Kearifan Kesehatan Lokal: indigenous medical knowledge and practice for integrated nursing of the elderly with cardiovascular disease in Sumedang, West Java: towards transcultural nursing in Indonesia

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CHAPTER III RESEARCH METHODOLOGY AND ANALYTICAL MODEL

3.1 Research Methods & Techniques

3.1.1 The *'Leiden Ethnosystems Approach'*

As described in the previous Chapter, ethnonursing is a research method often used in conjunction with nursing research about culture. Many nursing researchers have undertaken ethnographic studies. Indeed, Leininger coined the phrase 'ethnonursing research', which she defines as "*the study and analysis of the local or indigenous people's viewpoints, beliefs, and practices about nursing behaviour and processes of designated cultures"* (1985:38). In conducting an ethnonursing study, the investigator uses a broad theoretical framework to guide the research, such as Leininger's theory of culture care. Leininger (1991;2006)) developed a number of enablers to help guide researchers in conducting ethnonursing research. Enablers are ways to help discover complex phenomena like human care. Some of the enablers include the Sunrise Enabler, Stranger-Friend Enabler, Observation-Participation-Reflection Enabler, and Acculturation Enabler Guide or Ethnodemographic Enabler.

Ethnonursing, like ethnography, is a qualitative strategy in which the researcher collects data through personal observation and interviews and learns from the members of the cultural group to understand their world. It focuses on the culture of the ethnographic method to investigate the relationship between culture and care (*cf.* Creswell 2009; Leininger 2006; Polit & Beck 2008). Meanwhile ethnoscience as a cognitive anthropology defines culture in purely mentalistic terms. This type of ethnography concentrates on understanding cultural knowledge through an emphasis on relationships between words.

Cognitive anthropologists assume that a group's cultural knowledge is reflected in its language. One of the purposes of cognitive anthropology or ethnoscience is to produce a map of the cognitive world of a culture which addresses its semantic rules. Ethnoscience often relies on quantitative as well as qualitative data (*cf.* Polit & Beck 2008). As Bernard (2002: 364) notes: '*Ethnography and survey data combined produce more insight than either one alone*'. Slikkerveer (1989) describes the configuration of the term 'ethnosystems', which can be viewed in four different ways:

1) a more dynamic concept of appropriate, in-depth culture assessment;
2) a culture-specific or cultural-bound reference of the term;
3) a more realistic instead of a normative, Western inspired orientation; and
4) a (pre-)historical assessment of a community-bound reference of the term.

Slikkerveer (1999) introduces the 'Ethnosystems Approach' as a new strategy towards the study of an Indigenous Knowledge System (IKS) by linking the cognitive aspect of investigating locals' knowledge, practices and beliefs to the behavioural components involved in the 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 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 by the Leiden Ethnosystems And Development Programme (LEAD) of Leiden University in The Netherlands since the late 1980s resulted in an increased focus on the practical implications involved in the study of IKS within the context of development, laying the foundation for an innovative ethnoscience-based research approach, with a clear applied-oriented vision.

In other words, the LEAD programme proved most useful for the new ethnoscientific research methods and techniques, based on an *emic* research approach, which resulted in the application of a specific emic methodology, called the *'Leiden Ethnosystems Approach'* to the study of IKS

(*cf.* Slikkerveer 1989; Slikkerveer & Dechering 1995). The *'Leiden Ethnosystems Approach'* has hereafter successfully been applied to numerous studies conducted in Sub-Saharan Africa, South-East Asia and the Mediterranean Region, focused on IKS, in relation to different sub-disciplines, such as ethnomedicine, ethno-economics, ethno-agriculture, ethno-ecology, ethnobotany, and ethno-communication in various sectors of society (*cf.* Agung 2005; Ibui 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012; Chirangi 2013; Aiglsperger 2014; Erwina 2019; Saefullah 2019; De Bekker 2020; Febriyanti 2021).

Similarly, this study follows the *'Leiden Ethnosystems Approach'* to study local people's utilisation 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 multi-dimensionality of different models of nursing institution 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.

The present study adopts the so-called multivariate model of transcultural nursing 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 nursing utilisation serves the purposes of: '*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 nursing institutions and organisations' utilisation behaviour*'. The *'Leiden Ethnosystems Approach'* facilitates the particular study of patterns of plural medical systems utilisation by means of identifying *i.a.* a number of individual, socio-cultural and historical factors, which are analysed for their influence on people's behaviour.

Since the approach furthermore contributes to the establishment of a common ground for comparison between local and global medical knowledge systems, its principles can be extended to the concept of the plural nursing systems in which non-profit traditional institutions and profit-making transitional and modern nursing organisations are identified and compared. Eventually, the comparison between different nursing institutions and organisations further enhances the understanding of particular determinants of peoples' utilisation behaviour. The ability to identify in a comparative way the possible profit *versus* non-profit factors, which influence local patterns of nursing institutions' and organisations' utilisation not only on an individual level, provides a sound basis to the *'Leiden Ethnosystems Approach'* for the implementation of a practical model of nursing utilisation (*cf.* Aiglsperger 2014).

In order to achieve the specific objectives of this study, the research approach used is the *'Leiden Ethnosystems Approach'* to document, study and analyze the role of indigenous nursing knowledge in the provision of cultural-specific nursing for elderly CVD patients in West-Java, Indonesia. It is intending to contribute to the development of transcultural nursing practices in Indonesia. Unquestionably, the methodological implementation of the ethnosystems approach, in an endeavour to attain the goal of a description of the Indigenous Knowledge Systems of a particular population, introduces a more dynamic character into the research and is a useful tool to encapsulate the *emic* view of the approach into the analysis of the historical interaction processes between local and global systems. In this way, it extends the research to include the component of patterns of human behaviour in the overall process (*cf.* Djen Amar 2010). In practice, the *'Leiden Ethnosystems Approach'* follows three methodological principles:

1. the 'Historical Dimension' (HD);
2. the 'Participant's View' (PV); and
3. the 'Field of Ethnological Study' (FES).

Overall, the *'Leiden Ethnosystems Approach'* adopts both a vertical and a horizontal perspective. It has demonstrated that it is a very useful instrument to study Indigenous Knowledge Systems (IKS) in relation to patterns of behaviour in various sectors of society, including human health. The '*Leiden Ethnosystems Approach'* has been applied to the study of IKS and to the subsequent analysis of behavioural patterns within the context of nursing utilisation (*cf.* Slikkerveer & Dechering 1995; Slikkerveer 1999b). The three methodological principles of the *'Leiden Ethnosystems Approach'* are as follows:

Historical Dimension (HD)

The concept of the '*Historical Dimension'* (HD) is useful in any study of present-day situations in the context of the *'Leiden Ethnosystems Approach'* and refers specifically to the (pre-)historical analysis of complex contemporary configurations, including religion, agriculture, natural resource management, conservation and nursing. Particularly in development research on transcultural settings of interacting inside and outside forces, contemporary-oriented approaches have largely failed to unravel the dynamics of the origin and development of processes which have led to present-day complexes. In their efforts to understand the complex processes of development and change in various sectors of indigenous communities, anthropologists and historians have been working in close collaboration to substantiate the 'Historical Perspective', in which both the historically-oriented methodology is complementary to the method of the ethnographic analogy more solidly (*cf.* Wigboldus & Slikkerveer 1991).

It is often difficult to comprehend present-day complexes in such cultural institutions as natural resources management. This can be attributed largely to the lack of adequate evidence from the past which might explain the evolution of the different ways of exploitation of resources in the study area. More than anywhere else, the application of the famous *dictum* of Leakey (1992): *'the past is the key to the future'* is relevant to the study in transcultural nursing in West-Java, Indonesia. In the Horn of Africa, the application of this concept in the historical analysis of the nursing traditions among the various cultures has facilitated the reconstruction of the current complex plural nursing system configuration of interacting local, regional and global systems in the region in order to provide the population with a wider range of nursing care services (*cf.* Slikkerveer 1982; 1990).

Participants' View (PV)

The '*Participant's View'* (PV) focuses in particular on the people within their historical-geographical context (Slikkerveer 1990). PV evolved from strategies adopted within the Leiden Tradition of Structural Anthropology and refers to the transformation of subjective perceptions and attitudes into objective social institutions. The principle of the PV undertakes an assessment of local cosmovisions, philosophies of nature, attitudes, opinions, perceptions and decision-making institutions within the greater context of a specific culture. The PV principle provides a non-normative, local assessment of indigenous systems of knowledge, beliefs and practices, thereby corresponding to an *emic* research approach from the standpoint of the participant.

This concept is further used in relation to the overall nursing institutions, as defined by Dunn (1976: 135*): 'The patterns of social institutions and cultural traditions evolve from deliberate behaviours to enhance health, whether or not the outcome of particular items of behaviour is ill or healthy'*. Following the methodological principle of PV, the approach allows for a realistic assessment of local institutions of knowledge, practices and beliefs 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 nursing utilisation behaviour.

Field of Ethnological Study (FES)

The concept of the '*Field of Ethnological Study'* (FES) emerged as the result of significant ethnological fieldwork by Leiden University researchers in Structural Anthropology. It has been

observed that in different ethnic groups, certain sub-cultures within a larger culture are characterised by certain common cultural features, such as similar worldviews, values, beliefs, social organisations, languages, kinship, dietary habits, and clothing, as well as practices in nursing, agriculture and animal husbandry (*cf.* Van Wouden 1935; 1968; De Josselin de Jong 1984; Schefold 1988; Slikkerveer 1999). These are spread over a particular geographical region which has later been redefined as *a culture area* (*cf.* Hunter & Whitten 1975). It means that within a dynamic context of processes of development and change, the advantage of regional comparative studies of sub-cultures within a larger culture brings a more realistic evaluation of mutually comparable sub-cultures within the culture area.

The principle of FES highlights the extent to which common features of nursing knowledge, practices and beliefs appear in the research area and indicate the borders of a culture area, which is determined by its common concepts of health and healing. This research applies this concept by assessing the sub-cultures of each district of one larger culture area known as West-Java and their contributions to the way in which the modern nursing practitioners view the traditional nursing practitioners as their counterparts and vice versa.

3.1.2 The Selection of the Research Setting

The location of this study comprised four villages in Sumedang, namely Situ and Jatimulya, Sumedang Utara, and Jayamekar and Cipasang in Cibugel. The selection of research settings is based on the literature search which shows where there are previous studies related to the utilisation of traditional nursing institutions; meanwhile, the local communities still use traditional nursing to deal with the disease. According to the *puskesmas* Recording and Reporting Institutions in 2016 in the Health Profile of *Kabupaten* ('Regency/Municipality') Sumedang 2016, it was shown that CVD was included in the disease group with a prevalence of 32.32% of the top ten diseases, based on the number of visits to *puskesmas*.

Surprisingly, the life expectancy of the Sumedang population is increasing. In addition, the results of interviews during the preliminaries of several community leaders and the local government stated that the Sumedang Regency was the center of Sundanese cultural heritage which still adhered to local traditions and wisdom even though modernization took place in the Sumedang Regency. The research was conducted in the Sumedang Regency, especially in those four villages, which are representing the characteristics of the local community.

3.1.3 The Selection of the Sample Surveys

This study uses a questionnaire introduced by Slikkerveer (1990) and has thereafter been used by researchers including Agung (2005); Ibui (2007); Djen Amar (2010); Leurs (2010); Ambaretnani (2012); Chirangi (2013); Aiglsperger (2014); Erwina (2019); Saefullah (2019), De Bekker (2020) and Febriyanti (2021) in the field of ethnoscience and indigenous knowledge. The researcher conducted several discussions and adapted the content of the questionnaire in accordance with the focus of the research until it was ready to be distributed in this survey from September to November 2017.

The sample of this study includes families who have elderly members with CVD in the four villages of selected research areas of the Sumedang Regency. Jayamekar and Cipasang are representing the rural northern highland areas, while Situ Village represents the urban southern lowland area and Jatimulya the urban southern highland area of the Sumedang Regency.

Table 3.1 Distribution of the Questionnaire over the Four Selected Villages

Village	Number of Questionaires	Surveyor	Time of Interview
Jayamekar	60	Raini, Listia, Oselia, Rizky, Fajar	7 September- 30 November 2017
Cipasang	56	Raini, Listia, Oselia, Rizky, Fajar	7 September - 30 November 2017
Situ	60	Raini, Listia, Oselia, Rizky, Fajar	7 September - 30 November 2017
Jatimulya	56	Raini, Listia, Oselia, Rizky, Fajar	7 September - 30 November 2017
Total	232		

Source: Household Survey (2017).

3.2 Complementary Qualitative and Quantitative Surveys

3.2.1 Preparation of the Research Instrument

Embarking on the field research, both qualitative and quantitative, the researchers made a review of villages as a preparation selection, as well as preliminary data collection. Since the Sumedang Regency covers 283 villages, the researchers distinguish villages into two categories: the northern and southern regions of the Sumedang Regency, as well as the availability of several nursing institutions and organisations in the region. As reference material, researchers looked at each *Buku Profil Desa* ('village profile book') to determine the area and number of samples. In the *Buku Profil Desa*, there are various data on village demographic characteristics, which help researchers in determining the research area.

The research instruments applied in this study have been designed with a view to collect information on the utilisation of the Plural Nursing System by the respondents and include both qualitative questions and quantitative questionnaires. The complementary approach of combined qualitative and quantitative surveys aims at confirming the findings of both surveys in terms of measuring the depth and spread of related factors, and assessing the interactive processes involved in the reported differential behaviour of the community members regarding the utilisation of the Nursing System in Sumedang. In addition, other supporting data about Sumedang have been obtained from available public information, text notes, digital sources, images, sounds or combinations and the Profile of the Sumedang Regency, as well as a preliminary study with community leaders. As emphasized by Ozor & Nwanko (2008) in Saefullah (2019), the role of leaders is very important and must be considered in community development.

3.2.2 The Qualitative Study in the Research Setting

This approach is the first stage of data collection before designing the quantitative structured questionnaires. The qualitative approach aims to discover important themes, categories, dimensions and inter-relationships between variables. The word 'qualitative' implies that emphasis is placed on processes and meanings which are not measured in terms of quantity, amount, intensity or frequency. It reflects the socially constructed nature of intimate relationships between the researcher and the subject studied. The researcher seeks answers to explain how social experiences come about and acquire meaning. Polit & Beck (2008) mention the three broad types of information which are usually sought by ethnographers: cultural behaviour (what members of the culture do), cultural artifacts (what members of the culture make and use), and cultural speech (what people say). This implies that ethnographers rely on a wide variety of data sources, including observations, in-depth interviews, records, charts, and other types of physical evidence (*e.g.,* photographs, diaries, letters). The data collection in this qualitative study is based on the three methodological principles of the '*Leiden*

Ethnosystems Approach': the historical dimension, the participant's view, and the field of ethnological study (*cf.* Slikkerveer 1995). In this qualitative study, the researcher seeks to learn from (rather than to study) the members of a cultural group in order to understand their worldview concerning indigenous institutions with nursing knowledge in the provision of nursing practices for the elderly with CVD in Sumedang. Qualitative methods through observation, in-depth interviews and open-ended interviews with key informants, such as community leaders, traditional healers, villagers, community organizers, health staff, local government and Sundanese experts, was accomplished in four villages from 1 September to 30 November 2017 and an additional visit in June 2018. The interviews and observations have been conducted to obtain data related to the historical dimension of local villages, and the linguistic expressions of people to obtain the emic perspective of local people about the utilisation of indigenous nursing knowledge and institutions as part of the plural nursing system. During the research, the researchers stayed with the community leaders so that they would find it easier to collect data about daily life in the village and research subjects, including knowledge, belief and practices, which have been measured through the household surveys.

3.2.3 The Quantitative Study in the Research Setting

The quantitative method of this study consists of household surveys in order to measure the distribution of indigenous nursing institutions' utilisation particularly in elderly CVD patients in the rural and urban areas in Sumedang. Two areas were selected to compare data, while the characteristics and sample size were determined based on the number of the population and geographical characteristics. Quantitative surveys using a structured questionnaire underpin the analytical model of behaviour patterns of the utilisation of the plural nursing system, respectively for the traditional nursing institution, and the transitional and modern nursing organisations by the elderly with CVD in Sumedang, adapted from Slikkerveer (1990). The same model has been used by other researchers such as Agung (2005); Ibui (2007); Djen Amar (2010); Leurs (2010); Ambaretnani (2012); Chirangi (2013); Aiglsperger (2014); Erwina (2019); Saefullah (201); De Bekker (2020) and Febriyanti (2021).

In this study, the non-probability sampling strategy type was conducted. It is purposive sampling with a specific clustering of four sample villages. The main goal of purposive sampling is to focus on particular characteristics of a population of interest, which will enable us to answer the predetermined research questions in an optimal mode. Furthermore, the study involves two geographic areas and four sample villages. The sample is representative of the parent population, and has as such reported its utilisation of the services of the plural nursing system (*cf.* Moser & Kalton 1971; Slikkerveer 1995; Bernard 2002; Creswell 2014; Aiglsperger 2014; Erwina 2019 in Saefullah 2019, De Bekker 2020).

3.2.4 The Conceptual Model of Utilisation Behaviour Analysis

As Polit & Beck (2014) refer to the dichotomy between quantitative and qualitative data, it represents the key epistemologic and methodological distinction within the social, behavioural, and health sciences. Although some authors argue that qualitative and quantitative studies are based on totally incompatible paradigms, some areas of inquiry can be enriched through the judicious blending of qualitative and quantitative data by undertaking what is usually referred to as multi-method or mixed-method research. *In other words,* there are many noteworthy advantages of combining various types of collected data in an investigation which includes complementarity, incrementality, enhanced validity, enhanced theoretical insights and the creation of new frontiers. A strong argument for blending qualitative and quantitative data in a study is that they are complementary; they represent words and numbers, the two fundamental languages of human communication (*cf.* Polit & Beck 2008; Djen Amar 2010). By integrating different methods and techniques of analysis, the weaknesses of one single approach may be diminished. Quantitative data from large or representative samples have much strength. Quantitative studies are often strong, not only for generalising specific findings, but also for precision and control over specific variables.

However, sometimes the validity of such research is called into question. By introducing tight controls, quantitative studies may fail to capture the situational context. Moreover, by reducing factors such as complex human experiences, behaviour and characteristics solely to numbers, such studies sometimes seem superficial. Similarly, the use of tightly structured methods can sometimes lead to biases in capturing constructs under study. All these weaknesses are aspects of the study's ability to yield valid and meaningful answers to the research questions.

Qualitative research, by contrast, also has strengths and weaknesses which are diametrically opposite. The strength of qualitative research lies in its flexibility and its potential to yield insights into the true nature of complex phenomena through in-depth scrutiny. However, qualitative research is almost always based on small, unrepresentative samples, and is often undertaken by a single researcher or small research teams, using data collection and analytic procedures which tend to rely on subjective judgments. Thus, qualitative research is sometimes criticised for its problems with reliability and generalizability (*cf.* Streubert & Carpenter 1999).

However, the strengths and weaknesses of quantitative and qualitative data are complementary, and combined in a single study; qualitative and quantitative data can "*supply each other's lack*." By using multiple methods, researchers can allow each method to do what it does best, with the possibility of avoiding the limitations of one single approach (*cf.* Polit & Beck 2008). It is sometimes argued that different approaches are especially appropriate for different phases in the evolution of knowledge. In particular, it has been argued that qualitative methods are well suited for exploratory or hypothesis-generating research early in the development phase of a problem area, while quantitative methods are needed as the problem area makes progress for the purposes of verification. However, the evolution of a theory or problem area is rarely linear and unidirectional. The need for exploration and in-depth insights is rarely confined to the beginning of an area of research inquiry, and subjective insights may need to be evaluated early and continually.

By consequence, progress in developing a body of evidence for nursing practices tends to be incremental and rely on multiple feedback loops. It can be productive to build a loop into the design of a single study, which may potentially speed up the progress towards understanding the configuration. Another advantage of designing multi-methods or mixed-method research lies in the potential for enhancing the validity of the findings of the study. When the researchers' hypotheses or models are supported by multiple and complementary types of collected data, they can be more confident about the validity of the results. Scientists are basically critical, constantly seeking evidence to validate their theories and models. Evidence derived from different approaches can be especially persuasive. As Brewer & Hunter (1989:51) note: '*Although each type of method is relatively stronger than the others in certain respects, none of the methods is so perfect even in its area of greatest strength that it cannot benefit from corroboration by other methods' findings*'. The integration of qualitative and quantitative data cannot only provide better opportunities for testing alternative interpretations of the data, but it can also assist in examining the extent to which the context has helped to shape the results.

The major nursing theories embrace four broad concepts: (1) person, (2) environment, (3) health, and (4) nursing. There is nothing inherent in these concepts which demands (or excludes) a qualitative or quantitative orientation. The world in which people live is complex and multidimensional, as are most theories developed to make sense out of it. Qualitative and quantitative research constitutes alternative ways of viewing and interpreting the world. These alternatives are not necessarily correct or incorrect; rather, they reflect and reveal different aspects of the reality. To be maximally useful, nursing research should strive to understand these multiple aspects. Most scientists believe that the blending of quantitative and qualitative data in a single analysis can lead to insights on these multiple aspects, which might be unattainable without such integration. Denzin (1989), a staunch advocate of combining methods, coined the term triangulation to refer to the use of multiple sources in order to converge on the truth. Sometimes, qualitative and quantitative data are found to be inconsistent with each other. Such a lack of congruity, when it happens in the context of a single investigation, can lead to insights which can push a line of inquiry further than would otherwise would have been possible.

When separate investigations yield inconsistent results, the differences are difficult to reconcile and interpret because they may reflect differences in the people being studied and in the circumstances under which they were studied, rather than theoretically meaningful distinctions which merit further investigation. In a single study, discrepancies can be tackled head on. By probing into the reasons for any observed incongruities, researchers can help to rethink the constructs under investigation and possibly to redirect the research process. Incongruent findings, in other words, can be used as a springboard for exploring reasons for discrepancies and for a thoughtful analysis of the study's methodological and theoretical foundations.

3.3 The Conceptual Model of Utilisation Behaviour Analysis

3.3.1 The Analysis of Nursing Utilisation Behaviour

In order to gather data on the basis of the '*Leiden Ethnosystems Approach*' and the multivariate model of utilisation of plural nursing systems, the present study employs a demonstrably profitable, combination of qualitative and quantitative research methods by Slikkerveer (1990). This approach encompasses three methodological principles: (1) 'the 'Historical Dimension' (HD); (2) the Participant's View' (PV); and (3) the 'Field of Ethnological Study' (FES) in the research, so as to collect further in-depth information for the understanding and explanation of the patterns of utilisation behaviour by the participants of indigenous nursing institutions and transitional and modern nursing organisations as components of the plural nursing systems, in particular the traditional nursing institutions for elderly patients with CVD in Sumedang. In this way, the study seeks to provide a contribution to the development of a transcultural nursing practice in Indonesia. The questionnaire used as the main research instrument in the quantitative household surveys is based on the questionnaire developed by Slikkerveer (1995) and encompasses five main sections A – E, which have been developed on the basis of the design of the conceptual model of the study described in the following Paragraph. It describes the sections of each questionnaire as they are structured in a way that they record data on the respective blocks of factors determined in the multivariate model of the plural nursing system, analogous to the multivariate model of the plural medical system, introduced by Slikkerveer (1990; 1995). By implementing the above-mentioned working definitions, the multivariate model of the plural nursing system used in Sumedang is similarly sub-divided into the 3 components, *i.e*. the traditional nursing institutions, and the transitional and modern nursing organisations. In this way, the respondents from the sample surveys were interviewed about their utilisation of these three institutions and organisations in order to assess and compare the level of significance between the independent and intervening variables in relation to the dependent variables of the reported utilisation of the different components of the plural nursing system in the research area.

The number of questions from Part A to Part E as mentioned above amounts to a total of 135, each of which is numbered and provided with pre-coded answer categories, organised and rank-ordered on the basis of the information gathered from the preceding qualitative research component and the subsequent pre-testing of the draft questionnaire. The validation of the questionnaire included the establishment of face validity in order to see if the test is measuring what it is supposed to measure, followed by a pilot test on a sub-set of the target population. After collection of the pilot data, the responses were inserted into a spreadsheet, and cleaned, allowing a control of minimum and maximum values for the entire dataset. Each set of answer categories also includes an 'other' category which allows for the collection of additional information on topics related to the respective question. In the case of frequent recording, the 'other' category may become an additional pre-coded answer to the related question. The different parts deal with the following information from each respondent:

Preface	: guiding the interviewers with explanations and directions for the interviews
Part A	: general information of the respondent
Part B	: independent background variables
B.1 predisposing factors	: socio-demographic variables, psycho-social variables
B.2 perceived morbidity factors	: respondents' perception of actual state of illness variables
B.3 enabling factors	: socio-economic status variables
B.4 institutional factors	: nursing institution variables
B.5 environmental factors	: environment of nursing institution variables
Part C: intervening variables	: government and private intervention variables
Part D: dependent variables	: utilisation of the traditional nursing institutions variables utilisation of the transitional nursing organisations variables utilisation of modern nursing organisations variables
Part E	: additional questions and recording of the respondents' opinions and expectations.

3.3.2 The Conceptual Model of the Utilisation of the Plural Nursing System

In view of the general applicability of the model of transcultural nursing utilisation and the results of previous studies conducted on the determinants of patterns of transcultural nursing utilisation behaviour in different areas, the model was also applied in the present research with a view to distinguishing between the following blocks of factors: the independent predisposing factors composed of socio-demographic variables and psycho-social variables on the individual level; the independent perceived morbidity variables on the individual level; the independent enabling variables on the individual level; the independent institutional variables on the institution level; and the environment variables. The intervening factors on the institution level and the dependent factors are divided between the utilisation of, respectively, the traditional nursing institutions, the transitional nursing organisations and the modern nursing organisations (*cf.* Figure 3.1). The factors measured at the individual level, namely the socio-demographic, psychosocial, perceived morbidity and enabling factors, refer to person-specific concepts. The psychosocial and perceived morbidity factors both measure cognitive aspects, which relate to institutions of knowledge, beliefs and practices. While the psychosocial factors are measured on a rather general basis, the perceived morbidity factors assess people's knowledge, beliefs and practices specifically in relation to their experience of illness. The factors measured at the institution level, *i.e.* the institutional, environmental, intervening and utilisation factors, relate to official components of the plural nursing system operating in the research area as well as to external phenomena.

The characteristics of the '*Leiden Ethnosystem Approach'* correspond with the multidimensional approach to the study of the determinants of utilisation of the plural nursing system, which has been advanced on the substantial evidence of how people's behaviour is influenced *i.a.* by a number of socio-cultural, economic and situational background factors. As Suchman (1963: 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 is identified as being related to both a physical and social environment, whereby a state of illness and its subsequent patterns of behaviour provoke variations in both the physical and social environment. Research has shown that the geographical distribution and aetiology of certain diseases, as well as the forms of nursing 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 nursing utilisation determinants have, however, focused rather isolated attention on the presumed influence of economic, socio-psychological, geographic and organisational factors (*cf.* Greenlick *et al.* 1968; McKinlay 1972; Slikkerveer 1990).

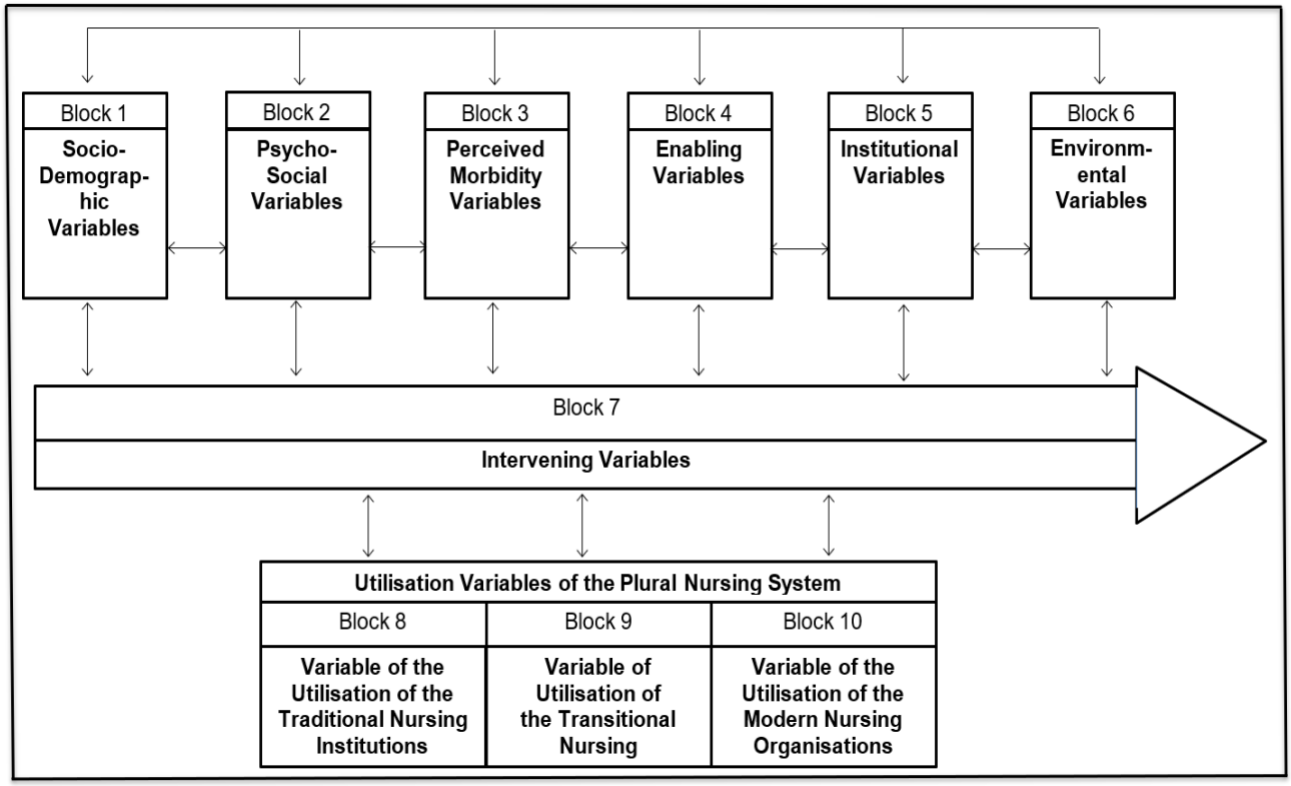

Figure 3.1 The Conceptual Model of the Utilisation of the Plural Nursing System in *Sumedang*
Source: Adapted from Slikkerveer (1990; 1995).

In line with Aday & Anderson (1974), who state that for the community to be able to reach health services, it needs considering four dimensions of access to health, as follows:

1. access to service facilities in terms of geographical travel, whether far or near,
2. availability: types of services required, if they are available or not, and how long the waiting time required is,
3. financial accessibility: types of services provided in accordance with the individual's ability to pay or whether they are covered by insurance, and
4. acceptability: suitability of whether the nursing types given to the individual's expectations are socially and culturally appropriate.

Ethnography is a type of qualitative inquiry which involves the description and interpretation of cultural behaviour. Ethnographies are a blend of a process and a product, fieldwork, and a written text. Fieldwork is the process by which the ethnographer inevitably comes to understand a culture, and the ethnographic text is how that culture is communicated and portrayed. Because culture is, in itself, not visible or tangible, it has to be constructed through ethnographic writing. Culture is inferred from the words, actions, and products of members of a group. An underlying assumption of the ethnographer is that every human group eventually evolves a culture which guides the members' view of the world and the way they structure their experiences (*cf.* Polit &Beck 2014). Ethnographers seek to learn from (rather than to study) members of a cultural group to understand their worldview. Ethnographic researchers sometimes refer to *emic* and *etic* perspectives (the terms originate in linguistics, i.e., phon*emic* versus phon*etic*).

An emic perspective refers to the way the members of the culture envision their world; it is the insiders' view. The emic perspective refers to the local language, concepts, or means of expression which are used by the members of the group under study to name and characterize their experiences. The etic perspective, by contrast, is the outsiders' interpretation of the experiences of that culture; it

is the language used by those doing the research to refer to the same phenomena (*cf.* Slikkerveer & Dechering 1995; Polit & Beck 2008). Ethnographers strive to acquire an emic perspective of a culture under study. Moreover, they strive to reveal what has been referred to as tacit knowledge, information about the culture which is so deeply embedded in cultural experiences which members do not talk about, or they may not even be consciously aware of it. Although it is important to grasp the insider's perspective, it is also important for the ethnographer to illuminate the connection between the emic and the interpretational concepts which advance the aims of the knowledge. Ethnographers almost invariably undertake extensive fieldwork to learn about the cultural group in which they are interested. Ethnographic research typically is a labour-intensive endeavour which requires long periods of time in the field. In most cases, researchers strive to participate actively in cultural events and activities.

The study of a culture requires a certain level of intimacy with members of the cultural group, and such intimacy can be developed only over time and by working directly with those members as active participants. The Stranger-Friend enabler and Observation-Participation-Reflection Enabler help guide researchers in conducting ethnonursing research (*cf.* Leininger 1991; 2006). The concept of the researcher as an instrument is frequently used by anthropologists to describe the significant role ethnographers play in analysing and interpreting a culture.

3.3.3 Operationalisation of the Model of the Plural Nursing System

The model in Figure 3.1 identifies the variables which interact in a differential mode with the reported utilisation of the available nursing institutions and organisations in the research area. The variables can be sub-divided into a number of categories or 'blocks' of variables at the individual level and at the institution level, as represented in the analytical model:

At the individual level, as independent variables:
Predisposing variables:
Block 1: Socio-demographic variables
Block 2: Psycho-social variables
Block 3: Perceived morbidity variables
Block 4: Enabling variables

At the institution level, as independent variables:
Block 5: Institutional variables
Block 6: Environmental variables
Block 7: Intervening variables

At the individual level as dependent variables of utilisation variables of the Plural Nursing System:
Block 8: Variable of utilisation factors of the traditional nursing institutions
Block 9: Variable of utilisation factors of the transitional nursing organisations
Block10: Variable of utilisation factors of the modern nursing organisations

The context of the various blocks of the model will be described separately, together with the concepts, variables, indicators, and categories, in the operationalisation of the study. In this respect, the multivariate model developed by Slikkerveer (1990) facilitates the description and explanation of how an individual or social institution changes over time and provides the basis of the operationalisation of the conceptual model designed for this research.

Independent Predisposing Factors

The independent variables refer to a series of socio-cultural background characteristics as a combination of socio-demographic and psycho-social factors, which operate at the level of individual

respondents, representing the household samples (*cf.* Slikkerveer 1990; Ambaretnani 2010; Aiglsperger 2014). The concept of socio-demographic factors is represented by variables, such as 'household type', 'household composition', 'gender', 'age', 'marital status', 'education', 'religion', 'profession', 'ethnocultural group', 'place of birth', 'vaccination', etc.

The 'soft' factors such as knowledge, perceptions, beliefs and opinions are best understood by means of quantitative household surveys as represented in the questionnaire which was distributed to the respondents in the four villages of the research area. Tables 3.2 and 3.3 pesent the operationalisation of socio-demographic and psycho-social factors into variables, indicators and categories.

Table 3.2 Block 1 Predisposing Factors: Socio-Demographic Factors

Concept	Variable	Indicator	Categories
Socio-Demographic	Household type	Type of household	nuclear; extended; other
	Household composition	Relationship to household head	household head; spouse; son; daughter; father; mother father-in-law; grandfather; grandmother; grandson; granddaughter; brother; sister; cousin; nephew; niece; son in law; brother in law; sister in law; father in law mother in law; other kin
	Gender	Gender definition	male; female; other
	Age	Number of years alive	less than 5; 6-10; 11-15; 15-20; 21-25; 26-30; 31-35; 41-45; 46-50; 51-55; 56-60; 61-65; 66-70; 71-75; 76-80; 81-85; more than 86
	Marital Status	Present marital status	don't know; single; married monogamy; married; polygamy; divorced; widow; widower; concubine; other
	Education	Latest school attended	don't know; no education; primary school; secondary education; tertiary education; other
	Religion	Adherence to religion	don't know; none; animism; Islam; Catholic; Hinduism; Budhism; Confucianism; other
	Profession	Current main occupation	don't know; unemployed; house wife; peasant; farmer; industrious labourer; entrepreneur; government officer; private employee; security and defense; driver; retired; other

Table 3.2 Block 1 (*continued*) Predisposing Factors: Socio-Demographic Factors

Concept	Variable	Indicator	Categories
	Ethno-cultural group	Ethnic origin	don't know; Sundanese; Javanese; Minang; Batak; Manado; Bugis; Chinese; other
	Place of birth	Location of the place	don't know; this place; elsewhere
	Vaccination	Vaccination history	don't know; none; Diphtery; Pertusis; Tetanus; Measles, Mumps; Rubella; Polio; Chickenpox; other
	CVD	Precedent CVD	don't know; no; yes
	CVD Type	Type of CVD	don't know; none; Ischemic heart disease; stroke; hypertensive heart disease; rheumatic heart disease; aortic aneurysm; cardiomyopathy; atrial fibrillation; congenital heart disease; endocarditis peripheral; artery disease; other
	CVD length	Length of CVD	don't know; none; 1-2weeks; 3-4 weeks; 5-6 weeks; 6 weeks or more
	Actual status	Actual status of illness	don't know; recovered; under treatment

Source: Household Survey (2017).

Table 3.3 Block 1 Predisposing Factors: Psycho-Social Factors

Concept	Variable	Indicator	Categories
	Knowledge of CVD	Level of knowledge of CVD	don't know; none; very little; little; average; much; very much
	Knowledge of home remedies	Level of knowledge of home remedies for CVD	don't know; none; very little; little; average; much; very much
	Knowledge of traditional nursing institutions	Level of knowledge of traditional nursing institutions	don't know; none; very little; little; average; much; very much
	Knowledge of traditional nursing institutions for CVD	Level of knowledge of traditional nursing institutions for CVD	don't know, none; very little; little; average; much; very much
	Knowledge of transitional nursing organisations	Level of knowledge of transitional nursing organisations	don't know; none; very little; little; average; much; very much
	Knowledge of transitional nursing for CVD	Level of knowledge of transitional nursing for CVD	don't know; none; very little; little; average; much; very much

Table 3.2 Block 1 (*continued*) Predisposing Factors: Psycho-Social Factors

Concept	Variable	Indicator	Categories
	Knowledge of modern nursing organisations	Level of knowledge of modern nursing	don't know; none; very little; little; average; much; very much
	Knowledge of modern nursing for CVD	Level of knowledge of modern nursing for CVD	don't know; none; very; little; average; much; very much
	Belief in home remedies as a prevention for CVD	Level of belief in home remedies as a prevention for CVD	don't know; none; very little belief; a little belief; average; much belief; very much belief
	Belief in home remedies as a treatment for CVD	Level of belief in home remedies as treatment for CVD	don't know; none; very little belief; a little belief; average; much belief; very much belief
	Belief in traditional nursing institutions as prevention for CVD	Level of belief in traditional nursing institutions as prevention for CVD	don't know; none; very little belief; a little belief; average; much belief; very much belief
	Belief intraditional Nursing institutions as a treatment for CVD	Level of belief in traditional nursing institutions as a treatment for CVD	don't know; none; very little belief; a little belief; average; much belief; very much belief
	Belief in transitional nursing as a treatment for CVD	Level of belief in transitional nursin as a treatment for CVD	don't know; none; very little belief; a little belief; average; much belief; very much belief
	Belief in modern nursing organisations as a prevention for CVD	Level of belief in modern nursing organisations as a prevention for CVD	don't know; very little belief; a little belief; average; much belief; very much belief
	Belief inmodern nursing organisations as a treatment for CVD	Level of belief in modern nursing organisations as a treatment for CVD-	don't know; none; very little belief; a little belief; very much belief

Source: Household Survey (2017).

Independent Perceived Morbidity Variables

Among community cultural groups, there is one factor which influences people's behaviour in the utilisation of the available nursing institutions and organisations. It is known as the 'perceived morbidity' factor. It is an inherent variable within people, which motivates them to act with a particular behaviour. As Ambaretnani (2012: 73) underscores: '*These factors are difficult to quantify because they are less overtly tangible*'.

Measured at the individual level, the variables, which have been selected in the block for perceived morbidity of the disease factors, refer to: 'perception of health status', 'perception of symptoms', and 'perception of main cause of the disease'. Table 3.4 presents the selected perceived needs factors: health status, symptoms, and main cause, vulnerability, precautions, seek nursing institutions and organisations, and the best treatment of CVD.

Table 3.4 Block 3 Perceived Morbidity Factors

Concept	Variable	Indicator	Categories
Perceived morbidity	Health status	Level of health status	don't know; very bad; bad; average; good; excellent
	Symptoms the last 12 months	Symptoms during	don't know; shortness of breath; chest pain; pain in the neck; weakness; other
	Main cause CVD	Main cause of CVD	don't know; overweight/ obesity; inactivity exercise; high cholesterol;
	Vulnerabilty to CVD	Person who is vulnerable	don't know; everybody; infant; elderly; hereditary people; other
	Precautions CVD	Precautions against CVD	don't know; avoiding smoking; avoiding high cholesterol food; doing exercise; praying to Allah; other
	Seek nursing institutions and organisations	Seek nursing institutions and organisations for CVD	don't know; highly importance of health; following patient's ow diagnosis; because of pain, discomfort; because of cost, because of distance
	The best treatment of CVD	The best nursing institution and organisation	don't know; home remedies; traditional healer; drug vendor; private clinic; public health center; hospital; other reason

Source: Household Survey (2017).

Independent Enabling Factors

At the conceptual consideration, Slikkerveer (1990) has proven that factors at the individual level can be 'elevated' to the institutional level to allow the comparative analysis between factors related to both individuals and institutions *(cf.* Slikkerveer & Dechering 1995; Slikkerveer 2002; Quah & Slikkerveer 2003). The variables in the block of enabling factors are: family income, family expenses, and socio-economic status (SES).

The enabling factors (Table 3.5) of socio-economic status are determined with subjective and objective perceptions; the objective ones are measured by a range of variables of ownership of material goods plus income and expenses, whereas subjective perceptions use the respondents' own opinions on their economic status in the community.

Table 3.5 Block 4 Enabling Factors

Concept	Variable	Indicator	Categories
Enabling	Household head income	Total amount of household head income monthly	don't know; none; Rp 0-500.000; Rp 501.000-1.000.000; Rp1.001.000-1.500.000; Rp 1.501.000-2.000.000; more than Rp 2.001.000

Table 3.5 Block 4 (*continued*) Enabling Factors

Concept	Variable	Indicator	Categories
	Household wife income	Total amount of household wife income monthly	don't know; none; Rp 0-500.000; Rp501.000-1.000.000; Rp 1.001.000 -1.500.000; Rp1.501.000-2.000.000; more than Rp 2.001.000
	Other members' income	Total amount of household income monthly	don't know; none; Rp 0-500.000; Rp 501.000-1.000.000; Rp1.001.000-1.500.000; Rp 1.501.000-2.000.000; more than Rp 2.001.000
	Socio-economic status by respondent	Level of economic status by respondent	don't know; none; very poor; poor; average; rich; very rich
	Socio-economic status by interviewer	Level of economic status by interviewer	don't know; none; very poor; poor; average; rich; very rich
	Cost to use traditional nursing institutions	Cost level of using traditional nursing organisations	don't know; none; very little; little; medium; much; very much
	Cost to use transitional nursing organisations	Cost level of using transitional nursing organisations	don't know; none; very little; little; medium; much; very much
	Annual transport cost to reach transitional nursing organisations	Cost level of using transitional nursing organisations annually	don't know; none; very little; little; medium; much; very much
	Annual transport cost to reach modern nursing	Cost level of using modern nursing annually	don't know; none; very little; little; medium; much; very much
	Health insurance	Health insurance	don't know; no; yes
	Health insurance type	Type of health insurance	don't know; none; private insurance; BPJS; other
	Save money	Money saving	don't know; no; yes

Source: Household Survey (2017).

Independent Institutional Variables

The institutional factors are actually represented in the model to make information available on the nursing institutions and organisations in the community. The specific variables presented in Table 3.6 are the types of existing traditional nursing institutions and transtitional or modern nursing organisations available in the community.

Table 3.6 Block 5 Institutional Factors

Concept	Variable	Indicator	Categories
Institutional	Traditional nursing institutions	Traditional nursing institutions available	don't know; none; traditional healer; herbalist; *dukun;* other

Table 3.6 Block 5 (*continued*) Institutional Factors

Concept	Variable	Indicator	Categories
	Geographical distance traditional nursing institutions	Distance to a traditional nursing institution	don't know; 0 km; 0,1-2 km; 2,1-4 km; 4,1-6 km; 6,1-8 km; more than 8,1 km
	Transitional nursing organisations	Transitional nursing organisations available	don't know; none; apothecary; *warung*; *mini market*; drug vendor; other
	Modern nursing organisations	Modern nursing organisations available	don't know; none; private clinic; public health center; hospital; other
	Geographical distance to transitional nursing organisations	Distance to transitional organisation avalaible	don't know; 0 km; 1-2 km; 2,1-4 km; 4,1-6 km; 6,1-8 km; more than 8,1 km
	Geographical distance modern nursing institutions	Distance to a modern organisations available	don't know; 0 km; 1-2 km; 2,1-4 km; 4,1-6 km; 6,1-8 km; more than 8,1 km
	Health insurance	Accepts health insurance	traditional nursing institution; trasitional nursing organisations; modern nursing organisations

Source: Household Survey (2017).

Independent Environmental Variables

The environmental factors are actually taken into the model to give information about the physical location of the village and how it is related to the presence of the Plural Nursing System in the community.

Variables such as the environmental locations, zonation locations and family residential status in the community represent the relative location of the village and the respondent in regards to the presence of the nearest traditional nursing institutions, and transitional and modern nursing organisations (*cf.* Table 3.7).

Table 3.7 Block 6 Environmental Factors

Concept	Variable	Indicator	Categories
Environment	Environment-friendly	Type of health Institutions: environmentally friendly	don't know; none; home remedies; traditional nursing institutions; transitional nursing organisations; modern nursing organisations
	Social acceptance	Type of health Institutions: socially acceptable	don't know; none; home remedies; traditional nursing institutions; transitional nursing organisations; modern nursing organisations

Table 3.7 Block 6 (*continued*) Environmental Factors

Concept	Variable	Indicator	Categories
	Economic efficiency	Type of health institutions: economicaly efficient	don't know; none; home remedies; traditional nursing institutions; transitional nursing organisations; modern nursing organisations
	Environmental	Type of environmental	don't know; none;
	Location	Location of community	rural; semi-urban; urban; other
	Zonation location	Type of zonation location of community	don't know; none; mountainous; plain; low land
	Family residential	Type of family status in the community	don't know; none; indigenous status in the community; migrant/non-local status in the community; other status
	Plants	Type of plant in the garden	don't know; ginger; turmeric; garlic; *salam; seledri; mahkota dewa*

Source: Household Survey (2017).

Intervening Variables

Intervening factors actually depict the characteristics related to external dynamic interventions at the local community level. At the theoretical level, there are two most powerful players determining the dynamics of the development of a community: firstly, the power of the state, represented by the intervention of the government; and secondly, the power of the market represented by the intervention of the commercial private sector.

Such dynamism is generally regarded as impacts on external factors or external agencies, at both the individual and institution levels, which may influence or possibly create new behaviour which is different from the previous traditional ways of life (*cf.* Leurs 2010; Djen Amar 2010). The influx of interventions entering a community of villages is determined by the creation and implementation of policy, regulations and promotions from the sides of government and commercial private interventions. Details of the intervening variables, indicators and categories are shown in Tables 3.8.

Table 3.8 Block 7 Intervening Factors: Public and Private

Concept	Variable	Indicator	Categories
Public	Government/public regulation of home remedies	Government/public regulation influenced home remedies	don't know; yes; no
	Government/public regulation of home remedies	Type of government/ public regulation influenced utilisation of home remedies	don't know; Ministry of Health regulation; Local government regulation; BPJS; other

Table 3.8 Block 7 (*continued*) Intervening Factors: Public and Private

Concept	Variable	Indicator	Categories
	Source of government/ public regulation of home remedies for CVD	Government/public regulation source about home remedies for electronic campaign	don't know; paper advertising, brochure, flyer, billboard; (TV, radio, internet); health education/ campaigns from health officer; other
	The best form of government/public regulation of home remedies for CVD	Government/public regulation best form of home remedies for CVD	don't know; Ministry of Health regulation; local government; BPJS; other.
	Impact of government/ public regulation of home remedies for CVD	Level of government/ public regulation of home remedies for CVD	don't know; none; very low impact; low impact; average; high impact; very high impact
	Government/public regulation	Type of government/ public regulation influenced utilisation of traditional nursing institutions	don't know Ministry of Health regulation; local regulation; BPJS; other
	Source of government/ public regulation of traditional nursing institutions for CVD	Government/public regulation source about traditional nursing institutions for CVD	don't know; advertising, brochure, flyer, billboard; electronic campaigns (TV, radio, internet); health education/ campaigns from health officer; other
	The best form of government/public regulation of traditional nursing institutions for CVD	Government/public regulation's best form of traditional nursing institutions for CVD	don't know; Ministry of Health regulation; local regulation; BPJS; other
	Impact of government/ public regulation of traditional nursing institutions for CVD	Level of government/ public regulation of traditional nursing institutions for CVD	don't know; none; very low impact; low impact; average; high impact; very high impact
	Government/public regulation of transitional nursing organisations	Government/public regulation influenced transitional nursing organisations	don't know; no; yes
	Government/public regulation of transitional nursing organisations	Type of government/ publicdon't regulation influenced utilisation of transitional nursing organisations	don't know; Ministry of Health regulation; local government regulation BPJS; other

Table 3.8 Block 7 (*continued*) Intervening Factors: Public and Private

Concept	Variable	Indicator	Categories
	Source of government/ public regulation of transitional nursing organisations for CVD	Government/ public source about transitional nursing institution for CVD	don't know; advertising, brochure, flyer; billboard; electronic campaigns; (TV, radio, internet); health education campaigns
	The best form of Government/public transitional nursing organisations for CVD	Government/public regulation of best form of transitional nursing organisations for CVD	don't know; Ministry of Health regulation local government regulation; BPJS; other
	Impact of government/ public regulation of transitional nursing organisations for CVD	Level of government public regulation of transitional nursing organisations for CVD	don'tknow;none very low impact; low impact; average; high impact; very high impact
	Government/public regulation of modern nursing organisations in the community	Government/public regulation's influenced of modern nursing organisations	don't know; no; yes; other
	Government/public regulation of modern nursing organisations	Type of government/public regulation influenced utilisation of modern nursing organisations	don't know; Ministry of Health regulation; local government regulation BPJS; other
	Source of government/ public regulation of modern nursing organisations for CVD	Government/public regulation source about modern nursing organisations for CVD	don't know; advertising, brochure, flyer, billboard; electronic campaigns (TV, radio, internet); health education/ campaigns from health officer; other
	Best form of government/ public regulation of modern nursing organisations for CVD	Government/public regulation best form of modern nursing organisations for CVD	don't know; Ministry of Health regulation; local government regulations; BPJS; other
	Impact of government/ public regulation of modern nursing organisations for CVD	Level of government/public regulation of modern nursing organisations for CVD	don't know; none; very low impact; low impact; average; high impact; very high impact
	Government/public promotion of home remedies in the community	Government/public promotion influenced of home remedies in the community	don't know; yes; no

Table 3.8 Block 7 (*continued*) Intervening Factors: Public and Private

Concept	Variable	Indicator	Categories
	Government/public of home remedies	Type of government/public promotion influenced utilisation of home remedies	don't know; yes;no Ministry of Health regulation; Local government regulation; BPJS; other
	Source of government/ public promotion of home remedies for CVD	Government/public promotion source about home remedies for CVD	don't know; paper advertising, brochure, flyer, billboard; electronic campaigns (TV, radio, internet); health education/ campaigns from health officer; other
	Best form of government/ public promotion of home remedies for CVD disease	Government/public promotion best form of home remedies for CVD	don't know; Ministry of Health regulation; local government regulation; BPJS; other
	Impact of government/ public promotion of home remedies for CVD	Level of government/public promotion of home remedies for CVD	don't know; none; very low impact; low impact; average high impact; very high impact
	Government/public promotion of traditional nursing institutions in the community	Government/public promotion influenced utilisation of traditional nursing institutions	don't know; no; yes
	Government/public promotion of traditional nursing institutions	Type of government/public promotion influenced utilisation of traditional nursing institutions	don't know; Ministry of Health regulation; local government regulation; BPJS; others
	Source of government/ public promotion of traditional nursing institutions for CVD	Government/public promotion's source about traditional nursing institution for CVD	don't know; advertising, brochure, flyer, billboard; electronic campaigns (TV, radio, internet); health education/ campaigns from health officer; other
	Best form of government/ public promotion of traditional nursing institutions for CVD	Government/public promotion best form of traditional nursing institutions	don't know; Ministry of Health government regulation; BPJS; other

Table 3.8 Block 7 (*continued*) Intervening Factors: Public and Private

Concept	Variable	Indicator	Categories
	Impact of government/ public promotion of traditional nursing institutions for CVD	Level of government/public promotion of traditional nursing institutions for CVD	don't know; none; very low impact; low impact; average high impact; very high impact
	Government/public promotion of traditional nursing institutions in the community	Government/public promotion influenced of traditional nursing institutions	don't know; no; yes
	Government/public promotion of traditional nursing institutions	Type of government/public promotion influenced utilisation of traditional nursing institutions	don't know Ministry of Health; regulation; local government regulation; BPJS
	Source of government/ public promotion of traditional nursing institutions for CVD	Government/public promotion source about traditional nursing institutions for CVD	don't know; advertising, brochure, flyer, billboard; electronic campaigns (TV, radio, internet); health education/ campaigns from health officer; other
	Best form of government/ public promotion of traditional nursing institutions for CVD	Government/public promotion best form of traditional nursing institutions for CVD	don't know; Ministry of Health regulation; local government regulation; BPJS; other
	Impact of government/ public promotion of traditional nursing institutions for CVD	Level of government/public promotion of traditional nursing institutions for CVD	don't know; none; low impact; low impact; average; high impact; very high impact
	Government/public promotion of transitional nursing institutions	Government/public promotion influenced of transitional nursing institutions	don't know; no; yes
	Government/public promotion of transitional nursing organisations nursing organisations	Type of government/public promotion influenced utilisation of transitional government	don't know; Ministry of Health regulation; local regulation; BPJS; other.
	Source of government/ public promotion of transitional nursing organisations for CVD	Government/public promotion source about transitional nursing organisations for CVD	don't know; advertising, brochure, flyer, billboard; electronic campaigns (TV, radio, internet); health education/ campaigns

Table 3.8 Block 7 (*continued*) Intervening Factors: Public and Private

Concept	Variable	Indicator	Categories
	Best form of government/public promotion of transitional nursing organisations for CVD	Government/public promotion best form of transitional nursing organisations for CVD	don't know; Ministry of Health regulation; local government regulation; BPJS; other
	Impact of government/ public promotion of transitional nursing organisations for CVD	Level of government/public promotion of transitional nursing organisations for CVD	don't know; none; low impact; average; high impact; very high impact
	Government/ public promotion of modern nursing organisations in the community	Government/public promotion influenced of modern nursing organisations	don't know; no; yes
	Government/public promotion of modern nursing organisations	Type of government/public promotion influenced utilisation of modern nursing organisations	don't know; Ministry of Health regulation; local government regulation; BPJS; other
	Source of government/ public promotion of modern nursing organisations for CVD	Government/public promotion source about modern nursing organisations for CVD	don't know; advertising, brochure, flyer, billboard; electronic campaigns (TV, radio, internet); health education/ campaigns
	Best form of government/ public promotion of modern nursing organisations for CVD	Government/public promotion best form of modern nursing organisations for CVD	don't know; Ministry of Health regulation; local government regulation; BPJS; other
	Impact of government/ public promotion of modern nursing organisations for CVD	Level of government/public promotion of modern nursing organisations for CVD	don't know; none; very low impact; impact; average; high impact; very high impact

Source: Household Survey (2017).

The Dependent Variables

Table 3.9 shows Block 8, Block 9, and Block 10, which represent the main nursing institutions' utilisation rate during the course of the latest year before the research was conducted. The variables represent the existing plural nursing system, which were preferred by the respondents, given their set of circumtstances within the last one-year period from the date when the interview was conducted.

Table 3.9 Block 8, Block 9 & Block 10 Utilisation of the Plural Nursing System

Concept	Variable	Indicator	Categories
Plural Nursing System	Utilisation of the traditional nursing institutions	Contacts of individuals with the traditional nursing institutions	Utilisation rates of traditional nursing institutions
	Utilisation of the transitional nursing organisations	Contacts of individuals with the transitional nursing organisations	Utilisation rates of the transitional nursing organisations
	Utilisation of the modern nursing organisations	Contacts of individuals with the modern nursing organisations	Utilisation rates of modern nursing organisations

Source: Household Survey (2017).

3.4 Stepwise Statistical Analysis

3.4.1 Bivariate and Mutual Relations Analyses

Based on the quantitative research of the household, the dataset from the four village samples was formed. The dataset is the basis for the statistical analysis presented in this study, based on the number of households involved in the survey, for which the number (*n*) equals 232. The household database is the basis for the quantitative analysis of the four village communities in the Sumedang Regency of West-Java, with regards to their experiences, knowledge, preferences and opinions related to the patterns of the utilisation of plural nursing systems: the use of Indigenous/Traditional Nursing Institutions, Transitional Nursing Organisations and Modern Nursing Organisations.

The dataset is used for descriptive cross-tab bivariate statistics, which are presented where appropriate to substantiate the qualitative findings in relation to the different topics presented in Chapters V to VIII. Descriptive and cross-tab bivariate or multivariate statistical techniques are used for the dataset derived from the household survey in the four village communities of Jayamekar, Cipasang, Situ and Jatimulya, in the district of Subang. The bivariate analysis is used to examine whether one variable relates to another and more specifically what the shape, direction and strength of the relationship is *(cf.* Weinberg & Abramowitz 2002). The focus of a bivariate analysis is the association between two variables, and although it does imply co-variation, it should not be mistaken for causation *(cf.* Rosnow & Rosenthal 2005; Field 2009).

The cross-tabulation technique is used in this study to establish whether the difference observed in the cross-tabulation of the sample represented a real difference in the population as a whole. Pearson's Chi-square ($\chi 2$) test of independence permits such a judgement; it allows for the determination of whether or not there is a statistically significant association between two variables *(cf.* Miller *et al.* 2002). The confidence level for this study is set at 95%, which could result in the mere dichotomy of 'significant' versus 'not significant'; hence, a differentiated assessment is used. In analysing the significance of statistical data, the researcher used the rules introduced by Agung (2005), Ambaretnani (2012) and Aiglsperger (2014), which are as follows:

Level of significance	Interpretation
$\chi^2 > 0.15$	not significant
$0.15 > \chi^2 > 0.10$	indication of significance
$0.10 > \chi^2 > 0.05$	weakly significant
$0.05 > \chi^2 > 0.01$	strongly significant
$0.01 > \chi^2 > 0.001$	very strongly significant
$\chi^2 < 0.001$	most strongly significant

Pearson's Chi-square can be suitably used for categorical data, which are by definition not continuous. Although Pearson's Chi-square does not rely on such assumptions as having continuous normally distributed data like most statistical tests, two important assumptions have always to be taken care of: firstly, each respondent can score only in one cell of the cross-tabulation; and secondly, no expected frequencies should be below 1 and no more than 20% of expected frequencies should be below 5. As the two types of data scales, both ordinal and nominal, have been used, Cramer's V is used to provide additional examination of the level of statistical significance *(cf.* Field 2009). 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). After the significant variables are identified, the mutual correlations analysis is applied in accordance with the above-mentioned conceptual analytical model (*cf.* Figure 8.2).

In 2016, Slikkerveer introduces his 'mutual relation analysis' on the basis of his quantitative research data from the Horn of Africa: '*by clustering all those variables which are showing a differential degree of significance, ranging from 'indication of significance' to 'most strongly significant', as represented as 'blocks' in the analytical model*.' In a recent article, Slikkerveer (2019c): adapted his ethno-methodological data analysis by replacing the 'mutual relations analysis' by the 'mutual correlations anaysis' in his analytical model of transcultural health care utilisation, which provides an overview of significant correlations representing selected variables on the basis of the calculated Pearson's Chi-Square ($\chi 2$) within the range of significance between $0.15 > \chi^2 > 0.10$ and $\chi^2 < 0.001$ (*cf.* Table 3.12).

By consequence, the mutual correlations analysis shows the results from the bivariate analysis of all significant variables represented by each 'block' in the analytical model. In this context, it shows what factors significantly influence people's utilisation behaviour in choosing a traditional nursing institution in comparison with the transitional and the modern organisations.

3.4.2. Multivariate Non-Linear Canonical Correlation Analysis

The conceptual model of the multivariate models of the utilisation behaviour in Plural Nursing Systems are based on some earlier empirical findings; there are various explanatory variables which influence people's behaviour in the utilisation of any available institutions. In this context, the relations between the explanatory variables, represented by the independent and intervening variables, with the dependent variables need to be addressed. There is a need to identify the relations between the blocks of variables in the institutions through a particular quantitative method *(cf.* Slikkerveer 1990; Agung 2005; Ibui 2007, Leurs 2010).

This study uses multivariate analysis to analyse the utilisation of the plural nursing system by the respondents in the four villages of the Sumedang Regency. The multivariate analysis of the household data renders it possible to analyse the level of correlations between the independent and intervening variables of the respondents in relation to the dependent variables of the reported utilsation patterns of the nursing institutions and organisations. When there are multiple independent and dependent variables in a research design, such as in this study of four categories of variables, the design is said to be multivariate *(cf.* Tabachnick & Fidell 2001).

The multivariate measurements of association are by nature more complex, because they have to take into account the relationships of the predictor variables (independent and intervening variables) with the dependent variables. By using the multivariate analysis techniques, it is possible to determine the level of significance among all the variables of the model. Classical multivariate analysis assumes that each variable has *a priori* quantification and can be treated as numerical data *(cf.* Van de Geer 1993; Aiglsperger 2014).

Although some variables could be considered to be (quasi-)interval data, treating all data numerically in this study would have presented an oversimplification of the complexity of this dataset.

The non-linear multivariate analysis, which does not have the same *a priori* assumption of the classical multivariate analysis is the appropriate analysis to use in this study. In his research, Agung (2005) documents the link between the conceptual model and the Non-Linear Generalized Canonical Correlations or OVERALS multivariate statistical analysis.

Following the examples of Agung (2005), Ibui (2007), Leurs (2010), Djen Amar (2010), Ambaretnani (2012), Chirangi (2013), Aiglsperger (2014), Erwina (2019), Saefullah (2019) De Bekker (2020) and Febriyanti (2021), the OVERALS analysis is also used in this study. The OVERALS analysis is a non-linear generalized canonical correlation analysis *(cf.* Van de Geer 1993) which allows the inclusion of variables with different measurement levels, including those with nominal and ordinal levels in the analysis, and allows different sets of variables to be concluded. In this study, the set of the independent and intervening variables form the first set, while the dependent variables form the second set.

3.4.3 Multiple Regression Analysis

The general purpose of Multiple Regression Analysis is to learn more about the relationship between several independent or predictor variables and a dependent or criterion variable. Following the examples of Agung (2005), Ibui (2007), Leurs (2010), Djen Amar (2010), Ambaretnani (2012), Chirangi (2013), Aiglsperger (2014), Erwina (2019), Saefullah (2019); De Bekker (2020) and Febriyanti (2021), a Multiple Regression Analysis is used based on the individual OVERALS analyses between each block of variables with all other blocks of variables in the model. Specific Multiple Regression Analysis is used here to calculate the relative importance of the block of variables and the block of dependent variables. The most commonly used multivariate measures of association can be expressed as functions of the 'eigenvalues' of the product matrix. In this analysis, the multiple correlation coefficients (ρd) of the individual OVERALS analyses will be used to measure the association. The multiple correlation co-efficient (ρd) is related to the 'eigenvalues' (Ed). The formula used to calculate the ρd is ρd=2 x Ed-1 *(cf.* Van der Burg 1988).

The approach to the Multiple Regression Analysis relates to the pre-defined block of factors presented in the multivariate model. This model, firstly developed by Slikkerveer (1990; 1995) and thereafter implemented in different studies of applied ethnoscience by Agung (2005), Ibui (2007), Leurs (2010), Djen Amar (2010), Ambaretnani (2012), Chirangi (2013), Aiglsperger (2014), Erwina (2019), Saefullah (2019); De Bekker (2020) and Febriyanti (2021), widens the perspective on culture and also permits the assessment of the cognitive and behavioural components of particular groups or communities as 'institutions' in a rather holistic mode, hence generating an important value relation towards policy making. The Multiple Regression Analysis of the blocks of variables gives an indication of which aspects further policies should be based on and developed, and at which point such policies should be concentrated to increase the probability of positively affecting the intended changes in the behaviour of the community, as well as in the provision of nursing services.