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Yiatrosafia yia ton Anthropon: Indigenous Knowledge of Medicinal, Aromatic and Cosmetic (MAC) Plants in the Utilisation of the Plural Medical System in Pírgos and Práitoria for Community Health Development in Rural Crete, Greece

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Summary

The present study focuses on the analysis of patterns of transcultural health care utilisation behaviour of the inhabitants of two communities of Pírgos and Práitoria 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 humoral 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 humoral medicine from its Greek place of origin into all parts of the world over the past centuries, humoral 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, humoral medicine formed eventually the basis for the development of modern cosmopolitan medicine since the Renaissance.

In addition to the influence of humoral 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 human 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 humoral 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 Systems* (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 variables*: 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 Pírgos and Práitoria 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 Pírgos and Práitoria 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 Pírgos and Práitoria 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 Pírgos and Práitoria, 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 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 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:	<i>Household size</i> <i>Household composition</i> <i>Age</i> <i>Marital status</i> <i>Occupation</i>
Psycho-social variables:	<i>Knowledge of the traditional medical system</i> <i>Knowledge of the modern medical system</i> <i>Opinion on the transitional medical system</i>
Enabling variables:	<i>Annual income</i> <i>Annual expenses for health care</i>
Perceived morbidity variables:	<i>Health status</i> <i>Reported illness</i> <i>Severity of the reported illness</i> <i>Duration of the reported illness</i>
Institutional variables:	<i>Accessibility of institutions of the traditional medical system</i> <i>Accessibility of institutions of the transitional medical system</i>
Intervening variables:	<i>Impact of the current economic situation</i>

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 available 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 Systems* (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 Pírgos and Práitoria. 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 Anthropon*' 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 Pírgos and Práitoria in rural Crete, as well as elsewhere in Greece and in other culture areas of the world.