand, survey respondents, whose nature of relationship to the household head refers to parent, contact the transitional medical system rather frequently.

In contrast to the rates of utilisation of the traditional and the transitional medical system, contacts with the modern medical system are rather evenly distributed among age groups of the sample. Earlier research conducted elsewhere in rural Crete and Greece similarly produced rather ambiguous results regarding the influence of age on people's use of the modern medical system. On the one hand, these studies reported that young people widely consider MAC plants as old-fashioned and hereafter contact modern health care facilities more frequently than older inhabitants, who continue to seek treatment primarily in the form of components of the

traditional medical system. Concurrently, the studies furthermore highlighted that certain, notably locally available, MAC plants are, nevertheless, used by both older and younger inhabitants. On the other hand, previous research indicated that older, particularly female, community members visit modern health care institutions more frequently than younger inhabitants, who seek treatment from the modern medical system only for particular diseases. Hereafter, the studies moreover explained that older inhabitants widely appreciate the vicinity of the rural health post and hereby seek treatment from the modern medical system more regularly than younger community members (*cf.* Koutis *et al*. 1991; Van Bommel 1993; Hagoort 1998; Dijkstra 2005; De Vries 2007; Geitona *et al*. 2007). Overall, the determining effect people's age has on patterns of health care utilisation behaviour can be related to differences in morbidity among age groups. In this respect, the frequent use of prescription medicines by older patients, which is reported in a recent study carried out in Crete, is explained with the experience of multiple and more severe diseases among older inhabitants (*cf.* Antonakis *et al*. 2006).

In general, people's level of education has not been identified as a significant determinant of patterns of health care utilisation behaviour among the sample population (*cf.* Van den Akker 2002; Palstra 2003). Nevertheless, an earlier study conducted in Kastellos in the Prefecture of Rethymnon revealed that inhabitants, who completed a higher level of education, make substantial use of MAC plants (*cf.* De Vries 2007). In the research area, respondents, who completed a level of secondary education, contact the traditional medical system more frequently than respondents, who received only primary education or no formal education at all. The present study moreover shows that 'patients', who have not entered a level of formal education or have completed a level of primary education, contact the transitional medical system more frequently than 'patients', who have completed a level of secondary or post-secondary education. Likewise, a considerable number of 'patients', who did not receive any formal education, use the modern medical system (*cf.* Van Beelen 1990). Hereafter, the present analysis links up with earlier research carried out elsewhere in rural Crete, which demonstrated that community members, who did not complete primary education, contact the modern medical system and particularly private health care facilities rather frequently. Overall, these findings suggest that patterns of utilisation of the traditional medical system involve higher levels of education among 'patients' than patterns of contact with the transitional and the modern medical system.

The statistical analysis of the present data distinguishes the marital status of the respondents as a significant determinant of patterns of health care utilisation behaviour. In particular, 'patients', who are married or co-habiting, appear to contact the traditional medical system more frequently than respondents, who are single or widowed. On the other hand, single or widowed community members use the transitional and the modern medical system more regularly than inhabitants, who are married or co-habiting. In line with the determining effect of the household size, these results suggest that patterns of use of the traditional medical system follow an exchange of knowledge between spouses or domestic partners, while patterns of contact with the transitional and the modern medical system are the result of individual decision-making. Overall, the identification of household size, household composition, age and marital status as significant determinants of people's behaviour indicates that 'patients', who live with their partners and children, seek treatment primarily from the traditional medical system. In this way, the choice of treatment may be affected by financial circumstances, whereby the components of the traditional medical system are generally more affordable and hereafter favoured by the members of multi-member households.

Finally, this research demonstrates that people's occupation has a significant influence on patterns of health care utilisation behaviour. In view of the differences in household size, household composition, age and marital status, it can be understood that a considerable number of 'patients', who are not in labour force or are students, use the traditional medical system rather frequently. The different types of professions, which provoke contacts with the traditional medical system among the community members, furthermore appear to link up with differences in the level of education. It can be assumed that the occupation of insurance agent as well as

head officer or researcher involves a higher level of education, which results in the increased use of the traditional medical system. Furthermore, providers of food, beverage and accommodation to some extent rely on natural products and may consequently be more likely to seek treatment from the traditional medical system. The overall patterns of health care utilisation behaviour developed by study population, whereby 'patients' seek treatment from the transitional medical system more frequently than from the traditional or the modern medical system moreover support the finding that human health and social workers contact the transitional medical system rather frequently.

Following the different determinants of people's health care utilisation behaviour, which have been identified in the block of socio-demographic factors, the quantitative analysis of the present data moreover reveals that people's knowledge of the traditional medical system to a considerable extent influences the choice of treatment. In general, an overwhelming majority of 'patients' of the sample demonstrate much knowledge of the traditional medical system. In this respect, 'patients', who have considerable knowledge of the traditional medical system, contact the traditional medical system more frequently than 'patients', who hold little or average knowledge of the traditional medical system (*cf.* De Vries 2007). On the whole, the results suggest that patterns of utilisation of the traditional medical system are embedded in people's knowledge and understanding of the different components of the traditional medical system. In this way, 'patients', who use the traditional medical system, appear to rely primarily on their own knowledge of the different forms of treatment available within the traditional medical system (*cf.* Van de Kerk 1993). The statistical analysis moreover highlights that 'patients', who demonstrate little knowledge of the traditional medical system contact the transitional medical system more frequently than 'patients', who have much knowledge of the traditional medical system. Hereafter, it can be assumed that a limited knowledge of the traditional medical system advances patterns of utilisation of the transitional medical system (*cf.* Van den Akker 2002).

Apart from people's knowledge of the traditional medical system, the results of the analysis indicate that people's knowledge of the modern medical system similarly influences patterns of health care utilisation behaviour. Nevertheless, the findings show that 'patients', who have much knowledge of the modern medical system, contact the modern medical system less frequently than 'patients', who demonstrate average or little knowledge of the modern medical system. In contrast to patterns of utilisation of the traditional medical system, these results imply that patterns of utilisation of the modern medical system are not directly related to people's knowledge of the different forms of treatment available within the modern medical system. In other words, contacts with the modern medical system appear to be somewhat disconnected from the individual and communal understanding of the different components of the modern medical system.

In addition to the extension of knowledge of the traditional as well as the modern medical system, people's opinion on the transitional medical system is identified as a weakly significant determinant of patterns of health care utilisation. Overall, 'patients', who have a positive opinion on the transitional medical system, contact the transitional medical system more frequently than 'patients', who hold a negative opinion on the transitional medical system. In general, these findings show that patterns of utilisation of the transitional medical system to a certain extent follow people's positive attitude towards the different forms of treatment available within the transitional medical system. In other words, it appears that the use of commercial pharmaceutical medicines, rather than of components of the traditional and the modern medical system, appeals to people's opinion on the different forms of treatment available. Hereafter, the extensive use of the transitional medical system may follow people's trust in the healing power of pharmaceutical medicines. In this respect, an earlier study conducted in Crete indicated that local inhabitants to some extent share the belief that treatment in the form of pharmaceutical medicines is less erroneous than treatment provided by a health care provider (*cf.* Arnold 1986). In contrast to people's opinion on the transitional medical system, people's opinion on the traditional and the modern medical system have no influence on the choice of treatment among the study

population. In this way, the present research is in line with a study on people's use of alternative medicine carried out in the United States, which similarly highlighted that negative attitudes towards modern forms of medicine do not influence patterns of use of alternative forms of medicine (*cf.* Astin 1998).

In addition to the determinants of patterns health care utilisation behaviour, which have been specified in the block of psycho-social factors, statistical analysis indicates that people's behaviour is moreover influenced by the amount of annual income of each household. On the whole, 'patients', who have an annual household-income of 10.000 Euro or less, contact the traditional medical system less frequently than 'patients', who have an annual household-income between 31.000 and 40.000 Euro. Accordingly, 'patients' with an annual household-income between 31.000 and 40.000 Euro use the transitional medical system less frequently than 'patients' with a lower income. Overall, these findings demonstrate that contacts with the traditional medical system, as it is generally more affordable, are not necessarily linked to a low annual household-income. Concurrently, 'patients' with an annual household-income of less than 10.000 Euro use the modern medical system rather frequently. Hereafter, this research is line with a study conducted in Greece, which revealed that low-income individuals visit primary health care facilities' rather regularly (*cf.* Geitona *et al*. 2007). Nevertheless, 'patients', who have an annual household-income between 31.000 and 40.000 Euro as well as above 40.000 Euro, similarly contact the modern medical system more frequently than 'patients' with a lower annual household-income. The results indicate that 'patients' with a higher annual household-income tend to seek treatment from the modern medical system, thereby suggesting that 'patients' need to have the financial means to contact the modern medical system. In this way, the present study links up with an earlier study carried out in Crete similarly demonstrated that patterns of consultation with medical specialists are more common among higher income groups (*cf.* Davaki & Mossialos 2005). Overall, it is, however, highly likely that the overwhelming number of 'patients' of the sample, who are covered by health insurance, overshadows differences in the annual household-income across the sample population.

In addition to the annual income of each household, the amount of annual expenses for health care of each household appears to somewhat influence patterns of health care utilisation behaviour among the sample population. In line with the findings related to the annual household-income, the quantitative data show that there is no linear trend among the distribution of the amount of annual expenses for health care over the choice of treatment. In this respect, it can be assumed that the overwhelming number of 'patients' of the sample, who are covered by health insurance, similarly overshadows differences in the amount of annual expenses for health care. Nevertheless, the results of the statistical analysis of the present data moreover highlight that 'patients', whose annual expenses for health care are within the range of 751 and 1.000 Euro, contact the modern medical system more frequently than 'patients', whose annual expenses for health care remain below 250 Euro. Hereafter, this study follows previous research conducted in rural Greece and Crete, which showed that patients would refrain from contacting the modern medical system in order to avoid great expenses (*cf.* Blum & Blum 1965; Arnold 1986; Clark 2002).

Although the type of health insurance has not been identified as a significant determinant of people's health care utilisation behaviour, the distribution of variables indicates that 'patients', who are insured with OGA, contact the traditional medical system more frequently than 'patients', who are insured with IKA or OPAD. Since OGA covers mostly employees of the agricultural sector, these findings point out that contacts with the traditional medical system are more common among 'patients', who are familiar with the natural environment and its resources. Hereafter, the 'patients' of the sample, who are not covered by insurance, make considerable use of the transitional medical system. The findings suggest that individuals, who have to pay for their medical treatment, do not automatically resort to seeking treatment from the more affordable traditional medical system. In this way, this research follows a previous study conducted in Greece, which highlighted that individuals, who are not covered by health

insurance, visit secondary modern health care facilities rather frequently (*cf*. Geitona *et al*. 2007). Since the present study has found no significant association between people's socio-economic status and the choice of treatment, it links up with earlier research carried out in Spili and Kastellos in the Prefecture of Rethymnon, which similarly showed that patterns of utilisation are largely independent from people's SES (*cf*. Van den Akker 2002; De Vries 2007).

Following the block of enabling factors, the block of perceived morbidity factors is identified as offering rather strongly significant determinants of patterns of health care utilisation among the study population. In particular, the self-reported health status of each patient influences patterns of behaviour in a way that 'patients', who report a good health status, contact the traditional medical system more frequently than 'patients', who reportedly have an average or poor health status. Since the quality of medical treatment received from the traditional medical system is perceived to fairly positive, these findings are in line with the results of a study conducted in Greece, which found that people's self-rated health status is positively related to satisfaction with treatment (*cf*. Geitona *et al*. 2008). Accordingly, 'patients', who report a poor or average health status, use the transitional or the modern medical system more frequently than 'patients', who have a good health status. In this way, the present research links up with previous studies conducted in Crete and Greece, which indicated that the use of the modern medical system correlates with people's self-reported health status. In particular, the results of research carried out in Greece similarly indicated that individuals, who reportedly have a good health status, are less likely to visit modern health care facilities (*cf*. Al-Windi *et al*. 2000; Davaki & Mossialos 2005; Geitona *et al*. 2007). In general, the results of the present analysis suggest that contacts with the traditional medical system follow a somewhat 'holistic' approach to disease treatment, as it centres on people's health rather than on a state of ill-health. Since patterns of utilisation of the traditional medical system involve mainly practices of self-care, the findings moreover indicate that a good general health status to some extent forms a prerequisite for applying forms of self-treatment. On the other hand, 'patients' with a generally poor or average health status are more likely to consult a health care provider, notably a representative of the transitional or the modern medical system.

In addition to people's health status, the category of the disease, which was reported by the patient, strongly determines people's choice of treatment, thereby revealing that certain types of diseases are exclusively treated by one particular medical system. Patients, who experienced an episode of the 'evil eye', a disease of the skin and/or subcutaneous tissue, the common cold, a certain infectious or parasitic disease, abdominal and/or pelvic pain or a disease of the digestive system, contact the traditional medical system more frequently than 'patients' suffering from diseases such as heart diseases, diseases of the nervous system or neoplasms (*cf*. Eisenberg *et al*. 1993; Balick & Cox 1996). In this respect, earlier studies carried out elsewhere in rural Crete similarly reported that conditions such as the common cold, abdominal pain, skin infections, abnormal symptoms, including throat ache and headache, as well as the 'evil eye' are primarily treated with components of the traditional medical system (*cf*. Arnold 1986; Van Beelen 1990; Van der Hoeven 1992; Van de Kerk 1993; Van den Akker 2002; De Vries 2007). Since patterns of utilisation of the traditional medical system appear to be embedded in local systems of knowledge and understanding, the findings of the analysis indicate that patients contact the traditional medical system upon the experience of illness episodes, which knowingly can be treated with components of the traditional medical system. Conditions such as the common cold or abdominal and/or pelvic pain, for example, are among the most commonly reported illnesss in the research area, thereby suggesting that community members are fairly regularly confronted and hereby familiar with the conditions. Hereafter, the traditional medical system is commonly contacted upon the experience of illnesses and symptoms, which are locally specified, such as skin diseases and the 'evil eye'. In this respect, Blum & Blum (1965) similarly observe that patients refrain from consulting modern health care providers, who largely deny folk traditions, when suffering from diseases, which are classified on the basis of local concepts of health and illness. In contrast to these findings, it, however, appears that the 'patients' of the sample contact

the traditional medical system in a way to seek treatment for symptoms, signs or abnormal clinical or laboratory findings not elsewhere classified, such as vertigo, diarrhoea and vomiting. The results imply that 'patients' have a certain confidence in the traditional medical system and hereby use its components when suffering from symptoms or signs, which are not specified.

Concurrently, 'patients', who suffered from a mental and/or behavioural disorder, a congenital malformation, an elevated blood glucose level, essential (primary) hypertension or another disease of the circulatory system, a disorder of the thyroid gland or metabolic disorder, a disease of the ear or a disease of the genitourinary system, use the transitional medical system more frequently than 'patients', who experienced a common cold or abdominal and/or pelvic pain, for example (*cf.* Van de Kerk 1993; Geitona *et al*. 2008). In line with these findings, previous research conducted in Spili, Crete, demonstrated that patients commonly contact the transitional medical system in order to receive treatment for episodes of high blood pressure and soft tissue disorders (*cf.* Van Beelen 1990; Van den Akker 2002). In the research area, 'patients', who experienced a neoplasm, a disease of the eye and/or adnexa, an accident, symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified, a disease of the ear, a disease of the muscoskeletal system and connective tissue or a disease of the respiratory system other than the common cold, contact the modern medical system more frequently than 'patients' suffering from conditions such as the common cold or an elevated blood glucose level (*cf.* Kontarakis *et al*. 2011). The findings link up with studies conducted in Spili and Sellia, Crete, which showed that diseases of the respiratory system, such as influenza, or diseases of the muscoskeletal system and connective tissue, including arthritis and rheumatism, are mainly treated with components of the modern medical system (*cf.* Van Beelen 1990; Van der Hoeven 1992; Van de Kerk 1993; Van den Akker 2002). Likewise, research conducted in Greece demonstrated that patients visit rural health centres when experiencing cough or other conditions related to smoking as well as diseases of the muscoskeletal system and connective tissue, which are the result of heavy work (*cf.* Mariolis *et al*. 2008).

In addition to the category of the reported illness, the severity of the illness episodes, which is reported by the 'patients', acts as a strongly significant determinant of patterns of health care utilisation in the research area (*cf.* Dijkstra 2005). In particular, 'patients', who reportedly suffered from a non-severe illness episode, contact the traditional medical system more frequently than 'patients', who experienced a mildly, moderately or highly severe illness episode. In this way, the present study follows previous research carried out elsewhere in rural Crete, which showed that illnesses, which are treated with components of the traditional medical system, are generally perceived to be not severe (*cf.* Van der Hoeven 1992; Van de Kerk 1993; Van den Akker 2002; De Vries 2007). On the basis of these findings, it can be assumed that 'patients' use components of the traditional medical system in a way to not only treat non-severe illness episodes, but also to promote health and prevent disease in general (*cf.* Eisenberg *et al*. 1993; Al-Windi *et al*. 2000; Sleath *et al*. 2001). On the contrary, 'patients', who suffered from an illness episode, which was perceived to be moderately or highly severe, use the transitional and the modern medical system more frequently than 'patients' experiencing a non-severe illness episode. Likewise, the findings are in line with earlier studies conducted elsewhere in rural Crete, which highlighted that contacts with the transitional and the modern medical system largely follow the experience of diseases, which are perceived to be rather severe (*cf.* Van der Hoeven 1992; Van de Kerk 1993; Legel 1998; Molenaar 1999; Dijkstra 2005; De Vries 2007). In this respect, a previous study conducted elsewhere in rural Crete explained that patients are to some extent afraid of treating non-severe conditions with pharmaceutical medicines, which are regarded as an appropriate method of treatment of rather severe illness episodes. Hereafter, Slikkerveer (1990) elaborates that the patients' habit of contacting the modern medical system in order to receive treatment for illnesses, which are perceived to be rather severe, adds significance to local classifications of illness.

The results of the present data analysis moreover show that the duration of the reported illness episode forms a strongly significant determinant of local patterns of health care utilisation. In this respect, 'patients', who reportedly suffered an acute illness episode, use the traditional medical system more frequently than 'patients' experiencing a chronic disease. Earlier research, which was conducted elsewhere in rural Crete, similarly demonstrated that the traditional medical system is commonly contacted upon the experience of acute diseases (*cf.* Van Beelen 1990; Van der Hoeven 1992; Van de Kerk 1993; Van den Akker 2002; De Vries 2007). To some extent, the fact that 'patients' contact the traditional medical system in a way to receive treatment for primarily acute rather than chronic illness episodes supports the notion of confidence, which community members appear to have in the traditional medical system. On the other hand, 'patients' experiencing a chronic illness episode contact the transitional and the modern medical system more regularly than 'patients', who suffered from an acute disease. The findings are similarly supported by previous studies carried out in Greece and elsewhere in rural Crete, which revealed that chronic diseases are primarily treated with components of the transitional or the modern medical system (*cf.* Legel 1998; Van den Akker 2002; De Vries 2007; Geitona *et al.* 2008). Overall, the considerable number of significant determinants of patterns of health care utilisation behaviour, which have been identified in the block of perceived morbidity factors, highlight that the present study has a strong medical dimension. In other words, the choice of treatment is strongly influenced by the general health status of the patient as well as by the type, severity and duration of the reported illness experienced by the patient.

In addition to the block of perceived morbidity factors, the accessibility of institutions of the traditional as well as to the transitional medical system within the block of institutional factors acts as significant determinant of people's health care utilisation behaviour. In particular, 'patients', who perceive the accessibility of institutions of the traditional medical system to be either very difficult or difficult, contact the traditional medical system less frequently than 'patients', who consider the accessibility of institutions of the traditional medical system to be easy. In general, the results show that a number of community members may encounter difficulties in accessing institutions of the traditional medical system and choose to seek treatment from the transitional or the modern medical system instead. In this respect, it is probable that difficulty in accessing the institutions in based on factors of distance, transportation and general availability of institutions of the traditional medical system, as it is rather scarce. Furthermore, it is likely that the absence of clear trend among the results is related to the substantial number of 'patients' of the sample, who reported that there are no institutions of the traditional medical system.

Hereafter, the 'patients' of the sample, who reported that the accessibility of institutions of the transitional medical system is rather difficult, tend to contact the transitional medical system less frequently than inhabitants, who perceive the accessibility of institutions of the transitional medical system to be very easy. Concurrently, community members, who report that the accessibility of institutions of the transitional medical system is very easy, seek treatment from the traditional or the modern medical system rather frequently. On the whole, the results indicate that certain factors related to the institutional availability of the transitional medical system other than the geographical accessibility of its institutions may influence the patients' decision to seek treatment from the transitional medical system. The perceived general availability and easy accessibility of institutions of the transitional medical system in the research area may, for example, limit the local inhabitants' interest in commercial pharmaceutical medicines. Furthermore, the patterns of behaviour may be a result of people's lack of familiarisation with institutions of the transitional medical system, which have only recently been established in rural Crete (*cf.* Koutis *et al.* 1991). In this respect, a previous study conducted elsewhere in rural Crete demonstrated that the curative quality of MAC plants is particularly valued among older generations, as they had to cope with a fairly limited access to modern health care facilities. Although the accessibility of institutions of the modern medical system has not been identified as a significant determinant of people's health care utilisation behaviour, previous studies

conducted in Crete and Greece showed that accessibility, availability and distance of institutions of the modern medical system as well as difficulties in transportation and travelling, particularly in mountainous regions, present possible reasons for patterns of under-utilisation of the modern medical system (*cf*. Koutis *et al*. 1991; Hanepen 1997; Hagoort 1998; Clark 2002; Dijkstra 2005; Trigoni *et al*. 2008; Oikonomidou *et al*. 2011).

Within the block of intervening factors, the perceived impact of the current economic situation on local patterns of health care utilisation behaviour is identified as a significant determinant of local behavioural patterns. In other words, the findings of the present analysis indicate that the everyday life of community members is to a considerable extent influenced by current economic developments in the research area and beyond. The 'patients' of the sample, who perceived the impact of the current economic situation to be rather high, use the traditional medical system more frequently than the transitional medical system. The current economic situation may, for example, have an impact on the amount of annual household-income and expenses for health care and hereby on the interest of local inhabitants in more affordable forms of medical treatment. Furthermore, economic developments may alter the composition of households, as inhabitants of urban areas return to rural areas to stay with their parents, and may hereafter moreover influence local distributions of age, education and occupation. The results of the analysis have shown that 'patients', who live in multi-numbered households, are of younger age, have completed a level of higher education and practice a profession, which requires a higher level of education, contact the traditional medical system fairly extensively. Likewise, the current economic situation may have an impact on the availability and accessibility of, particularly modern and transitional, health care institutions, thereby provoking community members to contact the traditional medical system. Nevertheless, the findings of the present analysis moreover demonstrate that 'patients', who perceive the impact of the current economic situation to be high, use the transitional medical system fairly regularly. Concurrently, it appears that community members, who report that the impact of the current economic situation is very high, rather frequently seek treatment from the modern medical system. In this respect, it can be assumed that economic developments influence the general health status of the population, whereby people experiencing a poor health status contact the transitional and the modern medical system more frequently than people enjoying a good health status. Furthermore, it is likely that economic instability has an impact on the prevalence of certain diseases in the research area, such as mental and/or behavioural disorders, as they are exclusively treated with components of the transitional medical system.

8.3.3 Influence of Qualitative Factors on Behavioural Patterns

In addition to the different determinants of patterns of health care utilisation behaviour developed by the sample population, which have been identified by means of quantitative data analysis, the qualitative data collected in the course of this study offer a number of additional explanations for behavioural patterns. While qualitative research served the identification of possible determinants of people's behaviour during the initial stages of this study, the results of the statistical analysis hereby support the qualitative findings, including the identification of factors as determinants.

Although people's opinion on the traditional medical system is largely positive, patterns of under-utilisation of the traditional medical system, for example, can be interpreted as a result of a underlying lack of confidence in the traditional medical system, as it is believed to be largely old fashioned. In this way, the transitional and modern medical system are considered to be superior to the traditional medical system, whereby highly educated health care providers and newest forms of medical equipment are believed to reveal better results in medical treatment than the components of the traditional medical system (*cf*. Arnold 1986). Patterns of over-utilisation of the transitional medical system can be explained on the basis of local customs, such as: (1) visits to the modern health care provider for the sole purpose of receiving a prescription; and (2)

provisions of medicines through the mediation of a third person. As Lionis & Philalithis (2008: 320) elaborate: *'This custom and the dispensation of drugs over-the-counter encourage overuse of medication, as evidenced by the high proportion of outpatient antibiotic consumption in Greece*'.

On the other hand, the overall under-utilisation of the modern medical system can be related to demands of the social network, which appears to play a significant role in the everyday life of community members in rural Crete. In this way, patients are likely to refrain from visiting modern health care institutions because of feelings of embarrassment or in order to avoid feelings of envy and competition among fellow community members (*cf*. Blum & Blum 1965; Van de Kerk 1993; Hagoort 1998; Trigoni *et al*. 2008; Oikonomou *et al*. 2011). As highlighted previously, a number of factors other than the geographical accessibility of institutions of the modern medical system, which are related to the institutional availability of the modern medical system, may moreover influence patterns of under-utilisation. Earlier studies conducted in Greece and Crete indicated that such factors may refer to: a shortage of medical personnel, equipment and supplies, particularly at rural health posts; long waiting hours; inconvenience; feelings of fear or mistrust experienced by the patients; as well as the patients' perception of the behaviour, reputation, kinship ties and religious and moral conduct of the modern health care provider (*cf*. Blum & Blum 1965; Clark 2002; Oikonomidou *et al*. 2011).

Notes

(8.1) In view of the fairly large size of the sample, the symmetry of the frequency distribution is assessed through its absolute values of skewness and kurtosis. In this way, a skew value of 2 and a kurtosis value of 7 have been chosen as upper thresholds for the variables included in the analysis. Consequently, any frequency distribution, which demonstrates values of skewness larger than 2 and values of kurtosis above 7, is identified as having a potentially adverse effect on variable correlations (*cf*. Field 2009).

(8.2) In line with these results, a study on the relationship between age, gender, well-being, symptoms of disease and the use of plant-based and pharmaceutical medicines as well as self-care products, which was carried out in a Swedish municipality, confirmed that patterns of use of prescribed medicine increase significantly with age, as these types of medicines are generally administered during the treatment of diseases affecting primarily older people (*cf*. Al-Windi *et al*. 2000).

Chapter IX CONCLUSION

9.1 Conclusions

The main purpose of this study is to answer the research question: '*What kind of people use what kind of medicine for what kind of disease?*' By means of two extensive household surveys, which have been conducted in the area of South-Central Crete, data have been collected for a total of 452 cases in order to analyse local patterns of transcultural health care utilisation behaviour. In particular, information has been gathered on a number of factors, which had been identified as determinants of behavioural patterns prior to the surveys and had been inserted in the multivariate model of transcultural health care utilisation, which has been adapted to this study following its successful application during previous research conducted on patterns of behaviour in related sectors of the society across different geographical areas (*cf.* Slikkerveer 1990; Agung 2005; Ibui 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012; Chirangi 2013). In this way, the present study adopts the concept of medical pluralism, which distinguishes between different medical systems, as they are available in the research area. In general, the population of rural Crete seeks treatment from a variety of sources, namely from a plural medical system, which is composed of a traditional, a transitional and a modern medical system, and hereby adopts patterns of multiple utilisation. The concept of medical pluralism, which has successfully been applied by Slikkerveer (1990) in his study on patterns of health care utilisation in the Horn of Africa, refrains from a single focus on one medical system but adopts a combined focus on all medical systems available in the research area in a way to generate appropriate and locally specific information on patterns of behaviour. Furthermore, the concept of medical pluralism, as it has been applied to the research area of rural Crete, is substantiated by a community-based research approach. The different medical systems available in the research area have been identified on the basis of information received from the local inhabitants, whereas the analysis of patterns of health care utilisation behaviour is similarly rooted in accounts provided by the respondents rather than health care officials.

The data, which have been collected during the household surveys and have been subsequently analysed statistically, are substantiated by findings from qualitative research, which has been carried out in the research area prior, during and after the large-scale household surveys. On the basis of these qualitative data, this study moreover sheds light on people's extensive knowledge and utilisation of locally available Medicinal, Aromatic and Cosmetic (MAC) plants and other traditional home remedies, as they form components of the traditional medical system available in the research area. In particular, a fairly substantial amount of local inhabitants use MAC plants as a first step within the process of health care utilisation, whereby diseases such as the common cold, for example, are almost exclusively treated with plant-based medicine. On the whole, practices of MAC plant-utilisation are firmly embedded in the socio-cultural context of the community, in which members continue to use plants not only for the treatment of illness but also for the prevention of disease and the promotion of health.

In this way, local inhabitants demonstrate a profound knowledge of practices of collection, storage and preparation of plants for medical purposes, which is shared among generations and continuously adapted to socio-economic developments. The utilisation of components of the traditional medical system, which include not only MAC plants and other traditional home remedies but also religious and spiritual forms of medicine, has until recently involved the intermediary of traditional health care providers. While the professions practiced by local empirical doctors, bone-setters, wise women, midwives and priests have gradually disappeared leaving the provision of traditional health care in the hands of a few selected wise women and priests still active today, MAC plants and other forms of traditional medicine are nowadays primarily applied through practices of self-care. Overall, the disappearance of the profession of the traditional health care provider is largely rooted in recent socio-economic trends, upon which the provision of health care has been transferred to providers of modern medicine and

pharmaceutical medicines. Nevertheless, the extension of patterns of self-treatment with MAC plants shown by the study population indicates that the traditional medical system continues to form a vivid component of everyday village life. In this respect, the findings of the present study moreover suggest that recent economic developments occurring in Greece have stimulated practices of self-care, particularly in relation to the utilisation of MAC plants.

Recent socio-economic developments and locally specific systems of medical knowledge, practice and belief moreover draw attention to the rather distinct geographical area, in which the present study has been carried out. On the whole, Crete offers an environment, which is rich in natural diversity, that is habitats and plant species, and enjoys a certain degree of geographical isolation, as the island is located in the Mediterranean Sea roughly equidistant from the Greek mainland in the North, the Asian continent in the East and the African continent in the South. In addition to its physical particularities, the population of present-day Crete looks back on a long history of population and culture exchange. Crete not only provided home to the ancient civilisation of the Minoans, but has throughout history also been occupied by a range of foreign population groups, including the Dorians, the Romans, the Arabs, the Venetians and the Turks as well as German forces during the Second World War. The natural and historical characteristics of Crete have gradually stimulated the development of a population, which to this day combines the extremes of isolation and exchange and is renowned in Greece and beyond for its fierceness, hospitality and local cuisine. The present study sheds light on the socio-cultural context of local patterns of health care utilisation behaviour and draws on the specific features of the research area, thereby adding significance to its findings. In particular, this research focuses on the concept of Indigenous Knowledge Systems (IKS), which has been applied to a variety of studies in mainly developing countries in a way to adopt a community perspective and to collect information on local systems of knowledge, practice and belief. The concept of IKS, as it has been applied to the present research area of rural Crete, forms an approach, which is most appropriate for the study of local behavioural patterns and for gaining an understanding of local concepts of health and illness as well as wider systems of knowledge, practice and belief. In this way, this research extends the scope of IKS to an area, which offers an environment rich in nature, history and culture and hereby sheds light on a population group, which is rather unique.

In general, the present study has applied the concept of medical pluralism, has adopted a community-based research approach and has extended the concept of IKS to the research area of rural Crete in order to offer an adequate overview on local patterns of transcultural health care utilisation behaviour developed by a considerable number of ‘patients’. In addition to its overall aim, this research has achieved the following specific objectives:

Firstly, the two research communities have been described within the wider context of the Mediterranean Region, Greece and Crete, as presented in Chapter IV, while a sociography of the research area has been provided in Chapter V. In particular, the Mediterranean Region, which refers mainly to the countries bordering the Mediterranean Sea, is commonly identified as an area of both bio- and cultural diversity with many similarities. Located in the Southeast, Greece provides an example of a unique country of the Mediterranean Region, of which the general description provides the foundation for the presentation of the geography, climate and flora of Crete, the largest island of Greece. The natural environment of Crete offers a variety of habitats, which include maritime ecosystems along the coast as well as partly inaccessible mountain ranges, which cover the island in the East, the South and the West. To a certain degree, the mountain ranges contribute to the conservation of endemic plants, which grow in secluded areas out of the reach of humans and animals. The particular features of the natural environment of Crete provide a sound basis for human utilisation of plants, namely for a variety of purposes, including medical treatment. The general diversity of habitats and natural species, which are found in Crete and Greece as well as in the Mediterranean Region at large, not only favours the human use of plants, but also nurtures people’s indigenous knowledge of the locally available plant species. Since the population of Crete has long regarded mountains as spiritual sites, these

knowledge systems are moreover frequently enriched with a belief in mythological, religious and spiritual elements. In the research area, the overall significance of the natural environment is reflected in the considerable number of 'patients' of the sample, who contact the traditional medical system, particularly as a first step within the process of health care utilisation. Furthermore, the everyday relevance of the natural environment is displayed in the extensive local knowledge of the traditional medical system and its components, which is largely based on the knowledge and practice of MAC plants and other traditional home remedies. Similarly, the spiritual and religious aspects of traditional medicine are shared by the inhabitants of the research area.

In addition to the diverse natural environment, Greece and Crete represent a long human history, which is primarily shaped by the continuous exposure of the local inhabitants to foreign invaders, whereby a state of unity among the population groups has been maintained throughout history in a joint resistance to the interference of external powers. Consequently, milestones in the history of Crete, as it joined the Republic of Greece in 1913, such as the rise of the early Minoan civilisation, the long period of Venetian occupation and the series of rebellions launched during the Ottoman rule, render the island rather unique. The remarkable history of Crete illustrates that the Cretan population appears to combine a continuous exposure and subsequent adaptation to foreign influences with a strong sense of local autonomy. On the basis of these findings, it can be understood why the inhabitants of the research area continue to use the MAC plants as a major part of the traditional medical system, both in the form of home remedies and self-care, and in addition seek treatment in the use of commercial, pharmaceutical from local pharmacists. Although the socio-historical developments commonly differ between Crete and on the daily life r regions in Greece, the recent Eurozone financial crisis of 2009 has had a strong impact on the daily life of the population of Greece at large. In the research area, the consequences of the crisis are visible in the increasing number of younger inhabitants, who had left the urban areas mainly because of unemployment and to move back in with their family members in the rural areas.

Also, the increased prevalence of mental diseases, such as stress and anxiety, often caused by financial insecurity and the availability of limited resources in the provision of modern health care, are largely the result of the recent economic crisis. Although the current economic situation in Greece has not been identified as a significant determinant of people's health care utilisation behaviour, it is likely that the local consequences of the crisis to some extent influence people's behavioural patterns. However, the negative socio-economic development tends to further increase the utilisation of the traditional medical system, particularly among younger inhabitants, which in some cases indicate the under-utilisation of the modern medical system.

Apart from the influence of foreign invaders over the past centuries, the Greek Orthodox Church remains a common element of Greek and Cretan culture, thereby playing a significant role in the everyday life of the local population. With respect to local patterns of health care utilisation behaviour, the tradition of the Greek Orthodox Church appeals to people's knowledge, belief and practice of health and healing, thereby providing not only certain forms of medical treatment but also spiritual guidance during episodes of illness.

While Chapter IV further presents the particular natural, historical and cultural features of Greece and Crete, Chapter V embarks on a detailed description of the sociography of the research area of South-Central Crete. In this way, the research communities of Pirgos and Praitoria are described as located at the feet of the Asterousia Mountains and towards the eastern edge of the Mesara Plain respectively. The communities are surrounded by not only a natural environment rich in habitat and species diversity but also by a number of neighbouring villages, to which the local inhabitants are connected through their economic interests and social networks. As considerable number of inhabitants of the mountainous settlements south of Pirgos have either settled in Pirgos or reside in the community over an extended period of time, it can be assumed that the inhabitants of these fairly isolated mountain communities hold a particularly rich knowledge of the traditional medical system, nurturing the exchange and conservation of

knowledge and practice of MAC plants within the context of the traditional medical system among the community members in Pirgos and Praitoria. Although the majority of inhabitants of both Pirgos and Praitoria are born in the community or in the Municipality of Arkhanes-Asterousia, the history of the local population shows patterns of settlement of different population groups. In line with the characteristics of Crete at large, community members appear to combine a state of exchange with a state of local autonomy, which is visible in local values and customs. While only a minor percentage of community members have a nationality other than Greek and follow a religion other than the Greek Orthodox Church, the sample population demonstrates a strong local character and identification with what is defined as 'being Cretan'. In this respect, patterns of contact with the traditional medical system, which is embedded in the socio-cultural context of the community, can be interpreted as an expression of this special local character.

In addition to demonstrating such a strong local character, the inhabitants of Pirgos and Praitoria maintain a socio-economic network within the community, in which family relations, kinship ties, common spirituality and participation in religious and communal events play a significant role. In other words, local patterns of age, gender, household composition, education, marital status and occupation are all intertwined with an annual religious canon and a socio-economic calendar. In the research communities, the majority of inhabitants practice the profession of farming and follow an annual cycle of agricultural production. Given the embeddedness of local patterns of occupation in the socio-economic network of the community, it can be assumed that patterns of contact with the traditional medical system are stimulated by the widespread and continuous interaction between inhabitants adopting farming practices and the natural environment.

Secondly, the documentation of the plural medical system in the research area, which comprises the traditional, the transitional and the modern medical system, is documented and described in Chapter VI, Paragraph 6.2.1. In general, the concept of medical pluralism, which is applied to the present pluralistic medical configuration is based on the identification of the different systems of medical knowledge, belief and practice, as well as various health care providers found in the research area. The applied community perspective not only enables an appropriate and renewed focus on the local medical situation in this part of Crete, but also provides a deeper insight into the 'Participants' View' on the various medical systems in rural Crete. In general, the plural character of the medical system available in the research area is found to be rooted in the socio-historical developments in the region. Early archaeological finds indicate that the ancient Minoan and Mycenaean civilisations had already acquired a repertoire of extensive local knowledge on the use of plants for medical purposes and that the first inhabitants made already use of special medical instruments. Furthermore, the doctrines of humoural medicine, which had been developed and advanced by various scholars of Ancient Greece, such as Hippocrates, Dioscorides and Galen, have formed the basis of a remarkable system of medical knowledge, which has been maintained and reproduced repeatedly during later periods of time. Eventually, this early classical Greek ethnomedical system has later onwards provided the common ground of modern, cosmopolitan medicine taught at Universities today. In addition to the ancient doctrines of the Greek humoural medicine, religious healers have continuously formed an important source of medical knowledge in Crete and have frequently been engaged in the copying, editing and authoring of medical manuscripts as well as in the teaching of medical lore.

Following the independence of Greece and the foundation of the first Medical Schools in the countries, the modern forms of medicine, based on the medical knowledge taught at Universities further developed modern physicians and nurses, who soon became competitors of the traditional health care provider, who gradually disappeared from urban areas throughout the island. In the meantime, the worldwide trend in the development and distribution of commercial pharmaceutical medicines had reached Greece during the second half of the 20th century, prompting a n increasing consumption of pharmaceutical medicines among the population.

Interestingly, however, the recent economic crisis, which also affected the island of Crete has had a negative effect on the use of pharmaceutical as well as modern forms of medicine, whereas the use of traditional, plant-based medicine showed a gradual increase.

In view of these cultural and socio-historical developments, it has become evident that the population of rural Crete seeks medical treatment from a variety of sources, which are combined into the plural medical system available in the research area. Following the use of different forms of plant-based medicine since the earliest days of human settlement in the island, also religious and spiritual forms of medicine, involving the intermediary of a health care provider, have continued to form a central component within the local systems of knowledge, practice and belief of health and healing. Indigenous knowledge of MAC has hereby been identified as a major component of the 'traditional medical system', which has been in existence in this part of Crete since the earliest days of human settlement. Until recently, utilisation of the traditional medical system involved the intermediary of traditional health care providers, particularly local empirical doctors, herbalists, bone-setters, wise women, midwives and religious healers. Although the advance of modern health care providers has gradually replaced the profession of the traditional specialists, still various components of the traditional medical system are continually used, predominantly in the form of herbal medicine for home remedies and self-care. The results of this study indicate, as elaborated below, that a substantial part of the overall use of the plural medical system in the research is reported for the traditional medical system, in which the indigenous knowledge of MAC plants forms the major component.

Besides the traditional medical system, the inhabitants of rural Crete are seeking medical treatment in the form of the use of commercial pharmaceutical medicines, either obtained on prescription or purchased over the counter at local pharmacies, supermarkets and herbal shops. Overall, pharmaceutical medicines are applied through both practices of self-care as well as the intermediary of a professional health care provider. In order to substantiate this dual practice and the primarily commercial nature of pharmaceutical medicines, rather different from the traditional and the modern medical system, examples of commercial pharmaceutical medicines have been documented as components of the 'transitional medical system'. In addition to prescribed and non-prescribed medicines, the components of the transitional medical system include the sale of plants components, which are industrially packed and traded. Furthermore, patterns of use of non-prescribed medicines generally involve the advice of the local drug vendor or pharmacist. In this respect, the transitional medical system is positioned between the traditional and the modern medical system available in the research area. The results of this study indicate, as elaborated below, that a substantial part of the overall use of the plural medical system in the research is also reported for the transitional medical system by the study population.

In addition to the traditional and the transitional medical system, there exists the modern medical system in the research area, based on the medical knowledge and practice taught at Universities and Medical Schools. The establishment of modern health care facilities in Greece during the 20th century and the introduction of a national health care system in 1983 on the basis of the approach of Primary Health Care (PHC) has eventually resulted in the availability of rural health posts, regional health centres and urban hospitals across the island. In this respect, a rural health post, which is visited by a general practitioner between one and three times a week, has been established in both Pirgos and Praitoria. By means of the system of referral, the health posts are connected to the rural health centre, which is located in the nearby community of Kharakas. Moreover, 'patients' in the research area, also use modern health services from hospitals or private clinics in urban centres, such as Iraklion or Athens and sometimes even outside Greece. The results of this study indicate, as elaborated below, that a less substantial part of the overall use of the plural medical system in the research is reported for the modern medical system by the study population.

Thirdly, the local system of traditional medicine and its components, *i.e.* mainly the people's indigenous knowledge of MAC plants and their application in herbal medicine and home remedies as well as the use of local religious and spiritual forms of medicine, are described in Chapter VI. Here, a detailed description of the traditional medical system existent in the research area highlights the concepts of IKS and traditional medicine within a geographical area, in which recent medical research has primarily focussed on the availability and distribution of modern medicine and pharmaceutical medicines. However, the inhabitants of the research area demonstrate a profound knowledge of the locally available traditional medical system, particularly of the collection, storage, preparation and use of MAC plants. The vast indigenous knowledge of the traditional medical system, particularly of MAC plants and related traditional home remedies, is locally referred to as '*Yiatrosofia*', 'Medical Wisdom', as it usually serves the purpose of finding locally available and effective solutions to common health problems. As indicated, the concept of '*Yiatrosofia*' has had a variety of different connotations throughout history, whereby it has also been used to describe the medical expertise and writings of a group of scholars in Byzantine Crete. Furthermore, '*Yiatrosofia*' has defined a type of medical knowledge, which combines historical sources of medical knowledge, notably texts of ancient scholars, such as Hippocrates or Dioscorides, with collective and personal ideas of healing practices adopted at the time (*cf.* Clark 2002; 2011). Embarking on local people's perspective, the present study relates the concept of '*Yiatrosofia*' to the present-day knowledge of the traditional medical system of the participants, thereby enabling the research to follow a pioneering approach of the 'Participant's View'.

Although the traditional healers, such as *Praktiki*, have virtually disappeared from the research area, several wise women and religious healers continue to provide their advice and services to the population in the rural areas of Crete.

In view of people's extensive knowledge of the traditional medical system, the inhabitants of Pirgos and Praitoria are familiar with a whole range of locally available MAC plants. MAC plant species, such as Chamomile (*Chamomilla recutita* (L.) Rauschert / *Matricaria chamomilla* L. / *Matricaria recutita* L.), Sage (*Salvia fruticosa* Miller or *Salvia triloba* L. / *Salvia pomifera* L.) and the endemic Cretan Dittany (*Origanum dictamnus* L.), for example, are widely known and used in the research area for their mainly medical but also aromatic and cosmetic purposes. Although MAC plants are occasionally cultivated in pots, it is standard practice among community members to collect plants from the wild in the surrounding hills and lowlands.

MAC plants are either consumed directly or are dried and stored at home and are used, either internally or externally, for the main purpose of medical treatment. In addition to MAC plants, a number of mostly processed and at times MAC plant-based products, which are generally available in a rural Cretan households, including olive oil, raki, honey or beeswax are reported to be used as traditional home remedies. To some extent, these traditional home remedies provide the basis for local medical practices, such as the application of '*Ventuzes*', which refers to the attachment of cups to body parts in a way to extract excess blood or other fluids. Besides MAC plants and other traditional home remedies, the components of the traditional medical system available in the research area include forms of religious and spiritual medicine. While religious medicine usually involves the intermediary of religious healers and is administered in the form of prayers and practices, which are tied to the annual religious canon, spiritual medicine refers mainly to prayers and practices outside the religious canon, which are applied in a way to treat the mental disorder, known as the 'evil eye'.

Fourthly, an indigenous classification of Medicinal, Aromatic and Cosmetic (MAC) plants as well as a local MAC plant priority species list is presented in Chapter VI, Paragraph 6.2.2. In general, the elaboration of a local classification of MAC plants and the priority plant species list, which are identified on the basis of local interviews and accounts, further substantiates the focus of the present research on indigenous MAC plant knowledge as the major component of the Traditional Medical System in the utilisation of the plural medical system available in this part of

Crete. Furthermore, the local classification of MAC plants highlights the scientific dimension of the local people's knowledge as it represents an evidence-based body of indigenous knowledge, which as such underscores a unique aspect of the IKS shared by the local population.

Although in the research area, the local comprehensive concept of MAC plants in general include all those local plants, which are used for medicinal, aromatic and cosmetic purposes, people sometimes also refer to plants for specific medical purposes, known as '*Votana*', and plants used for traditional home remedies, known as '*Farmaka*'. Other plants, such as Chamomile (*Chamomilla recutita* (L.) Rauschert / *Matricaria chamomilla* L. / *Matricaria recutita* L.), Sage (*Salvia fruticosa* Miller or *Salvia triloba* L. / *Salvia pomifera* L.) and the endemic Cretan Dittany (*Origanum dictamnus* L.), are most frequently reported by the study population to refer to their aromatic and cosmetic properties for better health and well-being.

Fifthly, an indigenous illness classification, which is based on local people's perceptions and ideas of illness and disorder is presented in Chapter VII, Paragraph 7.1.3. Closely related to the people's indigenous classification of MAC plants, their illness classification similarly substantiates the focus of the present research on the importance of the 'Participants View' on indigenous classifications as a major component of in the utilisation of the plural medical system available in this part of Crete. Also, this local classification of illnesses highlights the scientific dimension of the local people's knowledge as it represents an evidence-based body of indigenous knowledge and experience, which as such underscores a unique aspect of the IKS shared by the local population. In this context, it should be noted that the elaboration of a local illness classification concentrates on local ideas, perceptions and names of illness, which have subsequently been classified according to the respective disease categories designed by the World Health Organisation (WHO 2014b). However, the construction of the local classification in the research area cannot be taken as evidence for an exhaustive indigenous illness classification, since time constraints of this study limited a complete categorisation of all local perceptions, ideas and names of illness. Notwithstanding, the research sheds light on particular names of illnesses used by the study population and certain types of locally specific diseases, such as the 'evil eye', which have been classified as 'unspecified'.

On the whole, the inhabitants of rural Crete entertain a classification of locally specific ideas of health, illness and causes of illness. In line with the overall community health approach of this research, the concept of health has been identified as a human condition, which embraces not only physical but also mental, social and spiritual well-being. On the basis of this conceptualisation of the concept of health, community members also show a tendency to adopt practices of health promotion, which are strongly embedded in the socio-cultural, religious and spiritual context of the community. In particular, specific dietary patterns, social interaction, adherence to the annual religious canon and the avoidance of extremes, such as excess of food or beverage as well as extreme weather conditions, are believed to enhance people's state of health. Accordingly, indigenous ideas of the different causes of illness are related to a variety of factors and include *i.a.* bad living and housing conditions, extreme feelings as well as confrontation with feelings of jealousy, envy or competitiveness. In view of their understanding of health and illness, as well as the different causes of illness, the inhabitants of Pirgos and Praitoria apply an array of different ideas and names to illnesses, which is unique to the research area.

Sixthly, the description of people's health care utilisation behaviour, studied from a community perspective, and highlighting the different stages of illness behaviour, leading up to the distribution of the reported utilisation rates of 'patients' over the plural medical system, is presented in Chapter VII. The household surveys, which have been conducted in the research area, generate a wealth of data on the different factors, which influence the reported patterns of health care utilisation behaviour of all household members identified as 'patients' of the sample. In particular, information is presented on the main episode of illness, which each patient reportedly experienced over a recall period of 12 months' time. The study proceeds with the

identification of the number of 'non-action patients', *i.e.* the number of respondents, who reportedly did not seek any form of medical treatment, and with the separation of this group of 'patients' from the group of 'action patients', namely those respondents, who reportedly contacted the plural medical system in order to receive treatment. Subsequently, the group of 'action patients' is described in order to provide more insight into the differences between 'internal action patients', who sought treatment in the form of self-care or through the intermediary of a non-professional health care provider, and 'external action patients', who consulted a professional health care provider. In addition to the identification of the different types of patients, the role, which the illness management group is playing during the stages of people's illness behaviour, is further described. The local patterns of transcultural health care utilisation behaviour as documented for a considerable number of patients are described, whereby the differential utilisation patterns are further highlighted from a the local community perspective. In order to adequately present the overall rates of utilisation of the plural medical system reported by all household members, who are identified as 'action patients' of the sample, the number of 'patients' is calculated into utilisation rates. With respect to the plural medical system available in the research area, a considerable number of 'patients' contacted a representative of the plural medical system more than once in order to receive satisfying treatment. By consequence, the number of utilisation rates of the 'action patients' exceeds the actual number of 'action patients' of the sample.

The overall utilisation rates of the three main sub-systems of the plural medical system reveal a rather interesting distribution, in which 324 'action patients' report a total of 452 (100.0%) utilisation rates, distributed as follows: almost half of the contacts (44.7%, n=202) are reported at the traditional medical system; nearly half of the contacts (46.0%, n=208) are reported at the transitional medical system; and nearly one-tenth of the contacts (9.3%, n=42) are reported at the modern medical system.

In view of the overall utilisation rates reported by all 'patients' of the sample, the traditional medical system forms the second most frequently contacted medical system in the research area with almost half of all reported contacts (44.7%, n=202). In general, treatment is primarily sought in the form of MAC plants and other plant-based traditional home remedies. Forms of religious and spiritual medicine are solely administered to cases, in which the patient experiences an episode of the 'evil eye'. Furthermore, the components of the traditional medical system are mainly applied through practices of self-care and only occasionally involve the intermediary of a professional health care provider, such as a wise woman or a priest. In other words, concerning the substantial contacts with the traditional medical system, respondents indicate that their relatively high level of indigenous knowledge of MAC plants as part of their knowledge of the traditional medical system itself plays a dominant role in their illness behaviour, supported by their knowledge of both the indigenous MAC plant classification and the illness classification.

Considering the overall utilisation rates reported by all 'patients' of the sample, the transitional medical system forms the first most frequently contacted medical system in the research area with nearly half of all contacts (46.0%, n=208). Utilisation of the transitional medical system refers primarily to the utilisation of non-prescribed medicines, including Over-the-Counter (OTC) medicines, as they are provided by pharmacists, drug vendors or shopkeepers. Although contact with the transitional medical system generally involve the intermediary of a professional health care provider, 'patients' occasionally applied pharmaceutical medicines through the intermediary of a member of the household or a friend, and through practices of self-care. In other words, concerning the substantial contacts with the transitional medical system, respondents indicate that their relatively high level of opinion of the transitional medical system plays a dominant role in their illness behaviour.

Taking into account the overall utilisation rates reported by all 'patients' of the sample, the modern medical system forms by far the less frequently contacted medical system in the research area with less than one-tenth of the contacts (9.3%, n=42). Since utilisation of the modern medical system generally involves the intermediary of a professional health care provider, a

considerable number of 'patients' consult the general practitioners, who visit the health posts in both research communities. Concurrently, 'patients' also tend to seek treatment outside the confinement area of the community and municipality, consulting the staff employed not only at the local health centre in the nearby community of Kharakas but also at hospitals and other health care institutions in Iraklion. In other words, concerning the very low contacts with the modern medical system, respondents indicate that their relatively low level of knowledge of the modern medical system plays a dominant role in their illness behaviour.

Seventhly, the stepwise bivariate, mutual relation, multivariate and multiple regression analyses of transcultural health care utilisation in rural Crete and the explanation of the significant interactions between various groups of factors, which act as determinants of the reported patterns of utilisation behaviour, are presented in Chapter VIII. The multivariate model of transcultural health care utilisation is applied to the analysis of data gathered during the household surveys in Pirgos and Praitoria, and the analysis of the interactions between certain groups of factors, which could act as determinants of the reported patterns of utilisation behaviour, are explained in the same chapter. Prior to the quantitative household surveys conducted in the research area, a number of factors are identified during the qualitative pilot study as potential determinants of local patterns of transcultural health care utilisation behaviour. The identification of factors follows the outline of the multivariate model of transcultural health care utilisation, which has also successfully been applied to previous similar research on patterns of health care utilisation in Crete and to comparable research on behavioural patterns in different sectors of the society elsewhere around the globe. Following the development and specifications of the multivariate model and its operationalisation from concepts to factors, which are inserted as variables into the model, the construction of the quantitative questionnaire, which is used as the research instrument for the household surveys in Pirgos and Praitoria, is described in Chapter III. The multivariate model of transcultural health care utilisation behaviour, which is adapted to this study, supports the applicability of the selected approach and offers an explanatory model of behaviour, which is unique to the research area.

In order to analyse the significance of the specific determinants of people's utilisation behaviour, the factors within the model are transformed into variables, which are inserted into the selected statistical programme for this kind of data analysis. By means of the bivariate analysis, the relationship of each independent variable with the dependent variables of health care utilisation is indicated.

The results of the bivariate analysis, indicating an overall differentiation in the reported health care utilisation over the plural medical system, confirm the distribution, as described in Chapter VII, and fulfil the *sixth* objective of this study. Embarking on the overall distribution of the utilisation rates of the three main sub-systems of the plural medical system, revealing the rather interesting differentiation, in which 324 'action patients' report a total of 452 (100.0%,) utilisation rates, distributed with almost half of the contacts (44.7%, n=202) reported at the traditional medical system, nearly half of the contacts (46.0%, n=208) reported at the transitional medical system and less than one-tenth of the contacts (9.3%, n=42) reported at the modern medical system, the bivariate analysis is shown as to indicate the following 17 variables as significant determinants of illness behaviour: Household Size; Household Composition; Age; Marital Status; Occupation; Knowledge of the Traditional Medical System; Knowledge of the Modern Medical System; Opinion on the Transitional Medical System; Annual Household Income; Annual Expenses on Health Care; Health Status; Reported Disease; Severity of the Reported Disease; Duration of the Reported Disease; Accessibility of Institutions of the Traditional Medical System; Accessibility of Institutions of the Transitional Medical System; and Impact of the Current Economic Situation.

In addition to the bivariate analysis, the innovative model of the 'mutual relation analysis' introduced by Slikkerveer is also described in Chapter VIII for the collected data from the household surveys in Pirgos and Praitoria, clearly indicating the mutual relationships among

categories of significant determinants of utilisation behavior (*cf.* Slikkerveer & Lionis 2012). Figure 8.1 shows the statistically significant mutual relations between variables, represented as blocks in the model.

The following multivariate analysis, in which all relationships and interactions among the variables in the model are similarly described in Chapter VIII, provides further statistical support for the findings of the above mentioned significant variables in the bivariate analysis. The determinants, which emerge from the stepwise quantitative analysis in Chapter VIII as to possess a certain degree of significance, can be summarised as follows:

Socio-demographic variables:	*Houshold size*
	Household composition
	Age
	Marital status
	Occupation
Psycho-social variables:	*Knowledge of the traditional medical system*
	Knowledge of the modern medical system
	Opinion on the transitional medical system
Enabling variables:	*Annual income*
	Annual expenses for health care
Perceived morbidity variables:	*Health status*
	Reported disease
	Severity of the reported illness
	Duration of the reported illness
Institutional variables:	*Accessibility of institutions of the traditional medical system*
	Accessibility of institutions of the transitional medical system
Intervening variables:	*Impact of the current economic situation*

A graphic representation of the projection of the component loadings of the two sets of variables onto the canonical space with a total of 30 variables on two dimensions (N=452) is shown in Figure 8.2.

Finally, the multiple regression analysis is also described in Chapter VIII. The multivariate analysis is extended to develop an explanatory, analytical model of transcultural health care utilisation by means of assessing the correlation between the different blocks of factors identified in the model. While bivariate and multivariate analyses illustrate the relationship between different variables in the model, the multiple regression analysis calculates the maximum correlation between the blocks of factors. Table 8.9 presents a list of all multiple correlation coefficients, which are calculated separately for all possible combinations of blocks of factors for each dimension.

The results of the multiple regression analysis furthermore show that the block of the perceived morbidity factors and the block of the predisposing socio-demographic factors correlate strongly with all blocks of independent factors and moderately with all blocks of dependent factors. The block of the intervening factors, which includes the variable 'Impact of the Current Economic Situation', also correlates rather strongly with all blocks of independent factors. Figure 8.3 presents the final model of Transcultural Health Care Utilisation indicating the strength of the correlations between the blocks of variables in the model.

The three additional objectives of the study, *i.e.*: *eighthly,* the description of the theoretical implications of the study; *ninthly*, the description of the methodological implications of the study; and *tenthly*, the description of the practical implications of the study are presented below in respectively Paragraph 9.2.1, Paragraph 9.2.2 and Paragraph 9.2.3.

9.2 Implications of the Research

9.2.1 Theoretical Implications of the Research

This study seeks to provide a substantial contribution to the multidisciplinary fields of medical anthropology and neo-ethnoscience, notable ethnomedicine. The present research adopts an *emic* perspective and applies the concept of *Indigenous Knowledge Systems* (IKS) in its research strategy in order to gain an understanding of local systems of knowledge, practice and belief shared by the population with regard to their local patterns of transcultural health care utilisation behaviour in this part of Crete. The concept of indigenous medical knowledge of the study population refers primarily to the combination of ancient and present-day knowledge of MAC plants, used for centuries in the ethnomedical system of 'Greek Humoural Medicine', based on the early knowledge and application of home remedies in ancient Greece, documented by such scholars as Pedanius Dioscorides (40-90 A.D.), the 'Founding Father of Phytotherapy'. As the indigenous systems of knowledge and practice are empirical, evidence-based, experimental and systematic, they are also defined as scientific knowledge systems, similar to 'modern knowledge systems. The empirical and evidence-based aspects of the indigenous medical knowledge, which are shared by the inhabitants of the two research communities to a greater extent involves local knowledge and practice of the utilisation of locally available Medicinal, Aromatic and Cosmetic (MAC) plants, transferred over many generations since the early settlement of inhabitants in the island.

The theoretical implications of this study in rural Crete encompass the support from the collected research data for the theorem that the accumulated body of indigenous people's knowledge of MAC plants in rural areas provides one of the major contributions to the collection, preparation and use of plant-based medicines as the major part of the prevailing system of traditional medicine. Such conclusions of other studies with regard of the huge contribution of medical plants to not only traditional but also to modern health care systems have been made by numerous scholars, including: Evans Schultes & Raffauf (1990); Balick *et al.* (1996); Van Seters (1997); Bodeker (1999); (Posey 1999); Quah & Slikkerveer (2003); Bogers *et al.* (2006); and Slikkerveer (2006).

In addition, this study also supports the theorem that the accumulated body of indigenous people's knowledge of MAC plants in rural areas provides one of the major contributions to the collection, preparation and use of plant-based medicines as a similarly major part of the prevailing system of transitional medicine. The direct relation between the utilisation of the traditional medical system and the transitional medical system can be explained by the nearly equal application in both systems - as opposite to the modern medical system - of plant-based ingredients and herbal medicines (*cf.* Slikkerveer 1990; 2003).

Furthermore, the aspects of a general positive opinion reported by the respondents from both research communities with regard to the provision as well as the satisfaction of traditional and transitional treatment with this kind of plant-based medicines indicate that the indigenous knowledge and practice of MAC plants are significantly contributive to the improvement of the overall provision of health care in rural communities (*cf.* Balick *et al.* 1996; Van Seters 1997; Quah & Slikkerveer 2003; Slikkerveer 2006).

Another interesting theoretical implication of this study in Crete refers to focus on local patterns of MAC plant utilisation, which sheds light on the concepts of bio-cultural diversity conservation and sustainable resource management. On the whole, a part of the wider loss of worldwide biodiversity is shown also to occur in the Mediterranean Region by the year 2100 largely as a result of changes in the use of land. In Crete, the loss of biodiversity is likely to cause a reduction in the profusion of springtime flowers and to provoke a degradation of the cultural value of the landscape (*cf.* Allen *et al.* 2006). In view of these predictions, it is likely to assume that a loss of bio-cultural diversity of MAC plants will affect the related patterns of utilisation of these natural resources. In this respect, it appears that the inhabitants of Crete have

used plants for medical purposes since the earliest days of human settlement in the island. Clearly, these findings suggest that people interact with the natural environment in a way also to render its resources available to future generations and hereby adhere to the principles of local management and conservation of MAC plant biological diversity. Indeed, the sample population shares considerable knowledge on the sustainable utilisation of MAC plants, which is embedded in the socio-religious context of the community.

Since the profession of traditional health care providers, who are known for their conservation practices of MAC plants, is disappearing in Crete, practices of the sustainable utilisation of MAC plants to a greater extent involve patterns of self-care, showing that the local medical systems of knowledge, practice and belief are related today to the members of the community, rather than to professional health care providers. In line with the conservation of natural resources, the practices of utilisation of MAC plants also contribute to the conservation of cultural diversity, namely to the preservation of local systems of knowledge, practice and belief in relation to the utilisation of MAC plants. The present study not only sheds light on local patterns of bio-cultural diversity conservation, but it also contributes in essence to the conservation of bio-cultural diversity, as local systems of knowledge, belief and practice are also documented in this study. As such, this research may provide an incentive to future studies on people's knowledge and patterns of utilisation of MAC plants in Crete focused on the role of IKS concerning MAC plants for conservation of the bio-cultural diversity of the island. As Vokou *et al*. (1993: 187) mention: '[…] [*The*] *natural resources, which are the basis of the traditional medicine, are still here and should be re-evaluated*'. In this respect, this study also supports evidence from previous studies elsewhere, which have shown that indigenous knowledge and practice of useful plants contributes to the conservation of forest, as highlighted by Akrele *et al*. (1991); Heywood (1999); and Agung (2005).

9.2.2 Methodological Implications of the Research

A major methodological implication of this study refers to the fact, that the 'Leiden Ethnosystems Approach', as it has been applied to the present study, again shows to allow for a detailed analysis of local systems of knowledge, practice and belief as well as for an assessment of notably past and present patterns of behaviour across different sectors of the society in a particular research area. On the basis of this rather comprehensive research approach, paying attention to the approach of the 'Participants View' (PV), the 'Field of Ethnological Study' (FES) and the 'Historical Dimension' (HD) with regard to the object of study, it has been possible to describe and understand all relevant factors, which play a role in the local people's utilisation of the plural medical system available in the communities of Pirgos and Praitoria.

Similarly, the analytical methodology selected for this study of the three medical systems operating in the research area, *i.e*. the traditional, the transitional and the modern medical system, is based on the multivariate model of transcultural health care utilisation, which is adapted to this kind of research. The comprehensive stepwise analysis of collected data encompasses a bivariate analysis, a mutual relations analysis, a multivariate analysis and a multiple regression analysis.

Overall, the remarkable analytical results of this study, elaborated above in Paragraph 9.1, support previous research in the field of IKS-related studies and confirm that the conceptual methodological framework and applied analytical model of transcultural health care utilisation are very well developed for this kind of medical-anthropological and ethnomedical research. Furthermore, the statistical analysis enables the differentiation between 'internal' and 'external action patients', highlighting practices of self-care and patterns of consultation of a non-professional health care provider.

In addition to providing a rather sound basis for extending the geographical focus of the study of patterns of health care utilisation behaviour to communities elsewhere in Crete, this research is expected to stimulate the comparison among and within population groups living elsewhere in rural Crete.

In other words, the present research methodology applied in the study offers a point of embarkation for cross-cultural comparison of similar behavioural patterns shown in other regions of Crete (*cf*. Koutis *et al*. 1993; Geitona *et al*. 2008).

9.2.3 Practical Implications of the Research

In addition to the theoretical and methodological implications of this study indicated above, the present research also seeks to provide a practical contribution to the promotion of community health in this part of Crete and beyond. In particular, the community-based approach of this study to analyse local patterns of transcultural health care utilisation sheds light on locally perceived health care needs and shortcomings. In this way, the results of this study, particularly the analysis of the different medical systems available in the research area and of the various patterns of health care utilisation reported by the study population, have a predictive value for health care planning purposes. This study makes an effort to present each medical system existent in the research area within the socio-cultural context of the community, thereby generating a practical community-oriented perspective on medical pluralism. Concurrently, patterns of health care utilisation behaviour are analysed from the respondent's rather than the health care providers' point of view, offering a sound basis for the promotion of community health in the research area and beyond. In particular, region-specific data and community participation are identified as crucial for improving health care delivery strategies and policies, particularly in rural areas, supporting previous practical-oriented research (*cf*. Koutis *et al*. 1993; Chatziarsenis *et al*. 1999; Antonakis *et al*. 2006). As Mossialos *et al*. (2005: 152) state: '*Overall, it is important to consider the political, economic and cultural context of the Greek health system when analysing reform efforts and posing suggestions for future policies*'. In other words '*it would be unrealistic and ineffective to apply solutions used in other health systems, as one cannot ignore the history of health reform in Greece, its highly politicised system, cultural idiosyncrasies and the vested interests involved in policy development*' (*ibid*.: 165).

In addition, the present research provides substantial evidence that the inhabitants of Pirgos and Praitoria share a substantial amount of knowledge of plant-based medicine and make considerable use of the traditional medical system, in which the indigenous knowledge of locally available MAC plants forms a major component. In this way, this study also links up with the recent policies of the World Health Organisation (WHO), which acknowledge that the components of the traditional medical system are usually embedded in the social, religious and spiritual context of the community and as such offer a vivid component of everyday village life (*cf*. WHO 2002a). Furthermore, this research aligns with strategies on the further development of plant-based medicine in order to ensure improved community health care in rural communities.

Within its recent strategy, WHO (2002a) highlights the advantages of the utilisation of traditional plant-based medicine in terms of its accessibility and affordability in rural areas. As Alcorn (1995: 11) observes: '*Encouraging the use of proven herbal medicines among people who do not have access to pharmaceuticals can* […] *improve rural health care in many areas*'. In addition, given the current difficult economic development in the research area, people's knowledge and utilisation of MAC plants may not only relieve the financial burden concerning expensive modern medicines, but may also offer a source of income, particularly in the tourist sector (*cf*. Dijkstra 2005).

In this context, the present study also offers an impetus for the integration of the traditional medical system with the transitional and the modern medical system available in the research area, not only to thereby revive the significant position of the traditional medical system, which it had occupied since the earliest days of human settlement in this part of Crete, but also to provide a more patient-oriented approach towards community health, which takes local knowledge, practices and beliefs about health and illness seriously into account. Since the study embarks on the recent WHO strategy of integrating traditional and modern medicine, specifically in developing countries, it links up with the integrated development policies and strategies,

which aim at achieving *i.a.* an eradication of extreme poverty and hunger, a reduction of child mortality, improvements in maternal health, the eradication of certain diseases and an advance of environmental sustainability, as highlighted within the *Millennium Development Goals* (*cf.* United Nations 2014). As the study likewise implies that a joint effort to develop such form of community health will pertain into more comprehensive health services, it supports previous research by Canary (1983: 100) who observes: '*Joint efforts are essential for mutual improvement and to ensure that adequate services will be available to all peoples of the world*'. Furthermore, this community health approach supports improvement of the development of diagnostic and treatment guidelines towards the expectation of which is likely to result in a better quality of care as well as reduced referrals and costs (*cf.* Blum & Blum 1965; Canary 1983; Lionis & Trell 1999; Slikkerveer 2006; Lionis *et al*. 2009; Oikonomou & Mariolis 2010; Oikonomou & Tountas 2011b; Sbarouni *et al*. 2012.

Additionally, the impact of the current economic situation provides considerable impetus to the development and implementation of policies, which aim at improving community health in the research area. In other words, the government is confronted with a general restructuration and an overall examination of the sustainability of health care policies, which may provide opportunities to take renewed action towards promoting community health (*cf.* Martin-Moreno *et al*. 2010). As Geitona *et al*. (2008: 368) observe: '*Greece is among the European Union member states that preach that one of their health system aims is to increase patients' choice and participation*'. In this respect, it has been suggested that costs of transportation to health care facilities or losses of income due to illness are covered by health insurance, while higher taxes are levied on unhealthy goods such as tobacco or alcohol; and that investments are channelled towards disease prevention and social welfare (*cf.* Hanepen 1997; Martin-Moreno *et al*. 2010).

Finally, it is hoped, that the various implications of this study of the significant role which indigenous knowledge of MAC plants plays in the process of transcultural health care utilisation, and in particular in the traditional and transitional medical systems in the research area will be further studied and integrated into comprehensive community health programmes for the future. In this way, this study hopes to attribute a new significance to the concept of '*Yiatrosofia*' as the indigenous medical wisdom of the Cretans concerning the knowledge and practice of MAC plants for future community health development, pertaining to the ultimate improvement of the health and well-being of the local population of the two research communities Pirgos and Praitoria in rural Crete, as well as elsewhere in Greece and in other culture areas of the world.

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Appendix I The Hippocratic Oath

'I swear by Apollo the physician, and Asclepius, and [Hygeia] and Panacea and all the gods and goddesses as my witnesses, that, according to my ability and judgement, I will keep this Oath and this contract:

To hold him who taught me this art equally dear to me as my parents, to be a partner in life with him, and to [fulfil] his needs when required; to look upon his offspring as equals to my own siblings, and to teach them this art, if they shall wish to learn it, without fee or contract; and that by the set rules, lectures, and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to students bound by this contract and having sworn this Oath to the law of medicine, but to no others.

I will use those dietary regimens which will benefit my patients according to my greatest ability and judgement, and I will do no harm or injustice to them.

I will not give a lethal drug to anyone if I am asked, nor will I advise such a plan; and similarly I will not give a woman a pessary to cause an abortion.

In purity and according to divine law will I carry out my life and my art.

I will not use the knife, even upon those suffering from stones, but I will leave this to those who are trained in this craft.

Into whatever homes I go, I will enter them for the benefit of the sick, avoiding any voluntary act of impropriety or corruption, including the seduction of women or men, whether they are free men or slaves.

Whatever I see or hear in the lives of my patients, whether in connection with my professional practice or not, which ought not to be spoken of outside, I will keep secret, as considering all such things to be private.

So long as I maintain this Oath faithfully and without corruption, may it be granted to me to partake of life fully and the practice of my art, gaining the respect of all men for all time. However, should I transgress this Oath and violate it, may the opposite be my fate.

(Translated by Michael North, National Library of Medicine, 2002)'

Source: U.S. National Library of Medicine 2012.

Appendix II The Declaration of Belém

'Leading anthropologists, biologists, chemists, sociologists and representatives of several indigenous populations met in to discuss common concerns at the First International Congress of Ethnobiology and to found International Society of ethnobiology. Major concerns outlined by conference contributors were the study of the ways that indigenous and rural populations uniquely perceive, utilize, and manage their natural resources and the development of programs that will guarantee the preservation of vital biological and cultural diversity. This declaration was articulated.

As ethnobiologists, we are alarmed that:
SINCE

- Tropical forests and other fragile ecosystems are disappearing;
- Many species, both plant and animal, are threatened with extinction;
- Indigenous cultures around the world are being disrupted and destroyed.

AND GIVEN

- That economic, agricultural and health conditions of people are dependent on these resources;
- That native people have been stewards of 95% of the world's genetic resources, and
- That there is an inextricable link between cultural and biological diversity.

WE, MEMBERS OF THE INTERNATIONAL SOCIETY OF ETHNOBIOLOGY STRONGLY URGE ACTIONS AS FOLLOWS:

- Henceforth, a substantial proportion of development aid must be covered to efforts aimed at ehnobiological inventory, conservation, and management programs;
- Mechanisms be established by which indigenous specialists are recognized as proper Authorities and are consulted in all programs affecting them, their resources, and their environments;
- All other inalienable human rights be recognized and guaranteed, including cultural and linguistic identity;
- Procedures must be developed to compensate native peoples for the utilization of their knowledge and their biological resources;
- Educational programs must be implemented to alert the global community to the value of ethnobiological knowledge for human well-being;
- All medical programs include the recognition of and respect for traditional healers and the incorporation of traditional health practices that enhance the health status of these populations;
- Ethnobiologists make available the results of their research to the native peoples with whom they have worked, especially including dissemination in the native language;
- Exchange of information should be promoted among indigenous and rural peoples regarding conservation, management, and sustainable utilization of resources.

----Belem, Brazil, July 1988----'

Source: International Society of Ethnobiology 2013.

Appendix III Declaration of Alma-Ata

‘International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978

The International Conference on Primary Health Care, meeting in Alma-Ata this twelfth day of September in the year Nineteen hundred and seventy-eight, expressing the need for urgent action by all governments, all health and development workers, and the world community to protect and promote the health of all the people of the world, hereby makes the following

Declaration:

I

The Conference strongly reaffirms that health, which is a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity, is a fundamental human right and that the attainment of the highest possible level of health is a most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector.

II

The existing gross inequality in the health status of the people particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable and is, therefore, of common concern to all countries.

III

Economic and social development, based on a New International Economic Order, is of basic importance to the fullest attainment of health for all and to the reduction of the gap between the health status of the developing and developed countries. The promotion and protection of the health of the people is essential to sustained economic and social development and contributes to a better quality of life and to world peace. **IV** The people have the right and duty to participate individually and collectively in the planning and implementation of their health care.

V

Governments have a responsibility for the health of their people which can be fulfilled only by the provision of adequate health and social measures. A main social target of governments, international organizations and the whole world community in the coming decades should be the attainment by all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. Primary health care is the key to attaining this target as part of development in the spirit of social justice.

VI

Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of selfreliance and self-determination. It forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work,

and constitutes the first element of a continuing health care process.

VII

Primary health care:

1. reflects and evolves from the economic conditions and sociocultural and political characteristics of the country and its communities and is based on the application of the relevant results of social, biomedical and health services research and public health experience;

2. addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly;

3. includes at least: education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs;

4. involves, in addition to the health sector, all related sectors and aspects of national and community development, in particular agriculture, animal husbandry, food, industry, education, housing, public works, communications and other sectors; and demands the coordinated efforts of all those sectors;

5. requires and promotes maximum community and individual self-reliance and participation in the planning, organization, operation and control of primary health care, making fullest use of local, national and other available resources; and to this end develops through appropriate education the ability of communities to participate;

6. should be sustained by integrated, functional and mutually supportive referral systems, leading to the progressive improvement of comprehensive health care for all, and giving priority to those most in need;

7. relies, at local and referral levels, on health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team and to respond to the expressed health needs of the community.

VIII

All governments should formulate national policies, strategies and plans of action to launch and sustain primary health care as part of a comprehensive national health system and in coordination with other sectors. To this end, it will be necessary to exercise political will, to mobilize the country's resources and to use available external resources rationally.

IX

All countries should cooperate in a spirit of partnership and service to ensure primary health care for all people since the attainment of health by people in any one country directly concerns and benefits every other country. In this context the joint WHO/UNICEF report on primary health

care constitutes a solid basis for the further development and operation of primary health care throughout the world.

X

An acceptable level of health for all the people of the world by the year 2000 can be attained through a fuller and better use of the world's resources, a considerable part of which is now spent on armaments and military conflicts. A genuine policy of independence, peace, détente and disarmament could and should release additional resources that could well be devoted to peaceful aims and in particular to the acceleration of social and economic development of which primary health care, as an essential part, should be allotted its proper share.

The International Conference on Primary Health Care calls for urgent and effective national and international action to develop and implement primary health care throughout the world and particularly in developing countries in a spirit of technical cooperation and in keeping with a New International Economic Order. It urges governments, WHO and UNICEF, and other international organizations, as well as multilateral and bilateral agencies, nongovernmental organizations, funding agencies, all health workers and the whole world community to support national and international commitment to primary health care and to channel increased technical and financial support to it, particularly in developing countries. The Conference calls on all the aforementioned to collaborate in introducing, developing and maintaining primary health care in accordance with the spirit and content of this Declaration.'

Source: WHO 1978.

Appendix IV A Selection of Holy Days as well as Fasting Periods and Days within the Canon of the Greek Orthodox Church

Holy Days

January 6:	The Baptism of Christ (Epiphany, Theophany or 'Fota', 'Lights')
	The Great Blessing of the Waters
January 7:	Synaxis of Saint John the Baptist
January 30:	Synaxis of the Three Hierarchs Basil the Great, Gregory the Theologian and John Chrysostom
February 2:	The Presentation of Christ in the Temple
March 25:	The Annunciation
June 24:	The Nativity of Saint John the Baptist
June 29:	Feast of Saints Peter and Paul
August 6:	The Transfiguration
August 15:	The Dormition of the Mother of God
August 29:	Beheading of Saint John the Baptist
September 8:	The Nativity of the Mother of God
September 14:	The Elevation of the Life-Giving Cross
November 21:	The Presentation of the Mother of God in the Temple
December 25:	Christmas

Monday seven weeks before Easter:	Clean Monday or Ash Monday (end of three weeks of Carnival and beginning of Lent)
Sunday before Easter:	Palm Sunday
Friday before Easter:	Good Friday
Sunday after the Paschal Full Moon (according to ecclesiastical tables):	Easter
40 days after Easter:	The Ascension
50 days after Easter:	Pentecost
First Sunday after Pentecost:	All Saints Sunday

Fasting Periods and Days

Monday seven weeks before Easter until Easter:	The Great Fast (Lent)
Monday eight days after Pentecost until June 28:	Fast of the Apostles
August 1 until August 14:	Fast of the Dormition of the Mother of God
November 15 until December 14:	Christmas Fast (Advent)

Every Wednesday and Friday, except for the week after Easter, Christmas and Pentecost

January 5:	Eve or Vigil of Epiphany
August 29:	Beheading of Saint John the Baptist
September 14:	Elevation of the Holy Cross

Source: Kain Hart 1992; Sarri *et al*. 2003; 2004; Roudometof & Makrides 2010.

Appendix V: MAC Plants reported by the Study Population during the Periods of Fieldwork (in alphabetical order)

Local Name	Latin Name	English Name
-Abarsamos[a] -Barsamos[a] -Dhiosmos -Menda	-*Mentha longifolia* (L.) Hudson -*Mentha spicata* L.	-Spearmint
-Aghria Anginara	-*Cynara cardunculus* L.	-Wild Artichoke
-Aghria Akhladhia -Angutsakas[a]	-*Pyrus spinosa* Forskkal	-Wild Pear
-Aghria Molokha -Molokha	-*Malva sylvestris* L.	-Mallow
-Aghria Fraula	-*Fragaria vesca* L.	-Wild Strawberry
-Aghriadha -Angrustos[a]	-*Cynodon dactylon* (L.) Pers.	-Couch Grass
-Aghrimonio -Fonokhorto	-*Agrimonia eupatoria* L.	-Agrimony
-Aghrio Praso	-*Allium ampeloprasum* L.	-Wild Leek
-Aghriomandzurana -Antonaidha -Mandzurana -Matzurana	-*Origanum majorana* L. or -*Origanum microphyllum* (Bentham) Boiss.	-Marjoram
-Aghriomarulo	-*Lactuca serriola* L.	-Wild Lettuce
-Aghrioradhikia	-*Taraxacum hellenicum* Dahlst.	-Dandelion
-Aghudhuras[a]	-*Hypericum empetrifolium* Willd. or -*Hypericum perforatum* L.	-St. John's Wort
-Akonizia	-*Dittrichia viscosa* (L.) W. Greuter	-False Yellowhead
-Akrevatos -Krevatos	-*Smilax aspera* L.	-Smilax
-Aladania	-*Cistus creticus* L.	-Cretan Rockrose
-Aleksandhrina Filla[c] -Kassia[c]	-*Senna alexandrina* Mill.	-Senna
-Almbaroriza -Amberosa[a] -Armbaroriza	-*Pelargonium graveolens* L'Her.	-Rose Geranium
-Aloi	-*Aloe vera* (L.) Burm. fil.	-Aloe Vera
-Althea	-*Alcea cretica* (Weinm.) Greuter -*Alcea rosea* L. or -*Althaea officinalis* L.	-(Cretan) Hollyhock -Marshmallow
-Ambeli	-*Vitis vinifera* L.	-Grape Vine
-Angarathia	-*Phlomis fruticosa* L.	-Jerusalem Sage
-Angarathia[b]	-*Phlomis lanata* Willd.	-Woolly Jerusalem Sage
-Angathia -Gaïdhurangatha	-*Onopordum bracteatum* Boiss. & Heldr. or -*Onopordum illyricum* L.	-Donkey Thistle -Scotch Thistle -Illyrian Thistle
-Anginara	-*Cynara scolymus* L.	-Artichoke
-Anguria	-*Cucumis sativus* L.	-Cucumber

-Anithos	-*Anethum graveolens* L.	-Dill
-Anonidha	-*Ononis spinosa* L.	-Restharrow
-Apighanos	-*Ruta chalepensis* L. or -*Ruta graveolens* L.	-(Fringed) Rue
-Apsithia[a]	-*Artemisia arborescens* L.	-Wormwood
-Arismari[a] -Dhendhrolivano	-*Rosmarinus officinalis* L.	-Rosemary
-Arnika	-*Arnica montana* L.	-Arnica
-Askolimbros	-*Scolymus hispanicus* L.	-Spanish Oyster Plant
-Athanatos	-*Agave Americana* L.	-Century Plant
-Atzuri	-*Cucumis flexuosus* L.	-Armenian Cucumber
-Avronia	-*Tamus communis* L.	-Black Bryony
-Ayioklima	-*Lonicera etrusca G.* Santi -*Lonicera glabra* (Lowe) Pau	-Etruscan Honeysuckle
-Bamia -Iviskos	-*Hibiscus esculentus* L.	-Okra
-Dhafni	-*Laurus nobilis* L.	-Laurel -Sweet Bay
-Dhiktamos[b] -Erondhas[a] -Stamatokhorto -Stomakhokhorto	-*Origanum dictamnus* L.	-Cretan Dittany
-Dhilino	-*Mirabilis jalapa* L.	-Four o' Clock Flower
-Dhrakondia	-*Dracunculus vulgaris* Schott.	-Dragon Arum
-Domata	-*Solanum lyciopersicum* L.	-Tomato
-Efkaliptos	-*Eucalyptus globulus* Labill.	-Eucalyptus
-Elia	-*Olea europaea* L. *sylvestris* Brot. or -*Olea europaea* L. *oleaster* (Hoffmanns. & Link) Negodi	-Cultivated Olive -Wild Olive
-Faskomilia -Faskomilo	-*Salvia fruticosa* Mill. -*Salvia triloba* L. or -*Salvia pomifera* L.	-Sage
-Fasolia	-*Phaseolus vulgaris* L.	-Common Bean
-Fliskuni	-*Mentha pulegium* L.	-Pennyroyal
-Flomos	-*Euphorbia characias* L. or -*Euphorbia dendroides* L.	-Large Mediterranean Spurge -Tree Spurge
-Fragosikia -Kaplosikia	-*Opuntia ficus-barbarica* A. Berger -*Opuntia ficus-indica* (L.) Mill.	-Prickly Pear
-Fteri	-*Pteridium aquilium* (L.) Kuhn	-Bracken
-Gharifallo[c] -Kariofili[c]	-*Caryophyllus aromaticus* L. -*Eugenia aromatica* (L.) Baill. -*Syzygium aromaticum* (L.) Merrill & Perry	-Clove
-Ghlikanisos	-*Pimpinella anisum* L.	-Anise
-Ghlikokolokitha	-*Cucurbita pepo* L.	-Pumpkin
-Ghlikosiridha	-*Crepis commutate* (Spreng.) Greuter	-Hawksbeard
-Ghorghoyiannis	-*Salvia verbenaca* L.	-Wild Clary

	or -*Verbena officinalis* L.	-Common Vervain
-Ippofaes	-*Hippophaë rhamnoides* L.	-Sea Buckthorn
-Kalakanthi	-*Centaurea calcitrapa* L.	-Red Star Thistle
-Kalendula -Nekroluludho	-*Calendula arvensis* L.	-Field Marigold
-Kanela[c]	-*Cinnamomum verum* J. Presl	-Cinnamon
-Karidhia	-*Juglans regia* L.	-Walnut
-Khamomili -Khamomilo	-*Chamomilla recutita* (L.) Rauschert -*Matricaria chamomilla* L. -*Matricaria recutita* L.	-Chamomile
-Kharupi	-*Ceratonia siliqua* L.	-Carob Tree
-Kidhonia	-*Cydonia oblonga* Mill.	-Quince
-Kimino	-*Cuminum cyminum* L.	-Cumin
-Kiparissi	-*Cupressus sempervirens* L.	-Cypress
-Kiparissaki	-*Equisetum telmateia* Ehrh.	-Giant Horsetail
-Kiparissokhorto	-*Plantago weldenii* Rechenb.	-Buck's-horn Plantain
-Kolokithia	-*Cucurbita pepo* L.	-Zucchini
-Kukia	-*Vicia faba* L.	-Broad Bean
-Kremmidhi	-*Allium cepa* L.	-Onion
-Kritamo	-*Crithmum maritimum* L.	-Rock Samphire
-Lagudhokhorto	-*Prasium majus* L.	-White Hedge-nettle
-Lapatho	-*Rumex acetosella* L.	-Common Sheep Sorrel
-Lemoni -Lemonia	-*Citrus medica* L.	-Lemon
-Levanda	-*Lavandula stoechas* L.	-French Lavender
-Liyia	-*Vitex agnus-castus* L.	-Chaste Tree
-Luïza	-*Aloysia tripfylla* Britton -*Lippia citriodora* Kunth.	-Lemon Verbena
-Maïndanos	-*Petroselinum crispum* (Mill.) Fuss	-Parsley
-Malotira -Tsai tu Vunu	-*Sideritis syriaca* L.	-Mountain Tea
-Maratho	-*Foeniculum vulgare* Mill.	-Fennel
-Mastikha -Mastikhodhendhro	-*Pistacia lentiscus* L.	-Mastic -Mastic Tree
-Melissokhorto	-*Melissa officinalis* L.	-Lemon Balm
-Melitzana	-*Solanum melongena* L.	-Aubergine
-Menda	-*Mentha piperita* L. or -*Mentha pulegium* L.	-Peppermint
-Milo	-*Malus domestica* Borkh. or -*Malus sylvestris* (L.) Mill.	-Apple
-Mirtia	-*Myrtus communis* L.	-Myrtle
-Muria -Murnia -Muro	-*Morus alba* L.	-White Mulberry
-Murveri	-*Sambucus nigra* L.	-Elderberry
-Mustardha	-*Brassica nigra* (L.) Koch or -*Sinapis alba* L.	-Mustard -White Mustard

-Paparuna	-*Papaver argemone* L. or -*Papaver rhoeas* L.	-Long Pricklyhead Poppy -Corn Poppy
-Paskhalia	-*Syringa vulgaris* L.	-Common Lilac
-Patata	-*Solanum tuberosum* L.	-Potato
-Pentanevro	-*Plantago lagopus* L. or -*Plantago major* L.	-Plantain -(Greater) Plantain
-Perdhikaki	-*Parietaria judaica* L.	-Pellitory-of-the-Wall
-Perghamondo	-*Citrus bergamia* Risso	-Bergamot
-Petrokhorto	-*Saxifraga chryssoplenifolia* Boiss. or -*Sedum acre* L.	-Saxifrage -Wall Pepper
-Pikramighdhalia	-*Prunus amygdalus* Batsch *amara*	-Bitter Almond
-Pikranguria	-*Ecbalium elaterium* A. Rich.	-Wild Cucumber
-Pikrodhafni -Sfaka	-*Nerium oleander* L.	-Oleander
-Piperi[c]	-*Piper nigrum* L.	-Pepper
-Piperia	-*Capsicum annuum* L.	-Common Pepper
-Portokalia	-*Citrus sinensis* (L.) Osbeck	-Orange
-Praso	-*Allium ampeloprasum* L.	-Leek
-Rigani	-*Origanum onites* L. -*Marjorana onites* (L.) Bentham or -*Origanum vulgare* L.	-Oregano
-Rodhia	-*Punica granatum* L.	-Pomegranate
-Selino	-*Apium graevolens* L.	-Celery
-Sikia	-*Ficus carica* L.	-Fig
-Skordho	-*Allium sativum* L.	-Garlic
-Skorpidhi -Skorpidhokhorto	-*Asplenium ceterach* L. or *Ceterach officinarum* Willd.	-Rustyback
-Sparangi	-*Asparagus aphyllus* L.	-Mediterranean Asparagus
-Stamnangathi	-*Cichorium spinosum* L.	-Spiny Chicory
-Thimari -Thimos	-*Coridothymus capitatus* (L.) Rechenb. fil. -*Thymus capitatus* (L.) Hoffmans. & Link	-Thyme
-Thrimba -Thrumba -Thrumbi	-*Satureja thymbra* L.	-Summer Savory
-Tilio	-*Tilia cordata* Mill.	-Lime Flower
-Triandafillos	-*Rosa centifolia* L. -*Rosa gallica* L.	-Rose
-Tsai[c]	-*Camellia sinensis* (L.) Kuntze	-Tea
-Tsuknidha	-*Urtica pilulifera* L.	-Nettle
-Vanilia[c]	-*Vanilla planifolia* Jacks. ex Andrews	-Vanilla
-Vasilikos	-*Ocimum basilicum* L.	-Basil
-Vatos	-*Rubus canescens* DC. or	-Bramble

	-*Rubus sanctus* Schreb. or -*Rubus ulmifolius* Schott.	
-Velanidhia	-*Quercus ithaburensis* Decaisne	-Valonia Oak
-Vlita	-*Amaranthus viridis* L.	-Slender Amaranth
-Yiasemi	-*Jasminum officinale* L.	-Jasmine
-Zokhos	-*Sonchus oleraceus* L.	-Sow Thistle

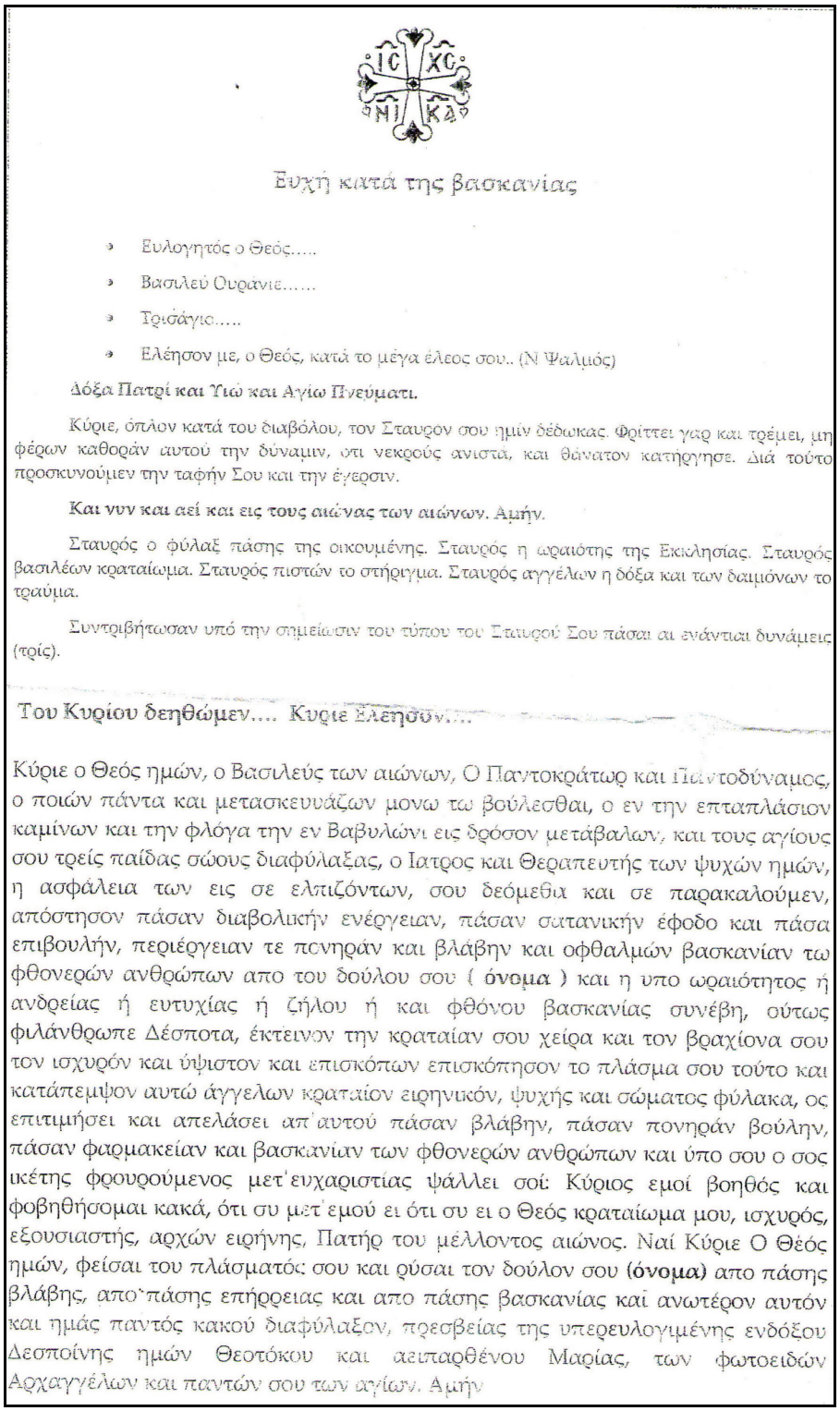
[a]: Plant Name Cretan
[b]: Plant endemic to Crete
[c] Plant not found in Crete

(*cf*. Vokou *et al*. 1993; Watrous *et al*. 1993; Simopoulos 2001; Clark 2002; MEDUSA Network 2002; Stamatis *et al*. 2003; Allen *et al*. 2006; Skoula & Johnson 2006; Botanic Garden and Botanical Museum Berlin-Dahlem 2007; Karousou *et. al* 2007; Pollio *et al*. 2008; Alibertis 2009; 2010; Bazeu 2011; Clark 2011; Kew Royal Botanic Gardens 2014)

Appendix VI Engraving of the Goat feeding on Cretan Dittany by Dapper

Source: Liolios *et al*. 2010.

Appendix VII 'Mercy on the Evil Eye'. Prayer directed at the Treatment of the Evil Eye



Ευχή κατά της βασκανίας

- Ευλογητός ο Θεός.....
- Βασιλεύ Ουράνιε.....
- Τρισάγιο.....
- Ελέησον με, ο Θεός, κατά το μέγα έλεος σου.. (Ν Ψαλμός)

Δόξα Πατρί και Υιώ και Αγίω Πνεύματι.

Κύριε, όπλον κατά του διαβόλου, τον Σταυρον σου ημίν δέδωκας. Φρίττει γαρ και τρέμει, μη φέρων καθοράν αυτού την δύναμιν, οτι νεκρούς ανιστά, και θάνατον κατήργησε. Διά τούτο προσκυνούμεν την ταφήν Σου και την έγερσιν.

Και νυν και αεί και εις τους αιώνας των αιώνων. Αμήν.

Σταυρός ο φύλαξ πάσης της οικουμένης. Σταυρός η ωραιότης της Εκκλησίας. Σταυρός βασιλέων κραταίωμα. Σταυρός πιστών το στήριγμα. Σταυρός αγγέλων η δόξα και των δαιμόνων το τραύμα.

Συντριβήτωσαν υπό την σημείωσιν του τύπου του Σταυρού Σου πάσαι αι ενάντιαι δυνάμεις (τρίς).

Του Κυρίου δεηθώμεν.... Κυριε Ελεησον....

Κύριε ο Θεός ημών, ο Βασιλεύς των αιώνων, Ο Παντοκράτωρ και Παντοδύναμος, ο ποιών πάντα και μετασκευυάζων μονω τω βούλεσθαι, ο εν την επταπλάσιον καμίνων και την φλόγα την εν Βαβυλώνι εις δρόσον μετάβαλων, και τους αγίους σου τρείς παίδας σώους διαφύλαξας, ο Ιατρος και Θεραπευτής των ψυχών ημών, η ασφάλεια των εις σε ελπιζόντων, σου δεόμεθα και σε παρακαλούμεν, απόστησον πάσαν διαβολικήν ενέργειαν, πάσαν σατανικήν έφοδο και πάσα επιβουλήν, περιέργειαν τε πονηράν και βλάβην και οφθαλμών βασκανίαν τω φθονερών ανθρώπων απο του δούλου σου (**όνομα**) και η υπο ωραιότητος ή ανδρείας ή ευτυχίας ή ζήλου ή και φθόνου βασκανίας συνέβη, ούτως φιλάνθρωπε Δέσποτα, έκτεινον την κραταίαν σου χείρα και τον βραχίονα σου τον ισχυρόν και ύψιστον και επισκόπων επισκόπησον το πλάσμα σου τούτο και κατάπεμψον αυτώ άγγελων κραταίον ειρηνικόν, ψυχής και σώματος φύλακα, ος επιτιμήσει και απελάσει απ᾽αυτού πάσαν βλάβην, πάσαν πονηράν βούλην, πάσαν φαρμακείαν και βασκανίαν των φθονερών ανθρώπων και ύπο σου ο σος ικέτης φρουρούμενος μετ᾽ευχαριστίας ψάλλει σοί: Κύριος εμοί βοηθός και φοβηθήσομαι κακά, ότι συ μετ᾽εμού ει ότι συ ει ο Θεός κραταίωμα μου, ισχυρός, εξουσιαστής, αρχών ειρήνης, Πατήρ του μέλλοντος αιώνος. Ναί Κύριε Ο Θεός ημών, φείσαι του πλάσματός σου και ρύσαι τον δούλον σου **(όνομα)** απο πάσης βλάβης, απο᾽πάσης επήρρειας και απο πάσης βασκανίας καί ανωτέρον αυτόν και ημάς παντός κακού διαφύλαξον, πρεσβείας της υπερευλογιμένης ενδόξου Δεσποίνης ημών Θεοτόκου και αειπαρθένου Μαρίας, των φωτοειδών Αρχαγγέλων και παντών σου των αγίων. Αμήν

Source: Fieldwork (2011).

Summary

The present study focuses on the analysis of patterns of transcultural health care utilisation behaviour of the inhabitants of two communities of Pirgos and Praitoria in rural Crete, Greece. The research pays specific attention to the people's indigenous knowledge of Medicinal, Aromatic and Cosmetic (MAC) plants in relation to their utilisation of the plural medical system in the research area, particularly of the traditional medical system. Furthermore, this study promotes the concept of community-based health care in the area, linking up with the new approach towards the development of community health. In order to present an appropriate overview on local behavioural patterns with respect to health care utilisation in this part of Crete, the current research employs the concepts of *Indigenous Knowledge Systems* (IKS) and *Medical Pluralism* and adopts a community-based research approach.

With regard to the research area of rural Crete, the medical traditions and developments, which are highlighted in this study, refer primarily to the classical Greek ethnomedical system of Humoural Medicine, as it has developed in Ancient Greece since the time of the famous Greek physician and scholar Hippocrates of Kos (460–370 B.C.). Known as the 'Founding Father of Humoural Medicine', who introduced a medical tradition based on the interplay of naturalistic body humours with the spiritual and religious aspects of the mind, he made a distinction between *naturalistic* and *personalistic* concepts of health and illness, whereby the former defines illness as an imbalance of body humours, while the latter refers to illness as the result of harm caused by an outside agent. The tradition of Humoural Medicine, which encompassed numerous naturalistic remedies and practices aimed at the restoration of the equilibrium of the human body, developed as one of the 'great traditions' of medicine, including: Traditional Chinese Medicine; *Ayurvedic* Medicine of India; and the Greco-Arabic tradition of *Unani-Tibb* Medicine. While humoural elements have similarly been important components of other 'great medical traditions', Greek Humoural Medicine has spread to many regions around the globe, including East Africa, Southeast Asia and Latin America. In view of the historical developments involved in the spread of humoural medicine from its Greek place of origin into all parts of the world over the past centuries, humoural elements, including the four elements 'earth', 'wind', 'fire' and 'water' as well as the 'hot-cold therapy', have to a certain extent survived in the concepts and ideas of health and illness maintained by the population of Crete today. Moreover, humoural medicine formed eventually the basis for the development of modern cosmopolitan medicine since the Renaissance.

In addition to the influence of humoural medicine, any medical system, which developed in this part of Greece is characterised by the interplay between traditional and modern forms of medicine, as they are subject to specific historical processes. Community members tend in general to respond to illness on the basis of their medical knowledge, practices and beliefs, which strongly influences their choice of specific forms of medical treatment, where traditional - often plant-based medicines - plays a major role. Indeed, as the preparation and use of Medicinal, Aromatic and Cosmetic (MAC) plants has formed a major practice of both Classical Greek Humoural Medicine and Traditional Medicine over the past centuries, herbal medicine has developed from accumulating knowledge and experience with the healing properties of these plants and has remained a continuing source for the development of natural as well as pharmaceutical plant-based remedies up until to today. Among the scholars of Ancient Greece, Pedanius Dioscorides (40-90 A.D.) is widely regarded as the 'Founding Father of Phytotherapy'. Although the interest in herbal medicine initially had declined with the advance of modern medicine, it has recently enjoyed increased popularity in both traditional medicine and Complementary and Alternative Medicine (CAM). In general, traditional medicine is rooted in a long humen history of adaptation, experience and survival in specific environments, in which indigenous knowledge of MAC plants are a major component to provide herbal medicine for treatment. Traditional medicine is closely related to the concept of *Indigenous Knowledge Systems* (IKS), which as accumulated bodies of knowledge, experience and practices have

evolved around the globe, outside formal universities and laboratories, and have been transferred over many generations in a particular culture area up to the present. In contrast to traditional medicine, modern forms of medicine are based on empirical medical theories and doctrines taught at Universities and Medical Schools. Although modern medicine emerged during the Renaissance from the teachings and practices of the naturalistic Greek humoural medicine, it developed later into the international medical knowledge system of modern or cosmopolitan medicine. While the interaction between traditional and modern medicine has long been dominated by the advance in modern medicine in mostly industrialised countries, particularly since the 20th century, a recent reorientation towards traditional and herbal medicine is observed world-wide, in which disappointment in treatment and unwanted side-effects, together with insufficiencies in the modern medical system with its increasingly expensive medicines and therapies have provoked people to seek treatment from both traditional medicine and Complementary and Alternative Medicine (CAM) in both developing and developed nations.

Meanwhile, following the adoption of the concept of Primary Health Care (PHC) rendering all citizens the right for basic health care in the 1980s, supported by the strategy of '*Health for All*', also the use of alternative forms of medicine was accepted by the World Health Organisation (*cf.* WHO 1978). Given the growing inability of PHC to provide the entire population with modern health care, while about 85% of the people living in developing countries continue to use traditional medicine, more recently, the strategy of the 'Community Health Approach' was introduced, which not only refers to physical, mental and social well-being, but also promotes spiritual and moral health, which has also formed a major principle *par excellence* of traditional medicine for many centuries.

In view of the different medical traditions involved in this study, the present research employs the concept of IKS, notably in an effort to study indigenous systems of medical knowledge, practice and belief from the participants' point of view. The concept of IKS has shown to form a fruitful point of embarkation for research implemented in various sectors of the society, not only in health, but also in agriculture, environment, bio-cultural diversity conservation, and has pertained to more sustainable strategies of community-based development. While early research on IKS has been conducted in the realm of cognitive anthropology and ethnoscience, more recent studies carried out in the field of neo-ethnoscience have adopted the 'Leiden Ethnosystems Approach', which relates IKS to the dynamic processes of socio-economic development. As a major subfield of IKS, interesting research has been conducted on *Ethnobotanical Knowledge System*s (EKS) in conjunction with local people's *Traditional Ecological Knowledge* (TEK), not only for the improvement of health care, but also for the conservation of the bio-cultural diversity and sustainable management of plant resources. In this respect, the utilisation of plants for medical purposes has been identified as a significant component of people's health care utilisation patterns across different communities. As a result, a considerable amount of research has been dedicated to different human uses of plants, particularly MAC plants, as it involves both elements of ethnobotany as well as of ethnomedicine. While MAC plants generally form a major component of specific types of traditional medical treatment, their value has recently also been 'rediscovered' in ethnopharmacology as a potential resource for the development of new pharmaceutical medicines.

In this respect, in their efforts to seek appropriate health care, patients have to pass through different stages of illness behaviour, known as the patterns of health care utilisation behaviour. Since there is in the research area a plural medical system, encompassing the co-existence of a traditional, a transitional and a modern medical system, this study focuses on the transcultural health care utilisation of patients, who have the choice to seek treatment at any of these medical systems. In order to study and analyse the complicated transcultural patterns of health care utilisation behaviour in this part of Crete, the present research adopts a specific type of IKS-based research methodology known as the 'Leiden Ethnosystems Approach', developed at the LEAD Programme of Leiden University in the 1980s. The 'Leiden Ethnosystems Approach' embarks on the three principles of the 'Participant's View', the 'Field of Ethnological Study' and

the 'Historical Dimension', rendering it possible to study current development-related phenomena from the participant's perspective in a particular culture area. The subsequent conceptual model of transcultural health care utilisation - successfully implemented in a number of similar studies elsewhere around the globe - is built up of various potentially influential factors on utilisation behaviour, grouped as respectively: *independent variables*: socio-demographic, psycho-social, economic, institutional and perceived morbidity; *intervening var*iables: variables from outside the community of regulations and promotions; and *dependent variables*: utilisation variables of the traditional, transitional and modern medical system.

In addition to the selection of an appropriate research methodology, the study was challenged with the search for an appropriate research area in rural Crete. Eventually, two communities in the area of south-central Crete were selected, based on a combination of the characteristics of communities located in a historical location of Crete with an abundant bio-cultural diversity of MAC plants growing on fertile land at the slopes of a mountain range in the area, and where indigenous knowledge systems are part of local people's daily life.

Following the execution of a qualitative pilot study, substantial quantitative households were conducted among the inhabitants of Pirgos and Praitoria by means of a structured, pre-coded questionnaire. In this way, a rich body of community-based data is brought together, which identifies 338 'patients' in the sample, who actually report to have had any contact with an available medical system during the 12 months' period of time preceding to the survey.

Consequently, the preparation of data for the subsequent stepwise statistical analysis of patterns of health care utilisation behaviour encompasses the bivariate analysis, the mutual relations analysis, the multivariate analysis and the multiple regression analysis, based on the number of utilisation rates of all household members identified as 'patients'. Eventually, the reported multiple utilisation contacts of 338 'patients' in the sample are recalculated to the identification of 452 utilisation rates for all 'patients' of the sample. Upon the completion of the household survey, all data, which were collected by means of the quantitative questionnaire, have been subjected to processes of control, correction, data set preparation and application of statistical analysis, using Version 20 of the *Statistical Package for the Social Sciences* (SPSS).

The study of the patterns of utilisation behaviour within the distinctive research setting in rural Crete from the participants point of view, also pays special attention to the unique background of the two research communities Pirgos and Praitoria in this part of the Mediterranean Region. In the light of such holistic approach, the general aim of this research can be summarised as to study, document and analyse from a community perspective the patterns of utilisation behaviour of different systems of medical knowledge, practice and belief by community members in rural Crete, with special attention to the role of their indigenous knowledge of MAC plants in the process. In other words, the present study seeks to answer the following general research question: '*What kind of people with what kind of indigenous knowledge of MAC plants use what kind of medicine for what kind of perceived illness?*'

In order to achieve this general aim, a number of factors, which may influence such patterns of health care utilisation behaviour, are identified on the basis of the above mentioned multivariate model of transcultural health care utilisation, and are placed within the wider context of the research setting and directly related characteristics, where a number of specific objectives have been formulated, which include the following:

Firstly: the research communities of Pirgos and Praitoria are identified and described in the wider context of the Mediterranean Region, Greece, Crete and the area of South-Central Crete, where a sociography of the research area is presented in Chapter IV. Here, the description includes the unique geographical and historical dimensions of the research communities, where the local population maintain and practice their indigenous knowledge of MAC plants for health and healing as a major part of the traditional medical system in the area in a rather substantial way.

Secondly: the plural medical system studied in the research area is described in Chapter V to comprise a traditional, a transitional and a modern medical system, all providing health care to the local people in a differential way.

Thirdly: the indigenous system of traditional medicine and its components are described in Chapter VI, with special attention for indigenous knowledge of MAC plants, traditional home remedies as well as spiritual and religious forms of traditional medicine.

Fourthly: an indigenous classification of Medicinal, Aromatic and Cosmetic (MAC) plants as well as a local priority species list are presented in Chapter VI, not only providing a comprehensive indigenous classification for rural Crete, but also showing the priority which the local people give to these plant species for their application. Also, the close relationship is shown between such indigenous classification of MAC plants and people's related practices of the application of these plants and their components in traditional medicines, such as in concoctions and teas, but also in homemade mixtures, used for the preparation of home remedies;

Fifthly: an indigenous classification of illnesses for the research area, based on the local people's perceptions and ideas of their experience with illness, is also presented in Chapter VI. Here, also the strong relationship between the perceived morbidity of patients and their subsequent illness behaviour emerges as an important determinant of health care utilisation in the research area.

Sixthly: the first overall assessment of the people's health care utilisation behaviour from a community perspective and the different stages of their illness behaviour, in which patients contact the plural medical system, is presented in Chapter VII. In this chapter, it is already shown that there exists a remarkable distribution of the overall utilisation rates over the three main components of the plural medical system in Pirgos and Praitoria, where the use of the traditional and the transitional medical systems substantially dominate the overall health care utilisation patterns of the local people. The overall distribution of the utilisation patterns of the respondents of the two research communities (N=452) over the three available medical systems in the research area is as follows:

- nearly half of the respondents (44.7%) use the traditional medical system;
- almost half of the respondents (46.0%) use the transitional medical system;
- less than one-tenth of the respondents (9.3%) use the modern medical system.

As is further shown in the following stepwise analysis, the extensive body of indigenous knowledge of MAC plants of the local people as the *Materia Medica* of both the traditional and the transitional medical system is among the major determinants of health care utilisation behaviour in this part of Crete.

Seventhly, the stepwise bivariate, mutual relation, multivariate and multiple regression analyses of transcultural health care utilisation in rural Crete and the explanation of the significant interactions between various groups of variables, which act as determinants of the reported patterns of utilisation behaviour, are presented in Chapter VIII. The bivariate analysis shows an overall differentiation in the reported patterns of health care utilisation over the plural medical system, which confirms the distribution, as described in Chapter VII, and mentioned above as the fulfilment of the *sixth objective* of this study. Embarking on the overall distribution of the utilisation rates of the three main systems of the plural medical system, revealing the rather remarkable differentiation, in which 324 'action patients' report a total of 452 (100.0%) utilisation rates, distributed with almost half of the contacts (44.7%, n=202) reported at the traditional medical system; with almost half of the contacts (46.0%, n=208) reported at the transitional medical system; and les than one-tenth of the contacts (9.3%, n=42) reported at the modern medical system, the bivariate analysis is shown as to indicate 17 variables as more or

less significant determinants of illness behaviour. The following mutual relation analysis further underscores the importance of the significant variables, represented in the blocks of significant variables in the model. Figure 8.1 shows the statistically significant mutual relations between the categories of variable, represented as blocks in the model.

The presented multivariate model of transcultural health care utilisation shows a confirmation of the results of the bivariate and mutual relations analysis of patterns of health care utilisation behaviour. The following multivariate analysis, in which all relationships and interactions among the variables in the model are similarly described in Chapter VIII, provides further statistical support for the findings of the above mentioned significant variables in the bivariate analysis. Eventually, the determinants, which emerge from the stepwise quantitative analysis in Chapter VIII as to indicate a certain degree of significance, can be summarised as follows:

Socio-demographic variables:	*Household size*
	Household composition
	Age
	Marital status
	Occupation
Psycho-social variables:	*Knowledge of the traditional medical system*
	Knowledge of the modern medical system
	Opinion on the transitional medical system
Enabling variables:	*Annual income*
	Annual expenses for health care
Perceived morbidity variables:	*Health status*
	Reported illness
	Severity of the reported illness
	Duration of the reported illness
Institutional variables:	*Accessibility of institutions of the traditional medical system*
	Accessibility of institutions of the transitional medical system
Intervening variables:	*Impact of the current economic situation*

A schematic representation of the projection of the component loadings of the two sets of variables onto the canonical space with a total of 30 variables on two dimensions (N=452) is shown in Figure 8.2

Finally, the multiple regression analysis is also described in Chapter VIII, showing that the multivariate analysis is extended to develop an explanatory, analytical model of transcultural health care utilisation by means of assessing the correlation between the different blocks of variables identified in the model. While bivariate and multivariate analyses illustrate the relationships and interactions between different variables in the model, the multiple regression analysis calculates the maximum correlation between the blocks of variables. Table 8.9 presents a list of all multiple correlation coefficients, which are calculated separately for all possible combinations of blocks of factors for each dimension.

The results of the multiple regression analysis furthermore show that the block of the perceived morbidity variables and the block of the predisposing socio-demographic variables correlate strongly with all blocks of independent factors and moderately with all blocks of dependent variables. The block of the intervening variables, which includes the variable ‘Impact of the Current Economic Situation', also correlates rather strongly with all blocks of independent variables. Figure 8.3 presents the final model of Transcultural Health Care Utilisation Behaviour indicating the strength of the correlations between the blocks of variables in the model.

Eighthly: the theoretical implications of the study of patterns of transcultural health care utilisation behaviour and the assessment of the contribution of this research of indigenous systems of knowledge, practice and belief of MAC plants to the improvement of community

health and the conservation of bio-cultural diversity in Crete are presented in Chapter IX. These implications encompass the support from the collected research data for the theory that the accumulated body of indigenous people's knowledge of MAC plants in rural areas provides one of the major contributions to the collection, preparation and use of plant-based medicines as the major part of the prevailing system of traditional medicine. Such conclusions of other studies with regard of the huge contribution of medical plants to not only traditional, but also to modern medical systems have been made by numerous scholars, including: Evans Schultes & Raffauf (1990); Balick *et al*. (1996); Van Seters (1997); Bodeker (1999); (Posey 1999); Quah & Slikkerveer (2003); Bogers *et al*. (2006); and Slikkerveer (2006).

In addition, this study also supports the theory that the accumulated body of indigenous people's knowledge of MAC plants in rural areas provides one of the major contributions to the collection, preparation and use of plant-based medicines as a similarly major part of the availabe system of transitional medicine. The direct relation between the utilisation of the traditional medical system and the transitional medical system can be explained by the nearly equal application in both systems - in contrast to the modern medical system - of plant-based components and herbal medicines (*cf*. Slikkerveer 1990; 2003).

Furthermore, the aspects of a general positive opinion reported by the respondents in both research communities with regard to the provision as well as the satisfaction of traditional and transitional treatment with this kind of plant-based medicines indicate, that the indigenous knowledge and practice of MAC plants are significantly contributive to the improvement of the overall provision of health care in rural communities (*cf.* Balick *et al*. 1996; Van Seters 1997; Quah & Slikkerveer 2003; Slikkerveer 2006).

A rather interesting theoretical implication of this study in Crete refers to the focus on local patterns of MAC plant utilisation, which sheds light on the concepts of bio-cultural diversity conservation and sustainable natural resource management. In Crete, the loss of biodiversity is likely to cause a reduction in the profusion of springtime flowers and to provoke a degradation of the cultural values of the landscape (*cf*. Allen *et al*. 2006). The research findings suggest that local people interact with the natural environment in a way also to render its resources available to future generations and hereby adhere to the principles of local management and conservation of MAC plant biological diversity. As such, the sample population shares considerable knowledge on the sustainable utilisation of MAC plants, which is embedded in the socio-religious context of the community.

In line with the conservation of natural resources, the practices of utilisation of MAC plants also contribute to the conservation of cultural diversity, namely to the preservation of local systems of knowledge, practice and belief in relation to the utilisation of MAC plants. The present study not only highlights the local patterns of bio-cultural diversity conservation, but it also contributes to the conservation of cultural diversity, as local systems of knowledge, practice and belief are also documented in this study. As such, this research may provide an incentive to future studies on local people's knowledge of utilisation of MAC plants in Crete focused on the role of *Ethnobotanical Knowledge Sy*stems (EKS) concerning MAC plants for conservation of the bio-cultural diversity of the island (*cf*. Slikkerveer 2006).

Ninethly: the description of the methodological implications of this research and the indication of the importance of the research methods and techniques applied to research transcultural behavioural patterns are also presented in Chapter IX. A major methodological implication of this study is shown to by referring to the fact, that the 'Leiden Ethnosystems Approach', as it has been applied to the present study, again shows to allow for a detailed analysis of local systems of knowledge, practice and belief as well as for an assessment of notably past and present patterns of behaviour across different sectors of the society in a particular research area. On the basis of this rather comprehensive research approach, paying attention to the concepts of the 'Participants View' (PV), the 'Field of Ethnological Study' (FES) and the 'Historical Dimension' (HD) with regard to the object of study, it is possible to describe and understand all relevant factors, which

play a role in the local people's utilisation of the plural medical system available in the communities of Pirgos and Praitoria. In addition, the analytical methodology selected for this study of the three medical systems operating in the research area, *i.e*. the traditional, the transitional and the modern medical system, which is based on a comprehensive stepwise analysis of collected data, encompasses a bivariate analysis, a mutual relations analysis, a multivariate analysis and a multiple regression analysis. The remarkable results of this study support previous research in the field of IKS, as they confirm that the conceptual methodological framework and applied analytical model of transcultural health care utilisation are very well developed for this kind of medical-anthropological and ethnomedical research. In other words, the present research methodology applied in this study offers a point of embarkation for cross-cultural comparison of similar behavioural patterns of health care utilisation operational in other regions of Crete

Tenthly: the description of the practical implications of this study for the integration of traditional medicine into the formal health care system with special attention for the indigenous knowledge of MAC plants for the improvement of community health and the conservation of bio-cultural plant diversity for the people of Crete in the future is also presented in Chapter IX. The community-based approach of this study to analyse local patterns of transcultural health care utilisation sheds light on locally perceived health care needs and shortcomings. This study also makes an effort to describe each medical system available in the research area within the socio-cultural context of the community, thereby developing a practical community-oriented perspective on medical pluralism. Concurrently, patterns of health care utilisation behaviour are analysed from the respondent's rather than the health care providers' point of view, offering a sound basis for the promotion and planning of community health in the research area and beyond. In particular, region-specific data and community participation are identified as crucial for improving health care delivery strategies and policies, particularly in rural areas, which support previous practical research (*cf*. Koutis *et al*. 1993; Chatziarsenis *et al*. 1999; Antonakis *et al*. 2006).

In addition, the present research also links up with the recent policies of the World Health Organisation (WHO 2002a), which acknowledge that the components of the traditional medical system are usually embedded in the social, spiritual and religious context of the community and as such offer a vivid component for improved health care planning. Since the study embarks on the recent WHO (2002a) strategy of integrating traditional and modern medicine, specifically in developing countries, it links up with the integrated development policies and strategies, which aim at achieving *i.a.* the eradication of extreme poverty and hunger, a reduction of child mortality, improvements in maternal and child health, the eradication of certain diseases and an advance of environmental sustainability, as highlighted in the *Millennium Development Goals* (*cf*. United Nations 2014).

It is hoped, that the various implications of this study of the significant role which indigenous knowledge of MAC plants plays in the process of transcultural health care utilisation, and in particular in the traditional and transitional medical systems in the research area will be further studied and integrated into comprehensive community health programmes for the future.

In conclusion, this study hopes to attribute a new significance to the concept of '*Yiatrosofia yia ton Anthropo*' as the indigenous medical wisdom of the Cretans concerning the knowledge and practice of MAC plants for future community health development, pertaining to the ultimate improvement of the health and well-being of the local population of the two research communities Pirgos and Praitoria in rural Crete, as well as elsewhere in Greece and in other culture areas of the world.

Samenvatting

De huidige studie richt zich op de analyse van gedragspatronen van transcultureel gebruik van gezondheidszorg van de inwoners van de twee dorpsgemeenschappen Pirgos en Praitoria op het platteland van Kreta, Griekenland. De studie vestigt de speciale aandacht op de inheemse kennis van Medicinale, Aromatische en Cosmetische (MAC) planten van de bevolking in samenhang met hun gebruik van het plurale medische systeem in het onderzoeksgebied, met name van het traditionele medische systeem. Bovendien bevordert deze studie het concept van 'community-based' gezondheidszorg in het gebied, waarmee aansluiting wordt gemaakt met de nieuwe benadering van de ontwikkeling van 'Community Health'. Teneinde een pasend inzicht te presenteren in de lokale gedragspatronen van het gebruik van gezondheidszorg in dit deel van Kreta maakt deze studie gebruik van de begrippen van 'Inheemse Kennis Systemen' (*Indigenous Knowledge Systems* IKS) en 'Medische Pluralisme' (*Medical Pluralism),* waarbij een onderzoeksbenadering vanuit de gemeenschap zelf wordt toegepast.

Met betrekking tot het onderzoeksgebied van het platteland van Kreta verwijzen de medische tradities en ontwikkelingen, waarop in dit onderoek de nadruk wordt gelegd, allereerst naar het klassieke Griekse etnomedische systeem van de 'Humorale Geneeskunde', zoals dit zich in het oude Griekenland sedert de tijd van de beroemde Griekse arts en geleerde Hippocrates van Kos (460–370 B.C.) heeft ontwikkeld. Bekend als de 'Grondlegger van Humorale Geneeskunde', die een medische traditie heeft geintroduceerd, die gebaseerd is op de wisselwerking van naturalistische lichaamsvochten en de spirituele en religieuze aspecten van de geest maakt een onderscheid tussen *naturalistische* en *personalistische* concepten van ziekte en gezondheid, waarbij het eerste concept verwijst naar ziekte als het gevolg van een gebrek aan evenwicht in de lichaamsvochten, terwijl het laatste verwijst naar kwaad veroorzaakt door een buitenstaander.

De traditie van de 'Humorale Geneeskunde', die een aantal naturalistische remedies en praktijken omvat, die gericht zijn op het herstel van het evenwicht van het menselijk lichaam, is ontwikkeld als één van de 'Grote Medische Tradities', waartoe ook het Traditionele Chinese Medische Systeem, het *Ayurveda* Medische Systeem van India en het Grieks-Arabische *Unani-Tibb* Medische Systeem behoren. Terwijl humorale elementen evenzo belangrijke componenten vormen van andere 'Grote Medische Tradities', heeft de Griekse 'Humorale Geneeskunde' zich naar vele gebieden op aarde verspreid, inclusief Oost-Afrika, Zuid-Oost Azie en Latijns Amerika. Gelet op de historische ontwikkelingen van de verspreiding van de 'Humorale Geneeskunde' vanuit het Griekse gebied van oorsprong naar alle delen van de wereld gedurende de afgelopen eeuwen, zijn de humorale elementen, zoals de vier elementen 'aarde', 'wind', vuur', en 'water' en de 'warm-koud therapie' ook in zekere zin blijven voortbestaan in de concepten en ideeën over ziekte en gezondheid, zoals die door de bevolking van Kreta tot op de dag van vandaag zijn behouden. Bovendien vormde de 'Humorale Geneeskunde' uiteindelijk ook de basis voor de ontwikkeling van de moderne of cosmopolitische geneeskunde sedert de *Renaissance*.

In aansluiting op de invloed van de 'Humorale Geneeskunde' wordt elk medisch systeem, dat zich in dit deel van Griekenland heeft ontwikkeld, gekenmerkt door de wisselwerking tussen traditionele en moderne vormen van geneeskunde, aangezien zij deel uitmaken van een specifiek historisch proces. Leden van de dorpsgemeenschappen hebben de neiging om op ziekte te reageren op basis van hun medische kennis, praktijken en geloven, die hun keuze van specifieke vormen van geneeskundige behandeling beinvloeden, en waarin traditionele, dikwijls op planten gebaseerde geneesmiddelen een sterke rol spelen.

Inderdaad, aangezien het bereiden en gebruik van Medicinale, Aromatische en Cosmetische (MAC) planten een belangrijke praktijk heeft gevormd van zowel de Griekse 'Humorale Geneeskunde' als van de traditionele geneeskunde gedurende de afgelopen eeuwen, heeft de plantengeneeskunde zich ontwikkeld uit de opgebouwde kennis en ervaring met de geneeskundige wetenschappen van deze planten, en is daarbij een voortdurende bron voor de ontwikkeling van zowel natuurlijke als van op planten gebaseerde farmaceutische remedies tot op de dag van vandaag. Onder de geleerden van het oude Griekenland wordt Pedanius

Dioscorides (40-90 A.D.) algemeen beschouwd als de ‘Grondlegger van de Fytotherapie'. Hoewel de belangstelling voor plantengeneeskunde aanvankelijk was gedaald met de opkomst van de moderne geneeskunde, heeft deze recentelijk een toegenomen populariteit ondervonden in zowel traditionele geneeskunde, als in Complementaire en Alternatieve Geneeskunde (CAG), hetgeen steeds meer wordt bevorderd door de Wereld Gezondheids Organisatie (WHO) sinds de tachtiger jaren.

Algemeen is traditionele geneeskunde gebaseerd op een lange geschiedenis van de mens van aanpassing, experiment en overleving in specifieke milieu's, waarin inheemse kennis van MAC planten de belagrijkste component vormt voor het bereiden van platengeneeskunde voor medische behandeling. traditionele geneeskunde is nauw verwant met het concept van *Inheemse Kennis Systemen* (IKS), die zich overal ter wereld hebben ontwikkeld als sytemen van kennis, ervaring en praktijken buiten de formele universiteiten en laboratoria, en over vele generaties tot op de dag van vandaag zijn overgedragen in een bepaald cultuurgebied. In tegenstelling tot traditionele geneeskunde zijn moderne vormen van geneeskunde gebaseerd op empirische medische theorieën en doctrines die aan universiteiten en medische scholen worden onderwezen. Hoewel de moderne geneeskunde gedurende de Renaissance zijn ontstaan uit de leer en praktijken van de naturalistische Griekse ‘Humorale Geneeskunde’, heeft het zich later ontwikkeld tot het internationale kennis systeem van moderne of cosmopolitische geneeskunde. Terwijl de interactie tussen traditionele en moderne geneeskunde gedurende lange tijd is gedomineerd door de vorderingen in de moderne geneeskunde in voornamelijk geindustrialiseerde landen, vooral sedert de 20ste eeuw, wordt een recente heroriëntatie op traditionele en plantengeneeskunde over de gehele wereld waargenomen, waarin teleurstelling in de behandeling en ongewenste neveneffecten, alsmede onvolkomenheden in het moderne medische systeem met toenemend dure medicijnen en behandelingen, die mensen hebben aangezet om behandeling te zoeken bij traditionele geneeskunde en Complementaire en Alternatieve Geneeskunde (CAG) in zowel geindustrialiseerde landen als in ontwikkelingslanden.

Ondertussen zijn na het aannemen van het concept van 'Primary Health Care' (PHC), dat in de tachtiger jaren alle burgers het recht verleent op basis gezondheidszorg, gesteund door de strategie van '*Gezondheid voor Allen*', is het gebruik van alternatieve vormen van geneeskunde geaccepteerd door de Wereld Gezondheids Organisatie (*cf.* WHO 1978). Vanwege het toenemend onvermogen van PHC om de gehele bevolking van moderne gezondheidszorg te voorzien, terwijl circa 85% van de mensen die in ontwikkelingslanden leven, doorgaan met het gebruik van traditionele geneeskunde, werd onlangs de strategie van 'Community Health' geintroduceerd, die niet alleen fysieke, mentale en sociale gezondheid bevordert, maar ook geestelijke en morele gezondheid bevordert, hetgeen ook gedurende vele eeuwen bij uitstek een belangrijk principe van traditionele geneeskunde is geweest.

Gelet op de verschillende medische tradities, die bij deze studie betrokken zijn, maakt het huidige onderzoek gebruik van het concept van IKS, met name in een poging om inheemse systemen van medische kennis, praktijk en geloof te onderzoeken vanuit de visie van de participant zelf. Het concept van IKS heeft aangetoond, dat het een vruchtbaar vertrekpunt vormt voor onderzoek dat uitgevoerd wordt in verschillende sectoren van de samenleving, niet alleen in gezondheid, maar ook in de landbouw, het milieu, behoud van bio-culturele diversiteit, en heeft geleid tot meer duurzame strategieën van ontwikkeling op het niveau van de gemeenschap. Terwijl eerder onderzoek naar IKS uitgevoerd werd in het kader van cognitieve antropologie en etnowetenschappen, hebben meer recente studies die zijn uitgevoerd op het terrein van de neo-etnowetenschappen de benadering van de 'Leiden Ethnosystems Approach' toegepast, die IKS in verband brengt met dynamische processen van socio-economische ontwikkeling. Als een belangrijk onderdeel van IKS is interessant onderzoek uitgevoerd naar *Etnobotanische Kennis Systemen* (EKS), niet alleen in samenhang met de 'Traditionele Ecologische Kennis (TEK) van lokale bevolkingsgroepen, voor zowel de verbetering van de gezondheidszorg, als ook voor het behoud van de bio-culturele diversiteit en duurzaam beheer van bronnen van planten. In dit

verband is het gebruik van planten voor medische doeleinden vastgesteld as een belangrijke component van de gebruikspatronen van gezondheidszorg door mensen uit verschillende gemeenschappen. Bij gevolg is een aanzienlijke hoeveelheid van onderzoek gewijd aan verschillende gebruiksvormen van planten, in het bijzonder van Medicinale, Aromatische en Cosmetische (MAC) planten, dat zowel elementen van etnobotanie als van etnogeneeskunde omvat. Terwijl MAC planten over het algemeen een belangrijke component vormen van specifieke soorten van traditionele medische behandeling, is de waarde van hen onlangs ook 'her-ontdekt' in de etnofarmakologie als een potentiële bron voor de ontwikkeling van nieuwe farmaceutische geneesmiddelen.

In dit verband moeten patienten in hun poging om passende gezondheidszorg te zoeken verschillende fasen van ziektegedrag doorlopen, bekend als gedragspatronen van gebruik van gezondheidszorg. Aangezien er in het onderzoeksgebied een pluraal medisch systeem voorkomt, dat het naast elkaar bestaan van een traditioneel, een transitioneel en een modern medisch systeem omvat, richt deze studie zich op het transculturele gebruik van gezondheidszorg door patienten, die de keuze hebben om behandeling te zoeken bij elk van deze medische systemen. Teneinde het gecompliceerde gedragspatroon van transcultureel gebruik van gezondheidszorg in het onderzoeksgebied van Kreta te bestuderen en te analyseren, past het huidige onderzoek de specifieke soort van de op IKS gebaseerde onderzoeksmethodologie, bekend als de *'Leiden Ethnosystems Approach'* die in de jaren tachtig ontwikkeld is door het LEAD Programma van de Universiteit Leiden. De 'Leiden Ethnosystems Approach' gaat uit van de drie principes van de 'Participant's View', het 'Field of Ethnological Study' en de 'Historical Dimension', die het mogelijk maken om huidige ontwikkelingsgebonden fenomenen vanuit de visie van de participant in een bepaald cultuurgebied te bestuderen.

Het daarop volgende conceptuele model van transcultureel gebruik van gezondheidszorg - met succes toegepast in een aantal gelijksoortige studies elders ter wereld - is opgebouwd uit verschillende variabelen, die potentieel invloed uitoefenen op gebruiksgedrag, die gegroepeerd worden als respectievelijk *onafhankelijke variabelen* - socio-demografische, psycho-sociale, economische, institutionele en gepercipeerde ziekte - *interveniërende variabelen* - variabelen van buiten de gemeenschap inz. regulering en bevordering van gedrag - en *afhankelijke variabelen* - gebruiksvariabelen van het traditionele, het transitionele en het moderne medische systeem in het onderzoeksgebied.

In aansluiting op de selectie van een geschikte onderzoeksmethodologie werd de studie met de uitdaging geconfronteerd van het zoeken naar een gepaste onderzoeksgebied op het platteland van Kreta. Tenslotte werden twee gemeenschappen in het gebied van Zuid-Centraal Kreta geselecteerd op basis van een combinatie van kenmerken van gemeenschappen die gelegen zijn in een historische lokatie van Kreta met een rijke bio-culturele diversiteit van MAC planten, die op de vruchtbare gronden van de hellingen van een bergketen in het gebied groeien, en waar inheemse kennis systemen een deel vormen van het dagelijkse leven van de locale bevolking.

In vervolg op de uitvoering van het kwalitatieve pilot onderzoek zijn degelijke kwantitatieve 'household surveys' uitgevoerd onder de bewoners van Pirgos en Praitoria door middel van gestructureerde en geprecodeerde vragenlijsten. Op deze wijze is een rijke verzameling van gegevens van de gemeenschappen bijeengebracht, die 338 patienten identificeert in de steekproef, die rapporteren dat zij enig contact met een beschikbaar medische systeem gedurende de 12 maanden hebben gehad, die voorafgaan aan het tijdstip waarop het onderzoek is uitgevoerd.

Bij gevolg omvat de voorbereiding van gegevens voor de volgende stapsgewijze statistische analyse van gedragspatronen van gebruik van gezondheidszorg - de bivariate analyse; de onderlinge relatie analyse; de multivariate analyse en de multipele regressie analyse - die gebaseerd is op het aantal gebruiksratios van alle huishoudleden, die als 'parient werden geidentificeerd. Uiteindelijk zijn de gerapporteerde multipele gebruikscontacten van 338 patienten herberekend naar de vaststelling van 452 gebruiksratio's voor de patienten uit de steekproef. Na het beëindigen van de huishoud surveys zijn alle gegevens die verzameld zijn met

behulp van de kwantitatieve vragenlijsten gecontroleerd, gecorrigeerd, en werd de dataset voorbereid, waarna de statistische analyses zijn toegepast met gebruik van Versie 2 van het IBM *Statistical Package for the Social Sciences* (SPSS).

In de studie van gedragspatronen van gebruik binnen het specifieke onderzoeksgebied op het platteland van Kreta vanuit de visie van de participanten werd ook de speciale aandacht gericht op de achtergrond van de twee onderzoeksgemeenschappen Pirgos en Praitoria in dit deel van het Mediterrane gebied. In het licht van een dergelijke holistische benaderering kan het algemene doel van dit onderzoek samengevat worden als het bestuderen, documenteren en analyseren vanuit het perspectief van de gemeenschap, de gedragspatronen van gebruik van verschillende systemen van medische kennis, praktijk en geloof door de leden van de gemeenschappen op het platteland van Kreta, met speciale aandacht voor de rol van hun inheemse kennis van MAC planten in het betreffende proces. Met andere woorden, de huidige studie tracht een antwoord te vinden op de volgende algemene onderzoeksvraag: *'Welk soort mensen met welk soort van inheemse kennis van MAC planten gebruikt welk type van geneeskunde voor welke gepercipieerde ziekte?'* Teneinde dit algemene doel te bereiken, zijn een aantal factoren, die dergelijke gedragspatronen van gebruik van gezondheidszorg zouden kunnen beinvloeden, geidentificeerd op basis van het bovengenoemde multivariate model van transcultureel gebruik van gezondheidszorg, en geplaatst binnen het bredere kader van het onderzoeksgebied en de direct daarmee verbonden kenmerken, waartoe een aantal specifieke vraagstellingen zijn geformuleerd, die het volgende omvatten:

Ten eerste: de onderzoeksgemeenschappen Pirgos en Praitoria zijn geidentificeerd en beschreven binnen het bredere kader van respectievelijk het Mediterrane gebied, Griekenland, Kreta en de regio van Zuid-Centraal Kreta, waarbij een sociografie van het onderzoeksgebied wordt gepresenteerd in Hoofdstuk IV. Hier omvat de beschrijving van de unieke geografische en historiche dimensies van de ondersoeksgemeenschappen, waar de lokale bevolking hun inheemse kennis van MAC planten voor gezondheid en genezing als een belangrijk deel van het traditionele medische systeem in het gebied op een diepgaande wijze hebben behouden en in praktijk brengen;

Ten tweede: het plurale medische systeem dat in het onderzoeksgebied is bestudeerd, wordt in Hoofdtuk V beschreven en omvat een traditioneel, een transitioneel en een modern medisch systeem, die elk een vorm van gezondheidszorg aan de locale bevolking op verschillende wijze verleent;

Ten derde: het inheemse systeem van traditionele geneeskunde en de componenten daarvan worden in Hoofdstuk VI beschreven, met speciale aandacht voor de inheemse kennis van MAC planten, traditionele huismiddelen, evenals voor geestelijke en religieuze vormen van traditionele geneeskunde;

Ten vierde: een inheemse classificatie van Medicinale, Aromatische en Cosmetische (MAC) planten, alsmede een lokale lijst van prioriteit van soorten worden gepresenteerd in Hoofdstuk VI, waar niet alleen een omvattende inheemse classificatie voor Kreta wordt beschreven, maar waar ook de prioriteit wordt getoond, die de lokale bevolking verleent aan deze plantensoorten voor hun toepassing. Ook wordt de nauwe relatie aangetoond tussen deze inheemse classificatie van MAC planten en de daarmee verbonden praktijken van de bevolking betreffende de toepassing van deze planten en de componenten daarvan in traditionele geneesmiddenen, zoals in kruidenmengsels en thee's, maar ook in zelfgemaakte mengsels die gebruikt worden voor het bereiden van huismiddelen;

Ten vijfde: een inheemse classificatie van ziekten in het onderzoeksgebied, gebaseerd op de percepties en ideeën van hun ervaring met ziekte, wordt gepresenteerd in Hoofdstuk VI. Hier komt ook de hechte relatie tussen de gepercipiëerde ziekte van patienten en hun daaropvolgend ziektegedrag naar voren als een belangrijke determinant van gebruik van gezondheidszorg in het onderzoeksgebied;

Ten zesde: De eerste algemene vaststelling van het gebruik van gezondheidszorg door de lokale bevolking vanuit het perspectief van de gemeenschap zelf en de verschilende fasen van hun ziektegedrag, waarbij patienten contact maken met het plurale medische systeem wordt gepresenteerd in Hoofdstuk VI. In dit Hoofdstuk wordt reeds aangetoond, dat er een opmerkelijke verdeling van de gebruiksratio's bestaat over de drie belangrijkste componenten van het plurale medische systeem in Pirgos en Praitoria, waar het gebruik van het traditionele en het transitionele medische systeem de algehele patronen van gebruik van gezondheidszorg van de lokale bevolking aanzienlijk domineert. De algehele verdeling van de gedragspatronen van gebruik van gezondheidszorg van de respondenten uit de twee onderzoeksgemeenschappen (N=452) over de drie beschikbare medische systemen in het onderzoeksgebied is als volgt:

- bijna de helft van de respondenten (44.7%) gebruikt het traditionele medische systeem;
- bijna de helft van de respondenten (46.0%) gebruikt het transitionele medische systeem;
- minder dan ééntiende van de respondenten (9.3%) gebruikt het modern medische systeem.

Zoals verder wordt aangetoond in de volgende stapsgewijze analyse, behoort de uitgebreide inheemse kennis van MAC planten van de lokale bevolking als de *Materia Medica* van zowel het traditionele medische systeem als van het transitionele medische systeem tot de belangrijke determinant van het gedrag van gebruik van gezondheidszorg in dit deel van Kreta.

Ten zevende: de stapsgewijze bivariate, onderlinge relaties, multivariate en multipele regressie analyses van transcultureel gebruik van gezondheidszorg op het platteland van Kreta, en de verklaring van de significante interacties tussen verschillende groepen van variabelen, die als determinanten van de gerapporteerde gedragspatronen van het gebruik van gezondheidszorg naar voren komen, worden gepresenteerd in Hoofdstuk VIII. De bivariate analyse toont een algemene differentiatie aan in de gerapporteerde gedragspatronen van het gebruik van gezondheidszorg in het plurale medische systeem, die de verdeling, zoals beschreven in Hoofdsuk VII, en hieriovengenoemd als de realisatie van de *zesde specifieke vraagstelling* van dit onderzoek. Uitgaande van de algemene verdeling van de gebruiksratio's over de drie belangrijkste systemen van het plurale medische systeem, die een nogal opmerkelijke verdeling aantoont, waarin 324 'actie-patienten' een totaal van 452 (100.0%) gebruiksratio's rapporteert, verdeeld met bijna de helft van de ratio's (44.7%) bij het traditionele medische systeem; bijna de helft van de ratio's (46.0%) bij het transitionele medische systeem; en minder dan één-tiende deel (9.3%) bij het moderne medische systeem, toont de bivariate analyse aan, dat 17 variabelen als min of meer significante determinanten van ziektegdrag naar voren komen. De volgende onderlinge relaties analyse onderstreept verder het belang van de significante variabelen, die in het 'Mutual Relations Model' worden weergegeven in de blokken van significante variabelen. Figuur 8.1 laat de statistisch significante onderlinge relaties tussen de categorieën van variabelen zien, die als blokken in het model worden weergegeven.

Het weergegeven multivariate model van transcultureel gebruik van gezondheidszorg vertoont de bevestiging van de resultaten van de bivariate analyse en de analyse an onderlinge relaties van de gedragspatronen van gebruik van gezondheidszorg. De volgende multivariate analyse, waarin de relaties en interacties tussen de variabelen in het model evenzo beschreven worden in Hoofdstuk VIII, verleent verdere ondersteuning aan de bevindingen van de bovengenoemde significante variabelen in de bivariate analyse.

Uiteindelijk kunnen de determinanten, die naar voren komen uit de stapsgewijze kwantitatieve analyse in hoofdstuk VIII, waarvan een bepaalde waarde van de significantie is aangetoond, als volgt samengevat worden:

Socio-demografische variabelen:	*Omvang van het huishouden*
	Samenstelling van het huishouden
	Huwelijkse staat
	Beroep
Psycho-sociale variabelen:	*Kennis van het traditionele medische systeem*
	Kennis van het moderne medische systeem
	Opinie over het transitionele medische systeem
In staat stellende variabelen:	*Jaarinkomen*
	Jaarlijkse kosten oor gezondheidszorg
Gepercipieerde ziekte variabelen:	*Status van gezondheid*
	Gerapporteerde ziekte
	Ernst van de gerapporteerde ziekte
	Duur van de gerapporteerde ziekte
Institutionele variabelen:	*Toegang tot instituties van het traditionele medische systeem*
	Toegang tot instituties van het transitionele medische systeem
Intervenierende variabelen:	*Effect van de huidige economische situatie*

Een schematische voorstelling van de projectie van de 'component loadings' van de twee sets van variabelen op de canonische ruimte met een totaal van 30 variabelen in twee dimensies (N=452) wordt weergeveven in Figuur 8.2.

Tenslotte wordt de multivariate analyse ook beschreven in hoofdsuk VIII, en laat zien dat de multivariate analyse is uitgebreid om een verklarend analytisch model van transcultureel gebruik van gezondheidszorg door middel van het bepalen van de correlaties tussen de verschillende blokken van variabelen, die in het model worden aangegeven. Terwijl de bivariate en multuivariate analyses de relaties en interacties tussen verschillende variabelen in het model illustreren, berekent de multipele regressie analyse de maximum correlaties tussen de blokken van variabelen. Tabel 8.9 presenteert een lijst van alle mutipele correlatie coëfficienten, die apart zijn berekend voor alle mogelijke combinaties van blokken voor elke dimensie.

De resultaten van de multipele regressie analyse tonen verder aan, dat het blok van de gepercipiëerde ziekte en het blok van de instaat stellende socio-demografische variabelen sterke samenhang vertoont met alle blokken van de afhankelijke variabelen. Het blok van de interveniërende variabelen, die de variabele van *Effect van de huidige economische situatie omvat,* ook sterk correleert met alle blokken van de afhankelijke variabelen. Figuur 8.3 geeft het uiteindelijke model van het Transculturele Gedrag van Gebruik van Gezondheidszorg weer, waarin de sterkte van de correlaties tussen de blokken van variabelen in het model worden aangegeven.

Ten achtste: de theoretische implicaties van de studie van gedragspatronen van transcultureel gebruik van gezondheidszorg en de vaststelling van de bijdrage van dit onderzoek naar inheemse systemen van kennis, praktijk en geloof van MAC planten aan de verbetering van 'community health' en het behoud van bio-culturele diversiteit in Kreta worden gepresenteerd in Hoofdstuk IX. Deze implicaties omvatten de ondersteuning van de verzamelde onderzoeksgegevens voor de theorie, dat het bijeenbrengen van een systeem van de inheemse kennis van MAC planten van de bevolking in rurale gebieden een van de belangrijkste bijdragen levert aan het verzamelen, voorbereiden en gebruik van op planten gebaseerde medicijnen als een belangrijk deel van het heersende systeem van traditionele geneeskunde. Dergelijke conclusies van andere studies met betrekking tot de aanzienlijke bijdrage van medicinale planren, niet alleen aan traditionele, maar ook aan moderne medische systemen zijn geleverd door vele onderzoekers, zoals Evans Schultes

& Raffauf (1990); Balick *et al*. (1996); Van Seters (1997); Bodeker (1999); Posey 1999); Quah & Slikkerveer (2003); Bogers *et al*. (2006); en Slikkerveer (2006). Bovendien ondersteunt deze studie ook de theorie dat het opgebouwde systeem van kennis van inheemse volken van MAC planten in rurale gebieden een van de belangrijkste bijdragen vormen aan het bijeenbrengen, voorbereiden en gebruik van op planten gebaseerde medicijnen als een evenzo belangrijk deel van het beschikbare systeem van transculturele geneeskunde. De directe relatie tussen het gebruik van het traditionele medische systeem en het transitionele medische systeem kan worden verklaard door de vrijwel gelijke toepassing in beide systemen - in tegenstelling tot het modern medische systeem - van op planten gebaseerde componenten en kruidengeneesmiddelen (*cf.* Slikkerveer 1990; 2003).

Voorts tonen de aspecten van een over de algemeen positieve opinie, die door respondenten in beide gemeenschappen wordt gerapporteerd over zowel het verstrekken als over de voldoening van traditionele en transitionele behandelingen met dit soort op planten gebaseerde medicijnen aan, dat de inheemse kennis en praktijk van MAC planten op significante wijze bijdragen aan de verbetering van de algehele gezondheidszorg in rurale gemeenschappen (*cf.* Balick *et al*. 1996; Van Seters 1997; Quah & Slikkerveer 2003; Slikkerveer(2006).

Een interessante implicatie van deze studie in Kreta verwijst naar de aandacht voor lokale patronen van gebruik van MAC planten, dat licht werpt op de concepten van behoud van bio-culturele diversiteit en duurzaam beheer van natuurlijke bronnen. In Kreta zal het verlies van biodiversiteit waarschijnlijk een reductie in de overvloed van bloemen in het voorjaar veroorzaken, en een degradatie van de culturele waarden van het landschap teweeg brengen (*cf.* Allen *et al*. 2006). De onderzoeksresultaten suggereren dat de locale mensen met het natuurlijke milieu omgaan op een wijze waarop ook de natuurlijke bronnen beschikbaar blijven voor toekomstige generaties, en daarbij de principes van lokaal beheer en behoud van de biodiversiteit van MAC planten volgen. Zo beschikken de respondenten uit de steekproef een aanzienlijke kennis van duurzaam gebruik van MAC planten, die verankerd is in de socio-econmische context van de gemeenschap.

In overeenstemming met het behoud van natuurlijke hulpbronnen dragen de praktijken van gebruik van MAC planten ook bij tot het behoud van de culturele diversiteit, namelijk het behoud van lokale systemen van kennis, praktijk en geloof met betrekking tot MAC planten, belicht deze studie niet alleen de lokale patronen van behoud van bio-culturele diversiteit, maar draagt deze ook bij aan het behoud van culturele diversiteit, waar lokale systemen van kennis, praktijk en geloof eveneens in deze studie worden gedocumenteerd. Op deze wijze zou dit onderzoek een aansporing kunnen geven voor toekomstige studies naar kennis en gebruik van MAC planten in Kreta, gericht op de rol van Etnobotanische Kennis Systemen (EKS) met betrekking tot MAC planten voor behoud van de bio-culturele diversiteit van het eiland (*cf* Slikkerveer 2006);

Ten negende: de beschrijving van de methodologische implicaties van dit onderzoek en de indicatie van het belang van de onderzoeksmethoden en technieken die zijn toegepast om onderzoek te verrichten naar transculturele gedragspatronen worden eveneens in Hoofdstuk IX gepresenteerd. Een belangrijke methodologische implicatie van deze studie wordt aangetoond door de verwijzing naar het feit, dat de 'Leiden Ethnosystems Approach', zoals deze is toegepast in de huidige studie, opnieuw aantoont een gedetailleerde analyse van zowel lokale systemen van kennis, praktijk en geloof, als van de bepaling van met name gedragspatronen in heden en verleden in verschillende sectoren van de maatschappij in een specifiek onderzoeksgebied mogelijk maakt. Op basis van deze tamelijk allesomvattende onderzoeksbenadering die aandacht schenkt aan de concepten van de 'Participants View' (PV), de 'Field of Ethnological Study' (FES) en de 'Historical Dimension' (HD) met betrekking tot het object van studie is het mogelijk om alle relevante factoren te beschrijven en te begrijpen, die een rol spelen in het gebruik door de lokale bevolking van het plurale medische systeem, dat beschikbaar is in de gemeenschapen van Pirgos en Praitoria. Bovendien omvat de analysemethode die voor deze studie van de drie

medische systemen die in het onderzoeksgebied beschikbaar zijn, *i.e.* het traditionele, het transitionele en het modern medische systeem, is geselecteerd, is gebaseerd op een allesomvattende stapsgewijze analyse van verzamelde gegevens, die bestaat uit een bivariate analyse, een onderlinge relatie analyse, een mulivariate analyse en een multipele regressie analyse. De opmerkelijke resultaten van deze studie ondersteunen voorafgaand onderzoek op het gebied van IKS, die bevestigen, dat het conceptuele methodologishe kader en het toegepaste analytisch model van transculturele gebruik van gezondheidszorg zeer goed zijn ontwikkeld voor dit type van medisch-antropologisch en etnomedisch onderzoek. Met andere woorden, de huidige onderzoeks-methodologie die in deze studie is toegepast presenteert een degelijk vertrekpunt voor vergelijking over verschillende culturen van soortgelijke gedragpatronen van gebruik van gezondheidszorg die in andere regio's van Kreta en daarbuiten voorkomen;

Ten tiende: de beschrijving van de praktische implicaties van deze studie voor de integratie van traditionele geneeskunde in het formele systeem van gezondheidszorg met speciale aandacht voor de inheemse kennis van MAC planten voor de verbetering van de gezondheidszorg van de gemeenschap en het behoud van bio-culturele diversiteit van planten voor de bevolking van Kreta in de toekomst worden in Hoofdtuk IX gepresenteerd. De benadering vanuit de gemeenschap van deze studie, om locale patronen van transcultureel gebruik van gezondheidszorg werpt licht op locaal gepercipiëerde behoeften en tekortkomingen van de gezondheidszorg.

Deze studie tracht ook elk medisch systeem dat beschikbaar is in het onderzoeksgebied te beschrijven binnen de socio-culturele context van de gemeenschap, waarbij een praktisch op de gemeenschap afgestemd perspectief op medisch pluralisme wordt ontwikkeld. Tegelijkertijd worden gedragspatronen van gebruik van gezondheidszorg geanalyseerd vanuit het gezichtspunt van de respondent zelf, in plaats van het gezichtpunt van de verlener van gezondheidszorg van de gemeenschap in het onderzoeksgebied en daarbuiten. In het bijzonder worden regio-specifieke gegevens en participatie van de gemeenschap aangeduid als cruciaal voor de verbetering van strategieën en beleid voor de verbetering van medische dienstverlening, met name in rurale gebieden, dat wordt ondersteund door eerder uitgevoerd pratisch onderzoek (*cf.* Koutis *et al*. 1993; Chatziarsenis *et al*. 1999; Antonakis *et al*. 2006).

Bovendien sluit het huidige onderzoek ook aan bij het recente beleid van de Wereld Gezondheids Organisatie (WHO 2002a), die erkent dat de component van het traditionele medische systeem dikwijls is ingebed in de sociale, geestelijke en religieuze context van de gemeenschap en alszodanig een duidelijke component levert voor verbeterde planning van gezondheidszorg. Eveneens sluit deze studie aan bij de recente strategie van de WHO (2002a) van geintegreerd ontwikkelingsbeleid en strategieën die tot doel hebben om *i.a.* extreme armoede en honger uit te bannen, kindersterfte te reduceren, moeder en kind zorg te verbeteren en bepaalde ziekten uit te roeien, alsmede een vooruitgang in een duurzaam milieu te realiseren, zoals die in de *Millennium Development Goals* van de Verenigde Naties worden benadrukt (*cf.* United Nations 2014).

Tenslotte wordt gehoopt dat de verschillende implicaties van deze studie naar de significante rol die inheemse kennis van MAC planten in het proces van transcultureel gebruik van gezondheidszorg, en in het bijzonder in de traditionele en transitionele medische systemen in het onderzoeksgebied speelt, verder in de toekomst zal worden bestudeerd en geintegreerd in een allesomvattende gezondheidsprogramma's op het niveau van de gemeenschap.

Op deze wijze hoopt deze studie bij te dragen aan een nieuwe betekenis van het concept van *'Yiatrosofia yia ton Anthropo'* als de inheemse medische wijsheid van de Kretenzers betreffende de kennis en praktijk van MAC planten voor toekomstige ontwikkeling van de gezoindheidszorg van de gemeenschap, die leidt tot de ultieme verbetering van de gezondheid en het welbevinden van de lokale bevolking van de twee onderzoeksgemeenschappen van Pirgos en Praitoria in ruraal Kreta, alsook elders in Griekenland of in andere cultuurgebieden van de wereld.

Curriculum Vitae

Judith Aiglsperger was born on the 20th of June, 1984 in Friesach, Austria. During her secondary education at the 'Europagymnasium Klagenfurt', she enrolled in a three-weeks Course in English at the Stamford Summer School in Stamford, United Kingdom, as well as in a one-week Course in English at the Globe English Centre in Exeter, United Kingdom. In the same fashion, she completed a three-weeks and a four-weeks Course in Italian at the Dante Alighieri Society in Mondavio, Italy, and joined a one-week Course in Italian at 'Parlitalia: Scuola di Lingua e Cultura Italiana' in Figline Valdarno, Italy. After completing her secondary education in 2002, Mrs. Aiglsperger took a Course in the Italian language at the Dante Alighieri Society in Siena, Italy, where she obtained the 'Certificato di Competenza in Lingua Italiana (PLIDA)' Level B, as according to the Common European Framework of Reference for Languages.

Between 2003 and 2008, Mrs. Aiglsperger completed the 'Individual Diploma Study International Development' at the University of Vienna, whereby she was awarded the title Mag.phil. as equivalent to a Master Degree (MA). During her time in Vienna, Mrs. Aiglsperger took a job as a receptionist for three months at the Hotel 'Cala di Mola' in Porto Azzurro, Italy, and spent the academic year of 2005-2006 as an Erasmus-student at Leiden University in Leiden, The Netherlands. Whilst in Leiden, she joined the Course 'Introduction to Dutch Language and Culture' as well as the Course 'Nederlands voor Anderstalingen Niveau 2 intensief'. In order to write her diploma thesis, Mrs. Aiglsperger returned to Leiden in 2007, whereby she joined the Leiden Ethnosystems and Development (LEAD) Programme as a Visiting Member and finalised her diploma thesis entitled '*Native versus Naïve - The Role of Indigenous Knowledge Systems in Sustainable Water Resource Management in Bali, Indonesia*' under the supervision of Prof. Dr. L.J. Slikkerveer, Director of the LEAD Programme.

As a full Member of the LEAD Programme, Mrs. Aiglsperger hereafter joined the Course 'Ethnobotanical Knowledge Systems' in 2008 and 2009, which was organised by the members of the LEAD Programme. In 2009, she began her PhD-Research in the field of Medical Pluralism and Medicinal, Aromatic and Cosmetic (MAC) Plants in Crete, Greece, under the supervision of Prof. Dr. L.J. Slikkerveer. While working on her PhD, Mrs. Aiglsperger completed the Course 'Nieuw Grieks 1' as well as the Course 'Writing Academic English'. Furthermore, she participated in the International Workshop of the EU-supported OTC-SOCIOMED Project, which was held in 2010 at the Department of Social and Family Medicine at the University of Crete (UoC) in Iraklion, Greece. In the same fashion, Mrs. Aiglsperger joined the 'International Workshop WP2' of the EU-supported OTC-SOCIOMED Project, which was organised in Rethymnon, Crete in 2012 by the LEAD Programme in cooperation with the Department of Social and Family Medicine of the University of Crete. Mrs. Aiglsperger moreover presented her PhD-Research in the Advanced Master Degree Trainers' Course on Integrated Microfinance Management (IMM), which was organised by the LEAD Programme in cooperation with Universitas Padjadjaran in Bandung, Indonesia in 2011.

Furthermore, she participated in the Module '*Planning and Implementing a Health Promotion Project*' as part of the Master Course on Public Health & Health Care Management, which was presented by Prof.Dr. L.J. Slikkerveer, Visiting Professor at the Department of Social and Family Medicine of the University of Crete in Iraklion, Greece, in 2012. The same year, Mrs. Aiglsperger presented her PhD-Research in the 'International Workshop on Ethnosystems and Development', which was hosted by the Members of the LEAD Programme at Leiden University in Leiden, The Netherlands.