Iber Kasehatan in Sukamiskin:

Utilisation of the Plural Health Information & Communication System in the Sunda Region of West Java, Indonesia

Wina Erwina

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'Cageur, Bageur, Bener, Pinter, Teger, Singer, Wanter, Pangger, Cangker'.
Cageur, manusia yang sehat jasmani dan rohani,
Bageur, bermoral, tahu tata krama, tahu sopan santun,
Bener kepatuhan terhadap aturan,
Pinter, cerdas dalam penguasaan ilmu pengetahuan dan teknologi,
Teger, memiliki kepribadian yang kuat,
Singer, keterampilan,
Wanter, keberanian,
Pangger, kekukuhan,
Cangker, sehat jasmani dan kuat, siap setiap saat.

'Healthy, Good, Correct, Clever, Adept, Wise, Consistent, Strong'.
Healthy, a person who is healthy, both spiritually and physically,
Good, behave with integrity, know how to behave,
Correct, obey the rules,
Clever, smart in mastering knowledge and technology,
Teger means to have strong personality,
Adept, skilful,
Wise, brave and confident with polite manners,
Consistent and committed,
Strong, having physical health and power, so is ready at all times.

(Traditional Sundanese Philosophy of Life)

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This dissertation is dedicated to the people of Sukamiskin, who have shared their health experiences with me, as well as to the memory of my beloved father, who has inspired me to execute this study, to my mother, sister and brother whom I thank for their prayers, and to my beloved son and daughter who have always supported me during my studies.

Preface

The origin of this study started from my personal experience with knowledge and practice in health, which later evolved in health information. Since my childhood, my parents had always involved me in their handling of health problems in the family, where I was always keen to know how to use a particular medicine recommended by the doctor such as *e.g.* the method of reducing high fever with traditional herbs. The philosophy of my family's education made me an individual with a strong feeling to care for people around me.

Generally speaking, most Indonesians are facing many obstacles to get access to personal health information. The difficulties are especially related to the problems they encounter when they fall ill, and do not know where they should go. The provision of adequate health information is most important for the health and well-being of the people, in which the government has to play an important role, especially at the community level. As I regard it as my contribution to know more about the various forms of traditional and modern health information and communication, I decided to study these phenomena in Indonesia as my main interest. After my education in communication, library and information science, I completed my Master Degree in Anthropology at Leiden University, and when I got the chance to continue my PhD research, I seized the opportunity to focus my study on health information and communication in the Sunda region of West Java from an ethno-communication point of view.

Moreover, this is a new field which also needs further development at the Department of Library Science of the Faculty of Communication of Padjadjaran University (UNPAD) in Bandung. Since this kind of research encompasses a multidisciplinary approach, it could also serve as a reference for related fields such as Health Education and Communication, Public Health, Preventive Medicine and Promotive Health. As the complex area of health and disease is basically a joint responsibility for scientists, practitioners and experts, it is not merely the responsibility of modern doctor's, nurses, birth attendants and traditional healers, but also involves a whole range of experts from among various related disciplines. Hence, as a researcher and educator working in the information and communication field, I have felt it as my mission to further document, study and understand the process of information and communication in the area of health at the community level, and try to understand the utilisation patterns of the existing different information systems by the local people at the community level.

The realisation of my mission and the opportunity to execute my research in ethno-communication in the community of Sukamiskin have given me further in-depth knowledge of local peoples' understanding and utilisation of both traditional and modern medicine, which is most relevant for them in order to maintain their health and well-being in their community.

In this way, I wish to express my hope that the multidisciplinary approach which I developed as the foundation of this study through the LEAD Programme of Leiden University in The Netherlands, and which as such pertained to my dissertation on *'Iber Kasehatan* in Sukamiskin: Utilisation of the Plural Health Information & Communication System in the Sunda Region of West Java, Indonesia', will not only contribute to the development of the field of health information and communication, but also to the benefit of the local communities through applied-oriented policy planning and implementation of appropriate health information and communication systems in both urban and rural areas throughout the country.

Acknowledgements

Following the *mores* of Leiden University to refrain here from acknowledging the contribution and support from my Supervisors, Members of the committee and colleagues affiliated with Leiden University, including the LEAD Programme, I have to confine in general terms my deep gratitude to them all for their kind encouragement and support for the realization of my study in the Sundanese community of Sukamiskin in West Java, Indonesia.

I take the opportunity to thank my family, friends and colleagues both in Indonesia and The Netherlands, and in particular the local people from Sukamiskin for their continuing support without which this study would not have been possible.

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Chapter I. INTRODUCTION

1.1 Health Information and Communication in Indonesia

1.1.1 The New Field of Health Information & Communication (HIC)

In Indonesia, as in many other newly-developing countries, different forms of information and communication regarding health and disease co-exist, sharing the common goal of guiding and changing human behaviour to improve the general health status of the population. While traditional information has been accumulated and used for health and healing over many generations among different ethno-cultural groups throughout the country, the introduction from the West of modern, cosmopolitan medical information started to develop since the colonial period of time. The current various forms of information and communication are directly related to the pluralistic health sector of the country, as they influence not only health promotion and disease prevention, but also the treatment and care of patients. In their recent article in the *Bulletin of the World Health Organization,* Rimal & Lapinski (2009) underscore the fact that health communication has direct relevance for virtually every aspect of health and well-being of the entire population.

The related field of study of Health Information & Communication (HIC) has recently emerged from the discipline of communication science as a special subject area of different forms of health information and exchange among members of the society, including not only the general public, but also among clients and patients, and between patients, healers and doctors, and also within health centres and hospitals, with the aim to disseminate and operationalise information on health and disease for healthcare improvement. While taking into consideration that *information* basically refers to stimuli transferred with a meaning in a particular setting for its receiver, it is generally conceptualised as *data* when entered into and stored in a computer. Subsequently, when information is processed or used for the understanding of a particular situation, it is known as *knowledge* (*cf.* Rouse 2005). More specifically, *health information* is usually defined in conjunction with *health communication* among the members of the community to encompass a personal perspective on the *consumers' side*: *'information or an opinion about the health or a disability of an individual; or an individual's expressed wish about the future provision of health care to him or her'* (*cf*. ALRC 2008).

However, on the *providers' side* of both indigenous healers and modern medical personnel, the physicians, nurses and health auxiliaries have functionalised the recent digital revolution and developed a formal system of modern Health Information & Communication Technology (HICT) with the aim to build a consistent, sustainable and high-quality organisation of modern computer-based healthcare services.

By consequence, much effort has been made by the Government of Indonesia to establish a formal National Health Information System (SIKNAS) which links up with various district-level health information systems (SIKDA), all focused on the delivery of modern health care services. Recently, however, SIKNAS has been weakened by the process of decentralisation, where the multiple separate reporting systems have rendered vital registration incomplete (*cf.* Mahendradhata 2017). In the public domain, the new development of computerised Health Information & Communication Systems (HICS) includes a national effort to collect, process, report and utilise health information in order to guide the national process of policy and decision-making, based on a range of legislative, regulatory and planning frameworks. A major task, however, remains the study and understanding of the utilisation by the population of the various forms of Health Information & Communication throughout the country.

Recently, the various forms of information and communication related to health and disease have been studied in relation to different traditional and modern medical systems, where before the recent advent of the Internet, health information was largely collected as statistical data on paper forms and documented, analysed and functionalised for the improvement of health care of the population.

Since Health Information & Communication (HIC) are closely intertwined in the continuum of their accumulation of information and implementation in the dissemination and communication process, HIC can be conceptualised as a system in terms of an organised, purposeful structure which consists of interrelated and interdependent elements sharing the aim of achieving the goal of the system. In this way, the concept of the Health Information & Communication System (HICS) has been developed, as it is aimed at achieving the adoption of the health-enhancing behaviours, customs and rules of the society and as such is expected to contribute to the improvement of the health of the population. Also, HICS can be designed as a policy instrument to change the negative behaviour of community members into positive behaviour in order to improve their health by education, persuasion and internalisation. While health information basically refers to the health of individuals or the activities of organisations in the health sector, health communication refers to the study and practice of actively communicating promotional health information, such as in public health campaigns, health education, and between doctors and patients in health organisations, rendering both concepts inextricable (*cf.* O'Carrol *et al*. 2003).

In recent years, the field of Health Information & Communication (HIC) has developed rather rapidly as the result of the electronic revolution in Information & Communication Technology (ICT), particularly in the field of Health Information & Communication. An important applied-oriented aspect of the new discipline is that it enables the assessment and improvement of the coverage of the different health care services, where empirical and up-to-date health information at the community level is important to gain an insight into the local decision-making process of individuals and households in order to enhance the health of the community.

In Indonesia, apart from the above-mentioned problems of the National Health Information System (SIKNAS), there still exists a lack of information in the country on its utilisation by the local population as the consumers of the co-existing traditional and modern health information systems at the community level, particularly in the rural areas. In other words: the community perspective on the utilisation of the different Health Information & Communication Systems (HICS) in Indonesia – important because of their role in decision-making for health and illness behaviour – is still rather incomplete, in particular with regard to the important, but less computerised Traditional Health Information & Communication System (THICS).

The general aim of this research is to document, study and analyse the utilisation of the Plural Health Information & Communication System (PHICS) by the local population of Sukamiskin in the Sunda Region of West Java through the identification, documentation, and analysis of significant factors influencing the related utilisation patterns, differentiated within, on the one hand, the Traditional Health Information & Communication Systems (THICS) and, on the other hand, the Modern Health Information & Communication Systems (MHICS) at the community level.

In addition, the implications of the research findings are used as a basis for the development of an empirical model of integration of Traditional and Modern Health Information & Communication Systems (T&MHIC) as a planning tool for realising 'Information Society Indonesia' (2003) in the field of health and healing in the near future.

In order to study, understand and explain the local peoples' knowledge, beliefs and practices regarding health and disease information from their own perspective, this study is conducted within the context of the sub-discipline of ethno-communication, using the 'Leiden Ethnosystems Approach' as the appropriate ethnoscience research methodology (*cf*. Slikkerveer 1990; 1995).

1.1.2 Health Information Systems (HIS) for Improved Health Services

In general, a Health Information System (HIS) refers to any system which captures, stores, manages or transmits information related to the health of individuals or the activities of organisations working in the health sector of a country or region (PHIN 2012). The concept of Health Information Systems (HIS) has further been elaborated by the Pacific Health Information Network (PHIN) (2011), encompassing six components: (1) health information resources; (2) indicators; (3) data sources; (4) data management; (5) information products; and (6) dissemination and use (*cf.* O'Carrol *et al*. 2011). In the literature, the Health Information System (HIS) is usually defined for the modern medical system as a structured and integrated data management system and as modern health information at all levels of the government in order to support health management with a view to improving the health services of the society (*cf.* WHO 2008). Moreover, Health Information Systems (HIS) are required in all modern health programmes, ranging from the analysis of the situation, priorities, and alternative solutions through programme development, implementation and monitoring to the evaluation of health plans. According to the World Health Organisation (WHO 2007), such formal Health Information Systems (HIS) are one of the six major components or 'building blocks' of a health care system of a country which includes the following:

1 delivery of health services;
2 medical products, vaccines and medical technologies;
3 health workforce (medical personnel);
4 health financing;
5 health information systems; and
6 leadership and governance.

In the arrangement of the National Health Care System of Indonesia, the Health Information System (HIS) is one component of the sub-systems mentioned below, *i.e.* the management, information and health regulations which manage the implementation of health policies, health administration, health information and health regulations. Its objective is to be able to support the implementation of the National Health Care System effectively and efficiently, as well as to support the implementation of the sub-systems within the *Sistem Kesehatan Nasional* (SKN) ('National Health Care System'), as one unified entity. The sub-systems within the National Health Care System of Indonesia include the following:

- health efforts;
- health research and development;
- health financing;
- health human resources (HR);
- pharmaceuticals, medical devices and food;
- management, information and health regulations; and
- community empowerment.

(*cf. Sistem Kesehatan Nasional SKN* 2012).

In the development of the Health Information System (HIS), a commitment has to be built into each health care infrastructure unit in order to ensure the prolongation of the Health Information System (HIS). More importantly, however, is the use of computer technology in the implementation of the supporting Computer-Based Information Systems.

Useful information of modern medical systems has mostly been described on the basis of quantitative data in medical sociology and social and family medicine, using medical statistics with applications of quantitative methods and techniques to public health sciences, including epidemiology, public health, forensic medicine, and clinical research. Such information has lately become computerized as vital statistics, requiring a distinct data entry and storage process in various file formats and analysed by mainframe computers using standard data processing procedures. These activities have recently been developed into the field of *Public Health Informatics*, referred to as the systematic application of information, computer science and technology to public health practices, research, and learning [1].

In contrast, the documentation and study of traditional medical systems in developing countries have for a long time been confined to the qualitative studies of medical anthropology and ethnomedicine. More recently, however, interesting quantitative studies have also been conducted on patterns of utilisation behaviour, by local population groups and communities, of traditional medical systems, providing a sound basis for sustainable community health planning and development (*cf*. Slikkerveer 1990; Warren, Slikkerveer & Brokensha 1995).

As regards the Health Information Systems (HIS) of local people concerning traditional medicine, it has been shown that their influence is crucial for the decision-making process of clients and patients at the community level for their health care utilisation behaviour in terms of their choice to seek help at either the traditional or the modern medical functionaries and services.

Several studies in ethnomedicine have documented and analysed the significant role of traditional health information systems, manifest in the oral tradition of indigenous healers, birth attendants, herbalists, and bone setters, and in written sources of medical books, recipes, formulas and indigenous classifications of Medicinal, Aromatic and Cosmetic (MAC) Plants. The importance of such traditional forms of health information has been demonstrated not only for local health improvement, but also for forest conservation *(*Bodeker *et al.* 1997; Slikkerveer 2006; Ibui 2007; Leurs 2010; Djen Amar 2010; Aiglsperger 2014).

Over the past three decades, the change from mechanical and analogue electronic technology to digital electronics which had started by the end of the former century has continued up until the present with the world-wide adoption and proliferation of digital computers and the collection and management of a variety of medical information covering both traditional and modern medical knowledge, beliefs and practices. Since the 1990s, the Internet and the World Wide Web have developed significantly in health care. As Helman (2007: 334) notes, the World Wide Web is described as: '*...a global collection of accessible information which can be accessed by computers linked to an enormous electronic network: the Internet.'* It could be called an information space, or a universe of information. People tend to use the Internet in order to find information about health and medical subjects, as well as about specific health problems including both physical and mental health, or to communicate with other people who are suffering from the same health problem and situation.

Tele-medicine refers to the transfer of health information between sites and between people. It has made a major impact on the culture of medical care, from traditional face-to-face consultation to consultation from a distance. The various forms of information include a voice, an image, and a document of medical records or commands to a surgical robot. Essentially,

information has changed from distant and remote communication of information to facilitated clinical care. The first form of tele-medicine was the telephone consultation between patient and doctor. Later, tele-medicine utilised more advanced technology with computers, satellite telecommunications, radio, the videophone, web-cam, video conferencing and mobile telephone networks.

There are two concepts of tele-medicine. The first is tele-care or tele-nursing*: 'the provision, at a distance of nursing community support to a patient'*; and the second is tele-health: *'public health service delivered from a distance, to people who are not necessarily unwell, but who want to remain well and independent.*' Within tele-medicine, six types of communication between these parties can be distinguished: (1) professional-machine-professional, (2) professional-machine-patient, (3) patient-machine-professional, (4) patient-machine-patient, (5) professional-machine-data base, and (6) patient-machine-data base (*cf.* Helman 2007). Tele-medicine is used for health communication and education, as well as for providing messages about the causes, prevention and management of illnesses to patients, groups or communities. Tele-medicine is also used in tele-care and tele-monitoring from a professional to a patient and for tele-surgery. Tele-pharmacy is used for ordering medicines via the Internet, while the web blog (personal diary) is largely used as a communication medium among patients to support each other.

1.1.3 Application of Information & Communication Technology (ICT) in Health

The electronic information revolution which has recently taken place in most societies is an indication of the rapid development of Information & Communication Systems (ICS) around the globe. As the dramatic increase in information is closely related to the infrastructure support provided by Information and Communication Technology (ICT), the development of a wide range of media has led to many innovations in communication systems in today's society. One of the causes of the recent development of information & communication systems is the expanding communication network. Indeed, the development of wireless networks has been transformed inciting many innovations in global communications systems, ranging from the telephone, telegraphy, fax, radio and television to electronic mail, which can now be delivered worldwide with the support of the Internet.

A major contribution to the understanding of the complicated development process of Information & Communication Systems (ICS) is provided by the study of factors associated with the peoples' utilisation behaviour of ICS within the context of their community or society. Recently, the United Nations Conference on Trade and Development(UNCTAD 2003) outlined several factors which determine the development of Information and Communication Technology (ICT), as follows: (1) *connectivity, including Internet hosts per capita, number of PC's per capita, telephone mainlines per capita, cellular subscribers per capita*; (2) *access, including several factors, such as Internet users per capita, literacy (% population), GDP per capita, cost of local calls*; (3) *policy, including a few indicators, such as presence of Internet exchange, competition in local loop telecoms, competition between domestic and long-distance, competition in the Internet Service Provider (ISP) market;* and (4) *usage: telecom traffic, including international incoming telecom traffic (minutes per capita) and international outgoing telecom traffic (minutes per capita)*.

In the meantime, Information & Communication Technology (ICT) has also developed rapidly over the past decades and is nowadays utilised in almost all facets of life, including the health sector. The application of ICT in the health sector, also known as 'e-health', has advanced health care services both in the public sector and in the private sector, providing more qualified and efficient services. If the application of such advanced ICT in the health sector manages to

achieve its goals, the realisation of the *United Nations Sustainable Development Goals* (2015), as a follow-up to the previous *Millennium Development Goals* (2005) and the improvement of public health, could also be accelerated.

The application of Information & Communication Technology (ICT) in the primary health care sector can be divided into two groups, namely the application of ICT on health management and the application of ICT on health services. The utilisation of ICT combined with health management has developed into an integrated reporting system, so that decision-making and the allocation of health care resources can be made more accurately. Furthermore, the monitoring of ICT can also be used to assist the implementation of epidemiology surveillance and disease incidence from day to day, so that extraordinary events of diseases can be anticipated quickly. In addition, the utilisation of ICT renders it possible to detect at an earlier stage an increased incidence of malnutrition, as well as of malaria, diarrhoea and dengue fever, especially through the utilisation of mobile ICT devices, such as 'm-Health'. The utilisation of ICT for individual health care taking place in hospitals, health centres, laboratories, pharmacies and private practices should ideally be able to transfer relevant electronic data. Such utilisation may accelerate the provision and improve the efficiency of the health services. Currently, the government, in collaboration with various stakeholders, such as educational institutions, professional organisations and industrial enterprises, has developed the practice of 'telemedicine'. The progression of ICT can also help to overcome the problem of the scarcity of skilled labour in the sector by implementing various forms, such as tele-medicine, tele-consultation and tele-radiology.

In order to further accelerate the application of Information & Communication Technology (ICT) in the health sector, three strategies have to be implemented, such as the strengthening of the policy and planning related to the implementation of ICT; the integration of existing information systems; and the strengthening of Human Resources (HR), especially the management of skilled personnel. Hence, the e-health programme requires the support and commitment of both the public as well as the private sector.

The process of globalisation, defined as the process of unifying the world communities into one single world society, also known as the 'global society', tends to occur in various spheres of life, with different shapes and impacts, rendering the dimensions of globalisation rather important. As globalisation is no longer considered a novel and astonishing phenomenon, presently numerous nation-states tend to develop fewer strategies for their national economies, but design their strategies for operation in the global economic system (*cf*. Castells 1999). The rise of globalisation is also strongly affected by technological change, particularly in the development of Information & Communication Technology (ICT). The impact of globalisation on the development of Health Information & Communication Systems (HICS) shows an interesting process, where global medical knowledge systems interact with local medical knowledge systems often resulting in a useful integrated system of local-global knowledge and practices, also referred to as the process of glocalisation.

Globalisation has a dual impact on the health sector. As Diaz-Bonilla *et al.* (2002) indicate: *'Globalisation affects global health which in turn may improve or worsen the health of the poor in developing countries'.* In this context, globalisation is related to the current world health problem which has been characterised by what WHO (1999) identifies as 'the double burden of disease'. The increased life expectancy recorded in recent decades, together with changes in lifestyle stemming from global socio-economic development, has increased the importance of non-communicable diseases and injuries ('the new burden'). At the same time, however, as many as one billion people in the world still suffer from infectious diseases, under-nutrition and

complications in childbirth; care for such conditions not seen among the non-poor tends to lag behind as the unfinished health agenda ('the old burden').

Moreover, under the impact of globalisation, remarkable disparities continue to exist in health and healing between developed and developing nations, while there are also significant health inequalities within countries, where the burden of disease disproportionately affects the poorest and low-income families in the rural areas.

In addition to new forms of treatment and medicines, scientific development in medicine has also been affected by the process of globalisation, as can be observed in the emergence of new medicines and instruments used in health care. Currently, operations even use robots and robotic surgery, while the technological examination of internal organs has been extended with the invention of endoscopy. Concerning modern scientific knowledge and the availability of new technologies, Hogstedt *et al.* (2007) note that: *'globalisation can make use of modern scientific knowledge and available technologies to improve quality of life for the billions of people living in poverty'* (Hogstedt *et al*. 2007: 155). In addition, Chalmers (2002) mentions a number of new useful health concepts which are also related to the process of globalisation, such as Technological Development, Evidence-based Medicine, Family-Centred Care, Psychosocial Health Care, Cultural Differences in Understanding Health and Illness, and Education and Efficiency of Care.

The impact of globalisation on the health of particular groups of the population, such as among women, is quite strong, as emphasised by Kawachi & Wamala (2007: 182): *'Globalisation is the engine of women's employment, the benefits of trade's trickle down to the poor are insufficient to characterize the complex ways in which women's health and wellbeing (and that of their family members) have been affected by the closer integration of economics around the globe'*. The impact of globalisation on Health Information Systems (HIS) is complex and difficult to predict since the factors which explain the effects are large in number and their interaction is very complex. According to Potter (1998: 260-26), the exposure to globalisation, especially in the field of information & communication, is in a way analogous to such subjects as 'the weather': '*Globalisation impacts (effects) are like the weather in many ways. Weather is always there and it can take many forms. It's very difficult to predict the weather with any precision, because the factors that explain the weather are large in number and their interaction is very complex*.' Potter (1998) notices that the effect of globalisation on the information & communication media can be either immediate or long-term. This distinction focuses on the time in which the effect occurs, but not on how long it lasts. Therefore, the different effects of globalisation are either immediate or long-term effects.

Potter (1998) also observes five levels of effects resulting from the globalisation of the information & communication media: cognitive, attitudinal, emotional, behavioural and physiological levels. At the cognitive level, the effect of globalisation on information & communication media can immediately transfer ideas and information to peoples' minds. Learning is the acquisition of facts, so that they can be recalled later. At the attitudinal level, the globalisation of information & communication media can create and shape peoples' opinions, beliefs and values. Attitudes can also be learned immediately. At the emotional level, the globalisation of information & communication media can make people feel the phenomena. They can trigger strong emotions, such as fear, rage and lust, but they can also evoke weaker emotions, such as sadness, peevishness and boredom. Besides, emotional reactions are generally related to physiological changes. At the physiological level, the globalisation of information & communication media can influence peoples' automatic physical systems which are usually beyond their conscious control. An example of this is irritation of the eyes when looking at dazzling objects. People cannot control the degree of glare of objects, but they can turn their eyes

to avoid irritation. At the behavioural level, globalisation of information & communication can trigger actions as well (*cf.* Potter 1998). Although the effect of globalisation on Health Information & Communication Systems (HICS) will have a less obvious effect on individuals in terms of cognitive, attitudinal, emotional, behavioural and physiological levels., these effects can vary from one individual to another, since the differences are strongly affected by the background of each individual, such as their level of knowledge and degree of experience.

1.2 Plural Health Information & Communication Systems (PHICS)

1.2.1 The Concept of a Health Information & Communication System (HICS)

The basis of Health Information & Communication (HIC) is found in the different information and exchange systems of the society which refer to: *'any system which captures, stores, manages or transmits information related to the health and disease concerning individuals, organisations and institutions which work within the health sector'* (*cf.* O'Carrol *et al*. 2011). As such, a system from the *providers' side* is mainly focused on modern health information and communication, processed in highly sophisticated computers and data sets with the aim of improving the organisation, and as such the health of its patients, while the systems on the *consumers' side* include information on both traditional and modern health information, often manifest in a pluralistic configuration of knowledge, beliefs and practices. Embarking on the multiple discourse approach to health communication in three spheres of influence, i.e. societal discourse, expert discourse, and lay discourse, introduced by Parrott (2004), this study focuses mainly on the domain of the lay discourse concerning the health information and communication among local participants in terms of the understanding and utilisation of indigenous knowledge sources and experiential information regarding health and disease at the community level, derived from cultural, social and individual experience which guides and adapts the community health and illness behaviour of the local people.

While much facility-based research has been conducted on the formal health information systems in modern health care organisations from the providers' perspective, this community-based study focuses on the different traditional and modern health information systems from the consumers' perspective being operational among the local people at the community level in the research area of Sukamiskin. By consequence, 'health information and communication' is conceptualised as encompassing a personal perspective of the community members: *'information or an opinion about the health or a disability of an individual; or an individual's expressed wishes about the future provision of health care to him or her'* (*cf.* ALRC 2008).

Since Health Information & Communication (HIC) is part of a continuum of accumulation of information and its implementation in the dissemination & communication process, the concept of *Health Information & Communication Systems* (HICS) has recently been developed to underscore the structured form of a system in which dynamics of information accumulation & communication among people for health improvement are operational. Particularly in the newly-developing countries, such HICS are found in the *Plural Health Information & Communication System* (PHICS), encompassing two major components of the Traditional Health Information & Communication Systems (THICS) and the Modern Health Information & Communication Systems (MHICS) (*cf.* Slikkerveer 2012).Indeed, the accumulation, collection, storage, exchange and dissemination of Health Information & Communication Systems (HICS) from the local population's point of view is not restricted to one medical system, but includes information derived from the related different traditional and modern medical systems. Since they are part of the plural medical configuration in the area, they provoke the advanced study of the related

factors influencing the utilisation of the co-existing and interacting Traditional and Modern Health Information & Communication Systems (T&MHICS).

As mentioned above, so far most Health Information & Communication Systems (HICS) have been studied from a health care provider's point of view, often at the national level, and as such have concentrated on the improvement of the delivery of modern health care, predominantly in health centres and hospitals. However, since the Traditional Health Information & Communication Systems (THICS) are widespread, culturally bound and crucial in local decision-making for the help-seeking process of clients and patients, the next Paragraph will focus on the position of the Traditional Health Information & Communication Systems (THICS) in Indonesia.

An additional aspect in the development of the Traditional Health Information & Communication Systems (THICS) is the digital documentation of sources of evidence-based medical cases, bibliographic references, and comparative databases, all relevant to evidence-based practices. According to Bakken (2001), the challenge for practitioners is to use these sources of evidence in combination with their experience and expertise to make clinical decisions. As the medical-evidence base continues to expand rapidly and more modern-trained physicians and nurses tend to accept the validity of traditional practices for diagnosis and treatment, there is a growing interest in integrating such expanding digital sources of evidence emerging from Traditional Health Information & Communication Systems (THICS) into an integrated health care system.

1.2.2 Traditional Health Information & Communication Systems (THICS)

In Indonesia, the practice of traditional medicine is widespread; this medical traditional knowledge and experience have been transmitted over many generations though both oral and written communication among the different population groups. The supporting Traditional Health Information & Communication System (THICS) refers to a structured form of indigenous medical knowledge, beliefs and practices which is openly shared not only among families and community members, but also communicated by *dukun* ('traditional healers') and *peraji* ('traditional birth attendants') throughout the rural communities. In addition to the exchange of information and knowledge of preparing *jamu* ('herbal home remedies') and the prevention of largely common illnesses, various forms of treatment of illnesses are also part of THICS.

The useful combination of health information and health communication in a Health Information & Communication System (HICS) encompasses a contribution from various disciplines, providing it with a multidisciplinary orientation. In this context, there are many interesting health-related aspects of the traditional knowledge society. While approximately 80% of modern medicine in Indonesia – as elsewhere around the globe – has originated from the indigenous knowledge and practices of Medicinal, Aromatic and Cosmetic (MAC) Plants of traditional healers over many generations, a large number of people continue to utilise some form of traditional medicine for their primary care needs which is often locally available and at a lower price. In Indonesia, a large segment of the population also still uses the services of traditional functionaries, including the *paraji* ('traditional birth attendant'), the *balian* ('midwife'), the *dukun* ('traditional healer'), and the *shaman* ('magician'). In recent years, indigenous medical knowledge systems have been documented, studied and analysed in many countries and regions, and have shown not only to be rather functional, but also successfully integrated into the sustainable development of plural medical systems throughout the world (*cf.* Slikkerveer& Slikkerveer 1995, 2012; Ambaretnani 2013).

As indicated above, in most societies there exists a pluralistic configuration of co-existing Traditional and Modern Health Information & Communication Systems (HICS). Traditional Health Information & Communication Systems (THICS) are closely related to the traditional medical system and refer to a system of information and communication generally embedded in the local culture, where health-related information largely in the field of traditional medicine is disseminated among the local people over many generations by non-electronic devices, by traditional means of language, music and poetry, largely through the oral tradition. The oral transmission from generation to generation is identified by WHO (1999) as the typical characteristic of Traditional Medicine (TM) in various countries. It is linked to the fact that Traditional Medicine must be understood as a cultural manifestation of the local people which has been functioning over many generations.

According to the WHO (2000), Traditional Medicine is: '*the sum total of the knowledge, skills and practices constructed on theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.*' Other references to Traditional Medicine include 'indigenous medicine', 'ethnomedicine', 'folkmedicine' and 'native medicine' (*cf.* Good & Kimani 1980; Slikkerveer 1995). Different traditional medical systems are found in most societies worldwide, where they continue to be the primary source of health care of the larger part of the population. The relevance of Traditional Medicine for the development of Modern Medicine (MM) is that a large number of modern medicines have evolved from the traditional medical knowledge and practices used in many societies.

Human health and well-being are influenced worldwide by complex interactions between economic, socio-cultural and political factors as well as by behavioural patterns and the application of technology (*cf.* Wilkinson 1996). Traditional medical treatment has also contributed numerous benefits to raising the local economy. Initially, oral communication has been used in the spread of information about traditional medical treatment. Due to the development of the media and communications technology, however, traditional health information is now being documented rather well, rendering it possible to be disseminated through the mass media, while a wide range of books have been published which also document the benefits of traditional medical knowledge and practices. The purpose of these studies is to properly disseminate such important knowledge and information, which has existed in numerous societies for many centuries (*cf.* Warren 1982; Slikkerveer 1995; Slikkerveer & Slikkerveer 1996; Leslie 1976; WHO 1999; Slikkerveer & Quah 2003; Ambaretnani 2012; Chirangi 2013).

These traditional media are presently still in use in the local communities, spreading health information through local networks. There are several factors to be considered in the utilisation of Traditional Health Information & Communication Systems (THICS) through the local media for this purpose: (a) the background knowledge and experience of the information seekers;
b) the moral conveyance as one of the main aspects of traditional communication; (c) the myths and folklores which contain the important elements of the life of human beings, such as illness and death; and (d) the information about the local history of the community which documents how ancestors have been living and how they strengthened their solidarity *(cf.* Gräf 2007).

Furthermore, the dissemination of health information in traditional societies typically uses a two-step flow of communication channels, meaning that the first step involves communication with community elders, traditional healers, traditional midwives and religious leaders as important opinion leaders, who as a second step transfer the information to their fellow community members on whom they have a strong influence. This is then followed by the medical officers. For example, for the promotion of certain modern medicines or the introduction of government health programmes, such leading community members can be approached and

functionalised by the government, as most of the local people tend to trust these opinion leaders concerning the provision of particular information to the communities.

In general, health information is disseminated to local communities through personal communication and the oral tradition which have usually shown to be most effective and efficient. Moreover, the local cultures have played an important role in raising experienced community members who feel responsible for the many aspects of health and healing in the community. In this way, *pamali* ('taboos') are well-known in Indonesia as a form of local, setting-specific restrictions on the behaviour of community members as a form of preventive measure against certain diseases. It consists of various rules concerning the avoidance of risky behaviour, such as in digestion, where it is forbidden for someone to eat too fast because it can cause flatulence, or to take a shower for too long a period of time, which is regarded as the cause of catching a cold. The type of communication delivered from parents to children or young people is rather persuasive, encouraging them to act on the basis of accepted community norms and values in order to avoid a negative impact on health. The Sundanese language is used for the explanation of *pamali* ('taboos'), generally understood by all Sundanese people. In this way, disease prevention can be achieved and the health of the society can be maintained and enhanced through local communication on *pamali* ('taboos').

Similar forms of Traditional Health Information & Communication Systems (THICS) are observed in the spread of the knowledge concerning the effective utilisation of traditional medical treatment and medicines, particularly with regard to Medicinal, Aromatic and Cosmetic (MAC) plants, both in the form of *jamu* ('plant-based home remedies') and as medicines provided by *dukun* ('traditional healers') (*cf.* Djen Amar 2010).

1.2.3 Modern Health Information & Communication Systems (MHICS)

Modern Health Information & Communication Systems (MHICS) which were introduced as the pillars of Western cosmopolitan medicine towards the end of the colonial period of time, encompass a structured form of modern medical knowledge, beliefs and practices shared by both the general public as well as by medical experts, and as such communicated by Western-trained physicians, nurses and medical assistants working in public and private organisations of the health sector.

According to Sparks (2007), modernity is not essentially harboured in a set of techniques or knowledge, but in '*a state of mind, a psychological disposition and an inner readiness which made the modern human open-minded to innovation and change'*. In line with such perspectives, Modern Health Information & Communication Systems (MHICS) are closely related to the modern medical system and have penetrated into various forms of media because of the recent influx and development of MHICS. The networks of MHICS tend to change and promote modern medicine and health care in two ways: e-medicine using the Internet to improve and to modify conventional forms of diagnosis, therapy and quality control; and biomedical research using competent networks in medicine. Eysenbach introduced one of the MHICS using electronic channels, called 'e-health' (*cf.* Martin 2004). The WHO (2005: 121) defines e-health as: *'... The cost-effective and secure use of information & communication technologies in support of the health and health-related fields including healthcare, health surveillance and health education, knowledge and research'*. It goes without saying that the operation system of e-health is inseparable from the support of the information technology, namely the Internet and computers as well as a wide range of related technologies. The main characteristic is not only limited to the development of technology, but also involves the obligation to engage in information & communication networks, a way of thinking, an attitude and a commitment for

networking and global thinking, in order to improve health locally, regionally and worldwide by using the Health Information & Communication Systems (HICS). The three main criteria to provide an efficient e-health system are that it is: easy to use, entertaining and exciting. Through e-health which uses the Internet, it is very easy to provide information and advice on health to the community, largely because of the fact that the language used is made easy to understand. Supported by the process of globalisation, the objectives of e-health generally focus on enhancing its credibility, namely:

- to optimise the efficiency and efficacy of health care delivery: traditional health care should be integrated into modern health care, enhanced by information technology and focused on policy barriers to e-health;
- to ensure safety and efficacy of health care and to create systems which enhance adherence to treatment and reduce costs;
- to make care accessible, *i.e.* to enhance transparency and accountability, to implement appropriate business models for e-health and to develop appropriate indicators in order to assess process, maturity, productivity and outcomes; and
- to implement evidence-based e-health interventions by means of developing international collaboration in order to evaluate the impacts of such interventions and by generating indicators to guide investment.
  (*cf.* Gremert-Pijnen 2011)

The facility of communicating through the WEB 2.0-based Internet has also created a space for two-way communication in modern medicine between patients and doctors. Various web pages of consultation are now provided in websites, for example for the reproduction of health consultation on beauty matters. This rubric provides space for patients to make complaints and ask questions about modern health care. It is a new trend in the field of modern medicine, where doctors answer questions which often contain suggestions on preventive measures, so that the patient's illness will not continue or get worse.

However, in the case of serious indications, physicians usually refer patients to consult personally with a health centre or a doctor. Various information pages available on the website are certainly readable and provide new knowledge to the reader in relation to the individual condition which is experienced by the patient. It is also more effective, as in the case of similar problems, that doctors do not need to explain the problem of symptoms and prevention techniques repeatedly in more detail. In addition, the presence of a website which provides space for interactive communication on modern medicine between doctors and their patients can educate people in health matters and constitutes a new form of communication in the field of modern medicine.

In addition, recent new applications have also been developed on smartphones which can be used as Modern Health Information & Communication Systems (MHICS). A user of a smartphone can also use an application for health promotion to count for instance the number of calories burned during exercise, and there are now various health calculators which are able to count the calories needed by the body by adjusting the weight and activities that are being carried out.

As in the case of the Traditional Health Information & Communication Systems (THICS), this study is focused on the documentation and analysis of the factors influencing the utilisation of the Modern Health Information & Communication Systems (MHICS) from the consumers' perspective of local people, clients, patients and their families at the community level.

1.3 Utilisation of Plural Health Information & Communication Systems (PHICS)

1.3.1 The Ethnoscience Perspective on Health Information Utilisation

Public Health is the general discipline encompassing all organised public and private activities to prevent disease, promote health, and treat disease of the population. The collection, documentation and utilisation of health- and disease-related information have been identified as rather important activities among the general public as the basis for the improvement of the health of the people. Since utilisation by the local people of health information in the form of different, albeit closely related Health Information & Communication Systems (HICS) is focused on the above-mentioned consumers' perspective, the utilisation of information within the context of health and disease has recently also emerged as an essential component of nursing practices and modern health care systems, in which the delivery of evidence-based care, policy development and advocacy by nurses can make a strong contribution to the health of the population (*cf.* Sigma Theta Tau 2004) [1].

Generally, the utilisation of health information systems is assessed in a facility-based approach, such as in a hospital, health centre or health station by measuring the use by the health personnel involved in modern health information for decision-making in order to take immediate action including feedback from supervisors, calculation of area coverage and preparation of maps, presentation of key indicators with charts or tables and the presentation of achievements of targets *(cf.* Abajebel *et al*. 2011).

In contrast, the community-based approach to utilisation implemented in this study describes and analyses the influence of interpersonal communication among patients and clients and their families through the utilisation of, on the one hand, the traditional, and on the other hand, the modern health information provided by family members, lay health advisors, traditional healers, as well as doctors, nurses and midwives, who are highly respected in their communities. Such influence is often reflected in the local decision-making process following the consultation of the illness management groups in the community. In view of the fact that according to two studies by WHO (2002a; 2002b) the utilisation of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) is increasing throughout the world, and that in low- and middle-income countries, up to 80% of the population tend to rely on Traditional Medicine (TM) for their primary health care needs, the utilisation of related Traditional Health Information & Communication Systems (THICS) is likely to show a similarly high proportion among the local people. By consequence, the assessment of the utilisation behaviour of the Plural Traditional Health Information & Communication Systems (PHICS) by the community members should include a comparative approach towards the analysis of factors influencing the utilisation of THICS, and the utilisation of the Modern Health Information & Communication Systems (MHICS), together forming the main components of the overall Plural Health Information & Communication System (PHICS) at the community level.

Local community Health Information & Communication efforts include the encouragement and maintenance of social norms and cultural values and institutions, which have shown to reduce illness and enhance the health of the community over many generations. An important part of the Traditional Health Information & Communication Systems (THICS) at the community level is the provision of social support by the community members for the patients and clients' physical and mental well-being. It is clear that in these community-based THICS, social support and kinship relations are manifest in the related socio-cultural factors of group membership, ethnicity, age, language, way of life and life style.

In order to study and understand such complicated local systems, a special research methodology is needed. To this end, a specific *ethnoscience* methodology has been selected for the research in Sukamislin, known as the *Leiden Ethnosystems Approach*, specifically designed for community-based research of indigenous knowledge, beliefs and practices. The approach is grounded in the new field of study of ethnoscience, and encompasses three major principles*, i.e.* the Historical Dimension (HD), the Participants View (PV) and the Field of Ethnological Study (FES) (*cf.* Slikkerveer 1990). Both the selected research methodology and the analytical model elaborate on the specific ethnoscience-based research methods and techniques used for data collection and analysis in both the qualitative and quantitative parts of the study.

Meanwhile, a new concept has been developed at the community level representing the government-supported modern medical system, known as 'Effective Health Information & Communication'. The concept is mainly used by the government to influence modern community health development programmes and projects, aimed at engendering positive changes in the health and illness behaviour of the community members. In addition, the community-based Health Information & Communication Systems (HICS) also seek to change the socio-economic and natural environment and improve the delivery of formal health care services.

The elaboration of the related concept of 'Community-Based Health Information Systems' (CBHIS), however, is primarily focussed on the development of the modern health care system in terms of the improvement of the quality of the health manpower, capable to collect, analyse, and take decisions on the basis of collected data. The system generally consists of a computerised data set on statistical information on births, deaths, diseases, programmes and health care services provided in a particular region, often at the level of the Provincial and District Health Offices. So far, however, important data on traditional medical systems, functionaries and local treatment are often absent in these Health Information Systems (HIS).

An interesting example of a modern 'Community-Based Health Information System' (CBHIS) in Indonesia is provided by the Report on Community-based Health Information Systems by Tanoe *et al* (2003) in the region of the Landak Child Survival Project of West Kalimantan. While the related CBHIS Workshop largely follows the design and implementation of a modern health information system, promoted by Lippevel, Sauerborn & Bodart C (2000), it shows the lack of empirical data on the utilisation of Traditional Health Information & Communication Systems (THICS) by the majority of the population in the area. Following the objectives of the Workshop in raising the attention of the health staff of the District Health Office about the importance of the data collected, advocating for both the implementation of a better Health Information System (HIS) at the level of the District Health Office, and for the integration of Community Based Death and Diseases Surveillance (CBDDS) into the formal Health Information System (HIS) in West Kalimantan at the level of the Provincial and District Health Offices, as well as improving the District Health Officers' capability to summarize and present collected data at the district government levels, this all reflects strengthening the modern medical system without paying attention to the role and possible integration of traditional healers and birth attendants and their useful Traditional Health Information & Communication Systems (THICS) (*cf.* Tanoe *et al.* 2003).

As mentioned above, the study of the utilisation of Plural Health Information & communication Systems (PHICS) by the local population through the documentation, analysis and explanation of significant factors influencing the utilisation behaviour of both the Traditional and Modern Health Information & Communication Systems (T&MHICS) is important to health information problem-solving as it could identify and locate the inadequacy of appropriate information on how to prevent disease, promote health or treat illness, while it could at the same

time highlight the existence of functional Traditional and Modern Health Information & Communication Systems (T&MHICS) at the community level. In this context, the concept of 'meaningful use' of health information has been introduced to refer specifically to the utilisation of modern health information technology. The term refers to a broad concept which includes a range of technologies to store, share, and analyse formal health information with a view to providing additional health services to clients and patients. Especially in developed countries, health care providers are using Health Information Technology (HIT) to improve the quality of modern patient care in formal health institutions.

In the American modern health care system, the phrase 'meaningful utilisers' refers specifically to people who qualify to receive funds under the *Medicare and Medicaid Electronic Health Records Incentive Programmes* provided by the 'American Recovery and Reinvestment Act' of 2009. According to Daniel (2011), the funding is largely made available to health care providers who have adopted the system of electronic health records which they use to improve both the health of the patients and to increase the efficiency of the modern health care system. Although this particular form of Health Information Technology (HIT) is generally referring to primary health care providers, the utilisation of Health Information Technology (HIT) by individuals has recently also been operationalised for individuals – clients and patients – who have begun to better communicate with family members, nurses and doctors in order to learn and exchange not only modern, but also traditional information about health and disease, and undertake actions to improve their health and well-being.

The significance for individual clients and patients includes several health benefits, such as raising the awareness of health risks, providing the motivation to reduce those health risks, finding appropriate solutions and consulting with other patients who are experiencing similar health problems. In this context, Cline (2003) argues for shifting the focus of interpersonal communication about health and disease from formal to informal contexts: *'... everyday talk highlights a rich and untapped dimension of communication that could contribute to reducing disparities'.* The elimination of these health disparities in terms of inequalities between health outcomes of populations or groups as the result of the impact of different socio-demographic, economic and cultural determinants has become the strategy of several national public health programmes seeking the provision of health care for all members of the society. In such programmes, health communication strategies are implemented by experts to realise not only individual, but also community health care programmes and policies with a focus on equity in health care delivery services.

With the development of digital information technology, where computer-based media have extended the information and services of interest to the people, new interactive forms include the possibility to respond to information and exchange messages within the wider networks of the Internet. In this way, new opportunities have been created for health information & communication to extend beyond the inner circles of households and communities in order to engage into cross-boundary and cross-cultural communication on health and illness. Closely related to the emergence of the new interactive forms of Health Information & Communication (HIC) is the development of the interpersonal communication theory which seeks to further understand the interaction between providers and clients, also known as doctor-patient relations and interactions. Such a theory is particularly interested in the study and understanding of the way in which interpersonal relationships are influencing peoples' decision-making and their health and illness behaviour.

1.3.2 *Reformasi*: The Era of Extension of Public Information in Indonesia

Following Indonesia's accession to the information superhighway of the Internet in 1996, the new era of the *Reformasi* ('Reformation') had begun in 1998, with the fall of President Soeharto, with special attention for the freedom of the press [2].

Then, the government changed its policy on publicity, rendering it easy to publish newspapers, journals and other forms of printed media. This change in government policy had a strong effect on the development of various media industries in the country, ranging from newspapers, magazines, tabloids and books. While under the former *Order Baru* ('New Order'), many media had their operational license revoked because they were considered critical to the regime in power at the time, under *Reformasi* ('Reformation'), they regained their freedom in extending unrestricted information to the public. The data of the printed media, released by the *Aliansi Jurnalis Independen* (*AJI*) ('Independent Journalists Alliance'), indicate that in 1997 the number of newspapers increased from 79 to 299, magazines from 144 to 491 and tabloids from 88 to 886 (*cf.* AJI 2001). Thus, the Indonesia *Reformasi* ('Reformation') of 1998 became a turning point in the development in various areas of broadcasting, printing and online media. The number of various media outlets continuously increased until it reached 12 media groups which are run by large private companies, *i.e. MNC group, Kompas Gramedia Group, Elang Mahkota Teknologi, Visi Media Asia, Jawa Pos Group, Mahaka Medika, CT Group, Beritasatu Media Holdings, Media Group, MRA Media, Femina Group and Tempo Inti Media* (*cf.* Nugroho & Syarief 2012).

With the further development of the printed media, a great variety of books were published in the field of politics, literature, defense, security and health. During the previous regime of the *Order Baru* ('New Order'), many books which were considered disruptive or threatening to the government administration had to be withdrawn from the society as 'banned books'. Presently, however, publishers are entitled to issue publications in book form, albeit under the provision that the content of the publication is free from ethnicity, religion, race and group interests (*suku, agama, ras dan antar golongan, SARA*). Furthermore, the development of the publishing industry is also significant as publishers are not only found in big cities, such as Jakarta, Bandung and Yogyakarta, but also in the small towns in and beyond the island of Java. The same process has evolved with the publishing of posters and billboards and the production of other forms of printed media. Hence, the advertising industry in Indonesia emerged and has been growing rapidly since the late 1990s, giving a new colour to the visual communication systems.

Meanwhile, the development of television as mass broadcast media has had quite a long history in Indonesia. In the 1950s, television started to replace the radio as a new medium in the world of mass communication which at that time was still using the 'Community Antenna Television' (CATV). Subsequently, in the 1960s, television broadcasting finally developed additional channels and from the 2000s onwards, digital television was introduced which changed the analogue system, rendering it possible to combine the Digital Video Player (DVD) and the Video Compact Disc (VCD). Later, from 2010 onwards, television programmes could be received with streaming technology via cell phones and tablet computers with Internet support (*cf.* Gross 2013).

Although according to Arifin (2011) television has been present in Indonesia since 1962, prior to 1998 there were only two television stations broadcasting in Indonesia: *Televisi Republik Indonesia* (*TVRI*) and *Televisi Pendidikan Indonesia* (*TPI*), although the television programmes were still limited to black and white [3 & 4]. According to the *Aliansi Jurnalis Independen* (2001), the broadcasting media increased and 200 new radio and 5 new television licences have been issued so far. However, the press has become increasingly commercial by becoming a

rather business-oriented than social institution, since the media owners are formed by conglomerates. A range of actual information is presented to the viewers through various programmes. The function of private television in Indonesia is not only to entertain like the mass media, but also to operate in accordance with the function of state television. In addition, the mass media are sometimes also used as a tool to incite revolution - stipulated in the Law of the Press of 1966 - with a national direction and as a tool for national development (*cf.* Law Press 1982).

Presently, the focus of communications systems in Indonesia is on freedom of information, while the freedom of receiving information in Indonesia is regulated by Law Number 14 of 2008. Both freedom of speech and freedom of the press in the society are the main pillars of the communications system in Indonesia.

The mass media in Indonesia also have an ideological function in the process of democratisation which combines politics with economic democracy. Besides, political communication in the country functions as a linkage between the provision of information, education and entertainment as well as pursuing social control overseeing incumbents (*cf.* Arifin 2011). As a convergence medium, the Internet has brought about several changes to the communication systems in Indonesia. Additionally, many people are attracted to the use of the Internet on a personal level since the 1990s. The rapid development of the Internet in Indonesia was documented by the *Asosiasi Penyelenggara Jasa Internet Indonesia* (APJII) ('Indonesian Internet Service Provider Association') in 2004 as follows: in 1996 there have been only 31.000 subscribers and 110.000 users after 8 years, while in 2007 there have been 2.000.000 subscribers and 25.000.000 users. Later in 2012, the number of Twitter users in Indonesia exceeded 19,5 million, while the number of blogs was more than 5,3 million, with as many as 42,5 million Facebook users. Presently, Indonesia is one of the largest users of social media in the world, such as Twitter and Facebook (*cf.* Nugroho & Syarief 2012). Consequently, the development which emerged from the presence of the Internet has also affected other media, *i.e* telephone, television, radio, as well as the press and journalism. Currently, the telephone can be used for communication by using the Internet, while the video call also uses applications, such as Skype, WeChat, Line and many other applications. Technology enables people to communicate easily face-to-face through the media. Besides, television and radio broadcasts can be obtained by streaming and playback technology via the Internet, so that people who do not have the time to listen to the actual broadcast are able to hear them at a later time. Newspapers have also been improved as a new media phenomenon called the 'e-paper'. Subsequently, newspapers and magazines have gone online by using cell phones and smartphones and can be accessed with Internet support.

Social media, such as Facebook, Twitter, Line, Blackberry Messenger, WeChat, Google+, Path, Instagram and other media, have connected people to each other in different parts of the world. In addition, the trend in communication using social media has provided a new dimension to the development of communication and sharing of information to a large number of people. Information concerning people can be tracked down easily through social media accounts, ranging from events to pictures of activities. Thus, social media can be considered as a medium which transforms the limitation of the personal space or area into the public area, although social media users have to be familiar with the rules concerning privacy in communication. According to the Internet Research Centre Indonesia (IIRC), Internet users can be divided into three categories:

1 existing users: active users of several services including email, web surfing and e-commerce;
2 perspective users: users who are not using the Internet but who have the potential to use it in the future (students, employees);
3 users who do not fit into the two categories mentioned above because of certain factors, such as their level of education, type of work or economic status.
(*cf.* Setyadi 2005)

Online games supported by information technology have transformed the appearance of traditional games, such as *Mahjong* and *Congklak,* and other forms can presently be found in digital form or online. Such transformations show that communication technology has brought about changes in many areas of life, such as in online stores, online medical consultations and with various guides which can be viewed online by the public.

In the meantime, the library as a source of information and a place which has become the estuary of information as part of the communications system has developed from human activities over a large distance. As Stuart (2004: 210) states: '*Libraries could not exist without people*'. At first, library activities were limited to the collection, storage, service and preservation of collections of printed and recorded information, such as monographs, magazines, newspapers and reference books. The tracking information system was limited to using the catalogue card [5]. Along with the development of the Information & Communication Technology (ICT), the library continues to evolve from a traditional library containing a collection of monographs and manually-tracked information to what is currently called a *Digital Library* with the concept of *'a library without walls'* [6].

Furthermore, digital libraries and library automation are innovations in the field of library science, since initially the concept of a library was limited to a physical building containing a collection. Later on, this concept shifted, so that current libraries and their information can be accessed anywhere. Users can also interact with the librarian through the support of the 'Web-based Media 2.0', also known as 'Library 2.0'. However, nowadays information retrieval can be easily executed through a search box on the Internet to retrieve any kind of information. The integrated database in the system of 'Library 3.0' shows quite a significant development of the library. It facilitates information retrieval by using the main catalogue ('union catalogue') integrated throughout the library system. Thus, if someone needs specific information, the user does not have to come personally to the library to look directly for the required information.

In other words, the library as an important source of information has become an integral part of the society. Moreover, a shift occurs in the role of Information & Communication Technology (ICT). At first, ICT was only a representation of information for decision makers, but currently, with the presence of the Internet, it has also become the deciding factor in business activities (*cf.* Applegate 2001). The proper use of ICT will certainly have a positive impact on the acquisition of quality information to drive innovation and improve performance in development from the Agriculture Society through the Industry Society and Information Society to the Knowledge Society (*cf.* Setyadi 2005). As each new era needs new literacy skills, the current entry into the era of information requires a sound preparation for the rapid advances in Information & Communication Technology (ICT).

1.3.3 The Development of Information & Communication in Indonesia

The *World Summit on the Information Society* (2003) declares the common desire and commitment to build a people-centred, inclusive and development-oriented information society,

where everyone can create, access, utilise and share information and knowledge, enabling individuals, communities and societies to achieve their full potential in promoting their sustainable development and improving their quality of life, premised on the purposes and principles of the *Charter of the United Nations* (1945), respecting fully and upholding the *Universal Declaration of Human Rights* (1948). Feather (1994: 154) states that: '*the information society is a product of the use of computers and other electronic and audiovisual media*'.

The *Declaration of Information Society* (2003) provides this opportunity to realise development on the basis of the U.N. Millennium Development Goals (2005), recently succeeded by the U.N. Sustainble Development Goals of the Post 2015 Agenda (2015). The new focus is put on the eradication of extreme poverty and hunger, the achievement of universal primary education, the reduction of child mortality, combating HIV/AIDS, malaria and other diseases and the improvement of maternal health.

An essential foundation of the 'Information Society' as outlined in Article 19 of the *Universal Declaration of Human Rights* (1948) is the statement that everyone has the right to freedom of opinion and expression, and that this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media, regardless of frontiers. This statement supports communication as a fundamental social process, a basic human need and the foundation of all forms of social organisation. Everyone everywhere should have the opportunity to participate and no one should be excluded from the benefits which the *Information Society* offers (*cf.* International Telecommunication Union ITU 2003). The provisions of Article 29 of the *Universal Declaration of Human Rights* (1948) state that everyone has his/her own duty in the community, and also the freedom to develop him/herself and to build his/her own character, which underscores that every human deserves to get the same opportunity in life. However, in the implementation of their rights, all individuals should obey the laws with which the regulations and rules are comprehended as the guarantee of recognition and respect for the rights and freedoms of others, to meet morality requirements, public order, and global welfare in a particular democratic society.

Education, knowledge, information & communication are at the core of human progress, endeavour and well-being. Furthermore, Information & Communication Technologies (ICTs) have an immense impact on virtually all aspects of peoples' lives. The rapid progress of these technologies opens up completely new opportunities to attain higher levels of development. The capacity of these technologies to reduce many traditional obstacles, especially those of time and distance, makes it for the first time in history possible to use the potential of these technologies for the benefit of millions of people in all corners of the world (*cf.* ITU 2003). However, the traditional aspects of the indigenous cultures which could disappear as a result of the rapid development of technology should be given special attention, as the general responsibility is felt worldwide of how to maintain significant traditional systems of knowledge, beliefs, practices and values in each state as part of the rich cultural heritage of each country. In this way, technology has to contribute to the establishment and maintenance of those traditional systems as technology should be a tool to build and not to destroy.

According to the *World Summit on the Information Society* (ITU 2003), the key-principle of the *Declaration of the Information Society* is an information society for all, with regard to several aspects, which are classified as follows:

- the role of governments and all stakeholders in the promotion of ICTs for development;
- information & communication infrastructure as an essential foundation for an inclusive information society;
- access to information and knowledge;

- capacity building;
- building confidence and security in the use of ICTs;
- an enabling environment;
- ICT applications: benefits in all aspects of life;
- cultural diversity and identity, linguistic diversity and local content;
- media;
- ethical dimensions of the *Information Society*; and
- international and regional cooperation.
  (*cf.* ITU 2003)

Since technology has nearly become a basic need of people's daily life, where people need telephones, mobile-phones, television, computers, the Internet, and many other devices to enter into communication with other people, the recent technological transformation of information & communication is able to close the gap because it renders the dissemination of information and extends communication more easily and quickly. The advantages include such factors as acceleration of time for management, limited broadcasting and telecommunicating, as long as the network and energy of the technology products are available.

In order to realise the information society, intensive cooperation is required from many related elements established on shared knowledge. It means that all individuals should understand and share the public vision of the inclusive information society which incorporates the main principles as mentioned above. With the arrival of the new electronic era, the potential to realise the information society has been further opened. In the emerging information society, information and knowledge can be produced, exchanged, shared and communicated through all the networks of the world. Thus, every individual can take fast action on the basis of acquired knowledge, rendering it a strategic step forwards for the future.

As regards the implementation of the Information Society, the research carried out by the Asia Pasific Communication (APC 2013) shows a number of conditions which have to be taken into consideration. These conditions include: poverty eradication, gender justice, importance of youth, access to information and communication, access to health information, basic literacy, development of sustainable and community-based ICT solutions and conflict situations. Also, some of the rights which need to be implemented within the context of human rights are: media freedom, security, privacy and protection, the right to participate in public affairs, workers' rights, the rights of displaced people, the rights of indigenous peoples, women's rights, the rights of the child and the rights of persons with disabilities (*cf. Declaration of the Information Society* 2003). Other issues include the regulation and rule of law, language and cultural diversity, the public domain of global knowledge, copyright patents and trademarks, software and research. The enabling environment includes ethical dimensions, democratic and accountable governance, infrastructure and global governance of Information & Communication Technology (ICT) (*cf.* APC 2013).

The commitment to realise an 'Information Society' in Indonesia is held jointly by several parties, such as the Ministry of Education, the Ministry of Health, the Ministry of Social Affairs, the Ministry of Religion, the Ministry of Labour, the Ministry of Women's Empowerment and Empowerment of Disadvantaged and Rural Communities (*cf.* Soeprijanto 2005).

1.3.4 *Indonesia Sehat 2015:* Towards a Health Care Strategy

The strategy of 'Healthy Indonesia' was initially developed from the concept of 'Healthy Indonesia 2010' which was followed by 'Healthy Indonesia 2012' and continued with the

strategic plan of the Health Department (presently: the Ministry of Health of Indonesia) 2010-2014, and advanced to become the *Strategic Plan of the Ministry of Health 2015-2019.*
In order to advance the development of health programmes, several efforts should be made, such as promotional, preventive, curative and rehabilitative efforts which are reflected in the implementation of the health programme concerned. In order to support these efforts, availability of various data on the target population of the health development programme are needed (*cf.* Ministry of Health 2012). The administration of the government of the former President Dr. Susilo Bambang Yudhoyono launched a programme named *Indonesia Sehat* 2015 ('Healthy Indonesia 2015') as the leading vision of national health. The essence of this programme emphasised the importance of health not only as a human right and the investment of the nation's health, but also as a central point of national development. The vision, mission and objectives of this policy can be achieved properly, if they are supported by highly-qualified medical personnel and well-equipped facilities, and in particular by both Information & Communication Technology (ICT) and Integrated Medical Databases.

While Indonesia had jointly signed the UN Millenium Development Goals (MDGs 2000) as its commitment to achieving these goals to improve the situation of the population aroung the globe by 2015 in areas of poverty and hunger, health, gender, education, clean water, and the environment, it recently also undersigned the U.N. Post-2015 Agenda for Sustainable Development in order to eradicate poverty by 2030.

The health strategy of the government's policy is managed by the Ministry of Health. The National Health Care System (*SKN*) is a health development system held by all integrated sectors of Indonesia and is mutually supported in order to ensure the achievement of a public health level as high as possible. The Presidential Regulation No.72/2012, Article 6 on the National Health Care System formulates the goal of the '*Healthy Indonesia 2012*' programme as follows: '*Implementation of the National Health System (SKN) which emphasizes the improvement of the behaviour and community self-reliance, professionalism of human resources for health, as well as the promotive and preventive efforts without prejudice to curative and rehabilitative services'*.

Similarly, the government has legislated a policy which provides local and provincial governments and municipalities with a kind of regional autonomy to govern the affairs of their administrative budget in their respective regions. Some authorities, however, are still retained by the Central Government and have not been entrusted to the local authorities to be administered by themselves in the field of defence, monetary and fiscal policies, foreign affairs, law and religion. The vision and mission of the Government of the Republic of Indonesia will be achieved through the programme of *Indonesia Sehat* 2015 ('Healthy Indonesia 2015') and the policy of decentralisation, which particularly refers to the following three pillars:

1 the health paradigm;
2 strengthening health services; and
3 health insurance.

The three above-mentioned pillars have subsequently been used as the main pillars of the programme of *Indonesia Sehat* 2015 ('Healthy Indonesia 2015') of the Ministry of Health, and turned into the main goal of Indonesia's national health care system. The *Rencana Pembangunan Jangka Menengah Nasional* (RPJMN) ('Medium-term National Development Plan') in the field of health is based on the following six objectives:

1 to increase the health and nutritional status of mother and child;
2 to increase disease control;

3 to increase access to and quality of basic health services and referrals, particularly in remote, disadvantaged and border areas;
4 to increase the universal health care coverage through the Healthy Indonesia Card (*Kartu Indonesia Sehat*) and quality health management;
5 to fulfil the requirements for health personnel, medicines and vaccines; and
6 to increase the responsiveness of the health care system.

The Strategic Plan of the Ministry of Health 2015-2019 aims at increasing not only the health status of the community but also the responsiveness and the protection of the public against the risk of social and financial health problems, in which the different Health Information and Communication Systems (HICS) take a dominant position.

It is clear that in realising such ambitious objectives, the role of the Plural Health Information & Communication System (PHICS) in Indonesia is crucial, and as such deserves further documentation, analysis and understanding of its utilisation by the local people as a contribution to the health improvement of the population at the community level.

1.4 Aim and Objectives of the Study

1.4.1 General Aim and Specific Objectives

While the people of Indonesia have utilised Traditional Health Information & Communication Systems (THICS) over many generations, the Modern Health Information & Communication Systems (MHICS) were introduced during the colonial period of time, which lately experienced a major development as the result of the process of globalisation and the related advance of the Information & Communication Technology (ICT). Notwithstanding, Traditional Health Information & Communication Systems (THICS) have also benefitted from the globalisation process and the expansion of the media, where traditional medical knowedge and practices have found their way into the media through the process of 'development from the bottom'.

The resulting Plural Health Information & Communication System (PHICS) in the Sundanese region of West Java provides an interesting complex which needs further research in order to provide a basis for future health information & communication policies, focused on the improvement of the health of the population.

The general aim of this research is to document, study and analyse the utilisation of the Plural Health Information & Communication System (PHICS) by the local population of Sukamiskin in the Sunda Region of West Java through the identification, documentation, and analysis of significant factors influencing the related utilisation patterns, differentiated within, on the one hand, the Traditional Health Information & Communication Systems (THICS) and, on the other hand, the Modern Health Information & Communication Systems (MHICS) at the community level. In addition, the implications of the research findings are used as a basis for the development of an empirical model of integration of Traditional and Modern Health Information & Communication Systems (T&MHIC) as a planning tool for realising 'Information Society Indonesia' (2003) within the context of health in the near future.

In order to realise this general aim, a subdivision is made in a number of specific objectives to be achieved which are formulated as follows:

Firstly, to present the theoretical orientation of the new field of Health Information & Communication (HIC), placing special emphasis on Plural Health Information & Communication Systems (PHICS), including a description of the impact of globalisation on this system in Indonesia;

Secondly, to present the selected specific ethnoscience research methodology and the related appropriate analytical model and its components for the execution of the stepwise Bivariate, Mutual Relational, Multivariate and Multiple Regression Analysis of the collected quantitative data;

Thirdly, to present an overview of the research setting of the study encompassing the geography and historical background of the Republic of Indonesia, the Province of West Java, and the research area of Sukamiskin, located in Bandung, the Capital of the Province of West Java;

Fourthly, to describe the daily life in Sukamiskin: a presentation of data both available and collected among the people of the research population, *i.e.* the residents of the community of Sukamiskin, and the sample population, *i.e.* the selected household heads. In addition, a general description will be presented on the plural medical system, operational in Sukamiskin;

Fifthly, to describe the Traditional Health Information & Communication System (THICS) in the community of Sukamiskin;

Sixthly, to document the specific indigenous knowledge and classification of MAC plants used for *lalab* ('raw vegetables') and *ubar kampung* ('traditional Sundanese medicine') by the people of Sukamiskin as a major component of the Traditional Health Information & Communication System (THICS);

Seventhly, to describe the Modern Health Information & Communication System (MHICS) in the community of Sukamiskin;

Eighthly, to present the results of the stepwise bivariate, mutual relations, multivariate and multiple regression analyses of the quantitative data from the household surveys showing and explaining the differential relationship of significant factors in relation to the local peoples' utilisation of the Plural Health Information & Communications System (PHICS) in Sukamiskin, sub-divided in the Traditional and Modern Health Information & Communications System (THICS and MHICS) in Sukamiskin; and finally,

Ninthly, to present the conclusions and the theoretical and practical implications of the study, with special attention for the development of a strategic model of an Integrated Health Information & Communication System (IHICS) as a planning tool in order to provide a contribution to the improvement of the local people's level of health literacy, and as such to 'Information Society Indonesia' (2003) within the context of public health development in the near future.

1.4.2 Structure of the Study and Arrangement of the Dissertation

The structure and organisation of the chapters in this study is as follows:

Chapter 1 presents an introduction to the new field of Health Information & Communication (HIC), placing special emphasis on the Plural Health Information & Communication System (PHICS) in Sukamiskin, together with the recent policies on health information development in Indonesia;

Chapter 2 presents the theoretical orientation of the new field of Health Information & Communication (HIC), encompassing Plural Health Information & Communication Systems (PHICS), built on Traditional and Modern Health Information & Communication Systems (T&MHICS), and the need to document, study and analyse local peoples' utilisation behaviour of these distinct information systems from a community perspective;

Chapter 3 describes the selected research methodology and analytical model, and elaborates on the specific ethnoscience-based research methods and techniques used for data collection and analysis in both the qualitative and quantitative parts of the study;

Chapter 4 presents general information on the research area of Indonesia as a newly-developing country in South-East Asia, and the Sunda Region as a culture area in West Java, providing the background to the study;

Chapter 5 describes the profile of the daily life of the local people in Sukamiskin: the population, geography, the socio-demographic and economic structure and data on the plural medical system and the related Plural Health Information & Communication Systems (PHICS), documented from the household surveys;

Chapter 6 presents not only a description of the Traditional Health Information & Communication System (THICS) in Sukamiskin, but also the related indigenous knowledge and practice of Medicinal, Aromatic and Cosmetic (MAC) plants, used as a major expression of *lalab* ('raw vegetables') and *ubar kampung* ('traditional Sundanese medicine');

Chapter 7 provides a description of the Modern Health Information & Communication Systems (MHICS) in Sukamiskin;

Chapter 8 presents the results of the stepwise bivariate, mutual relations, multivariate and multiple regression analyses of the quantitative data from the household surveys showing and explaining the differential relationship of significant factors in relation to the local peoples' utilisation of the Plural Health Information & Communications System (PHICS) in Sukamiskin, sub-divided into the Traditional and Modern Health Information & Communications Systems (THICS and MHICS) in Sukamiskin; and finally,

Chapter 9 presents the conclusions and the theoretical and practical implications of the study, with special attention to the development of a strategic model of an Integrated Health Information & Communication System (IHICS) as a planning tool in order to provide a contribution to the improvement of the local people's level of health literacy, and as such to 'Information Society Indonesia' (2003) within the context of public health development in the near future.

Notes

[1] The study of Knowledge Utilisation (KU) refers to the use of various kinds of research knowledge, identified by Horsely, Crane & Bingle (1978) as an 'organisational process', particularly in nursing practices. The literature on nursing theory and practices documents several models describing the KU process, in which recently a need has emerged to increase evidence-based nursing practices to improve the quality of those practices (*cf.* Edgar *et al.* 2006).

[2] President Soeharto was the second president of the Republic of Indonesia. His administration is called the *Orde Baru* ('New Order').

[3] *TVRI* is the National Television of Indonesia which is managed and funded by the Government of Indonesia. *TVRI* was established on 24 August 1962 with the slogan '*Menjalin Persatuan dan Kesatuan, Saluran Pemersatu Bangsa*' meaning 'National Integrator Channel' or 'Establish Unity and Integration, National Unity Channel'. *TVRI* has stations in every province and region to broadcast programmes in the national range, therefore the area of information and news can be received by the entire nation.

[4] *TPI* stands for *Televisi Pendidikan Indonesia* ('Indonesian Education Television'). *TPI* was established on January 23rd 1991, but on October 20th, 2010 it was acquisitioned by *Media Nusantara Citra Televisi (MNCTV*).

[5] A catalogue card is a description of bibliographical material. There are three kinds of access points according to which the cards are recorded, namely the title of the collection, the author and the subject. The size of the catalogue card is 12 x 7.5 cm and is in accordance with the Anglo American Cataloguing Rules (AACR).

[6] The Digital Library is an online collection of digital objects of assured quality which are created or collected and managed according to internationally accepted principles for collection development and made accessible in a coherent and sustainable manner, supported by services necessary to allow users to retrieve and exploit the resources (*cf.* IFLA (2011).

Chapter II. THEORETICAL ORIENTATION

The present chapter presents an overview of different theories and approaches concerning the study and analysis of the utilisation of the Traditional and Modern Health Information & Communication Systems (HICS), co-existing in the study community of Sukamiskin.

First, the introduction of the concept of health information seeks to shed light on the conceptualisations of health and health information, health information needs and management, and the media involved in health information. On the basis of these conceptualisations, the chapter subsequently highlights the approaches towards health information literacy and health education.

Following an initial outline of principles, the focus shifts to the concept of health communication and understanding where attention is drawn to the definition of health communication, the models of health communication, the interrelationship between health communication and health promotion, the media and the relations between traditional and modern health information and communication, and their relevance to public health. Thereafter, the new concept of the Health Information & Communication System (HICS) is described in relation to the paradigms of traditional and modern health information & communication.

The chapter concludes with an outline of the concepts of traditional and modern health information & communication systems, and the concept of development communication for sustainable community development.

Finally, the chapter highlights a new approach towards the formal integration of various forms of Health Information & Communication (HIC), thereby specifying the development of communication and the integration of Traditional and Modern Health Information & Communication Systems (T&MHICS) into Integrated Health Information & Communication Systems (IHICS). The theories and ideas described in this chapter provide a comprehensive framework for the subsequent execution of the research which has been conducted on the Plural Health Information & Communication System (PHICS) in the community of Sukamiskin in the Sunda Region of West Java, Indonesia.

2.1 Health Information

2.1.1 The Concept of Health Information

Health has initially been defined by WHO (1978) as: '*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'*. Later, Sofoluwe (1985: 3) extends this concept into community health as: '*that branch of health service which aims at achieving the highest level of physical, mental, social, moral and spiritual health for all citizens on a community basis'*. According to Naidoo & Wills (2000), health is a broad concept carrying a vast range of connotations which can be traced back to the old English word 'heal', meaning 'whole', and thereby indicating that health encompasses people as a whole including their integrity, soundness and well-being. In general, the members of a community share so-called 'common-sense' or 'lay' interpretations of health which are handed down from generation to generation as part of a common cultural heritage and can be acquired in the form of knowledge by all community members through processes of socialisation and learning. Definitions of health which have developed in the context of modern, scientific theories, initially explained health as the mere absence of disease and illness.

Kazarian & Evans (2001: 7) argue that: '*Health is a source which gives people the opportunity to manage and even change their surroundings… a basic and dynamic force in our lives, influenced by our circumstances, our beliefs, our culture and our social economic and physical environment'*.

Following the various interpretations of health, the idea of information has been studied by Hess & Ostrom (2007), who indicate that information generally contains a message and pursues an objective. As Davis (1974: 32) elaborates: *'Information is data which have already been processed to become an important shape for the receiver and have the real value which can be felt in decisions for now or in the future'*. Information can fulfil its function when it is offered to the right person, at the right time and in the right shape, and is completed with data. The present-day conceptualisation of information is well explained by Rubin (2004: 33) who asserts: '*In the past, books have played an important role in the distribution of information which was particularly true in libraries, subsequently with the advance of scientific information there has been development in the storage of media'*.

Currently, media, such as books, periodicals, documents, research reports and microfilms are used primarily and extensively as tools to search for information, thus rendering the storage of information, as it motivates users to seek information, most essential. Krikelas (1983: 8) argues that: '*there may be two different basic activities to obtain information: information seeking and information gathering*'. *Information seeking is an attempt to satisfy an immediate need by searching for relevant information. Information gathering is an attempt to satisfy a deferred need by searching for relevant information'*.

Following the advance of the Internet and the rapid development of communication technology, sources of information are no longer limited to primarily printed materials. As a consequence, converged media have become a significant information source which can be accessed by individuals seeking health information. In addition, the concept of '*the library without walls'* - also known as the 'Digital Library'- has introduced a newly-emerging type of media which includes e-newspapers and e-magazines. The phenomenon of the World Wide Web defines media as a one-way flow of information which is accessible to every individual in different places of the world. The recent expansion of the World Wide Web has given rise to the development of Web 2.0 which facilitates two-way communication through specific types of media, the so-called 'interactive media'. Web 2.0 assists the progress of sharing and discussing information in the light of numerous subjects and enables the use of social media, such as Facebook, Twitter, Path, WhatsApp, Line and You Tube as well as Podcasts and Mailing Lists. In general, these specific patterns of information-seeking behaviour have become the subject matter of the field of information science [1].

Information on health and health-related issues is in particular obtained during a search for 'health information'. The reasons which motivate people to conduct a search for health information are multiple and include the incidence of illness among an individual or a family member, or one's wish to obtain the latest information about health matters, such as immunisation or vaccination, and is usually performed in schools or hospitals. The search for health information in terms of documentation and information about health and disease generally aims at resolving health problems. As Gann (1986: 1) notes: *'Information is important as the first step for every healthy choice. Improvements in our health depend on us taking control over, and responsibility for, health as an important component of our everyday lives. This active participation requires full and continuing access to information: information about our bodies, their workings in health and illness, and the services available to us in treatment and care, support and cooperation'*. Health information forms a sound basis for a number of activities which are essential to the treatment of illness and the promotion of health. As Gann (1986: 13)

further explains: *'Every individual is responsible for his/her own health; for looking out on signs of ill health, carrying out basic self-care measures on behalf of herself or himself or his (or more likely her) family, deciding when to consult the doctor, coping with long-term chronic illness or disability, and making adjustments in lifestyle to improve health'.*

The types of communication media described above represent rather useful channels of health information which can be acquired from a number of sources, such as doctors, families and friends, the mass media, social networks and traditional media. While different types of health information exist, patients most commonly receive health information verbally, hence in a form which is frequently in danger of being forgotten easily (*cf.* Ley 1977). However, professional health information is commonly expressed in the form of medical terminologies and technical jargon which creates considerable difficulties for lay people in their attempt to understand the information provided. The use of illustrations which offer a more helpful strategy towards improving people's understanding of guides and booklets which contain appropriate forms of health information has shown to reduce stress among patients.

Egbert *et al.* (1964) argue that the length of post-operative hospital stays have been shorter and involve fewer painkillers for those patients who receive health information. Indeed, information which is clearly readable and accurate can help patients to manage minor illnesses themselves and to decide when it is actually necessary to consult a medical practitioner. As Gann (2004: 51) underscores: *'Information is a two-way process. The individual health care consumer needs information in order to participate in his own health care and use health care resources'.*

The mass media, such as the radio, television and newspapers, also produce numerous features and articles on aspects of health and disease, and films have also been used to launch programmes of health information. In general, magazines act as channels of health information either in the form of a health magazine or as a general magazine which also provides articles on health. Similarly, the library as an information institution plays an important role in organising and disseminating health information. As Carmel (1984: 27-28) illustrates: *'Libraries can be used as a repository of health information. Since libraries play an important role in this overall strategy, the WHO has developed the concept of the national focal point library which is based on the simple idea whereby the WHO would have one nominated library in each country where its own publications could be deposited and through whom it could channel help and advice'.*

Nevertheless, a significant number of people in the communities make extensive use of the traditional media as opposed to the modern mass media. Indeed, traditional media, such as folklore, legends, traditional songs and puppet shows provide health information both formally or informally. In informal situations, friends, relatives, neighbours and co-workers act as primary sources of health information, whereas in informal situations, modern health information is provided by more authoritative sources, such as physicians, nurses and other health personnel, commonly within the context of modern health care delivery. As Thomas (2006: 36) highlights: '*By virtue of their position within the system and their presumed knowledge, doctors in particular have been a major source of information on health care*'.

The information sources which are used in both formal and informal situations are usually supported by the printed media, such as magazines and newspapers as well as by electronic media, such as radio and television. Since its rapid expansion which took place in the course of the 1990s, the World Wide Web has become an important source of health information, and currently it represents a principal source of significant health-related information. As a consequence, it has become common practice among people to seek information on the Internet in order to assess current health matters or to pursue their particular interests (*cf.* Thomas 2006).

Since health information which is provided by modern media generally includes medical terms and terminology, the understanding of the available health information, however,

continues to pose a challenge to the general public. Zarcadoolas *et al.* (2006) argue that sometimes even health care practitioners themselves encounter difficulties in the full understanding of the rather specific medical terms.

2.1.2 Health Information Literacy

Recently, the exchange of information has advanced rapidly whereby information is provided and exchanged between people through multiple channels of dissemination, including verbal, printed and electronic channels, while the modern media continue to spread information rather quickly to the community. Indeed, the flow of information has become a driving force in the 'open society'. In order to determine, however, if the information provided is relevant in a way to help individuals in solving their problems, specific skills of information literacy are required among the members of a community. In other words, community members need specific skills in order to filter the enormous amount of information and to select the accurate and useful parts of information. Horton (2007: 63) defines 'information literacy' as:'*the set of skills, attitudes and knowledge necessary to know when information is needed to help solve a problem or make a decision, how to articulate that information need in searchable terms and language, then search efficiently for the information, retrieve it, interpret and understand it, organize it, evaluate its credibility and authenticity, assess its relevance, communicate it to others if necessary, then utilize it to accomplish bottom-line purposes'.*

Kulthau (1987) emphasises the importance in differentiating between information literacy and other skills and forms of literacy. Information literacy relates to a number of objectives of education, such as traditional and computer literacy, library competencies and rational thinking. Nevertheless, information literacy itself is transpiring as a distinct skill through the individual, social and economic well-being into a greater complex of the information society. Information literacy is not only associated with practices of reading or writing, but it also allows individuals to acquire certain skills and abilities through the study of civil literacy which enablescommunity members to be aware of public issues and to engage into critical dialogues, and to participate in decision-making processes. In particular, these abilities also include media literacy skills, such as the knowledge of civic and governmental systems and processes, the power and inequity in hierarchical relationships and personal behaviour within the community and society. Furthermore, Kreps & Kunimoto (1994) notice that cultural literacy information refers to the competence of different individuals in comprehending and utilising information on shared beliefs, customs, world views and social identities.

In general, an individual who has acquired literacy skills is generally called 'literate' and is hereafter expected to have different supporting abilities. 'Illiteracy', however, has been used to describe individuals who have the most basic language skills and who are generally unable to read and write. UNESCO (1958: 3) defines an illiterate person as: *'...someone who cannot, with understanding, both read and write a short, simple statement on his everyday life'*. Later, UNESCO (1988) proposed a newer definition*: 'a person is functionally illiterate who cannot engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development'.*

The current health care systems require individuals to assume new roles in their efforts to seek health information and understand their rights and responsibilities, and make informed health decisions for themselves and others. In general, these new roles, assumed by individuals as part of self-management in health care, have developed considerably over the past decade, thereby enabling people to select what kind of information is viable, appropriate and in accordance with

the requirements (*cf.* Nielsen-Bohlman 2004). As Wright*et al.* (2008: 158) explain: '*It is often difficult to access the credibility of health information found on the Internet*'. Indeed, a number of websites fail to conform to the standards set by professional medical associations (*cf.* Rice 2001). While not all people enjoy the same access to information available on the Internet, as it contains a large amount of health information, health literacy skills tend to vary in accordance with general literacy among community members. The American Medical Association (1999) notices that Health Literacy is: '*a constellation of skills, including the ability to perform basic reading and numerical tasks required to be functional in the health care environment*'. Zacardoolas *et al.* (2006: xvi) argue that health literacy: '*is an individual's ability to read, understand and use health care information to make decisions and follow instructions for treatment. Health literacy is defined as the ability to understand, evaluate, and act on spoken, written and visual health information to reduce risk and live a healthier life. So people can make decisions for themselves, their family, even their community*'.

According to Neilsen-Bohlman *et al.*(2004), most of the tools which are currently available to assess the level of health literacy among individuals, are primarily measure-reading skills but fail to include other abilities which are rather critical. Furthermore, the reading abilities of adults are frequently estimated on the basis of measuring the 'grade level', an estimate which is imprecise. People's seamless interaction with educational systems, health care systems, as well as cultural and social factors, moreover suggests that these elements potentially influence health literacy and ultimately contribute to health outcomes and costs (*cf.* Neilsen-Bohlman *et al.* 2004).

According to Wright *et al.* (2008: 288): *'there are four important aspects to measure health literacy: (1) cultural and conceptual knowledge, (2) listening and speaking (oral literacy), (3) writing and reading (print literacy), and (4) numerical knowledge of statistics and data used in health care, to find out the necessary health information literacy level gauge that already meets the national standards*'. In this respect, Zarcadoolas *et al.* (2006) notice that a low level of health information literacy contributes to a number of problems, such as:

- improper use of medicines;
- inappropriate use or non-use of health services;
- poor self-management of chronic conditions;
- inadequate response in emergency situations;
- poor health outcomes;
- financial drain on individuals and society; and
- social inequity.

The health care system provides significant, but not sole opportunities and responsibilities to improve the level of the health information literacy among individuals. One pathway to reach such an objective reinforces the well-established link between education and health, and warrants further exploration (*cf.* Nielsen-Bohlman *et al.* 2004). The authors moreover assume that cultural differences are determined by individual differences within the health context, although no measuring instrument reading these differences has yet been designed. In general, abilities and actions of individuals to seek and obtain health information form a significant part of health information literacy. Kuhlthau (1980) developed a specific model of information retrieval called the 'Kuhltau Model' [2]. Likewise, Wilson (1981) launched a model of information retrieval called the 'Wilson Model' (*cf.* Wilson 2000).

The general ease of access to information which is supported by information technology challenges people's competence in choosing useful information quickly and effectively through the media and information-seeking activities, hence requiring software which can be applied in a

way to help the user to easily assess the credibility of the information at hand. In order to respond to this challenge and to distinguish the right information from valuable and adequate resources, the Research Team of the Department of Library and Information Science of Universitas Padjadjaran (UNPAD) has produced a specific communication system in order to access health information, called the *Sistem Penilaian Informasi Kesehatan Online* (*SPIKO*) ('Online Health Information Searching System – SPIKO'), represented in Figure 2.1, which can be visited through their website [3].

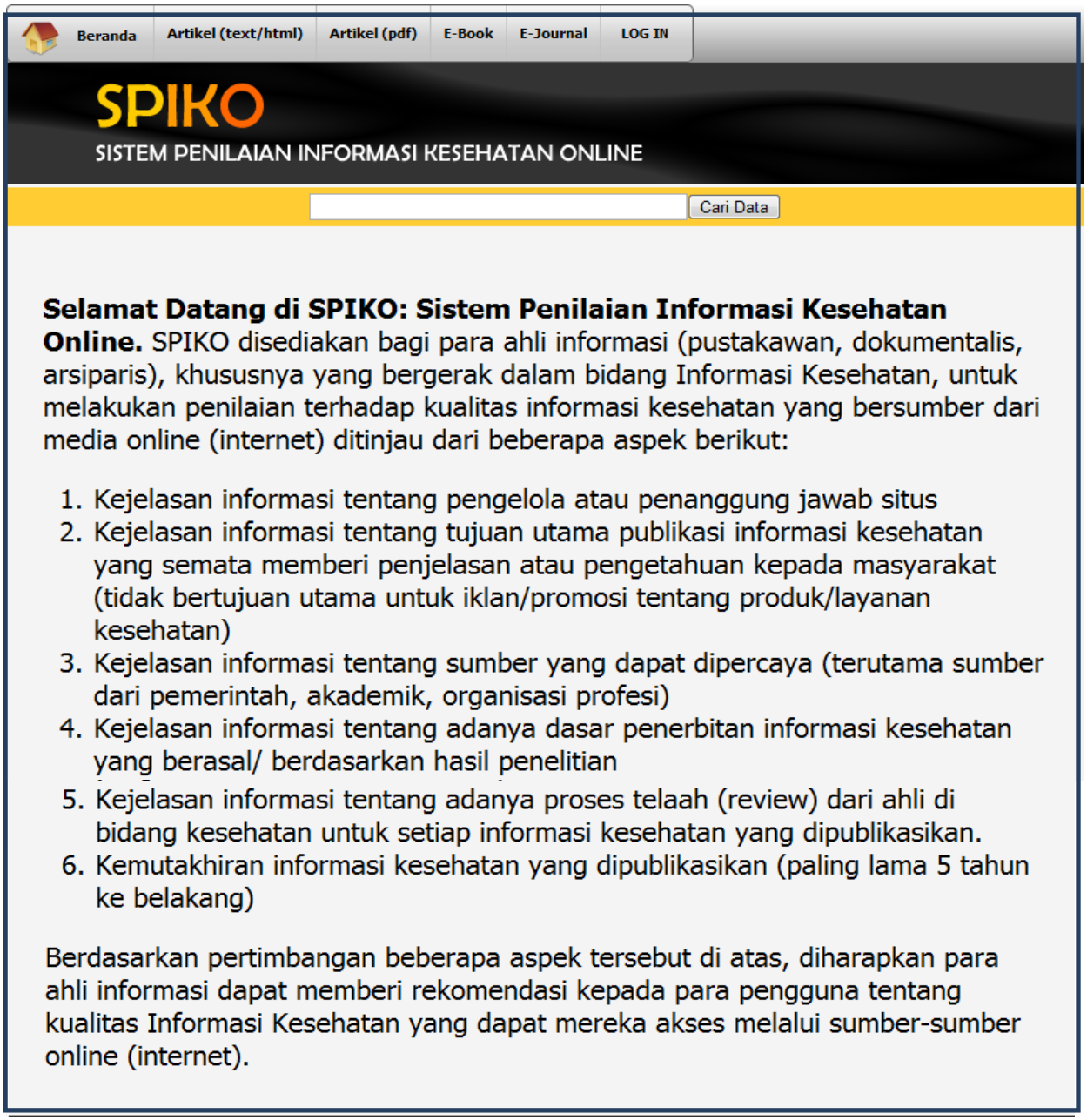


Figure 2.1 Software *SPIKO*.
Source: Erwina, Kusnandar & Rohanda (2013) ©

SPIKO's function refers to an assessment of the quality of health information obtained from online media by information science experts on the basis of the following six criteria:

1 the clarity of information about the administrators or the people in charge of the site;
2 the clarity of information about the main purposes of the health information publication, as it aims at offering explanations or knowledge to society rather than at advertising or promoting products or health services;
3 the clarity of information about reliable sources, primarily sources provided by the government or academic, occupational organisations;
4 the clarity of information about health information publications which are based on the research results at hand;
5 the clarity of information about the review process of health experts for all published health information; and
6 the sophistication of the health information published (of at least the previous 5 years).
(*cf.* Erwina *et al*. 2013)

In view of the six criteria mentioned above, it is expected that experts can offer a number of recommendations to the users about the quality of health information available online in order to ultimately generate useful health information.

Similar to the practice of seeking information, information literacy also evokes a number of models which have been designed on the basis of research and which have originally been developed in formal educational institutions, such as the Big 6, Sconnul, ALA, Information Literacy Model 6, and the Seven-Step Model, constructed and used at the Atmaja Catholic University in Jakarta, and others. The 'Model of Scientific Literacy Information and Local Knowledge' (*Literasi InformasiIlmiah dan Pengetahuan Lokal*) is used by UNPAD in the training of literacy information for new students [4]. The model has specifically been developed in consultation with researchers and was hereafter adapted to the level of education and the information needs of individuals. In general, the purpose of achieving health information literacy is to build a society with long-life education, in which individuals are able to utilise information and information resources in a way that will meet their health information needs as well as solve problems in their everyday life (*cf.* Erwina *et al*. 2013).

Moreover, literacy is an extraordinary process which stimulates learning and awareness among people to stress the importance of the practice of paying attention to one's own health. In 1980, the American Surgeon General produced an influential report entitled 'Healthy People' which states: '*You, the individual, can do more for your own health and wellbeing than any doctor, any hospital, any drug, and any exotic medical devi*ce' (*cf.* Gann 1986:1). In comparison, low levels of health literacy information are forming a burden on health care providers in their aim to treat people who do not adhere to medical treatments and preventive measures because of their lack of understanding (*cf.* Zarcadoolas *et al.* 2006).

Nevertheless, seekers of health information may encounter obstacles in understanding the health information offered by the providers as the result of a number of reasons, such as: the complexity of written health information both in print or on the web; insufficiencies in the language used which is mostly English; the lack of cultural appropriateness of health information; incompleteness or inaccuracy of information published in the mass media; low levels of reading abilities which can be caused by factors related to education, age or ethnicity; and the deficiency in empowering content targeting on behaviour change as well as direct information or social marketing strategies (*cf.* Zarcadoolas *et al.* 2006).

2.1.3 Health Education: A One-way Transfer of Information

Health Education, as indicated by Green (1978), refers to the learning strategies and experiences designed to provoke voluntary adjustments of behaviour which promote health. It deals with the combination of learning experiences intended to facilitate voluntary actions conducive to health (*cf.* Green & Kreuter 1999). As Notoatmodjo (2003: 20) states: *'Health education is a process for increasing the ability of a community to care for and develop their health'*.
In nursing care, for example, health education describes a self-care intervention which is made in order to help individual clients as well as groups and the society at large to overcome health problems through education whereby the nurse assumes the role of the educator. According to Notoatmodjo (2003: 21), the objective of health education is: '*to improve the ability of people to care (for) and to increase the level of health, physically, mentally and spiritually, in order to be more productive economically and socially*'.

As Tones *et al*. (1990: 110) further explain, health education can be defined as: *'Any intentional activity which is designed to achieve health- or illness-related learning, i.e. some relatively permanent change in an individual's capability or disposition. Effective health education may, thus, produce changes in knowledge and understanding or ways of thinking; it may influence or clarify values; it may bring about some shift in beliefs or attitudes; it may facilitate the acquisition of skills; it may even effect changes in behaviour or lifestyle'*. In this context, Notoatmojo (2003: 56) indicates that: '*essentially health education methods are activities or efforts to inform health messages to the society, groups, or individuals'*. The definition and characteristics of health education imply that it is the principal aim of health education to seek reliable health information which may produce changes in the attitude and behaviour of individuals which, in turn, can be caused by a number factors, such as the input, method or message of health education, the educator or the person in charge as well as the education tools.

According to Tones *et al*. (1990), health education can be divided into five categories which introduce health education: (1) at the household level; (2) at the school level; (3) at the workplace; (4) in public areas; and (5) at health care facilities. The implementation of health education in the different places varies in accordance with its targets which can be family members, students, workers, the society or patients. Similarly, the learning methods in health education have been characterised as follows:

1. Individual learning method:
   a guidance and extension
   b interview
2. Group learning method:
   a speech
   b seminar
3. Mass learning method:
   a public lecture
   b speech through electronic media.

In general, these learning methods are applied in accordance with the objectives of health information literacy. In the light of the foregoing, considerable efforts in health promotion and education are required in order to identify relevant characteristics among individuals and groups and to design effective health messages and campaigns. The success of health promotion partly depends on spreading its contents among the members of a community thereby attaching

considerable significance to the health literacy skills of individuals (*cf.* Zarcadoolas *et al. 2*006). Communicating health information which aims at bridging the gap between societal actions and knowledge about health to the society has become a major objective of health education activities (*cf.* Griffiths 1972; Glanz & Rud 1990).

2.2 Health Communication

2.2.1 The Process of Health Communication

While health information provides a rather static form of information on health and disease to the one-sided process of health education, recently health communication has introduced a more dynamic approach to the exchange of information and a more interactive education process. The important relationship between communication practices and health outcomes has been reviewed by Simpson *et al*. (1991), known as the 'Toronto Consensus Statement'. The statement emphasises eight key points:

1. *communication problems in medical practices are important and common;*
2. *patient anxiety and dissatisfaction are related to uncertainty and lack of information, explanation and feedback*;
3. *doctors often misperceive the amount and type of information which patients want to receive;*
4. *improved quality of clinical communication is related to positive health outcomes;*
5. *explaining and understanding patients' concerns, even when they cannot be resolved, results in a fall in anxiety;*
6. *greater participation by the patient in the encounter improves satisfaction, compliance and treatment outcomes;*
7. *the level of psychological distress in patients with serious illness is less when they perceive themselves to have received adequate information;*
8. *beneficial clinical communication is routinely possible in clinical practice and can be achieved during normal clinical encounters, without unduly prolonging them, provided that the clinician has learned the relevant techniques.*
   (*cf.* Berry 2007: 3)

According to Sciavo (2007: 69), the: '*theoretical basis of health communication has been influenced by the behavioural and social sciences, health education, social marketing, mass and speech communication, medical models, anthropology, and sociology'*. In this way, a selection of specific theories and models has a potential or actual impact on health communication practices. The theory of 'Communication for Persuasion', developed in 1984 by McGuire, focuses on how people deal with information, and as such has an impact on health communication practices. The process of 'Persuasive Communication' refers to people who are expected to take several steps when they are assimilating and ultimately altering their behaviour. The process includes the following steps:

- be exposed to the message;
- pay attention to it;
- find it interesting or personally relevant;
- understand it;
- figure out how the new behaviour could fit in his or her life;
- accept the change which is being proposed;

- remember and validate the message;
- be able to think of the message in relevant contexts or situations;
- make decisions on the basis of the retrieved information or message;
- behave in line with that decision;
- receive positive reinforcement for that behaviour; and
- integrate the new behaviour into his or her life.
  (*cf.* McGuire 1984; Alcalay & Bell 2000)

The transfer of a message which is spread between individuals is explained by Devito (1983) as: '*the process of sending and receiving messages between two persons, or among a small group of persons, with some effect and some immediate feedback'.* This highlights that a dialogue communication allows for transferring knowledge from a communicator and receiving and responding by a communicant, *i.e.* the individual subject of health communication.

2.2.2 Communication and Health Promotion

The classical definition of 'communication' by Northouse & Northouse (1998: 56) states that: '*communication is the transfer of information between a source and one or more receivers: a process of sharing meanings, using a set of common rules'*. In its essence, communication is a dynamic process which contains the following main elements:

- two or more communicators (*i.e.* source and receiver);
- a message;
- the medium;
- the channel;
- a code;
- noise;
- feedback; and
- the context in which the interaction occurs.
  (*cf.* Hargie & Dickson 2004)

Apart from these particular elements, acts of communication can occur on different levels:

Firstly, intrapersonal communication is established when an individual is communicating with him- or herself. Burton & Dimbleby (1995) distinguish between four main elements of intrapersonal communication: (1) the core of self; (2) need and motivation; (3) cognitions; and (4) monitoring the reactions of others.

Secondly, communication between two individuals is referred to as interpersonal communication and can as such take place between two individuals or in a small group. Interpersonal communication is usually facilitated by verbal communication including speech and writing, and non-verbal communication such as kinesics, paralinguistics, phonemics, physical contact, environmental characteristics, personal characteristics and adornments. Likewise, group communication which refers to communication among both a small or large number of individuals, such as members of an ethnic group, a professional group or an organisation, as well as of a family, friends or co-workers, can develop verbally and non-verbally.

Thirdly, mass communication generally involves the mass media in order to transfer a message to the wider population through a number of different media. The media include written

leaflets and brochures, advertising boards and posters, newspapers, magazines, radio, television, computer systems and the Internet (*cf.* Berry 2007).

Following the different definitions, elements and levels attached to communication, the related concept of health promotion has been explained by Bunton & MacDonald (1992) as: '*a strategy for promoting health to the entire population'.* Similarly, Green & Kreuter (1999) describe health promotion as a combination of educational and environmental support for actions and conditions conducive to healthy living. In this respect, McLachlan (2006) emphasises situations in which clinicians can act as catalysts for better health by empowering people to take charge of their own well-being. Marks *et al.* (2003: 393) define health promotion as: '*Any event, process or activity which facilitates the protection or improvement of the health status of individuals, groups, communities or populations'.*

Berry (2007: 87) argues that the main objectives of health promotion are: '*to prolong life or to improve the quality of life'.* The WHO (1984) introduced a new programme for health promotion and has since continued to address the concept during its subsequent *Global Conferences on Health Promotion*, thereby outlining areas for action.

The objective of making health information optimally available is closely intertwined with an effective strategy for health promotion, since health promotion aims at allowing each individual, who seeks well-being, to obtain useful health information. In general, strategies of health promotion are directed at shifts in public policy and community action which enable people to make changes in their lives. In this way, a phrase first coined by Milio (1986) has come to encapsulate the main concept of health promotion as: '*making the healthy choice the easier choice'.* The WHO (1986) has also identified three ways in which practitioners can promote health through their work: advocacy, enablement and mediation. Advocacy focuses on representing the interests of disadvantaged groups and may include speaking on their behalf or lobbying to influence policies. Enablement emphasises the aim of health promotion to reduce differences in the current health status and to ensure equal opportunities in a way that enables all people to achieve their full health potential. Mediation highlights the importance of coordination and cooperation among agencies and sectors in order to advance health promotion.

2.2.3 Health Communication: An Interactive Process

Scholes (2003: 220) argues that*: 'Communication is not simply a tool; all relationships require communication and all communication requires the existence of a relationship. It is a two-way process in which the receiver acts on information, attitudes and ideas by contributing his or her own, and by changing or rejecting what they receive. Ideas are shared, not moved'*. In the late 1970s, the concept of communication underwent an initial process of reconceptualisation and was hereafter defined as a two-way, interactive process involving two or more individuals or groups in which all participants encode and decode information which is perceived and interpreted until the goals of all participants are adequately achieved. In other words, the definition and practice of communication shifted from monologue to dialogue. Communication was redefined as: '*a process in which the participants create and share information with one another in order to reach a mutual understanding*' (*cf.* Phyllis *et al.* 1997; Rogers & Kincaid 1981:5). At the same time, Kincaid (1979) developed a convergence model of communication in an attempt to capture such new participatory orientation.

Since communication on the whole refers to the transmission or exchange of information, it involves a distribution of meaning among the communicators and generally serves different purposes, such as: (1) initiating actions; (2) making known needs and requirements; (3) exchanging information, ideas, attitudes and beliefs; (4) engendering understanding; and (5)

establishing and maintaining relations *(cf.* United States Office of Disease Prevention and Health Promotion 2004). In the light of the characteristics of communication, it becomes evident that communication also plays an essential role in the delivery of health care and the promotion of health. The concept of health communication has been defined by Rogers (1996: 15) as: '*any type of human communication whose content is concerned with health'*

In line with the reconceptualised definition of communication, Gann (1986) underscores that since health information and communication are closely-related processes, the individual health care consumers need relevant information in order to participate in their own health care utilisation. In return, each individual can give health care providers feedback on the information regarding needs and preferences by using some or all channels outlined above (*cf.* Gann 1986). As Wright *et al.* (2008) notice, interpersonal perspectives as well as social, cultural and organisational contexts and influences of technologies and the media, result in different points of view in health communication.

Health communication encompasses a number of interpersonal angles, such as among the general public and among clients and patients, but also between providers and patients. In general, the common characteristics of provider-patient relationships relate not only to the perspective of the provider on health and health care, but also to the perspective of the patient on health and health care, including socialization, perceptions and expectations, uncertainties, needs and goals, and provider-patient interaction (*cf.* Wright *et al.* 2008).

Changes in people's knowledge and attitudes towards health issues are also the result of practices and programmes of communication. Thomas (2006: 4) concludes that: '*Health communication encompasses the study and use of communication strategies to inform and influence individual and community knowledge, attitudes and practices with regard to health and healthcare*'.

The role of communication in health and disease has recently been the subject of a number of studies which conclude that most consumers want more and better health information. By consequence, the objectives of establishing effective communication which is linguistically and culturally appropriate as well as innovative on the basis of using the public health care system and improving patient-provider encounters have been brought into focus (*cf.* Zarcadoolas *et al.*2006). Practices of health communication, however, are largely unable to address more systemic problems related to health and disease, such as poverty, environmental degradation or lack of access to education and health care services. Comprehensive health communication programmes should therefore include a systematic analysis of all factors which contribute to health, and the strategies which could be designed in order to influence these factors. Well-designed health communication activities can help individuals to better understand their needs as well as the needs of their communities and take appropriate action in order to maximize their health status (*cf.* Thomas 2006).

Although practices of health communication are directed at providing the members of a community with messages which can easily be followed, a large amount of health information contains terminologies which are difficult to be understood by the community members. According to the American and European Centres for Disease Control and Prevention (CDC), health communication can occur in different surroundings which have been identified as:

- the individual;
- the social network;
- the organisation;
- the community; and
- the society. (*cf.* Zarcadoolas 2006)

In general, effective health communication is able to: (a) produce the development of health following acute and chronic conditions; (b) minimize the impact of racial, ethnic, disease-specific and socioeconomic factors in care; and (c) increase disease prevention and health promotion efficacy. Meanwhile, ineffective communication between providers and patients as well as their families, between providers and providers and between providers and health care organisations widen the gap between expectations and reality in the quality of health care (*cf.* Institute of Medicine 2001).

Thus, communication represents a practical tool for implementing health programmes in the community. At the same time, the rapid inventions in technologies and computer-based media have facilitated the access to health information, giving rise to questions about the equality of access, the accuracy of information and the efficacy of these inventions. The Centres for Disease Control and Prevention (CDC) have identified the following areas of action, in which health communication can play a crucial role:

- increase knowledge and awareness of a health issue, problem or solution;
- influence perceptions, beliefs, attitudes and social norms;
- prompt action;
- demonstrate or illustrate skills;
- show the benefits of behaviour change;
- increase demand for health services;
- reinforce knowledge, attitudes, and behaviour;
- refute myths and misconceptions;
- help coalesce organisational relationships; and
- advocate for a health issue or a population group.
  (*cf.* Thomas 2006, Zarcadoolas 2006)

In the light of the foregoing discussion, the objectives of health communication have been defined by Schiavo (2007) as*: to improve health outcomes by sharing health-related information; to create a receptive and favourable environment in which information can be shared, understood, absorbed and discussed by the programme's intended audience; and to support and sustain change'.*

2.3 Plural Health Information & Communication Systems (PHICS)

2.3.1 Traditional Health Information & Communication Systems (THICS)

In their assessment of the concept of indigenous or traditional communication, Mundy & Compton (1995) identify six different types of indigenous communication channels. In first place are the folk media which represent the indigenous equivalent of the mass media and are not only used primarily for the purpose of entertainment, but also as a means to promote education, social values and cultural continuity. In this way, folk media have commonly been adapted to transfer messages about family planning, politics and other exogenous topics. Folk media include festivals, plays and puppet shows, dance, songs, storytelling and poetry, such as the *wawacan* in West Java.

In second place for indigenous communication channels are indigenous organisations and forms of social gatherings. In Indonesia, for example, the *arisan,* a revolving loan association, which pools the contributions of its members to be redistributed through a monthly lottery, is rather omnipresent throughout the neighbourhoods of the rural and urban areas. Indigenous

forms of social gatherings in Indonesia refer to *i.a.* Islamic religious groups which meet for prayers, reading the Quran and religious instruction; village meetings; and irrigation institutions, such as the *subak* in Bali. In general, indigenous organisations and institutions provide numerous opportunities for not only informal interactions, but also formal communication among members. However, such local arrangements are not seldom overlooked by government authorities, enabling only the establishment of official co-operatives, extension groups or units dealing with subjects, such as agricultural and irrigation management. Although such official organisations may have a positive outcome, they are often confronted with difficulties when attempting to take advantage of existing indigenous communication systems.

In third place, the channels of indigenous communication highlight the concept of 'deliberate instruction'. Deliberate instruction includes practices of child-rearing, childhood and adolescent training, traditional and religious schools as well as instructions given to children by parents or family members during work or while playing at home or in the fields. Deliberate instruction continues during adolescence and adulthood in the form of initiation rites or the teaching of apprentices. In general, a rather significant part of indigenous knowledge which is crucial to people's survival is obtained through various forms of informal education and instruction.

In fourth place for indigenous communication channels according to Mundy & Compton (1995) are the records which are not always written but can be drawn, engraved, memorised and conveyed verbally. Examples of such records from Indonesia are the *lontar* ('written palm leaves') in Bali and the *dluwang* ('beaten bark or tapa') from the paper mulberry tree in Java and Madura (*cf.* Teygeler 1995).

In fifth place for channels of indigenous communication are the unstructured channels. Indigenous communication occurs in many informal settings, such as in the home, at the well, in the fields, on the road, in tea houses and coffee shops, at the market and other places where people meet and talk. Communication established through unstructured channels is not organised, but spontaneous and informal. Folk media and indigenous organisations and institutions commonly offer several opportunities for such unstructured communication before, during and after meetings and other activities.

In sixth place, channels of indigenous communication have been related to direct observation which implies that communication is not necessarily intentional, but can also be established as a result of observations alone (*cf.* Mundy & Compton 1995).

In general, local channels and tools of communication are embedded in the belief systems, customs and rituals maintained by the community members. Employing forms of vocal, verbal, musical and visual folk art, such as dance, drama, painting, sculpture, song, music, motifs and symbols, knowledge and information is transmitted from one generation to another among the members of a family, a circle of friends, as well as in or more communities through different channels of the traditional media. The practice of spreading and receiving indigenous knowledge and information among the local population in the lay domain with regard to health and healing is mostly based on traditional medicine through non-electronic traditional communication channels, and as such defined as Traditional Health Information & Communication Systems (THICS).

Following the identification of the different channels of indigenous communication, Mundy & Compton (1995) furthermore designed a matrix which divides the functions of both types of communication, the exogenous and the indigenous, into two major communication systems. The matrix presented in Table 2.1 shows a typology of the interface between the different types of knowledge & communication, thereby comparing both exogenous and indigenous knowledge & communication. As Mundy & Compton (1995: 118f.) notice: '*The four quadrants represent the communication of each type of information through each type of channel*'.

Table 2.1 Typology of the Interface between Knowledge & Communication Types.

Communication systems	Knowledge systems	
	Exogenous	Indigenous
Exogenous	A. Technology transfer	C. Indigenous knowledge-based development
Indigenous	B. Diffusion; co-opting of traditional media	D. Cultural continuity & change

Source: Mundy & Compton (1995).

As highlighted in Quadrant A, exogenous communication systems tend to perform a number of functions, such as entertaining, informing, educating, persuading and advertising. While entertainment is most commonly provided through television and radio programmes, newspapers are the primary source of news and advertising.

Broadcasting media generally assign the transmission of technical knowledge to vacant time slots at inconvenient hours while newspapers commonly credit it on the inside pages. As a result of such decisions, the school system remains the main channel for transmitting exogenous technical information in many countries, whereas books, pamphlets, newsletters and magazines act as primary printed channels for the transmission of technical knowledge. Furthermore, the extension service is responsible for delivering exogenous information to farmers through interpersonal contacts and the mass media.

As indicated in Quadrant B, any of the six channels of indigenous communication mentioned above can transmit exogenous information. In Indonesia, the government has been using various approaches of transmitting exogenous information through indigenous channels, such as the information and communication about the family planning programme through *wayang* ('puppet') shows (*cf.* Surjodiningrat 1982). Using *wayang* as a medium of communication has showed certain advantages in delivering messages, such as obtaining solidarity and establishing communication with the community. Since the shows allow the audience to participate, they establish unity between the information and the audience, ensuring an effective transmission of information through a local and culturally appropriate communication channel. *'The advantages of using these media as an element in a communication campaign include their familiarity and credibility to local people and the potential for the involvement of the audience in performances*' (Mundy & Compton 1995: 121).

Nevertheless, the transmission of exogenous knowledge through indigenous communication channels may be challenged by two specific problems. *Firstly*, messages are transmitted through communication channels which provide primarily entertainment and are similar to the mass media. Consequently, any development-based message included in the script may not be perceived or understood as such by the audience. *Secondly*, using traditional forms of communication in a way to convey underlying messages as a practice which lies outside local control can provoke resentment among the audience. Although the transmission of indigenous information through exogenous communication channels as indicated in Quadrant C has reportedly reached only an initial stage, such practices have been interpreted as a sign of great potential. The growth in scientific literature and efforts for the study and documentation of indigenenous knowledge systems support these assumptions.

Finally, Quadrant D indicates the transmission of indigenous knowledge and information through indigenous channels of communication. Since the information which is collected and disclosed generally carries great credibility for the community members, indigenous communication channels have the potential to promote change. Indigenous channels of

communication spread local information entirely in ways which are exclusive for the transmission of indigenous knowledge and information, and relate to information about technical knowledge, social organisations, actions and decision-making processes, values and beliefs.
In contrast, entertainment, news and instructions are concealed in daily messages. Although deliberate instruction appears to be most appropriate to disseminate technical information, each of the six indigenous channels outlined above can be used effectively as a means of transmitting such information. The content of the knowledge and information spread in Quadrant D can refer to an indigeneous innovation or an item of traditional knowledge and can entail skills or attitudes. Mundy & Compton (1995) furthermore add that communicating indigenous knowledge through indigenous communication channels significantly contributes to the conservation of culture. In the same way, Mphande (2004) remarks that in the case of interactions between generations, the value of wisdom of the aged and respect for the elderly can be positively strengthened by cultural programmes. The perspective of the local people as consumers of health information and communication is built on the close relationship between indigenous and exogenous information and communication, basically similar to the interrelationship between traditional and modern information and communication, encapsulated in the Plural Health Information and Communication System (PHICS).

2.3.2. Modern Health Information & Communication Systems (MHICS)

The efficacy of health care delivery depends to some extent on the characteristics of the health care system available in a specific community as it offers a legal, qualified and supporting framework in which modern medicine is practiced (*cf.* Leslie 1976). Across a large number of communities, health care is commonly delivered through a compulsory public system of modern health care which largely provides social insurance and state-owned hospitals, as well as through health care services provided by private medical practices and clinics. In Indonesia, for example, the subsidised *Asuransi Kesehatan Indonesia* (ASKESKIN) (‘Social Health Insurance‘) has been introduced in an attempt to specifically address the needs of the poor.

A Modern Health Information & Communication System (MHICS) refers to data, information, indicators, procedures, tools, technologies and human resources which are interrelated and managed in a way to purposefully direct actions and decisions towards supporting the development and efficacy of modern health care systems, largely operational in the expert domain. In other words, the Modern Health Information & Communication System (MHICS) is a system which captures, stores, manages and transmits information related to the public health of people as well as to the activities of organisations which work within the modern health care sector. The modern system incorporates district-level routine disease information systems, disease surveillance systems as well as laboratory information systems, hospital Patient Administration Systems (PAS) and Human Resource Management Information Systems (HRMIS) for modern health workers. Present-day Health Information Systems (HIS) generally make use of the Internet by implementing an electronic system which offers devices and procedures which allow for preparing, collecting, processing, analysing, saving, displaying, publishing, transmitting and disseminating medical data and health information electronically (*cf.* Ministry of Health of the Republic of Indonesia 2012). The dynamics, provoked by prospective consumers, who are expected to be well-informed and to act appropriately on health issues, have recently stimulated the establishment and greater availability of modern communication facilities (*cf.* Thomas 2006).

The convergence of Information & Communication Technologies (ICT) has gained momentum, as the convergence of Information Technology (IT) and Communication

Technology (CT) has been driven by several factors, including the rapid increase in the availability of web-enabled mobile devices which allow access to cloud computing services. Indeed, cloud computing services act as a catalyst for the convergence of ICT. Telecommunication carriers are expected to gradually move IT systems and Internet data centres into the cloud, while telecommunications and IT industries are likely to develop uniform standards to facilitate rapid cloud development. As a result, it is expected that CT is undergoing a transformation from offering voice-services to offering services supported by integrated mobile networks, and that IT is shifting from providing traditional data centres to providing cloud computing.

If designed and implemented effectively, Information & Communication Technology (ICT) is able to improve the access to health care facilities for members of geographically isolated communities. Similarly, ICT can provide support for health care workers; aid in data sharing; provide visual tools linking population and environmental information with disease outbreaks; and represent an effective electronic means for data capture, storage, interpretation and management. In this context, ICT applied in health care refers to any tool which facilitates the communication, processing or transmission of information through electronic means for the purpose of promoting human health (*cf.* Bukachi & Pakenham-Walsh 2007). By means of modifying or advancing traditional forms of diagnosis, therapy and health care quality control, as well as substantiating biomedical research, the utilisation of ICT with regard to health is mainly directed at modern forms of medicine. Consequently, the different types of media and research which are concerned with the modern medical systems have been defined as the Modern Health Information & Communication Systems (MHICS).

2.3.3 The Theory of Development Communication

The field of Development Communication began to emerge in the early 1960s whereby preliminary research was directed at 'nation building', 'rural development', 'agricultural extension', 'health and sanitation', as well as 'family planning' (*cf.* McPhail 2009). As McPhail (2009: 3) indicates: '*Development Communication is the process of intervening in a systematic or strategic manner with either media (print, radio, telephony, video, and the Internet), or education (training, literacy, schooling) for the purpose of positive social change. The change could be economic, personal, as well as spiritual, social, cultural, or political*.' Within early development doctrines, as they have been formulated in the second half of the 20th century, the significance of communication was recognised in a number of theories which have been brought forward by different social science disciplines and scholars including sociologists, economists, anhtropologists, political scientists, psychologists, social workers and media scholars. In the spirit of modernisation, these initial development-based approaches focussed also on local practices, such as communication and media habits, politics, culture, religion and language, whereby indigenous practices have been largely dismissed, marginalised, ridiculed or ignored (*cf.* McPhail 2009).

According to McPhail (2009: 17), early theories in development communication centred on three different approaches: '*cultural imperialism, participatory communication, and entertainment-education*'. The theoretical approach of cultural imperialism relates to the dominance of a socio-political group which affects and forms the culture of weaker groups and communities through the mass media and other practices and institutions. Additionally, the use of the mass media by members of the dominant culture for propaganda purposes in order to establish control of the weaker society, and to gain economic and political advantages, is a frequent element of cultural imperialism (*cf.* McPhail 2009). Similarly, Schiller (1976) argues

that cultural imperialism refers to all processes which draw a society into the modern world system, and subsequently attract and force the dominated society to adapt social institutions in a way to which they correspond or even promote the values and structures of the dominating system.

McPhail (2009) further explains that in addition to the definition presented above, cultural imperialism can be regarded as an overarching theory which includes two notions: electronic colonialism and media imperialism. 'Electronic colonialism' follows the theory that global markets and cultures across the world are heavily influenced by communication technologies developed and distributed by American corporations (*cf.* McPhail 1981; 2006; 2009). In the overall impact which Information & Communication Technology (ICT) has on the society, media imperialism in particular represents the general domination of a limited number of media and its impact on more vulnerable groups (*cf.* Boyd-Barrett 1998).

According to the early development theories based on cultural imperialism, development communication had commonly been established through a 'top-down' approach, *i.e.* from communicators, such as government agencies or community development organisations to the target communities. In the wake of the development of technology, the mass media have come to hold considerable appeal to the public through both radio offering an audio system and television offering a combination of audio and visual systems. As a result, the mass mediahave been introduced as important elements within the field of communication development (*cf.* Fraser *et al*. 1998). The community members' level of understanding of information retreived from the mass media are usually assessed in group meetings which are facilitated by government officials. In Indonesia, such group meetings are usually held in the form of counselling, such as in the agricultural sector through so-called '*KELOMPENCAPIR*' activities, in which a community of readers and radio listeners is formed in each village.

Following the approach of cultural imperialism, participatory communication is concerned with the effects of individuals on mass communication and largely focuses on grass-roots participation and preservation of culture. As McPhail (2009: 27) notices: '*While cultural imperialism focused on the ability of the powerful to influence cultures and economies around the world, advocates for participatory communication sought to describe the power of the individual to influence the world and to find ways to further advocate and enrich such action with the ultimate goal residing in a utopian scenario of positive development for all and better inter-cultural understanding*' In this way, participatorty communication is closely linked with Paulo Freire's model of communication which consists of five main concepts, namely dialogue, praxis, transformation and critical consciousness (*cf.* Freire 1983).

In addition to the theoretical approaches of cultural imperialism and participatory communication, Singhal & Rogers (1999: 229) state that: '*Entertainment-education is the process of implementing deliberately designed objectives as a media message to entertain and to educate viewers with the purpose of increasing the viewers' knowledge about an educational issue, building favourable attitudes and behaviours*'. In other words, entertainment-education uses the popular media in an attempt to show individuals how to have a safer, healthier and happier life.

During the late 2000s, the use of social media by government insitutions was altered in a way by which each ministry began to maintain an official website. By offering the column of 'Frequently Asked Questions' (FAQ) on their official website, each organisation gave citizens the chance to directly communicate with the ministry, for example through submitting questions.

In the same fashion, government organisations came to use Twitter and Facebook in order to disseminate short and simple information, such as simple announcements, while the mass media, such as radio and television have established themselves as controlling tools in the development

of information. In general, development communication came to include not only the transfer of information, but also the sharing of information through a 'bottom-up' approach.

According to Fraser (1998: 62), community development comprises three components which are related to communication: '*social communication, educational communication and institutional communication*'. For participatory monitoring and evaluation, social communication includes a number of specific processes, such as the dialogue process, reflection, participatory analysis, consensus building and decision-making for change or development. Moreover, social communication engages both the conventional media, such as theatre, music and dance performances, and the mass media, such as radio, television and movies. Similarly, educational communication uses a variety of media, particularly audio-visual technologies designed for the purpose of education, in order to provide the audience with knowledge and skills which allow them to participate in communicaty development. Lastly, institutional communication aims at strengthening the link between organisations and institutions available in the community (*cf.* Fraser 1998).

In general, it is the main objective of development communication to create interaction between the government and the society with the expectation that the transfer of a message is followed by the sharing of information. Fraser (1998: 63) affirms that: '*The need for people to aquire new knowledge and skills is as important as ever in development programmes, but information and training activities should be developed on people's interests and needs as identified in consultation with them.*' Thus, it can be concluded that communication for development makes use of the communication process as well as related techniques and the media to help people not only to gain a full awareness of their situation and their options for change, but also to resolve conflicts, to work towards consensus, to help people plan actions for change and sustainable development, to help them aquire the knowledge and skills needed to improve individual and social conditions, and to improve the effectiveness of institutions.

In order to meet these objectives in communication development, a comprehensive approach is in need of the integration of Traditional and Modern Health Information & Communication Systems (T&MHICS) which, in turn, facilitates the realisation of the goals of sustainable community development.

2.4 Utilisation of Plural Health Information & Communication Systems (PHICS)

2.4.1 The Need of Understanding Local Utilisation Patterns of PHICS

As mentioned in the *Introduction*, the local people of Indonesia have utilised Traditional Health Information & Communication Systems (THICS) over many generations, and continue to maintain these systems as part of their indigenous cultural heritage which has been supplemented by the introduction of Modern Health Information & Communication Systems (MHICS) during the late colonial period of time and the subsequent establishment of independence. More recently, the influx of the process of globalisation together with the expansion of the digital revolution in communication technology, the influence of modern health information and communication through the printed and broadcasting media, the internet and the social media on peoples' utilisation of both the traditional and modern forms of health information and communication has substantially increased the overall utilisation of the plural configuration, defined as the Plural Health Information and Communication System (PHICS).

Social media, in particular, have recently introduced a new dimension to the delivery of health care services as they involve a means for clients, patients, health professionals and the general public to obtain information and communicate about health and disease which eventually may

lead to improved health and well-being. Besides the various benefits from the use of social media for Health Information & Communication (HIC), a number of gaps and limitations of the role of social media for health communication have also been identified.

In a recent study by Moorhead *et al*. (2013), triggered by their observation that: '*Currently, there is a lack of information about the uses, benefits, and limitations of social media for health communication among the general public, patients, and health professionals from primary research*.', the authors present a review on the positive and negative aspects of social media for health information and communication, showing six key benefits: (1) *increased interactions with others,* (2) *more available, shared, and tailored information*, (3) *increased accessibility and widening access to health information,* (4) *peer/social/emotional support,* (5) *public health surveillance,* and (6) *potential to influence health policy*. However, the same study reveals twelve limitations which primarily consist of quality concerns and lack of reliability, confidentiality, and privacy. (*cf.* Moorhead *et al.* 2013).

Notwithstanding the many technological possibilities which are rendering communication among individuals and organisations at first sight more easily and readily available, the knowledge and skills to engage in a process of reliable and effective communication still needs special education, training and socialisation of the members of the community. The communication process which basically includes a sender of a coded message, who communicates a need, thought or feeling, to a receiver who is able to decode and understand that message, is only effective, if it leads to fruitful interactions and behaviours in the life of both senders and receivers.

Expanding the results of the study of Moorhead *et al.* (2013) to the wider digital-based structure of a Health Information & Communication Systems (HICS), it is clear that there also exists a general lack of empirical information about the utilisation of both the Traditional and Modern Health Information & Communication Systems (T&MHICS) among the general public, clients and patients, specifically from primary research carried out at the community level.

As mentioned above, notwithstanding the revolutionary expansion of the Modern Health Information & Communication System (MHICS) as the result of the recent digital developments, the Traditional Health Information & Communication Systems (THICS) have also benefitted from the globalisation process and the expansion of the media, where traditional medical knowledge and practices have also found their way into the media through the process of 'development from the bottom'. The resulting pluralistic configuration of Traditional and Modern Health Information & Communication Systems (T&MHICS) identified as the Plural Health Information & Communication System (PHICS) in the Sundanese Region of West Java provides a unique opportunity to conduct primary research at the community level. This kind of study requires a special research methodology, duly provided by ethno-communication, as further elaborated in the following (Chapter III).

A better understanding of the differential utilisation patterns of the Plural Health Information & Communication System (PHICS) by the local population provides not only a unique opportunity to identify the shortcomings and misunderstandings of particular forms of information on health and disease in the public lay domain at the community level, but also offers guidelines to improve the Health Information & Communication Systems (HICS) of consumers, which in turn would pertain to better health and well-being.

2.4.2 Towards an Integrated Health Information & Communication System (IHICS)

The recent increase in interest in traditional medicine and traditional medical systems has also led to a similar growth of attention for various forms of Health Information & Communication

Systems (PHICS). As Thomas (2006) rightly notes: *'The movement toward integrated health systems that take a holistic approach to the patient emphasizes the importance of communication between healers and their clients. The critical role of therapeutic communication that formed the basis for treatment within traditional systems has been rediscovered and the health communication process is increasingly being recognized as more than a technical aspect of care but as a component of the therapy process in its own right.'* This renewed interest among both health professionals and the general public in alternative forms of medicine has indeed influenced the development of health information and communication, where the peoples' individual view is not limited to a one-dimensional attitude towards the promotion of health, prevention of disease or treatment of illness, but more open to a more multi-facetted, holistic approach to matters of health and healing, in which there is ample room to seek the best available information, albeit from the traditional or modern systems of Health Information & Communication (HIC), or sometimes from both systems.

In addition to such a community perspective of seeking knowledge and information from different related health information resources, the recognition and formal integration of these different Health Information & Communication Systems (HICS) is expected to pertain to an increased interest of clients, patients and the general public to utilise such a holistic form of an *Integrated Health Information & Communication System* (IHICS), rendering relevant health communication activities which are integrated from the beginning with other programmes more successful to different individuals, groups and communities. As Thomas (2006) also documents: *'research shows that health communication is most effective when multiple communication channels are used to reach specific audience segments with information that is appropriate and relevant to them'.*

As in the case in recent public health programmes focused on the integration of traditional and modern medical systems, the inter-professional collaboration among various health information and communication functionaries, health educators and lay persons will provide added value to such an integrated approach in terms of joint discussions, workshops, sessions, consultations and activities in the written and broadcasting media as well as in social media, focused on a wider coverage and intensity of various kinds of audiences (*cf.* Chirangi 2013).

In general, the integration of Health Information Systems (HIS) involves different data and systems, aimed at the development of an integrated health system for patients and health professionals. As Mykkänen *et al.* (2004) notice: *'The integration of health information systems (HIS) is a combination of problems, where each organization has its own set of issues which must be dealt with'*, rendering the main focus on the exchange of relevant health and illness-related data between the heterogeneous traditional and modern systems crucial for the development of an integrated system in Indonesia. Following the information-oriented integration approach succesfully implemented by Mykkänen *et al.* (2004), the integration process is basaed on information exchange and the set-up of relevant databases. In this integration process, the complicated standardisation of data would start with the formulation of a common definition of perceived and diagnosed morbidity.

In accordance with Bruun-Rasmusse, Bernstein & Chronaki (2003), the information-oriented integration process does approach potential integration problems through health information and communication exchange as the primary points of integration. In this context, another important differentiation is mentioned by Mykkänen *et al.* (2004) who refer to integration approaches which either use a 'top-down' or a 'bottom-up' process for the definition of the integration solution. While the 'top-down' approach implements an open standard or a readily-given specification as the starting point, the 'bottom-up' is initiated from practical high-priority needs operational in the community. As the information-oriented approach is rather simple, practical

and widely used, and facilitated by a 'bottom-up' orientation towards actual needs for appropriate utilisation, it will also form the basis for the envisaged design of the model of an Integrated Health Information and Communication System (IHICS) in Sukamiskin and beyond.

The benefit for the national government and its related ministries of health is reflected in the provision of the future integration of Traditional and Modern Health Information & Communication Systems (T&MHIC) which provides an empirical basis to reach the goal of 'Information Society Indonesia' (2003) for improved health care planning and development among all members of the society. As indicated in the formulation of the general aim of this study, special attention will be paid to the implications of the development of a strategic model of an Integrated Health Information & Communication System (IHICS) as a planning tool for realising 'Information Society Indonesia' (2003) within the context of public health development in the near future. Such a model would link up well with the recent successful integration of indigenous knowledge systems into programmes and projects in sustainable community development in various sectors of the society, including public health (*cf.* Warren, Slikkerveer & Brokensha 1995; Slikkerveer, Baourakis & Saefullah *in press*).

Notes

[1] The field of Information Science encompasses a number of topics: Human-Computer Interaction; Information Literacy; Information Management; Documentation; Library Management; Knowledge Management; Information Organisation; Information Society Studies; Bibliometrics; Information Seeking; and Information Retrieval (*cf.* Bawden & Robin 2012).

[2] Kuhlthau's Model differentiates between: (a) *Initiation:* a person becomes aware of a lack of knowledge or understanding making uncertainty and apprehension common; (b) *Selection*: a general area, topic or problem is identified and initial uncertainty often gives way to a brief sense of optimism and a readiness to begin the search; (c) *Exploration*: inconsistent, incompatible information is encountered and uncertainty, confusion and doubt frequently increase; (d) *Formulation*: a focused perspective is formed and uncertainty diminishes as confidence begins to increase; (e) *Collection*: information pertinent to the focused perspective is gathered and uncertainty subsides as interest and involvement in the project increase; and (f) *Presentation*: the search is completed with a new understanding enabling the person to explain his or her learning to others or in some way to put the learning to use (*cf.* Davis & Shaw 2011).

[3] SPIKO has been developed applying the software Macromedia Dreamweaver MX. The programming language used is Hypertext Pre-processor (PHP) and the system runs within the Windows XP (SP3) server application packages using WAMP5 1.4.3.

[4] *The Model Literasi Informasi Ilmiah dan Pengetahuan Lokal* ('Model of Scientific Literacy Information and Local Knowledge') is a model of information literacy developed at UNPAD. Designed by Erwina in 2014, the model addresses socio-cultural factors and systems of local knowledge, which represent one of the main indicators in the model. The development of the model shows that the different elements of the model are discussed in relation to two domains, namely information and local information. The *Model Literasi Informasi Ilmiah dan Pengetahuan Lokal* is an information literacy model designed with the capacity of determining information needs, finding the source of information, utilising and

understanding information and local knowledge, organising the information in a legal and ethical way and presenting the information to the community. The characteristics of the model furthermore differ from other models in such a way that this model includes elements, which stimulate the individual's understanding of information and local knowledge (*cf.* Trirahayu 2014). Since 2014, the model has been refined to include 5 different steps taken by all base-level college students as the information literacy basis. The steps refer to:

1. identifying the information of scientific and local knowledge needs;
2. knowing and comprehending the sources of local knowledge information & scientifically;
3. conducting research on the information of scientific and local knowledge;
4. comprehending and using the information and local knowledge & scientifically;
5. evaluating the information.

This model has been used by the new students of UNPAD since the academic year of 2015-2016.

Chapter III. METHODOLOGY AND ANALYTICAL MODEL

This chapter presents an overview of the research methods and techniques selected for the study area of Sukamiskin in order to document, study and analyse the utilisation of the Plural Health Information & Communication System (PHICS) by the local population of Sukamiskin in the Sunda Region of West Java through the identification, documentation, and analysis of significant factors influencing the related utilisation patterns, differentiated within, on the one hand, the Traditional Health Information & Communication Systems (THICS) and, on the other hand, the Modern Health Information & Communication Systems (MHICS) at the community level.

The research methodology is based on the 'Leiden Ethnosystems Approach' which has been developed by Slikkerveer (1990; 2006) of the Leiden Ethnosystems and Development Programme (LEAD) of Leiden University, which represents a specific ethnoscience method to analyse local knowledge systems within a particular culture area. The 'Leiden Ethnosystems Approach' is built up of three methodological principles: the *Historical Dimension (HD),* the *Participant's View (PV)* and the *Field of Ethnological Study (FES)* [1].

In addition to operationalising the specific research approach, this chapter provides an outline of the complementary qualitative and quantitative research components which have been studied in the 14 *rukun warga* (RW) ('hamlets') in Sukamiskin, Bandung [2; 3]. The description of the qualitative research, which involves observations and in-depth interviews with key informants, is followed by a description of the design of the structured questionnaire used to conduct the quantitative surveys in the 83 samples of the *rukun tetangga* (RT)('neighbourhoods') in the study area (*cf.* Table 3.1).

Information on the local population has been obtained from the list of residents available in the villages from which household samples have been selected randomly in accordance with the location of the neighbourhoods in order to cover every *rukun warga* and *rukun tetangga*. Subsequently, the process is described of the distribution of the structured questionnaire among the selected samples, completed on the basis of the selected respondents of the sample under the guidance of the researcher and her team.

Furthermore, the present chapter offers a detailed description of the factors and blocks – and their operationalisation – of the conceptual model developed by Slikkerveer (1995; 2003) which has been selected for this research, providing the basis of the empirical multivariate model of utilisation behaviour based on the findings of the research. This chapter concludes with a description of the specific processes of the subsequent statistical analysis of the data collected during the quantitative household surveys. The present study applies a Non-Linear Canonical Correlation Analysis using the technique of OVERALS, whereby data are entered into the Statistical Package for the Social Sciences (SPSS), Versions 11.5, 17.0 and eventually 20 [4].

3.1 Selected Research Methodology

3.1.1 The 'Leiden Ethnosystems Approach'

The 'Leiden Ethnosystems Approach' represents a particular ethnoscience research strategy towards the study of Indigenous Knowledge Systems (IKS) which allows for a better understanding and explanation of indigenous perceptions, practices, beliefs, values and philosophies. As Slikkerveer (1989; 1999) indicates, the 'Leiden Ethnosystems Approach' introduces a combination of three methodological principles which he has developed at Leiden University on the basis of a specific combination of the theoretical Leiden Tradition of Structural Anthropology and the practical Theorem of Development Sociology.

This specific approach, introduced by Slikkerveer in 1989, is specifically useful to document, understand and explain the local peoples' indigenous knowledge, beliefs and practices, as well as their institutions, which have developed over many generations from their own perspective in a particular culture area, encompassing three principles.

Firstly, the Historical Perspective (HP) aims at the pre-contemporary analysis of complex present-day patterns in fields, such as religion, agriculture, resource conservation and medicine. Strictly contemporary-oriented approaches have largely failed to untangle the dynamics of development processes which have led to present-day complexes, particularly in transcultural research settings characterised by interacting inside and outside elements. The principle of the Historical Perspective, in which the historically-oriented methodology is complementary to the method of the ethnographic analogy, is largely based on the close collaboration between anthropologists and historians (*cf.* Wigboldus & Slikkerveer 1991).

Secondly, the 'Participant's View' (PV) refers to the evaluation of local world views, perceptions, attitudes and opinions as they are embedded in the fundamental structure of values, norms and belief systems which characterize a specific culture. The Participant's View corresponds to the anthropological concept of an *emic* view of cultures from within as opposed to the *etic* view from outside.

Thirdly, the Field of Ethnological Study (FES) is similarly rooted in the 'Leiden Tradition of Structural Anthropology' and evolved from early fieldwork carried out in Indonesia in the 1930s *(cf.* Van Wouden 1935; Schefold 1988*)*. The principle of FES is closely related to the concept of 'culture area' which relates to the prevalence of certain cultural characteristics across a particular geographical region and allows for regional comparative research among diverse ethnic groups within the same region. In spite of its diversity of sub-cultures, Indonesia can thus be considered one culture area, namely the Indonesian Field of Ethnological Study. Furthermore, Slikkerveer (1999: 172) explains that the study of systems of indigenous knowledge and technology has long been confronted with different problems and opportunities which on the one hand: '*include the general arrearage in the study and documentation of indigenous knowledge systems in comparison with global knowledge systems [...]; the lasting 'stigmatisation' of indigenous knowledge and its etic 'invisibility' as part of the unwritten oral tradition of the local culture; and the less tangible symbolic and spiritual phenomena and world views'*. On the other hand, the increasing recognition of the potential of indigenous knowledge for enhanced sustainable management of agricultural and natural resources, its practical significance and cultural utility for participation, and local level decision-making and its contribution to biodiversity conservation combined with global knowledge call for extended research, further operationalisation of relevant concepts and implementation of results (*cf.* Slikkerveer 1999).

In the light of these considerations, the inadequacy of existing research methods and techniques to study the local peoples' own ideas calls for a more *emic*, interactive research methodology which is designed to study, analyse and understand the complex systems of indigenous knowledge and practice in developing countries and to relate these systems to global knowledge and technology (*cf.* Leakey & Slikkerveer 1991; Warren, Slikkerveer & Brokensha 1995; Adams & Slikkerveer 1996; Slikkerveer 1999). Consequently, research approaches have been developed in the field of 'new ethnoscience' which aims at studying local and regional systems of knowledge, beliefs and practices within a more dynamic context of processes of development and change.

The ethnosystems methodology, which was successfully applied to different study areas across East Africa, Indonesia and the Mediterranean, has amply shown to facilitate the understanding and clarification of the processes of interaction between indigenous and global knowledge systems (*cf.* Leakey & Slikkerveer 1991; Adimihardja 1995; Adams Slikkerveer

1996, Slikkerveer 1995; Agung 2005; Ibui 2007; Leurs 2010, Djen Amar 2010; Ambaretnani 2012; Chirangi 2013; Aiglsperger 2014). In general, the research methodology which adopts the 'Leiden Ethnosystems Approach' allows for a rather realistic representation of indigenous knowledge systems encompassing the local people's knowledge, beliefs and opinions as well as the individual perceptions, attitudes and cosmovisions.

The implementation of the 'Leiden Ethnosystem Approach' has rendered it possible to record, analyse and ultimately integrate different key elements of local knowledge systems in various different fields of ethnoscience research, such as in ethno-communication, ethno-economics, ethno-medicine, ethno-pharmacy, integrated microfinance management, and, lately, integrated community-managed development. Additionally, the specific ethnoscience research approach has facilitated the design, testing and successful implementation of analytical multivariate models of human behaviour in different settings (*cf.* Slikkerveer 1995; 1999). The construction of a multivariate model of human behaviour embarks on the concept of 'ethnosystems', not only broadening the perspective on culture, but also allowing for an adequate assessment of the cognitive and behavioural components of particular groups or communities as 'systems' in a rather holistic mode. In this way, the concept of 'ethnosystems' also accommodates the analysis of processes of utilisation of Health Information & Communication Systems (HICS) in pluralistic medical configurations.

In the light of these considerations, the present research uses a multidimensional approach towards the study of ethno-information and ethno-communication with regard to health which builds on the hypothesis that an individual's behaviour is affected by a number of factors, *i.e.* socio-cultural, psycho-social, economic, institutional and intervening factors playing a differential role in the Plural Health Information & Communication System (PHICS). The methodological attention is focussed on the comparison of significant factors influencing the utilisation of the two complementary Traditional and Modern Health Information and Communication Systems (T&MHICS).

A number of studies which have been conducted in related fields of ethnoscience and research settings on the basis of the 'Leiden Ethnosystem Approach' have accumulated considerable evidence of the significant influence of several groups of factors, in which the psycho-social factors tend to dominate the model. These studies include: '*Plural Medical Systems in the Horn of Africa: The Legacy of the ″Sheikh″ Hippocrates*' (Slikkerveer 1990); '*Bali Endangered Paradise? Tri Hita Karana and the Conservation of the Island's Biocultural Diversity*' (Agung 2005); '*The Challenge of Non-Experimental Validation of MAC Plants: Towards a Multivariate Model of Transcultural Utilisation of Medicinal, Aromatic and Cosmetic Plants*' (Slikkerveer 2006); '*Indigneous Knowledge, Belief and Practice of Wild Plants among the Meru in Kenia: Past and Present Human-Plant Relations in East Africa*' (Ibui 2007); '*Medicinal, Aromatic and Cosmetic MAC plants for Community Health and Bio-Cultural Diversity Conservation in Bali, Indonesia*' (Leurs 2009); '*Gunem Catur in the Sunda Region of West Java: Indigenous Communication on the MAC Plant Knowledge and Practice within the Arisan in Lembang, Indonesia*' (Djen Amar 2010); '*Paraji and Bidan in Rancaekek: Integrated Medicine for Advanced Partnerships among Traditional Birth Attendants and Community Midwives in the Sunda Region of West Java, Indonesia*' (Ambaretnani 2012); '*Afya Jumuishi: Towards Interprofessional Collaboration between Traditional and Modern Medical Practitioners in the Mara Region of Tanzania*' (Chirangi 2013); and '*Yiatrosofia yia ton Anthropo: Indigenous Knowledge of Medicinal, Aromatic and Cosmetic (MAC) Plants in the Utilisation of the Plural Medical System in Pirgos and Praitoria for Community Health Development in Rural Crete, Greece*' (Aiglsperger 2014).

In addition to the 'Leiden Ethnosystem Approach', the present research on the Plural Health Information & Communication System in the Sunda Region of West Java follows an explanatory research method which is used to gain a deep insight and understanding of the role of factors in the utilisation behaviour reported by the respondents of the sample surveys.

These patterns have been recorded on a retrospective approach towards the reported utilisation patterns over the preceding 12 months. Furthermore, this study adopts a combination of qualitative and quantitative research techniques for data collection and analysis. As Ambaretnani (2012: 59) underscores: '*In social research, there are two distinct opinions regarding quantification which reflect underlying differences in perspective among scholarly disciplines as to methodology and interpretation of results*'. Although some social scientists point to the essence of research in the qualitative assessment of local concepts and values, ethnoscience researchers, however, argue that quantitative data and statistical analyses are forming the backbone of behaviour-oriented research, favouring a wider approach towards the description and explanation of information. More advanced research in ethnoscience attaches great value to a balanced combination of 'qualitative–quantitative' research by means of employing qualitative research for in-depth understanding of processes, further substantiated with quantitative research methods in order to measure the spread of preliminary findings over larger target groups in a complementary and mutually supporting fashion (*cf.* Slikkerveer 1995; Ambaretnani 2012). In general, it is the aim of this study to document, analyse and explain the knowledge, beliefs and related utilisation of Traditional and Modern Health Information & Communication Systems (T&MHICS) in Sukamiskin from a wider community perspective. In order to reach this aim, this research not only follows the 'Leiden Ethnosystem Approach', but also implements complementary qualitative and quantitative research methods and techniques of data collection through the household surveys.

3.1.2 The Selection of the Research Setting

Comparing the different regions of Indonesia, the Province of West Java offers a rather substantial amount of distinct cultural characteristics whereby its capital Bandung functions as an important center with a rich cultural history. The present research concentrates on the community of Sukamiskin which forms part of the Arcamanik district belonging to East Bandung, and comprises an area of 196.162 ha. The community is laid out over flat land throughout its entire area, built at an elevation of about 500 metres above sea level. The average temperatures in Sukamiskin range between 19 °C and 32 °C while the level of rainfall reaches on average approximately 2.400mm annually.

The research area of Sukamiskin has been selected on the basis of five main considerations. Firstly, the distinct patterns of community life in the geographical area have raised growing academic interest. Secondly, the establishment of a *taman baca* ('community library') in the research area suggests that the community members are motivated to improve their own life and seek ways to meet their needs for information. Thirdly, the different forms of information and communication and medical systems in Sukamiskin encompass traditional and modern systems of communication and medicine. Fourthly, community members appear to have a growing awareness of the importance of information as they show their enthusiasm and interest in the available sources of information. Fifthly, the research area ensures the availability of community members with a strong feeling for their traditions, as well as for change and development for their own benefit, while there are also rather active institutions, media and facilities

3.1.3 The Choice of the Sample Surveys

The sample population in Sukamiskin has been selected from 14 different hamlets and 83 neighbourhoods which together comprise 617 respondents, aged between 0 and 90 years, of which 125 are household heads (*cf.* Table 3.1). In general, the household head is a person, who is regarded as the leader of the family and represents the family in social activities.
Although the head of the family is generally a man, *i.e.* a husband or father, there are cases in which the head of the family is a woman, *i.e.* a wife or mother. In general, a woman automatically becomes the head of the family if her husband dies, or in the case of divorce. Sometimes, women are also household heads when the husband is living and working elsewhere.

In order to cover a diverse research population which incorporates different aspects of community life, the household heads have been chosen randomly. In consultation with the Head and the Secretary of the community as well as with the Neighbourhood Councils, more than one household head was selected from each hamlet in the research area. Reviewing the list of residents available in each village, the sample survey respondents have been chosen from the designated number of residents recorded for each neighborhood, pertaining to a total of 125 sample units. On the basis of probability sampling, every member of the target population, namely the sampling frame, had an equal chance of being selected as a respondent (*cf.* Aiglsperger 2014). A subsequent inquiry by the Village Head was conducted in order to confirm the presence of the selected household heads. Four household heads, which were not available in the village, were substituted by other household heads randomly selected from the same neighbourhood.

Table 3.1 Hamlets (RW), Neighbourhoods (RT) and Number of Respondents (N) selected for the Household Surveys in Sukamiskin (N=125).

No.	Hamlet (*RW*)	Neighbourhood (*RT*)	Respondents	
			N	%
1.	RW 01	5	7	5.6
2.	RW 02	3	5	4.0
3.	RW 03	4	7	5.6
4.	RW 04	3	5	4.0
5.	RW 05	6	12	9.6
6.	RW 06	3	7	5.6
7.	RW 07	5	4	3.2
8.	RW 08	8	5	4.0
9.	RW 09	6	8	5.4
10.	RW 10	12	15	12.0
11.	RW 11	10	17	13.6
12.	RW 12	6	9	7.2
13.	RW 13	6	14	11.2
14.	RW 14	6	10	8.0
Total		83	125	100.0

Source: Household Survey (2012-2014).

3.2 Complementary Qualitative and Quantitative Surveys

3.2.1 Preparation for the Field Research

Preparation for the research survey embarked on a thorough review of information on the conditions of the research area. Since Arcamanik forms a district of the city of Bandung, data on the conditions of Arcamanik which consists of several villages and sub-districts including Sukamiskin have been obtained from the public information available on the characteristics of the districts of Bandung. Following an initial revision of the conditions, the availability of channels of information and communication, as well as health care facilities, has been reviewed.

The increased community participation transpires through Sukamiskin as it has its own public reading place which has been established on the initiative of the community members themselves.

The research area moreover offers a rather comprehensive availability of different communication facilities, such as a television station ('Bandung TV'), radio and public communication tools as well as other forms of telecommunication accessible for the general public. Similarly, a number of formal health care institutions, including health centres, private clinics, midwives, healers, pharmacies, drug stores and herb stalls, are available in the sub-district. In general, the community of Sukamiskin is rather diverse in composition, further underscoring its significance as an appropriate research site for the study.

The research instruments applied in this study have been designed with a view to collect information on the utilisation of Plural Health Information & Communication Systems 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 the spread of related factors and assessing the interactive processes involved in the reported differential behaviour of the community members regarding the utilisation of the Health Information & Communication Systems (HICS) in Sukamiskin.

The preparation of both research components include the planning of the qualitative study, based on in-depth interviews with key informants, and the execution of the sampling techniques for the household surveys and the design of the structured questionnaires.

3.2.2 The Qualitative Study in Sukamiskin

In the research area, a substantial amount of data have been collected by means of qualitative research methods in order to obtain data and in-depth information on a number of community aspects which have been identified as significant for this component of the study. In other words, the qualitative research tools have been designed in a way to collect in-depth data on patterns of behaviour, knowledge, wisdom and the cosmovision of the community members. Qualitative research was carried out in the form of field observations, the study of documents and formal and informal interviews with key informants and participants in the household surveys offering valuable information.

The interviews involved open-ended questions on a number of pre-determined topics as well as questions which have been inserted into the conversation in a more or less systematic or quasi-natural way (*cf.* ten Have 2004). The open-ended questions have been directed at key informants as well as at participants in the household surveys, who have been asked to complete the answers given in the questionnaires. For the present study, key informants included: the physician, the *lurah*, who is the Head of the Health Department of Bandung; the chief of the

mass media in Sukamiskin; the *ajengan* ('religious healer'), the traditional healers; and selected experts in the fields of Sundanese culture and information & communication science. The languages used in the interviews have been Indonesian and Sundanese which have been adjusted accordingly on the premises of the respondents in order to render it easy for them to understand the questions and provide appropriate answers.

In addition to these in-depth interviews, qualitative data have been collected from various documents which have been used as research material throughout this study. These documents include any record of text, digital source, image, sound or a combination. Besides information on the local culture and other relevant topics, the documents also include data on the annual health report of the inhabitants of Sukamiskin. Although to a certain extent it has been possible to empirically confirm so-called 'hard' socio-demographic factors, such as age, gender, education or marital status qualitatively by means of consulting the available statistics, the so-called 'soft' factors, such as people's knowledge, perceptions, beliefs and opinions could only be measured through detailed household surveys.

3.2.3 The Design of the Structured Questionnaire

The formal questionnaire used as the main research tool in the quantitative household surveys is based on five main sections which have been developed on the basis of the design of the conceptual model of the study described in the following Paragraph, which describes the sections of each questionnaire; they are structured in a way to record data on the respective blocks of factors determined in the related multivariate model, differentiated, on the one hand, by the Traditional Health Information & Communication Systems (THICS) and, on the other hand, by the Modern Health Information & Communication Systems (MHICS), at the community level. In this way, the respondents from the sample surveys were interviewed on their utilisation of the Traditional Health Information & Communication Systems (THICS) and on the Modern Health Information & Communication Systems (MHICS) in order to assess and compare their independent and intervening factors in relation to their reported utilisation of both systems.

The number of questions from section A to section D as mentioned above amounts to a total of 143, 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. Each set of answer categories includes also 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 sections are dealing with the following information from each respondent:

Preface:		guiding the interviewers with explanations and directions for the interviews	
Section	A:	independent variables	
	A.1.	predisposing factors:	socio-demographic variables
			psycho-social variables
	A.2	enabling factors:	socio-economic status
	A.3	perceived factors:	need of health information
	A.4	institutional factors:	*taman baca*, *PKK*, mosque
Section	B:	intervening variables:	the mass media

Section C: dependent variables: utilisation of the Traditional Health Information & Communication System (THICS)
utilisation of the Modern Health Information & Communication System (MHICS)
Section D: additional questions and recording of the respondents' 'expectations and opinions'

3.3 Construction of the Conceptual Model and its Components

3.3.1 The Utilisation Model of Health Information & Communication Systems (HICS)

Tuma (1984: 7) has come to the conclusion that: '*theoretical developments in social movements have also begun to emphasize dynamics. [...] Collective violence is not an aberration but a natural by-product of social organisation whose forms change as the distribution of power changes. Forces which challenge and perhaps overturn the existing order can arise even when a system is apparently stable. Such shifts place theoretical emphasis squarely on dynamics. [...] Interest in explaining how and why social actors and social systems change over time seems to be gaining momentum.'*

In this respect, the multivariate model developed by Slikkerveer (1990) facilitates the description and explanation of how an individual or social system changes over time and provides the basis of the operationalisation of the conceptual model designed for this research.

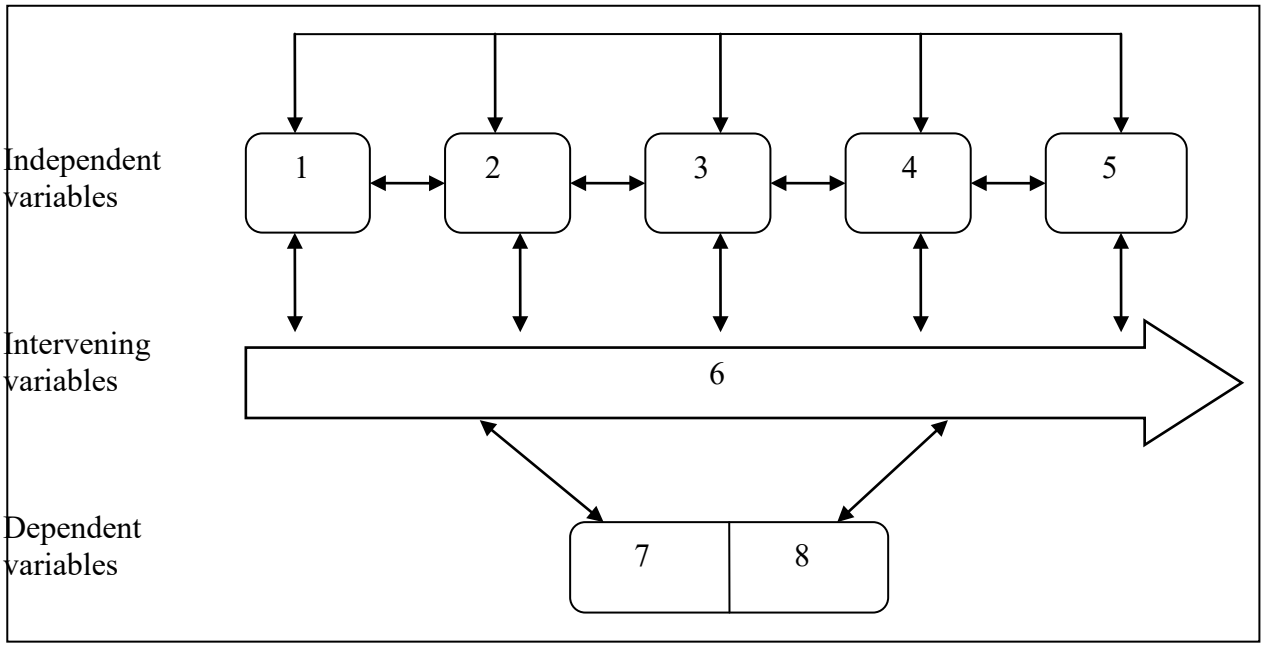


Figure 3.1 The Conceptual Model of Utilisation of the Plural Health Information & Communication System (PHICS) in Sukamiskin.
Source: Adapted from Slikkerveer (1990; 1995).

The multivariate model designed for the present research conducted in Sukamiskin highlights the interaction between the independent variables including five blocks of factors, the intervening variables including one block of factors, and the dependent variables including two blocks of factors of utilisation behaviour. The processes of interaction between the variables in the model also include interactions among the different blocks of factors, such as predisposing factors which include socio-demographic and psycho-social factors, enabling factors, perceived

information factors and institutional factors. The arrows in the multivariate model implemented in this research, as represented in Figure 3.1, show the interaction between the different independent, intervening and dependent variables. Each reported independent and intervening variable included in the model is analysed as a potential determinant of the reported dependent variables of utilisation behaviour of the Plural Health Information & Communication System (PHICS) in the research area.

3.3.2 Operationalisation of the Conceptual Model

The conceptual model presented in Figure 3.1 not only distinguishes between independent, intervening and dependent variables, but also identifies different categories or blocks of factors. In order to operationalise the conceptual model into an adequate tool of measurement for the analysis, the blocks of factors in the model are operationalised by the sub-division into concepts, variables, indicators and categories. On the basis of the model shown in Figure 3.1, the following eight blocks of factors have been identified:

At the individual level:
as independent variables: predisposing factors: socio-demographic (1)
predisposing factors: psycho-social factors (2)
enabling factors (3)
perceived need of health information factors (4)

At the system level:
as independent variables: institutional factors (5)
as intervening variables: intervening factors (6)
as dependent variables: utilisation factors of the Traditional Health Information & Communication System factors (7)
utilisation of the Modern Health Information & Communication System factors (8)

The characteristics of the different blocks of factors, *i.e.* concepts, variables, indicators and categories, are hereafter described separately in relation to the various blocks identified in the model. Bice *et al* (1976: 24) argue that the process of measurement involves: '*specifying a concept, translating it into an operational definition which points to a variable that can be measured, and applying the operationally defined measurement technique to units of its indicators and related categories*'. The operationalisation of the blocks of factors can be elaborated as follows:

Block 1 and Block 2: Predisposing socio-demographic and psycho-social factors
In general, the predisposing factors operate at the individual level and refer to a number of socio-cultural background characteristics which involve a combination of so-called 'hard' socio-demographic and so-called 'soft' psycho-social factors (*cf.* Slikkerveer 1990, Aigsperger 2014). The block of socio-demographic factors includes the following variables: 'household size', 'age'; 'formal education' and 'profession' of the household head. Table 3.2 shows the operationalisation of the block of socio-demographic factors into concepts, variables, indicators and categories.

Table 3.2 Block 1: Predisposing Factors: Concepts, Variables, Indicators and Categories.

Concept	Variable	Indicator	Category
Socio-demographic characteristics at the individual level	Household size	Total number of family members living	real numbers
	Age	Number of years	26–30; 31-35; 36-40; 41-45; 46-50; 51-55; 56-60; 61-65; 66-70; 71-75; 76+
	Formal Education	Type of education	No education; primary school; secondary school; senior high school, university; other
	Profession	Main profession	Farmer; teacher; personal servant; civil servant; religious leader; entrepreneur; labourer; private sector worker; unemployed; retired; other

The block of psycho-social factors records the knowledge, expectations and beliefs of the community members.
The variables in this block refer to: 'knowledge level on traditional medicine'; 'knowledge level on modern medicine'; 'knowledge of availability of libraries'; 'belief in power of traditional medicine'; 'belief in power of modern medicine'; 'belief in power of printed word'; 'opinion on the quality of health information'; 'opinion on the cost of health information' and 'opinion on the service of health information'. The operationalisation of the block of psycho-social factors into concepts, variables, indicators and categories is shown in Table 3.3.

Table 3.3 Block 2: Predisposing Factors: Concepts, Variables, Indicators and Categories.

Concept	Variable	Indicator	Category/score
Psycho-social characteristics at the individual level	Knowledge Level on traditional medicine	Level of knowledge	Very little; little; average much; very much
	Knowledge Level on modern medicine	Level of knowledge	Very little; little; average much; very much
	Knowledge of availability of libraries	Level of knowledge	Very low awareness; low awareness; average awareness; high awareness; very high awareness
	Belief in power of traditional medicine	Level of belief	Low belief; average belief; strong belief
	Belief in power of modern medicine	Level of belief	Low belief; average belief; strong belief
	Belief in power of printed word	Level of belief	Low belief; average belief; strong belief;
	Opinion on the quality of health information	Level of opinion	Very low appreciation; low appreciation; average appreciation; high appreciation; very high appreciation
	Opinion on the cost of health information	Level of opinion	Very low appreciation; low appreciation; average appreciation; high appreciation; very high appreciation

(Continued) Table 3.3

Concept	Variable	Indicator	Category/score
	Opinion on the service of health information	Level of opinion	Very low appreciation; low appreciation; average appreciation; high appreciation; very high appreaciation

Block 3: Enabling factors

The block of enabling factors includes the 'socio-economic status (SES)' variable which refers to the household's financial situation, such as family income and expenses. The quantitative questionnaire was designed to generate a number of indicators which relate to the occupations of the household head and his or her spouse, and eventually determine the SES variable, *i.e.*: family income; family expenses; ownership of housing, land, livestock, vehicles and electronics; and household budget.

The different indicators have been subjected to a factor analysis in order to obtain anaverage assessment of SES of the household with regard to a family's capacity to utilise the Plural Health Information & Communication System (PHICS). Table 3.4 presents the operationalisation of the block of enabling factors into concepts, variables, indicators and categories.

Table 3.4 Block 3: Enabling Factors: Concepts, Variables, Indicators and Categories/Scores.

Concept	Variable	Indicator	Category
Socio-economic characteristics at the individual level	Socio-economic status (SES)	Level of SES	Poor; average; well-to-do

Block 4: Perceived need of health information factors

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 of perceived need of health information factors refer to: 'perception of traditional health information' and 'perception of modern health information'. In the questionnaire, perceptions of health information have been addressed by the question concerning to what extent the household head did perceive a need of traditional and modern health information and communication.

Recalling Mundy & Compton (1995), communities generally maintain a number of different types of indigenous communication channels. Every channel of indigenous communication serves the spread of traditional information, thereby also encompassing traditional health information and communication which also includes traditional medicine and forms of treatment. At the same time, modern health information and communication refers to information about modern medicine and treatment as well as modern health care services. Both traditional and modern health information and communication can be distinguished as related to health promotion, disease prevention and treatment.

Table 3.5 Block 4: Perceived Need of Health Information Factors: Concepts, Variables, Indicators and Categories/Scores.

Concept	Variable	Indicator	Category
Perceived need of health information characteristics at the individual level	Need traditional health information	Level of perception	Low perceived need; medium perceived need; high perceived need
Concept	Variable	Indicator	Category/score
	Need modern health information	Level of perception perceived need;	Low perceived need; medium high perceived need

Table 3.5 shows the operationalisation of the variables in Block 4, *i.e.* 'need of traditional health information' and 'need of modern health information', in terms of concepts, variables, indicators and categories.

Block 5: Institutional factors

The block of institutional factors contains the variables 'Exposure to Institutional Health Information' and 'Member Health Information Institution'. The variables have been measured at the system level and address the experiences of each respondent. In the research area, institutional health information refers to: the public library; *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner'), the *Pembinaan Kesejahteraan Keluarga* (PKK) ('Empowerment of Family Welfare Movement'), *Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Post'); health centres; mosques; and the *pesantren* [5]. Table 3.6 shows the operationalisation of block 5 institutional factors into concepts, variables, indicators and categories.

Table 3.6 Block 5: Institutional Factors: Concepts, Variables, Indicators and Categories.

Concept	Variable	Indicator	Category
Institutional characteristics at the system level	Exposure to institutional health information	Level of exposure	Very low exposure; low exposure; average exposure; high exposure; very high exposure
	Member of institutional health information	Level of exposure	Very low exposure; low exposure; average exposure; high exposure; very high exposure

Block 6: Intervening factors

As Aiglsperger (2014: 77) argues: *'In general, intervening factors operating on the system level alter the standard relationship between independent and dependent blocks of factors from outside of the communities concerned*'. For the purpose of this study, the variables which have been selected in the block of intervening factors, are: 'exposure to electronic media'; 'exposure to printed media'; and 'awareness of epidemics'. Throughout the research area, community members are exposed to an abundance of information, *i.e.* electronic and printed information, on a daily basis. At the same time, channels of health information and communication are generally subject to rapid change as shown by the current use of gadgets, such as smartphones which have come to represent a medium affordable to almost everyone. Table 3.7 presents the operationalisation of the block of intervening factors into concepts, variables, indicators and categories.

Table 3.7 Block 6: Intervening Factors: Concepts, Variables, Indicators and Categories/Scores.

Concept	Variable	Indicator	Category
Intervening characteristics at the system level	Exposure to electronic media	Level of exposure	Very low exposure; low exposure; average exposure; high exposure; very high exposure
	Exposure to printed media	Level of exposure	Very low exposure; low exposure; average exposure; high exposure; very high exposure
	Epidemics	Existence	Don't know; no; yes

Block 7 and Block 8: Dependent factors of utilisation of the Traditional and Modern Health Information & Communication Systems

The dependent factors in the model include two interrelated blocks of factors which are the result of the dynamic interaction between the independent, *i.e.* predisposing, enabling, perceived need of health information and communication, and institutional and intervening factors. As such, the blocks of the dependent factors indicate the variance in the utilisation of the Plural Health Information & Communication System (PHICD), sub-divided in the Traditional and the Modern Health Information and Communication Systems (T&MHICS), and reported by the respondents over a recall period of twelve months preceding the household surveys.

In order to comply with the characteristics of the Plural Health Information & Communication System (PHICD) available in the research area, the dependent factors have been sub-divided into two blocks of factors, each of which contains one variable measured at the system level. The variables refer to: 'utilisation of Traditional Health Information & Communication System' and 'utilisation of the Modern Health Information & Communication System', specified over the weights or scores of the variables, reported by the respondents.

Table 3.8 Block 7: Dependent Factors of Utilisation of the Traditional Health Information & Communication System (THICS): Concepts, Variables, Indicators & Categories

Concept	Variable	Indicator	Category
Dependent characteristics of utilisation of the traditional health information & communication system at the system level	Utilisation of the the traditional health information & communication system	Level of utilisation of the traditional health information & communication system	Very low utilisation; low utilisation; average utilisation high utilisation; very high utilisation

Table 3.9 Block 8: Dependent Factors of Utilisation of the Modern Health Information & Communication Systems (MHICS): Concepts, Variables, Indicators and Categories.

Concept	Variable	Indicator	Category
Dependent characteristics of utilisation of the modern health information & communication system at the system level	Utilisation of the the modern health information & communication system	Level of utilisation of the modern health information & communication system	Very low utilisation; low utilisation; average utilisation high utilisation; very high utilisation

The operationalisation of the two blocks of dependent factors into concepts, variables, indicators and categories is presented in Table 3.8 and Table 3.9. In the final analysis, the dependent variables of utilisation of traditional and modern health information & communication systems substantiate the process of health information & communication utilisation behaviour in Sukamiskin.

3.3.3 Selection of the Stepwise Statistical Data Analysis

For the purpose of this research, data regarding the community members' utilisation of the Plural Health Information & Communication System (PHICS) in Sukamiskin have been collected by means of qualitative interviews and quantitative household surveys as well as by the study of the relevant literature and documentation of the research area. The quantitative data which have been collected from the structured questionnaires in accordance with the conceptual model developed for this research have been subjected to a stepwise statistical data analysis encompassing bivariate, mutual relations and multivariate analysis as well as multiple regression analysis (*cf.* Chapter 8).

Following the bivariate analysis, a Multiple Relations Analysis is conducted, encompassing an overview of all the significant variables resulting from the bivariate analysis, and represented in a model of Mutual Relation Analysis.

The multivariate and multiple regression analyses have been carried out by means of applying the OVERALS technique of statistical data analysis to the quantitative data collected during the household surveys. Through the method of 'bootstrapping', the selected programme OVERALS acts as an explanatory technique which generates stable results (*cf.* Van der Burg & De Leeuw 1988). The eigenvalues and canonical correlation coefficients are very stable if the sample size is not too small. Van der Burg, Noordermeer & De Haes (2000) argue that although the confidence intervals for the component loadings are larger than for the eigenvalues, they remain stable.

The different forms of statistical data analysis applied to the present data by means of OVERALS produce component loadings and canonical correlation coefficients which serve the description of the final results. In this way, statistical data analysis aims at elaborating the final model of utilisation of the Plural Health Information & Communication System (PHICS) in the research area. The results which are obtained from quantitative data analysis are substantiated by information gathered from the qualitative interviews and related explanations.

Notes

[1] The 'Leiden Ethnosystems Approach' has been developed in order to facilitate the study of indigenous knowledge systems in their dynamic context of development and change. The approach adopts a combination of anthropological and sociological concepts which allow for a detailed analysis of the participants 'point of view (Participant's View), the cultural characteristics of the research area (Field of Ethnological Study) and the historical processes involved in the development of specific behavioural patterns (Historical Dimension) (*cf.* Leakey & Slikkerveer 1991, Slikkerveer 2006).

[2] Qualitative research investigates aspects of social life which are not amenable to quantitative measurement. Associated with a variety of theoretical perspectives, qualitative research uses a range of methods to focus on the meanings and interpretation of social phenomena and social processes in the particular contexts in which they occur (*cf.* Jup 2006).

[3] Quantitative research involves the collection of data in numerical form for quantitative analysis. The numerical data can refer to durations, scores, counts of incidents, ratings or scales. Quantitative data can be collected in either controlled or naturalistic environments, in laboratories or field studies from special populations or from samples of the general population.

The defining factor of quantitative research is that the process generates numbers, be it that an initial data collection produced numerical values or, as in content analysis, that non-numerical values have been subsequently converted to numbers as part of the analysis process (*cf.* Jup 2006).

[4] The Statistical Package for the Social Sciences (SPSS) is one of the most widely used programmes for statistical analysis in the field of social science. For the analysis of data from this study, Versions 11.5, 17.0 and 20 have been used.

[5] In Sukamiskin, the Islamic boarding school, *pesantren* or *pondok pesantren*, was founded in 1882 by the religious healer *Ajengan* Alko and is currently led by *Ajengan* Abdul Azis. A respected institution, the *pesantren* countinously communicates with the members of the community. *Ajengan* Abdul Azis is open to receiving feedback and suggestions from the community members regarding the *aqidah* ('value of life') applied by the *pondok pesantren*. The school maintains an excellent network of communication with a number of mosques in the surrounding area which is largely the result of the transparancy adopted by *Ajengan* Abdul Azis and the contribution of the *pesantren* to the construction of seven mosques in a number of neighbouring hamlets. Furthermore, students of the school, who are living in cottages around the *pesantren*, regularly take turns in participating in activities organised by the community which include *i.a.* religious lectures, recitings for the dead (*tahlilan*), wedding recitals, as well as events, such as thanksgiving and circumcision.

Chapter IV. RESEARCH SETTING: INDONESIA AND THE SUNDA REGION

This chapter presents an overview of the research setting of the study, encompassing the geography and historical background of the Republic of Indonesia, including the characteristics of government and political organisation as well as Indonesia's administration which has recently been reduced from 27 to 34 provinces. Similarly, a description is provided of the Sunda Region, particularly the geography and socio-demography of the Province of West Java and the research area of the community of Sukamiskin. Because of its abundant natural resources and fertile areas, West Java, the fifth largest province of Indonesia, is dominated by the agricultural sector. The *kelurahan* ('community') of Sukamiskin is located within the administrative boundaries of the urban area of Bandung, the capital of the province of West Java.

4.1 Synopsis of the Culture Area of Indonesia

4.1.1 Indonesia: Geographical and Historical Background

Indonesia is the 16th largest country by geographical area in the world with an estimated land area of 1.904.440 km^2 and a sea area of 3.257.483 km^2, amounting to an overall total area of approximately five million square kilometres (*cf.* BPS 2010). Representing an Archipelago, around 70% or two thirds of the surface of Indonesia are covered by water causing the country to gain the reputation of a maritime country. Located in South-East Asia, the five major islands of Indonesia, *i.e.* Sumatra, Kalimantan, Java, Sulawesi and Papua, and approximately 13,466 smaller islands are scattered along the equator whereby several areas in Indonesia, such as the Bonjol area in West Sumatera and Pontianak in West Kalimantan are passed by the equator (*cf.* Geospatial Information Agency 2015).

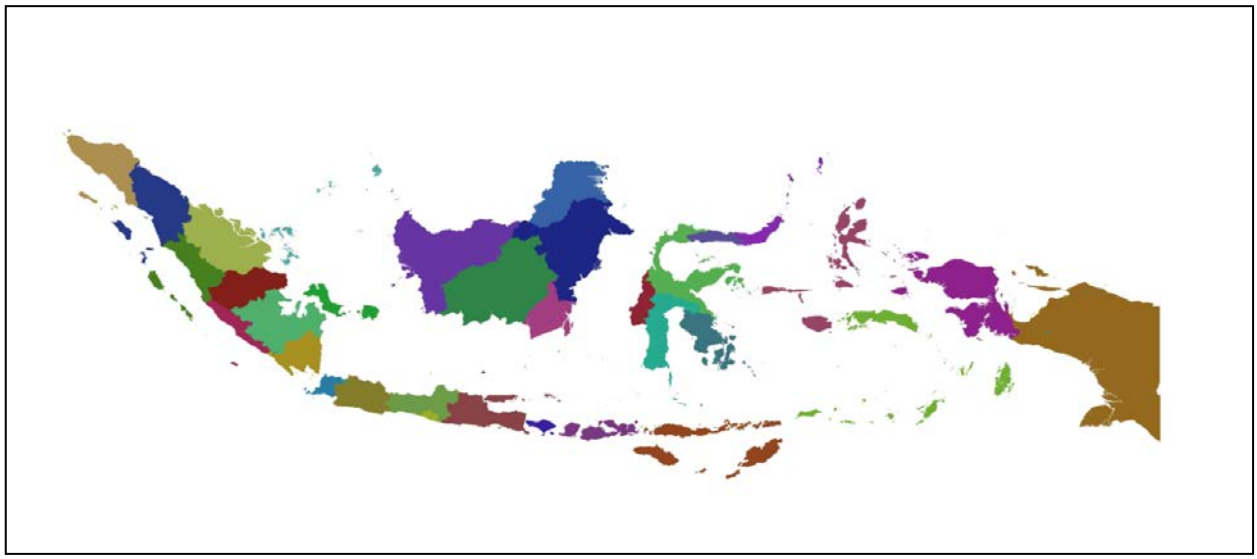
The land area of Indonesia offers vast ranges of high- and lowland inhabited by people, as well as plateaus and forest land. Throughout the country, the forests are characterised by an enormous diversity of flora and fauna which serve as a focal point not only for the general public and the industry, but also for communal actions towards biodiversity conservation. The geographical position of Indonesia between 95° to 141° East Longitude and between 6° North and 11° South Latitude is the basis for the tropical climate of the country. The amount of rainfall ranges between 1,780 and 3,175mm per year which creates two seasons, the rainy and the dry season. Furthermore, the territory of Indonesia is characterised by the meeting of several tectonic plates, including the Pacific Plate, the Eurasian Plate and the Australian Plate which cause volcanic action on the mainland and among mountains situated on the ocean floor. The movement of the tectonic plates often provokes severe earthquakes in many regions of Indonesia, especially in areas of Sumatra, Java and Sulawesi.

Indonesia is located at a rather strategic crossing point of international trade routes between the two continents of Asia and Australia, and between the Indian and Pacific oceans. Because of its strategic location, Indonesia is not only traversed by various international channels of transportation, running from west to east and *vice versa*, but it is also involved in many international commercial contacts, pertaining to the acceleration of economic growth and the establishment of many multinational corporations.

The large population and the densely populated regions account for the present number of 263,991,379 inhabitants. Distinguished as the fourth most populous country worldwide, the population, however, shows a decline in annual growth from 2.7% in 1968 to 1.1% in 2017 (*cf.* United Nations 2017).

Although Indonesia has the largest Muslim population in the world, it is not an Islamic state. It comprises an abundance of diverse ethnicities, cultures and population groups, reflected in its national motto '*Bhineka Tunggal Ika*', meaning '*Unity in Diversity*' (*cf.* Ricklefs 2011).

In addition to its rich biodiversity, its socio-cultural diversity is similarly plentiful in the religious, ethnic and cultural aspects and customs of the numerous ethno-cultural groups. While the majority of the Indonesian population adhere to Islam, other religions are also practiced, such as Catholic, Protestant, Hindu, Buddhist or Confucian. In addition to the many cultural activities of the people, Indonesia also offers a rich diversity of local languages as well as alongside the national language, *Bahasa Indonesia*. Although people mostly use the local language in their place of residence, *Bahasa Indonesia* is commonly used throughout the country as the official *lingua franca*.



Map 4.1 Map of the Provinces of Indonesia.
Source: *Peta matikindo* (2013)

Administrative divisions

During the past 20 years, the policies of regional autonomy have led to the establishment of new administrative regions in Indonesia which currently consists of 34 provinces and three special regions. Representing the youngest province of Indonesia, the creation of the Province of North Kalimantan with Tanjung Selor as the capital city follows the latest modification in the number of provinces which took place in 2012 and saw an increase in the number of provinces in Indonesia from 33 to 34 (*cf.* Map 4.1). From the 34 provinces in Indonesia, special status has been given to three regions, namely: Aceh along with Weh Island which is located in the western region of Indonesia; '*Daerah Khusus Ibukota (DKI) Jakarta*', the Special Capital Territory of Jakarta; and '*Daerah Istimewa (DI) Yogyakarta*', the Special Region of Yogyakarta which is headed by a Sultan. Acting as the Head of the Provincial Government, the position of the Sultan in currently held by Sultan Hamengkubuwono X.

Throughout Indonesia, each province has a provincial capital which is the centre of the provincial government headed by a provincial governor whereby the provincial government enjoys regional autonomy, *i.e.* the authority to manage its own territorial area. Subordinate to the Governor on a second level of regional government are: the Regent, who is assisted by a Vice-Regent, and the Heads of the Regency Government located in the Capital of the Regency; and

the Mayor, who governs the city. Each *kabupaten* ('regency') and *kota* ('city') in Indonesia is subdivided into *kecamatan* ('districts'). In order to fulfil the duties and functions assigned to Regents and Mayors, the Head of the second-level regional government is assisted by the Leaders of the Districts.

The *camat* ('head of the district') has a regional office in the territorial district which is sub-divided into *desa, kelurahan, kampung* or *nagari* ('administrative villages'). The lowest level of governance within the Regency is maintained by the *kepala desa* ('head of the village') and the *lurah* ('head') of the *kelurahan* ('urban village'). While the *kepala desa* is directly elected by the inhabitants of the village, the *lurah* is a civil servant. Each village is further sub-divided into *rukunwarga* (RW) ('hamlets') which in turn are segmented into *rukun tetangga* (RT) ('neighbourhoods').

The implementation of the policy of regional autonomy in Indonesia which took place in 2001 resulted in a shift of the key administrative tasks, *i.e.* the execution of almost all government services, previously performed by the provincial government offices, to regencies and cities. By consequence, the administrative offices located in Regencies and Cities carry out rather important tasks and generally deal with matters of the peoples' daily life through the intermediary of the *lurah* or *kepala desa*. In this way, the governments of the Regencies and Cities which act on a second level of the regional government form the backbone of the provincial administration.

Government and politics

The Republic of Indonesia is a unitary state with Jakarta as the Capital where the central government is located, headed by a President, who holds the office over a presidential term of five years. The form of democratic governance maintained in Indonesia adheres to the political principle of 'Trias Politica', by which the governing power is divided among legislative, executive and judicial authorities (*cf.* Portal Indonesia 2010).

In view of the roles played by the President, the Vice-president and the Ministers of the Cabinet, who all act as executives running the government, the Republic implements the presidential system, in which the Ministers and Leaders of non-ministerial agencies are fully responsible to the President. Besides, any executive has the responsibility to enact the 1945 Constitution of the Republic of Indonesia, the Laws and the Decrees of the *Ketetapan Majelis Pemusyawaratan Rakyat* (TAP-MPR) ('People's Consultative Assembly'). While the *Majelis Permusyawaratan Rakyat* (MPR) ('People's Consultative Assembly'), *i.e.* the legislative branch of the political system of Indonesia, was in charge of electing the President until 2004, the President has since been directly elected by the people of Indonesia. Currently, Indonesia is a member of ASEAN along with ten other countries, namely: the Philippines, Malaysia, Singapore, Thailand, Brunei Darussalam, Vietnam, Myanmar, Cambodia and Laos.

Demography

In 2010, the total population of Indonesia amounted to 237,641,326 inhabitants with a population growth rate of 1.9-5.8%. In 2017 acording to Statistika Indonesia, the population increased to 261,989,000 inhabitants. The majority of the Indonesian population resides on Java Island which represents the political center of the country.

The population of Indonesia comprises around 300 distinct ethnic groups and 742 different languages and dialects (*cf.* Witton 2003). In general, the strong regional identities heightened a sense of pluralism among the Indonesian population. Leading to a co-existence of regional and national identities, the Javanese have, however, been identified as the largest ethno-cultural group in Indonesia which covers around 42% of the population and is dominant both politically

and culturally (*cf.* Taylor 2003). The national language of Indonesia, *Bahasa Indonesia*, has developed as an adaptation of the Malay language and a number of traditional languages. The national language is used as a tool of communication among people from different ethno-cultural backgrounds and as such serves the purpose of overcoming possible language barriers. In general, the Indonesian society has been distinguished as largely harmonious, despite the sporadic occurrence of social, religious and ethnic tensions which at times trigger violence (*cf.* Ricklefs 2001).

4.2 The Province of West Java

Located on the island of Java south of the equator, the Province of West Java with its capital city Bandung holds a geographically strategic position. The province extends along the southern coastline of Java Island which borders the Indian Ocean, and along the northern coastline of Java Island which borders the Java Sea (*cf.* Moniarti 2009). Covering a total area of 37,994 square kilometres, the Province of West Java is surrounded by the Indian Ocean to the south, the Java Sea to the north, the Province of Central Java to the east, the Province of Banten to the west and DKI Jakarta, the capital city of Indonesia, to the northwest. The province moreover extends from west to east over a distance of approximately 265 km in length and from north to south over a distance of approximately 150 to 175 km in width, thereby accounting for about 2.46% of the total surface of Indonesia. Geographically, West Java is located between 6° and 8° South Longitude and between 105° and 108° East Longitude.

The landscape of West Java is characterised by the distribution of northern and southern lowlands as well as a central plateau which is surrounded by a number of active volcanoes, such as *i.a. T*angkuban Perahu, Salak and Papandayan (*cf.* Table 4.3). Furthermore, the area is shaped by the flow of many rivers whereby the five largest river landscapes refer to: Ciliwung Cisadane; Cisadea Cimandiri; Citarum; Cimanuk Cisanggarung; and Citanduy Ciwulan. Additionally, West Java has a tropical climate with average temperatures between 18°-22° C and an annual rainfall of approximately 2,000-5,000mm (*cf.* Farukhi & Afrida 2008). The conditions of a tropical climate with a rather high amount of annual rainfall lead to an increased availability of fertile land in the Province of West Java which is mostly used for agricultural purposes.

Administrative divisions

In general, the areas of Banten, Jakarta, Bogor, Priangan and Cirebon have long been referred to as West Java. Following the re-establishment of the Unitary State of the Republic of Indonesia which took place in August 1950, the Province of West Java was created as an autonomous region in accordance with Law No. 11 and Government Regulation No.31. With regard to the different levels of the Regional Government, the Province of West Java had, however, been authorised to organise and manage its domestic affairs, as regulated by Law No. 2 of 1948. Hereafter, a temporary Regional Government was established on December 30 1950, followed by the implementation of its tasks. In 2000, the movement towards regional autonomy led to a separation of the Banten Regency from West Java and to the formation of the new Province of Banten.

Nowadays, the Province of West Java is divided into 17 Regencies and nine Cities which in turn are subdivided into 620 Districts comprising 1.576 urban villages and 4.301 rural villages [1]. The Regencies of West Java are: Bogor; Sukabumi; Cianjur; Bandung; West Bandung; Garut; Tasikmalaya; Ciamis; Kuningan; Cirebon; Majalengka; Sumedang; Indramayu; Subang; Purwakarta; Karawang; and Bekasi (*cf.* West Java Government 2008). The cities of West Java include Bogor, Sukabumi, Bandung, Tasikmalaya, Cimahi, Banjar, Cirebon, Depok and Bekasi.

Bandung is the Capital of the Province of West Java. Map 4.2 indicates the location of all regencies and cities in West Java. The Regency of Sukabumi is the largest Regency in West Java, followed by the Regencies of Cianjur, Garut, Bogor and Tasikmalaya. From the nine Cities in West Java, Bekasi is the largest while Bandung forms the fourth largest city in the area.

Based on the results of the last population census conducted in 2010, the population of West Java amounts to approximately 43,021,826 inhabitants. For the period of time between 2000 and 2010, the size of the population has increased significantly by approximately 8,000,000 people.

In 2013, the number of people and households in the Province of West Java were estimated at 45,340,799 and 12,088,424. The population of West Java is expected to increase to 57,137,300 people by the year 2035 (*cf.* BPS 2014).

According to *BPS* (2014) the mortality rate is quite high, if compared with the birth rate, while the mortality rate is more than 1/4 of the birth rate in the same year. It is predicted that in 2035 the mortality rate will be more than half of the number of births. Among the health facilities available in the Regencies and Cities of West Java Province, the *Pusat Kesehatan Masyarakat* (Puskesmas) ('Community Health Centre') represents the health facility which is most accessible and can easily be reached by the inhabitants of the districst and villages. Health centres tend to differ and take the form of *e.g.* a main public health centre located in a village; a public health centre which in smaller areas supports the main health centre; or a mobile public health centre in the form of a vehicle which directly pays visits to the neighbourhoods.

Table 4.5. shows the number of health centres with or without hospitalisation, public health care units and mobile health centres available in the regencies and cities of West Java. The data retrieved from the Health Department of West Java Province of public health centers show that 789 mobile health care services, 3,111 clinics, 50,266 neighborhood care units as well as 3,180 pharmacies and drugstores were available in the Province in 2012 (*cf. BPS* Provinsi Jawa Barat 2014).

Table 4.1 Number of Public Health Centres in West Java by Regency/City (2009).

No. Regency/City	*Puskesmas* without *Opname*	*Puskesmas* with *Opname*	Total	*Puskesmas* Accessory	*Puskesmas* Mobile
Regency					
01. Bogor	83	18	101	86	30
02. Sukabumi	53	5	58	114	58
03. Cianjur	37	8	45	114	47
04. Bandung	51	10	61	104	30
05. Garut	50	14	64	136	35
06. Tasikmalaya	25	15	40	151	50
07. Ciamis	16	35	51	118	53
08. Kuningan	31	6	37	67	38
09. Cirebon	47	6	53	67	58
10. Majalengka	23	7	30	73	33
11. Sumedang	26	6	32	72	23
12. Indramayu	40	9	49	66	52
13. Subang	32	8	40	74	45
14. Purwakarta	20	-	20	50	29
15. Karawang	33	13	46	46	23
16. Bekasi	31	8	39	47	41
17. Bandung Barat	26	5	31	33	9

(Continued) Tabel 4.1

No. Regency/City	*Puskesmas* without *Opname*	*Puskesmas* with *Opname*	Total	*Puskesmas* Accessory	*Puskesmas* Mobile
City					
18. Bogor	16	8	24	25	12
19. Sukabumi	12	3	15	20	15
20. Bandung	66	5	71	-	13
21. Cirebon	19	2	21	15	20
22. Bekasi	26	5	31	25	8
23. Depok	29	1	30	3	15
24. Cimahi	11	-	11	5	2
25. Tasikmalaya	17	3	20	20	20
26. Banjar	8	1	9	9	9
West Java	828	201	1.029	1.540	768
2008	863	154	1.017	1.516	697
2007	867	144	1.007	1.475	613
2006	860	137	1.001	1.452	612

Source: Provincial Health Service of West Java 2014.

4.2.1 The City of Bandung

The City of Bandung is characterised by a considerable amount of cultural diversity since the independence of Indonesia. The most well-known historical event refers to the *Bandung Lautan Api* which took place in 1946 and upon which the song *Halo-halo Bandung* became an unofficial anthem of Indonesia. R.A. Wiranatakusumah II, who acted as Chief Administrator of the Regency and led the movement of migration of the Regent and citizens from Krapayk to a new place between 1808 and 1809, is considered the Founding Father of Bandung. The City of Bandung was officially declared the new Capital of the Bandung Regency on September 25, 1810 and was awarded with the status of autonomy in 1906.

Geographically, Bandung is situated at longitude 107°36 and latitude 6°55. Topographically, Bandung is located on the hills at an altitude of 791 m. above sea level, offering an alternation of highlands and lowlands *(cf.* Statistical Central Agency Bandung 2013; *BPS Kota Bandung* 2014).

Because of its rather cool climate with temperatures ranging between 18.2 and 30.4 degrees Celsius, Bandung has become known as the 'Paris of Java', a comfortable place of residence. As a result of the vulcanic eruption of Mount Tangkuban Perahu which is composed of andosols materials in the center and grey alluvial deposits in the west, the soil in Bandung has formed an alluvial layer (*Lakip Kota Bandung* 25).

According to the latest statistical figures, the larger area of the City of Bandung covers 16,729,65 ha. The gradual development of the size of the area of Bandung since 1906 has been assessed by the Performance Accountability Report of the Government Institutions (*Lakip*) as follows:

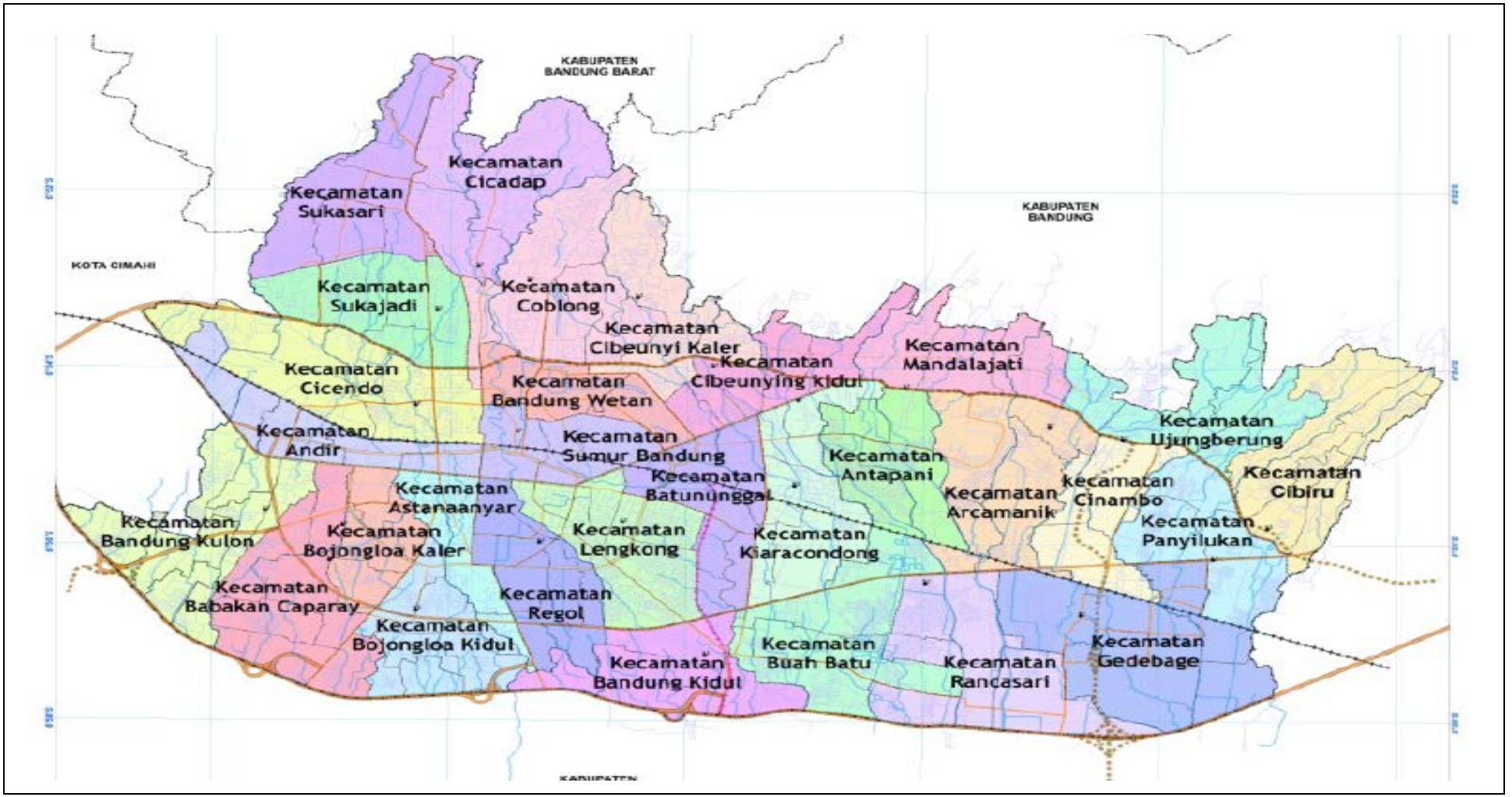
1. 1906-1977: 922 ha.
2. 1917-1942: 2.810 ha.
3. 1942-1949: 5.413 ha.
4. 1949-1987: 8.098 ha.

(*cf.* Badan Pusat Statistik Provinci Jawa Barat 2014).

Between 2012 and 2013, the population of Bandung increased from 2,455,517 to 2,483,977 people. According to the population census conducted in 2010, Bandung is the third most populous city in Indonesia after Jakarta and Surabaya. The considerable growth in population size in Bandung has been attributed to many factors and conditions which attract people's interest, such as the availability of prominent institutions of higher education including *i.a.*: *Universitas Padjadjaran* (UNPAD); *Institut Teknologi Bandung* (ITB) and *Universitas Pendidikan Indonesia* (UPI). According to the population registration of 2013, the population density of Bandung was 14,847 people per ha.

The economic structure of Bandung is largely dependent on the economic activities performed by its citizens who include professions in the areas of trade as well as hotel and restaurant businesses, and education, which increases continously each year. The geographical location of Bandung has a rather strategic effect in a number of sectors, such as communication, economics and security. Bandung also holds a central position in the Bandung Regency between the western and the eastern region as well as the northern and southern region of West Java and is directly connected to the Capital of Jakarta and to the plantation areas in West Java, such as Subang and Pangalengan.

Based on the Performance Accountability Report of the Government Institutions, Bandung is administratively divided into 30 districts, 151 urban villages, 1,561 hamlets (RW) and 9,691 neighbourhoods (RT). The 30 districts of Bandung are: Andir, Arcamanik, Astanaanyar, Babakan Ciparay, Bandung Kidul, Bandung Kulon, Bandung Wetan, Batununggal, Bojongloa Kaler, Bojongloa Kidul, Cibeunying Kaler, Cibeunying Kidul, Cibiru, Cicadas, Cicendo, Cidadas, Cijerah, Cinambo, Coblong, Gedebage, Kiaracondong, Lengkong, Mandalajati, Margacinta, Rancasari, Regol, Sukajadi, Sukasari, Sumurbandung and Ujungberung. Map 4.2 indicates the administrative districts of Bandung:



Map 4.2 The Administrative Districts of Bandung.
Source: *Pemerintah Daerah Kota* Bandung 2011.

The official website of Bandung, *http:/bandung.go.id,* presents a specific vision and mission for the city which is linked to a broader development plan. The vision for Bandung describes the City as superior, convenient and prosperous. In addition, the mission for Bandung has been specified by four points:

1 realizing a city which is comfortable through spatial planning, infrastructure development and controlling the utilisation of quality spaces and environmental ideas;
2 presenting an accountable, clean and prudent governance;
3 building a self-reliant, qualified and competitive community; and
4 building a strong, advanced and fair economy.

4.3 The Community of Sukamiskin

4.3.1. Sukamiskin: A Typical Sundanese Urban Community

Sukamiskin is a distinct *kelurahan* ('urban community') in the eastern part of Bandung with a population estimated at nearly 20,000 in 2010. Sukamiskin is well known for its prison, called *LP Sukamiskin*, where many prisoners are housed, mostly as convicts for corruption.

The term 'Sunda' first appears in the ninth century AD in an inscription found in Bogor which was written in Javanese and in the Classical Malay language. In the inscription, 'Sunda' refers to the everyday activities of the Sundanese people, occupying the Western area of the Island of Java. Ekadjati (2014: 7) writes: '*In 1579, the Sunda kingdom collapsed, then the region was divided into Sumedang Larang, Galuh, Banten and Cirebon. Furthermore, Sumedang Larang and Galuh were united, and then known as Priangan'*.
Geographically, the Sundanese culture has originated and developed in West Java whereby the Capital of Bandung is also known as the centre of Sundanese culture. In general, the Sunda Region is rich in cultural diversity of which the main characteristics have been distinguished as:

(1) *Sunda Buhun* or *Sunda Wiwitan* which refers to the Sundanese indigenous culture in Sukabumi and Pandeglang;
(2) *Sunda Parahyangan*, *i.e.* the cultural features in Cianjur, Bandung, Sumedang, Garut, Tasikmalaya and Ciamis; and
(3) *Sunda Pakaleran* which includes the cultural characteristics of Karawang and Subang *(cf.* Sumardjo 2003).

Warnaen (2002) concludes that the Sundanese people identify themselves as Sundanese and are as such recognised by other communities. The term 'Sundanese' was firstly used in a way to distinguish a person's particular ancestry as well as to describe someone who practices the values and norms of the Sundanese culture, and who shares the social environment of the Sundanese communities. With regard to the social structure, the Sundanese people can be divided into three specific categories of factors: age, gender and kinship (*cf.* Ekadjati *et al*. 2014). The age category distinguishes between: (1) *orok* ('baby') from birth to 12 months of age, (2) *budak* ('child') from 1 to 5 years of age; (3) *bujang*/*jajaka* ('unmarried male'), and *lanjang*/*mojang* ('unmarried female') from 16 to 25 years of age; (4) *samawa* ('adult') from 26 to 40 years of age; (5) *tengah tuwuh* ('middle-aged') from 41 to 50 years of age; and (6) *kolot* ('old') from 50 years of age and older. The gender category encompasses a division of male and female which affects the distribution of labour both in the family and society. The husband as a

male acts as head of the family, who is responsible for the welfare of all family members, while the wife as a female has the responsibility to manage the household and to care for the children. The kinship category is rooted in the Sundanese kinship system which is primarily characterised by the basic family unit [2].

This means that the Sundanese culture practices *baraya*, a bilateral kindship system, which comprises both male and female lineages. Furthermore, the system considers the lineage of both father and mother as the parental line which is a result of the development of a particular parental kinship system (*cf.* Koentjaraningrat 2009). The different degrees of kinship relations which include generational divisions have led to the distinction of the following three categories: (1) *Sepuh, Kolot, Wong Tua* ('the group of old people'), (2) *Sadulur* and *Sedulur*, the group of brothers and sisters; and (3) the group of children: descendants of ego, the children of ego (*cf.* Ekadjati *et al*. 2014).

The Sunda Region has its own regional language which is known as the Sundanese language and is spoken as *bahasa indung* ('mother tongue') [3]. The influence of the Javanese culture on the Sundanese language is visible in particular styles which are used by its speakers in specific situations and social contexts, known as *undak usuk*. Indeed, words can be similar in writing but may have a different meaning. For example, the vowel '*o*' in the Javanese language becomes '*a*' in the Sundanese language. In general, the Sundanese language has recently been recognised as *basa indung* ('mother tongue' or 'first language') in *bahasa ibu* ('Sundanese language') of the Sundanese people in *Bahasa Indonesia* ('national language of Indonesia'). The Sundanese language is spoken by almost all members of indigenous communities in the Provinces of West Java and Banten, with the exception of the Cities of Indramayu and Cirebon, and some parts of Serang. In other words, virtually everyone living in the Sundanese Region understands and speaks the Sundanese language, including the inhabitants of Sukamiskin, who are speaking the Sundanese language in their daily life*, i.e*. at home, school or at work.

In addition to language, the distinct cultural characteristics of the Sundanese Region can be interpreted as what Honigman (1963) described as the three symptoms or entities of culture, *i.e.* '*ideas, activities, and artifacts'* (*cf.* Koentjaraningrat 2009: 150). Ideas are usually expressed in the form of customs whereby the Sundanese people practice a number of customs of performing ceremonies with regard to agriculture, fishing, or the cycle of life in general. In Sukamiskin, the Sundanese rituals which are performed during ceremonies of the cycle of life start at the time of pregnancy and continue throughout the phases of birth, infancy and childhood, as well as circumcision and marriage until death. The distinct cultural features of the Sundanese people provide not only an important contribution to the cultural richness of Indonesia as a whole, but are also manifest in agriculture and other sectors as well as in the local belief systems.

Notes

[1] According to Act 32 of 2004, a village is a legal community with boundaries which has the authority to control and manage the interests of the local communities based on their origin and local customs recognised and respected in the administration system of the Republic of Indonesia.

[2] The Sundanese kinship system incorporates a number of distinct characteristics which highlight the importance of relations by accentuating features, such as gender, relatives, ancestry, marital relationship, the degree of kinship, the position between two family members and age. In the Sundanese language, the terms used to describe kinship relations highlight the gender of family members in the following manner: *kaka* / *akang* ('older male

cousin'); *teteh* / *eceu* / *ceuceu* ('older female cousin'); *mamang* / *emang* ('uncle'); and *bibi* / *embi* ('aunty'). In the same way, the kinship terms can accentuate ancestry as follows: *dulur* ('brotherhood'); *anak* ('children'); *incu* ('grandchild'); *bapa* ('father'); *indung* ('mother'); *aki* ('grandfather'); and *nini* ('grandmother') (*cf.* Ekadjati 2014).

[3] *Bahasa Indung*, or the mother tongue, refers to the language which is acquired from the mother, is used in the family and is taught by mothers to their children in a particular cultural area. *Bahasa Indung Sunda* is of particular concern for local language experts and for the government of West Java. According to UNESCO records, the Sundanese language represents one of approximately 300 native languages in the world which is confronted with the threat of extinction. In order to ensure its use, the Sundanese language is taught formally in elementary schools and is noted in the Regional Regulation No. 5 of 2003 which concerns the preservation of regional languages, literature and characters.

Chapter V. LIFE IN THE COMMUNITY OF SUKAMISKIN

The present chapter embarks on a description of daily life in Sukamiskin. It describes the data both available in existing resources and collected among the people of the research population, *i.e.* the residents of the community of Sukamiskin, and the sample population comprised of the selected household heads. In addition, a general description will be presented on the plural medical system, operational in Sukamiskin. Furthermore, the collected geographic, socio-demographic and economic characteristics of the research area are presented as an overview of the community life in Sukamiskin. This chapter concludes with an outline of the plural medical system available in the research area which comprises a traditional, a transitional and a modern medical system, which are related to the different systems of health information and communication in the area.

5.1 Study and Sample Population

5.1.1 Official Statistical Data of Sukamiskin

On the basis of an estimation of the total population living in the 30 districts and 151 urban communities of Bandung, the average population for each village amounts to 16,262. Arcamanik, representing one of the districts of Bandung, encompasses four communities with a total population of approximately 69,313 inhabitants, as estimated in 2013. The official data for Arcamanik District indicate a substantial increase in population size compared to the previous year. In 2012, the population living in Arcamanik District comprised approximately 68,519 people of which 34,795 were male and 33,724 were female. In 2013, the population increased to 35,198 male and 34,115 female inhabitants at a population distribution rate of 92,18/km2 (*cf. BPS Kota Bandung* 2013).

Residing in 14 hamlets and 83 neighbourhoods as indicated in Table 3.1, the inhabitants of Sukamiskin as one of the urban communities of the district of Arcamanik were selected as the research population of this study. According to the data of 2013, the population of Sukamiskin amounted to 20,379 people with a density rate of 9,000 persons/ha, while the total number of households was 6,528. From the research population, 125 households comprising a total of 617 household members were chosen as the sample population which provides the basis for the quantitative household surveys conducted in the research area.

Gender and age composition

In September 2013, the population of Sukamiskin was composed of 10,242 males and 10,137 females. Among the 617 respondents, the male (52%, n=321) slightly outweigh the female (48%, n=296), as highlighted in Table 5.1.

Table 5.1 Gender of the Household Members of the Sample (N=617)

No.	Gender	N	%
1	Male	321	52
2	Female	296	48
	Total	617	100

Source: Household Survey (2012-2014).

In the research area, the male inhabitants are commonly playing a leading role in the household as all 125 household heads of the sample are male. The highest percentage is found in the age

group of 41 to 45 years (27.2%, n=34), and the lowest percentage in the age group of 26 to 30 years (0.8%, n=1). Table 5.2 presents the age distribution of the household heads of the sample.

Table 5.2 Age of the Household Heads of the Sample (N=125)

No.	Age	N	%
1.	26–30 years	1	0.8
2.	31–35 years	8	6.4
3.	36–40 years	14	11.2
4.	41–45 years	34	27.2
5.	46–50 years	22	17.6
6.	51–55 years	18	14.4
7.	56–60 years	16	12.8
8.	61–65 years	6	4.8
9.	66–70 years	3	2.4
10.	71–75 years	3	2.4
	Total	125	100.0

Source: Household Survey (2012-2014).

The age categories of all household members of the sample range between 0 to 5 years and 86 to 90 years. Since the maximum life span in Indonesia is estimated to be above 65 years of age, respondents aged 61 and older have been identified as 'seniors', while respondents in the age group of 86 to 90 years have been identified as 'elderly'.

Table 5.3 Age and Gender of the Household Members of the Sample (N=617)

No.	Age	Male	Female	Total	
		n	n	N	%
1.	0–5 years	36	27	63	10.2
2.	6–10 years	24	24	48	7.8
3.	11–15 years	32	20	52	8.4
4.	16–20 years	28	28	56	9.1
5.	21–25 years	31	27	58	9.4
6.	26–30 years	28	26	54	8.8
7.	31–35 years	17	13	40	6.5
8.	36–40 years	16	27	43	7.0
9.	41–45 years	32	30	62	10.0
10.	46–50 years	24	24	48	7.8
11.	51–55 years	19	14	33	5.3
12.	56–60 years	17	5	22	3.6
13.	61–65 years	7	5	12	1.9
14.	66–70 years	5	9	14	2.3
15.	71–75 years	5	2	7	1.1
16.	76–80 years	0	1	1	0.2
17.	81–85 years	0	1	1	0.2
18.	80–90 years	0	3	3	0.5
	Total	321	296	617	100.0

Source: Household Survey (2012-2014).

Representing a minority of the sample, the seniors include: 12 respondents of 62 to 65 years of age (1.9%); 14 respondents of 66 to 70 years of age (2.4%); 7 respondents of 71 to 75 years of age (1.1%); 1 respondent of 76 to 80 years of age (0.2%); and 1 respondent of 81 to 85 years of age (0.2%). The age group of the elderly amounts to a total of three respondents (0.5%) (*cf.* Table 5.3).

Although the number of males of the sample is larger than the number of females, females appear to have a longer lifespan than males, as also indicated in Figure 5.1.

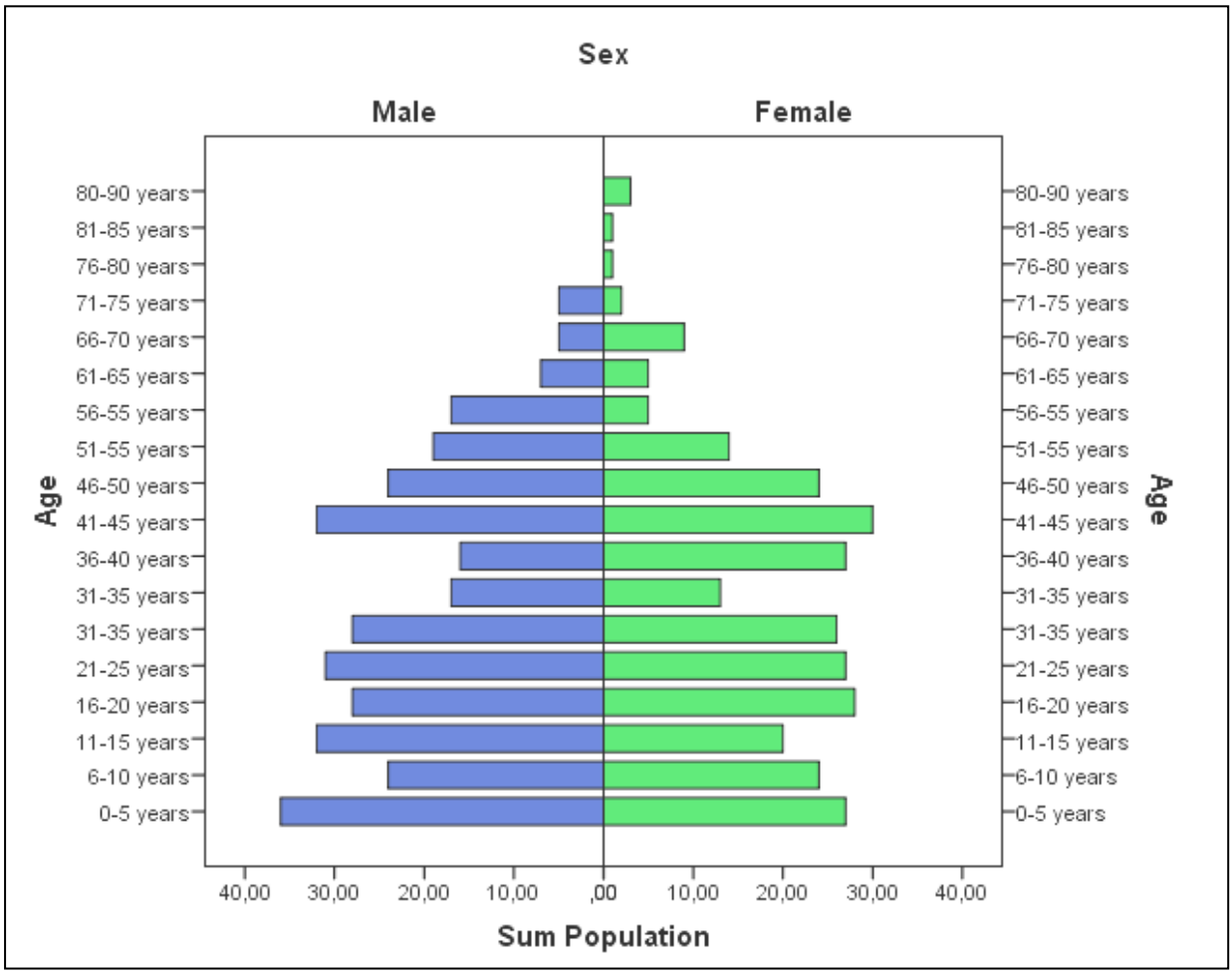


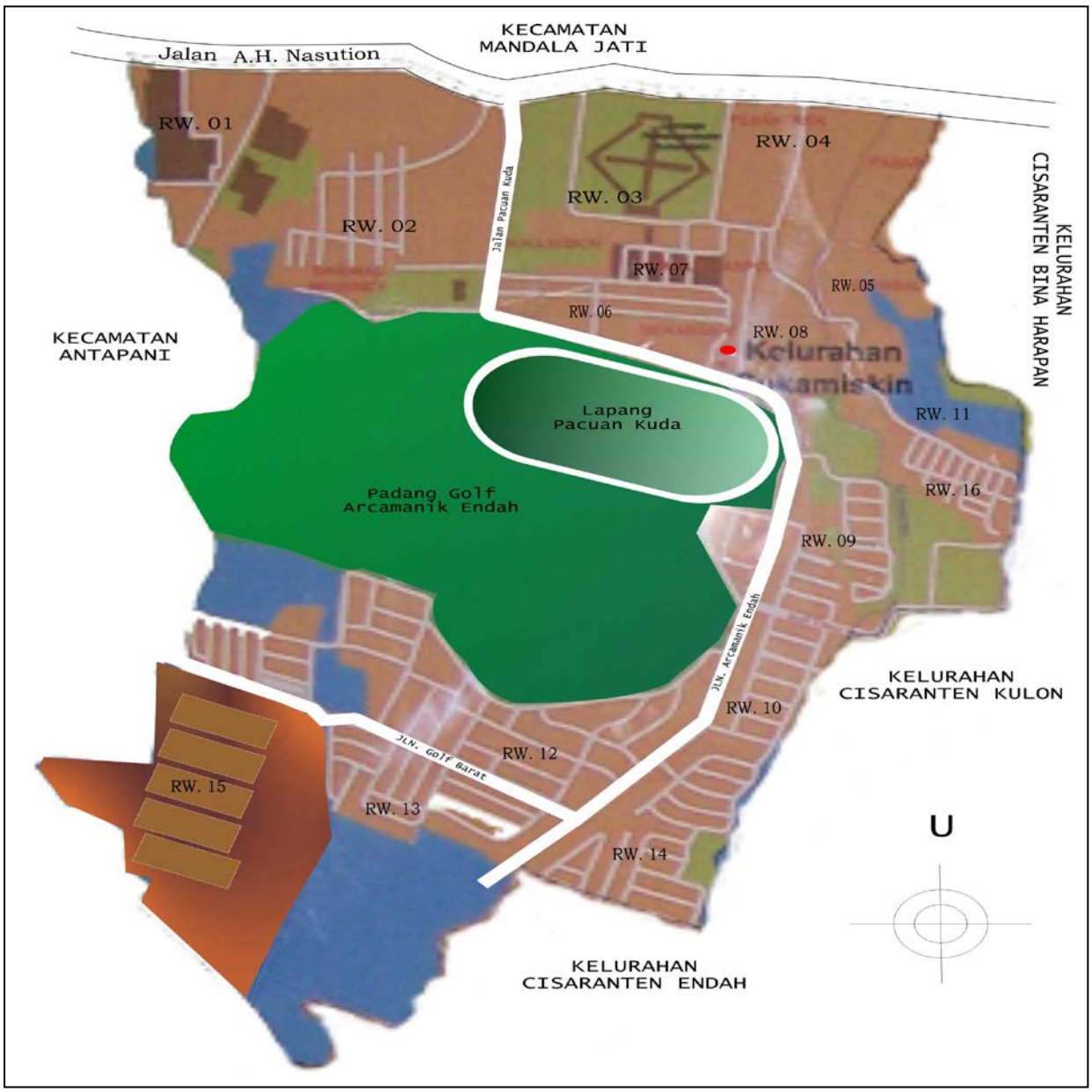
Figure 5.1 Age of the Household Members distributed over Gender of the Household Members of the Sample (N=617).

5.2 Geography and Location

5.2.1 Environment of Sukamiskin

Sukamiskin is an urban community of the Arcamanik District which is located in the eastern part of Bandung and surrounded by Bandung District in the north, Rancasari District in the south, Ujung Berung District in the east and Antapani District and Mandalajati District in the west. The area of Arcamanik District covers 512,99 ha and is located at approximately 700 metres above sea level. In total, Arcamanik District comprises four urban communities, *i.e.* Cisaranten Kulon, Cisaranten Bina Harapan, Cisaranten Endah and Sukamiskin.

Sukamiskin derives its name from the words '*suka*' meaning 'market' and '*miskin*' meaning 'perfume' or 'fragrance'. Hence, the meaning of Sukamiskin refers to 'a market where people used to sell many different perfumes' which is also interpreted as 'people in Sukamiskin should behave well'. Around 127,162 ha of the land of Sukamiskin, mainly characterised by dry lands and plains, is used agriculturally while another 69 ha is utilised for public facilities and a number of regional and central government institutions.



Map 5.1 Map of the Arcamanik District based on the Regional Distribution Pillars of Citizens in 2013.
Source: *Kelurahan* Arcamanik (2013).

These include: (1) *Lembaga Pemasyarakatan*, the Correctional Facility Grade I A in Bandung; (2) *Lembaga Pemasyarakatan Wanita*, the Women's Correctional Facility Grade II A in Bandung; (3) *Lembaga Pemasyarakatan Juvenile*, the Juvenile Correctional Facility Grade III in Bandung; (4) *Rumah Penyimpanan Barang Sitaan Negara*, Store house for the State Confiscated

Goods; and (5) *Balai Monitoring dan Spectrum*, Bureau for Monitoring and Spectrum. The local government of Sukamiskin employs six government administrators, *i.e.* civil servants, and one intern.

Illustration 5.1 The Village Office of Sukamiskin.
Photograph by W. Erwina (2013).

The six civil servants are: the *Lurah*, ('Head of the village'), the Secretary of the *Lurah*; the Head of the governmental section; the Head of the developmental economy and law section; the Head of the social section; and the Head of the service section.The *Lurah* of the administration in Sukamiskin governs in coordination with the leaders of neighbourhoods and hamlets in the area. Neighbourhoods and hamlets represent the community, rather than the governmental associations which are formed by the government in order to maintain harmony among the communities.

Illustration 5.2 The Middle Class Housing Area in Sukamiskin.
Photograph by W. Erwina (2013).

Local leaders are elected by the members of the respective communities. The Ministerial Regulation of Internal Affairs (*Permendagri*) No. 7/1983 about Neighbourhood and Hamlet Associations established the average number of families in each neighbourhood at 30 to 40.As a consequence of population growth, the number of hamlets in Sukamiskin increased from 16 hamlets in 2011 to 17 hamlets in 2013 thereby adding one hamlet to the village. The number of neighbourhoods increased accordingly from 83 neighbourhoods in 2011 to 88 in 2013. Following the increase in population size over the last years, several hamlets, *i.e. RW* 2 and *RW* 11, have been in fact split into new neighbourhoods. Similarly, fractions of *RW* 13 have been combined into a new hamlet, *RW* 15.

5.2.2 Public Facilities in Sukamiskin

The area of Sukamiskin is covered by 1.5 km of street; 14.70 ha of rice and other fields; 1.6 ha of public buildings; 1.2 ha of green lines; 1 ha of chemical industries; and 0.6 ha of other features. Throughout the research area, properties of land can be distinguished on the basis of two different types of land status: (1) land with a certificate which amounts to 208.89 ha; and (2) land without a certificate which amounts to 2.27 ha. The certificates of land are divided into three categories: (1) property right certificates: 95.728 ha; (2) building concession right certificates: 65 ha; and (3) using right certificates: 48.168 ha. The different public facilities which are available in Sukamiskin offer services of education, health, religion, sport and entertainment. In general, the educational facilities in Sukamiskin provide the community with 12 years of compulsory education, as regulated by the Indonesian Ministry of Education. The different types of educational facilities in Sukamiskin include seven kindergarten and preschool facilities, six primary schools, five secondary schools and four senior high schools (*cf.* Table 5.4).

Given the different educational facilities available in Sukamiskin, the establishment of a library as well as its activities is usually enabled by the government. The purpose of setting up a *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner') is: '*to provide reading materials for the community and to cultivate an enthusiastic reading habit. This establishment provides reading materials, such as books, magazines, tabloids, newspapers, comics and other multi-media materials which are placed in a room for reading, discussions, book reviews, writing and other similar activities, and is supported by the manager who acts as a motivator*' (*cf.* Kemendikbud 2013: 5).

Table 5.4 Educational Facilities in Sukamiskin in 2013

No.	Type of Facility	Building	Pupils/Students	Teachers/Lecturers
1.	Kindergarten	7	289	29
2.	Primary School	6	1.927	173
3.	Secondary School	5	3.183	176
4.	Senior High School	4	666	36
5.	University	-	-	-
6.	Educational Institution	-	-	-
7.	Courses	5	298	17

Source: Annual Report Sukamiskin (2013).

The *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner') not only offers reading materials and information to the community, but also organises a number of activities, such as the Children's Reading Society, from which the community benefits. Other activities aim at

stimulating the general interest in reading and at supporting the eradication of illiteracy through providing general access to the educational services (*cf.* Departemen Pendidikan Nasional 2008). The *Taman Bacaan Masyarakat* moreover acts as a means of accessing health information in printed form, such as magazines, newspapers, books, dictionaries, encyclopaedias, manuals and directories, as well as in electronic form using personal computers which are also available in the 'Community Reading Corner'.

The *Pondok Baca Arcamanik* refers to the 'Community Reading Corner' in Arcamanik which has been set up in an effort to stimulate the people's interest in reading and learning as well as to meet the need for information in the community [1].

In general, it is the target of any *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner') to combine their collection of information and materials with the mass media, such as television and radio, as well as with other learning tools. In this way, it is able to encourage community participation by organising activities, such as: drawing for children; camping; organised tours to the Zoo; and storytelling (*cf.* Illustration 5.3).

Illustration 5.3 *Taman Bacaan Masyarakat* ('Community Reading Corner') in Arcamanik.
Photograph by W. Erwina (2010).

Apart from educational facilities, the available health care facilities in Sukamiskin aim at the realisation of a healthy community by means of offering the community members access to their health care services. Throughout the research area, the modern health care services are provided by a network of health care institutions and medical practitioners, including doctors and paramedics. These services are complemented by commercial pharmacies and traditional medicine stores.

First-line health care in Sukamiskin is generally provided by one of the 17 available *Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Posts') [2]. These *Posyandu* are located in each hamlet and provide weekly programmes and activities for both infants under the age of five and seniors. The *Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Post') are operated by a number of employees at the community health centre and representatives from the *Pembinaan*

Kesejahteraan Keluarga (*PKK*) ('Empowerment of Family Welfare Movement') and by the appointed workers in the *Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Post').

In addition to the *Pos Pelayanan Terpadu*, the inhabitants of Sukamiskin are generally able to obtain health services at the *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre') of Arcamanik which acts as a focal health care institution providing modern health services to the entire population of Arcamanik District (*cf.* Illustration 5.6). The centre offers the services of doctors, dentists and midwives as well as a pharmacy and represents a major centre for dental and oral care in Bandung. Since the government subsidises the fees for health care, residents who are covered by the community health insurance, *Jaminan Kesehatan Masyarakat* (*JAMKESMAS*), may be entitled to receive treatment free of charge. Besides the *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre'), other health care facilities in Sukamiskin include the *Yayas an Bahtera* and *An-Nur* Clinics.

At the time of the research, health care in Sukamiskin was being provided by six doctors, three obstetricians, two paediatricians and three dentists. There was one veterinarian available for the area. While there is no hospital in Sukamiskin, the residents in need of specialist medical treatment may consult the Bandung City Hospital or the *Ujung Berung Hos*pital which are the nearest hospitals in the area. Furthermore, the *Badan Kesehatan Ibu dan Anak* (BKIA) ('Mother and Child Care Agency') which is available in Sukamiskin, serves the special purpose of improving and promoting Maternal and Child Health (MCH) by monitoring pregnant and delivering women, as well as infants. With the overall aim of providing a better and qualified life for the future generation, the BKIA manages family planning programmes, makes arrangements during pregnancy to provide mother and child care and monitors the development of the population. In addition, the public facilities also include the *Keluarga Berencana* (KB) ('Family Planning Programme') with a birth control programme which was introduced by the government in an attempt to control the population growth rate. Every productive couple is expected to participate in the programme by using contraceptives, such as pills, condoms, intra-uterine devices (IUD), vasectomy, tubectomy or injections. The provision of infrastructure to programmes for family planning is fundamental to the maintenance and support of the birth-control services. The modern health care facilities available in the research area also include a local organisation which offers programmes for activities regarding the dissemination of health information, such as the gathering of mothers from hamlets, neighbourhoods, prayer groups and others [3]. Table 5.5 provides an overview of the various modern health care facilities available in Sukamiskin, Arcamanik District.

Table 5.5 Modern Health Care Facilities in Sukamiskin in 2013

No.	Type of Facility	Total	Additional
1.	Hospital	0	
2.	Mother and Child Care Agency (*BKIA*)	1	
3.	*Puskesmas*	1	*Puskesmas Aracamanik*
4.	Clinics	2	*Yayas an Bahtera* and *An-Nur*
5.	*Posyandu*	17	each RW (RW 01 -RW 17)
6.	Medicine Store	5	Al-Ma'soem, Waluya, Arcamanik, Eradica, Umiyah
7.	Traditional Remedies Store	1	Al-Ma'some

Source: Annual Report Sukamiskin (2013).

Table 5.6 Religious Facilities in Sukamiskin in 2013

No.	Type of Facility	Total	Additional
1.	Mosque	20	RW 01 - RW 17
2.	*Mushola*	11	RW 01 - RW 17
3.	Church	1	LP Sukamiskin
4.	*Vihara*	-	-
	Total	32	

Source: Annual Report Sukamiskin (2013).

Apart from the religious facilities, indicated in Table 5.6, a number of sports facilities which have been established in Sukamiskin by the government of the West Java Province since 2013 are available in the research area (*cf.* Table 5.7).

Illustration 5.4 The Great Mosque of Sukamiskin.
Photograph by W. Erwina 2012.

Illustration 5.5 Information Board of *Puskesmas* Arcamanik.
Photograph by W. Erwina (2010).

The continuous development of sports facilities has formed part of the preparations for the National Sports Week, *Pekan Olahraga Nasional*, held in 2016 in Bandung. In addition to sport facilities, the residents of Sukamiskin also use other available facilities in order to undertake sport activities.

Table 5.7 Sport Facilities in Sukamiskin in 2013

No.	Type of Facility	Total	Additional
1.	Badminton	3	*RW* 02, *RW* 06, *RW* 14
2.	Table Tennis	21	School and*RW*
3.	Volleyball	8	School and*RW*
4.	Basketball	3	School
5.	Tennis	3	School
6.	Golf	1	Renovated
Total		39	

Source: Annual Report Sukamiskin (2013).

5.3 Socio-Demographic and Economic Structure

5.3.1 Age, Gender, Family and Household Composition

Almost half of the 617 respondents of the sample (48.5%, n=299) are registered as 'monogamously married', while similarly half of the sample (45.2%, n=279) are registered as 'single', as such accounting for a rather equal balance between the monogamously married and unmarried respondents. Furthermore, several cases of polygamy or marriage with more than one woman at the same time are reported among the sample population. About 10 (1.6%) of the respondents maintain their polygamous marriage. The amount of 'widowers', *i.e.* male respondents, who have lost their wives and have not remarried, amounts to 1.6% of the sample (n=9) (*cf.* Table 5.8).

Table 5.8 Marital Status of the Household Members of the Sample (N=617)

No.	Marital Status	N	%
1.	Married (monogamous)	299	48, 5
2.	Married (polygamous)	10	1, 6
3.	Single	279	45, 2
4.	Divorced	2	0, 3
5.	Widow	18	2, 9
6.	Widower	9	1, 6
	Total	617	100, 0

Source: Household Survey (2012-2014).

The quantitative questionnaire which has been designed for this survey encompasses *i.a.* the educational background of the household head as the individual, who leads the family and takes full responsibility for it. Almost half of the 125 household heads of the sample (44.8%, n=56) are senior high school graduates and almost one-fifth university graduates (18 %, n=23). A relatively small amount (2.4%, n=3) of all household heads have no educational background (*cf.* Table 5.9).

In comparison, one-tenth (10.2%, n=63) of all household members of the sample have no educational background. This amount is in line with the number of household members aged five

years or younger. In addition, less than one-fifth (13.4%, n=83) of 617 household members of the sample have completed other forms of education, such as courses or training (*cf.* Table 5.10).

As regards the ethno-cultural background of all household members of the sample, it comprises a majority of Sundanese people (87.1%, n=538), followed by small groups of Javanese (8.6%, n=53), Batak (0.4%, n=3) and other ethno-cultural groups (3%, n=21).

Table 5.9 Educational Level of the Household Heads of the Sample (N=125)

No.	Educational Level	N	%
1.	No education	3	2.4
2.	Primary School	21	16.8
3.	Secondary School	22	17.6
4.	Senior High School	56	44.8
5.	University	23	18.4
	Total	125	100.0

Source: Household Survey (2012-2014).

Table 5.10 Educational Level of the Household Members of the Sample (N=617)

No.	Educational Level	N	%
1	No education	63	10.2
2	Elementary school not finished	37	6.0
3	Elementary school finished	112	18.2
4	Secondary school not finished	29	4.7
5	Secondary school finished	88	14.3
6	Senior high school not finished	24	3.9
7	Senior high school finished	158	25.6
8	University not finished	7	1.2
9	University finished	16	2.6
10	Other	83	13.4
	Total	617	100.0

Source: Household Survey (2012-2014).

5.3.2 Occupation and Socio-Economic Status (SES)

In the research area, the following professions have been recorded: private workers (n=4.802); private employees (n=3.666); civil servants (n=1.515); merchants (n=631); military/police (n=358); tailors (n=86); doctors (n=41); entrepreneurs (n=28); drivers (n=21); farmers (n=13); and, notably the largest number, students and pupils (n=6.948) *(cf.* Annual Report Sukamiskin 2013). Among the 125 household heads of the sample, the most frequently reported occupation refers to the entrepreneur (20.8%, n=26) followed by labourers (13.6%, n=17) and servants (12%, n=15). As shown in Table 5.12, around 8.8% (n=11) of the household heads are employed in the private sector, while 4.8% (n=6) are teachers and 2.4% (n=3) are farmers (*cf.* Table 5.11).

Table 5.12 presents an overview of the different economic organisation which are found in the community of Sukamiskin. These institutions include *i.a.* cooperations as well as small and medium enterprises operating in the area. The economic institutions available in Sukamiskin provide a sound basis for a number of economic activities which are undertaken in the research area. Cooperations, for example, encourage and support the economic needs of the local population by granting loans at a relatively low rate.

Furthermore, the different institutions can be distinguished as home industries, mass industries, such as the garment industry PT Printex and other small enterprises, such as food stalls and repair shops.

Table 5.11 Occupation of the Household Heads of the Sample (N=125)

No.	Occupation	N	%
1.	Farmer	3	2.4
2.	Teacher	6	4.8
3.	Servant	15	12
5.	Religious Leader	2	1.6
6.	Entrepreneur	26	20.8
7.	Labourer	17	13.6
8.	Private Sector Employee	11	.8
9.	Unemployed	11	8.8
10.	Retired	11	8.8
11.	Other	17	13.6
Total		125	100.0

Source: Household Survey (2012-2014).

Table 5.12 Economic Organisations in Sukamiskin

No.	Type of Organisation	Total
1.	Cooperation	9
2.	Small & Medium Enterprise	32
3.	*Selapan* Market/Public Market	-
4.	Business Enterprise	-
5.	Supermarket (*Swalayan)*	7
6.	Food Stall	8
7.	Restaurant	1
8.	Kiosk/*Warung Kelontong*	79
9.	Street Vendor (*Pedagang Kaki Lima*)	39
10.	Bank	5
11.	Food Industry	1
12.	Handicraft Industry	3
13.	Garment Industry	1
14.	Printing/Silk-Screening (*Sablon*)	1
15.	Motorcycle/Bicycle Repair Service	14
16.	Car Repair Service	8

Source: Household Survey (2012-2014).

5.4 The Plural Medical System

5.4.1 The Traditional Medical System

According to official data of the World Health Organization (WHO 2002), the widespread and growing use of Traditional Medicine (TM) is part of a rapidly growing health system with economic importance. In Africa up to 80% of the population uses TM to help meet their health care needs. In Asia and Latin America, populations continue to use TM as a result of historical circumstances and cultural beliefs. In China, TM accounts for around 40% of all health care

services delivered. Also, 65% of the population in advanced countries make use of TM while 30% to 50% of the population consume herbal remedies *(cf.* Purwanto 2013). Additionally, the World Health Organization (WHO 2002) acknowledges the use of TM including herbal remedies for community health care and disease prevention in general, as well as for the treatment of certain ailments, such as chronic diseases, degenerative diseases and cancer. Provided that TM is used properly, it has been identified as safer than modern medicine, particularly with regard to a less frequent occurrence of side effects (*cf* Purwanto 2013). For many generations, the inhabitants of Sukamiskin have made use of TM, mostly in the form of traditional home remedies which are applied in virtually every household.

Throughout the research area, TM is largely used in the form of *ubar kampung* which refers to the use of local medicinal plants and fruits for the purpose of disease treatment using locally available Medicinal, Aromatic and Cosmetic (MAC) plants, such as *lalab* ('raw vegetables') and other useful plants.

In general, *lalab* ('raw vegetables') are widely known for their medicinal properties. In this respect, *lalab* represents an essential component of the daily diet of not only the inhabitants of Sukamiskin, but also of the Sundanese population at large which is often found on the menu of restaurants and food stalls. Throughout the research area, *lalab* are frequently cultivated at home and as such widely available. In this regard, the Sundanese people identify food, particularly the harvesting and consumption of food, as a potential cause for disease, rendering the prevention of disease by consuming safe and nutritious types of food as most important.

In addition, herbal medicine forms a significant part of the traditional medical system available in Sukamiskin and elsewhere throughout the country (*cf.* Slikkerveer 2006). The providers of herbal medicine generally adhere to the following principles: (1) herbal medicine is administered in accordance with the age and specific needs of each individual patient whereby it is possible that two patients with similar clinical conditions receive different herbal prescriptions; (2) herbal medicine is intended to restore the natural internal balance of the body; and (3) herbal medicine never relies on a singular chemical component, but on the whole composition of the various components of plants (*cf.* Vitahealth 2006).

The *Badan Pengawas Obat dan Makanan* (BPOM) ('Food and Drug Control Agency') of Indonesia distinguishes between three types of herbal medicine: *jamu,* standardised herbal medicine, and phytopharmacy (*cf.* Purwanto 2013). *Jamu* refers to mixed potions which are prepared on the basis of the medicinal properties of natural ingredients, mostly from plants, such as *i.a.* turmeric, curcuma, ginger or garlic where much empirical evidence is supported by research conducted in herbal medicine. Examples of the different ingredients and compositions of *jamu*, as they have particular medicinal properties, include the *mengkudu* or *morinda* which is known to be anti-cancerous and anti-bacterial; curcuma which has a restorative effect on hepatitis and gastritis; and garlic which is used against hypertension and obesity as well as for the prevention of antheriosclerosis (*cf.* Vitahealth 2006). Furthermore, *jamuberas kencur* can be administered to a child, who suffers from loss of appetite in order to enhance the appetite.

In 2013, the Ministry of Health adopted also several decrees with regard to health and traditional medicine, indicating a growing interest and recognition of various forms of indigenous or traditional and complementary and alternative medicine available in Indonesia. In particular, the Ministerial Decree No. 296/MENKES/SK/VIII/2013 announced the formation of the 'National Commission of Scientification of *Jamu'* which was introduced in 2012 (*cf.* Table 5.13). The 'Scientification Team' aims at disseminating recent information on *jamu* and herbal medicine to the general public. Similarly, the Ministerial Decree No. 299/MENKES/SK/ VIII/2013 announced the establishment of the 'National Workgroup on Traditional, Alternative and Complementary Medical Treatment'.

Table 5.13 Decrees of the Ministry of Health related to Traditional Medicine (2012)

No.	Decree	Concern
1	*Kepmenkes* 137/MENKES/SK/III/2012	Archive Classification Pattern
2	*Kepmenkes* 155/MENKES/SK/IV/2012	National Commitee of *Jamu* Scientification
3	*Kepmenkes* 182/MENKES/SK/V/2012	Exception to Information in Health Ministry Environment
4	*Kepmenkes* 378/MENKES/SK/X/2012	Ethnomedicine and Holistic Research in Indonesia
5	*Kepmenkes* 424/MENKES/SK/XII/2012	e-Health Working Group

Source: Ministry of Health (2012).

Health Law No. 23, 1992, however, recognizes the existence of Traditional Medicine in the form of herbal treatment. In this context, TM is defined as medicine which is derived from natural materials taken from plants, animals or minerals and of which the knowledge has been passed on from generation to generation. In this context, *jamu* is divided into three categories: (1) *jamu* as TM which has not yet been scientifically investigated on the basis of its active properties and potential to produce recognisable effects; (2) *jamu* as standardized herbal medicine which uses standardised seeds and other raw materials and in which practices such as cultivating, harvesting and processing are monitored continuously; and (3) *jamu* as herbal medicine which has undergone clinical trials. Following clinical trials which are conducted incessantly in order to improve the standard of herbal medicine, 13 out of 33 medicinal plants have so far been clinically approved and have been registered by the Ministry of Health, and can as such be used as components in modern medical treatment. In Central Java, for example, several medicinal plants have been categorised as standardised herbs and have been integrated into formal treatment services offered at public health centres.

In Sukamiskin, *jamu* ('traditional herbal medicine') is widely used by the local population and can easily be acquired in local stalls, *jamu* kiosks and *jamu* cafes as well as from *jamu* vendors (*cf.* Illustration 5.11). Most stalls offer types of instant *jamu* or instantly prepared *jamu* which are usually sold in packages produced traditionally in large amounts. The *jamu* kiosks commonly sell herbal remedies in the form of beverages which can be consumed on site or at home. Besides selling different types of herbal medicine, the kiosks also offer customers the possibility of inquiring about the different brands and benefits of *jamu*. The *jamu* peddlers are often middle-aged women, called *Tukang Jamu Gendong* or *Mbok Jamu Gendong*, who carry their bottles of *jamu* in a basket on their back and offer it either door-to-door or by using a bicycle to go around the community (*cf.* Illustration 5.6).

The *jamu* peddlers are respected for having a vast knowledge of the particular types of *jamu* with regard to the needs of their customers. While selling herbs, the *mbok jamu gendong* also represent sources of information on health, herbal remedies or *jamu* in particular, thereby meeting the health information needs of their customers. The knowledge maintained by the producers of herbal medicine is generally passed on from generation to generation.

Illustration 5.6 A *Tukang Jamu Gendong* selling her *Jamu* door-to-door.
Photograph by Sekar (2013).

By consequence, the community members who have received this kind of information and who experience similar disorders develop the desire to use the same herbal remedy. Although patients may in fact consume the same type and dosage of the remedy, the recovery rate is likely to vary among individuals, not least because of their different medical histories.

Illustration 5.7 *Jamu* in Sachets in the Form of Powder and Tablets.
Photograph by W. Erwina (2010).

The manufacturing of herbal medicine has developed into a home-based industry which provides many positive contributions to public health. Traditional herbal medicine is usually marketed

orally, *i.e.* information about herbal medicine is spread among the public through mouth-to-mouth promotion. Patients who have had a positive experience consuming *jamu* will share the information about the pain they have suffered prior to taking herbal medicine as well as about the healing process after taking herbal medicine with others.

Another component of the traditional medical system available in Sukamiskin refers to massage which is exercised by a *tukang pijat* ('masseur'). The massage is a method of applying pressure to some or whole parts of the body which are aching. The purpose of the massage is to improve blood circulation and to make the patient feel relaxed, thus facilitating the recovery of the patient. Different massage methods have been identified which are: (1) relaxation massage: massage focusing on blood circulation improvement and muscle relaxation; (2) treatment massage: massage focusing on physical trauma or injury to the muscles, tendons or ligaments; (3) sports massage: a combination of massages to enhance performance and to recover from injuries caused by physical exercise; (4) aromatherapy massage: massage combining therapeutic and essential oils while using a special massage technique to improve recovery, health and well-being in general; (5) reflexology: a massage technique involving the application of pressure on pressure points on the patient's feet to enhance energy balance in the body; and (6) oriental massage: massage intended to provide treatment in accordance with oriental forms of medical treatment, such as acupressure, *shiatsu* and *tui na* using meridian lines on the body to balance the inner energy (*cf.* Vitahealth 2003).

Apart from the different massage techniques which involve muscle treatment, physical traumas are treated with a special technique called 'bone workshop'. In Sukamiskin, fractures are commonly treated by bone setters, using a combination of traditional instruments and massage methods.

Illustration 5.8 Traditional Eye Acupressure Treatment.
Photograph by W. Erwina (2013).

Acupressure represents a traditional method of massage which involves the application of pressure on certain acupunctural points of the body. In contrast to acupuncture, however, the acupressure method relies on the use of fingertips rather than needles. In Sukamiskin, the method of acupressure which is generally available and affordable to the local community members has been used for the treatment of sight problems, such as myopia and far-sightedness by applying pressure on relevant neural points (*cf.* Illustration 5.8). While administering treatment, the acupressure therapist commonly tends to share his traditional health information on several topics, such as the prevention of a disease by consuming certain foods or avoiding certain conditions as well as treating an illness in a particular way. Patients are generally free to ask any questions relating to their health which can often be overheard by others in the room.

In addition to acupressure, the inhabitants of Sukamiskin use other traditional treatment methods, such as acupuncture and Reiki as well as therapies relying on the application of stings, white rice grains or leeches, as they all represent components of the locally available traditional medical system (*cf.* Figure 5.10). Usually, such forms of treatment are offered by alternative health care providers located in the area around Sukamiskin. Various forms of traditional medicine moreover include treatment administered by the *indung berang* ('traditional birth attendant'), although no *indung berang* has been practising in Sukamiskin since 2012. The role of the traditional birth attendant has since been occupied by the midwife, *bidan*, who is trained in modern medical knowledge of Maternal and Child Health (MCH) (*cf.* Ambaretnani 2012).

The members of the Islamic population group in Sukamiskin also act sometimes as providers of particular forms of traditional medicine including the administration of: (1) holy water as a therapeutic element; (2) *bekam*, also known as *badkesh, bahes, buhang, bentusa, kyukaku, gak hoi, hijama* as well as bruising or cupping, a treatment which is mentioned in Islamic writings and recorded in the *Hadith* of Bukhari (*cf.* Gray 2010); the method of bruising or cupping aims at smoothening the blood circulation and easing 'dirty' blood out of the human body; and (3) *rukiyah* which is a reference to *ruqyah* '*syar'iyah*' and means reciting the Al Qur'an verses or praying to Alla. The prayers are usually directed at the alleviation of illness which is suffered either by the one who prays, or by someone else. The treatment involves placing the ablutionary right arm on the affected part of the body or on the forehead of the patient, while spelling the name of Allah and reciting the *ayats*. Examples of *ayats* which are used during this kind of treatment are Al-Fatihah, Al-Baqarah, Ayat Kursi, Ali'Imraan, Al-A'raaf, Yunus, Thaaha, Al-Mu'minuun, Ash-Shaaffaat, Al-Ahqaf, Ar-Rahman, Al-Hasyr, Al-Jinn, Al-Ikhlaash, Al-Falaq and An Naas (*cf.* Gray 2010).

Traditional Health Care Providers in Sundanese Communities

Indigenous health care practitioners, who are considered to be rather versatile, are known as *paraji*or *paraji sakti*. The Sundanese people, commonly use the term *paraji* to refer to a person who helps to deliver a baby, and is usually called *indung beurang.* Likewise, a person performing a circumcision is referred to as as *paraji sunat* in the Sundanese language, whereas the profession is otherwise known as *bengkong*. In addition to the *ajengan* ('religious healer'), the shaman is a traditional healer with medical skills, who treats spiritual and supernatural diseases on the basis of the cultural knowledge received from the *tukang teluh,* an expert in creating occult diseases. Traditional health care across the Sundanese communities is also provided by the *paneluh*, *patah tulang* ('bone-setter') and *nyeri huntu* ('dental expert').

Generally, traditional health care providers tend to cast meditative spells during their treatment procedures which are rooted in the local systems of behaviour and belief. In the Indonesian Dictionary, *Kamus BesarBahasa Indonesia* (*KBBI*), a, *mantra* or *jampe* ('spell') is defined as a courtesy or a saying which produces magical effects, such as a curse or a blessing.

The dictionary of *Kawi*-Indonesia locates the origin of the term '*mantra*' in the *Sansekerta* meaning of prayer or *du'a* (*cf.* Sastrawijaya 1995). *Mantra* or *jampe* which are applied to the treatment of a specific type of illness, can differ over geographical regions. Meditative spells can moreover contain Islamic prayers which are the result of the process of acculturation between the local culture and the Islamic religion. According to data released by the World Health Organization (WHO 2006), around 4 billion people or 80% of the world population make use of herbal medicine.

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Illustration 5.9 Café *Jamu* Al Masoem in Sukamiskin.
Photograph by W. Erwina (2010).

Recent research shows that out of 119 modern medicinal substances used in pharmaceutics, 74% are taken from plants and correlate directly with the traditional source (*cf.* Vitahealth 2006). Throughout the research area, people generally also acknowledge the efficacy of the traditional medical system in its original, indigenous form which promotes the use of traditional medicine Sometimes, the traditional herbal medicines are packed in modern sachets in order to facilitate the practical use in liquids, teas and pills, often sold by commercial vendors in *jamu* stalls, shops or cafes (*cf.* Illustration 5.11). Although these herbal medicines are processed in a modern way and packed in modern shapes for easy application by the patients, they are largely derived from traditional herbal ingredients, and are as such categorised as traditional medicines.

Some traditional forms of treatment, such as herbal remedies which are widely available to the community of Sukamiskin, are currently also analysed experimentally for their health benefits. The experimental study of the safety and benefit of medicines which are mainly derived from natural ingredients is known as phytopharmacy. These particular forms of medicines are preclinically tested on animals as well as on humans, so that the ingredients and the end-products can eventually be standardised and submitted to quality tests for wider formal utilisation by the general public *(cf.* Purwanto 2013). A number of herbal drinks, for example which are made directly from dried or fresh ingredients, are also sold in the form of capsules or powders to be prepared with hot water. The majority of herbal medicines which are sold in Sukamiskin originate from West Java and other parts of Indonesia, including Central Java and Madura. In the same way, other traditional medicines, such as *habatusauda,* are imported from countries such as China and Korea. The utilisation of traditional medicines, such as *jamu,* is also promoted through the mass media, in particular in newspapers, radio and TV.

5.4.2 The Modern Medical System

In 2004, the national health care system of Indonesia adopted the globally recognised approach to Primary Health Care (PHC) of the World Health Organization (WHO 1978) which was identified in 1978 in Alma Ata (Russia) as an appropriate approach to reach 'Health for All' in Indonesia. This approach has also been formulated in the Indonesia Vision (2010) as the new policy based on an integrated strategy of health care development which aims at achieving the following health development goals (*cf.* Indonesia Vision 2010):

1. *Health Efforts*
Health efforts are to be implemented through a number of activities including: the supply of health and nutritious services; prevention and elimination of disease; and provision of a healthy environment.

2. *Health Finance*
The objective of health finance relates to an analysis and intensification of the financial flows towards health care improvement available in the respective country. In Indonesia, strategies of health care development are usually financed by two sources: firstly, state and local budgets, *i.e.* financial resources from the central government, the provinces as well as the districts and cities; and secondly, public and private financial resources which include household and individual out-of-pocket expenditures as well as means from private companies and enterprises to finance non-government employees and institutions commonly used for communal health care activities.

3. *Human Resources*
Human resources for health care development are to be obtained through planning, analysis and design work as well as through specific information systems.

4. *Medicine and Health Provision*
Medicine and health provision aims at overcoming difficulties in the availability, distribution and affordability of medicine.

5. *People Empowerment*
The goal of people empowerment relates to the empowerment of communities through health promotion efforts, in the past known as community health education or public health education.

Table 5.14 Description of Modern Health Care Providers.

Health Care Practitioners	Doctors, Dentists
Nursing Personnel	Nurses, Midwives
Pharmacy Personnel	Pharmacists, Pharmaceutical Analysts, Pharmacy Assistants
Community of Health Workers	Health Epidemiologists, Health Entomologists, Medical Microbiologists, Health Extension Officers, Administrators of Health and Sanitation
Physical Therapists	Physiotherapists, Occupational Therapists, Medical Speech Therapists
Health Workers	Radiographers, Radiotherapists, Dental Technicians, Electromedic Engineers, Health Analysts, Opticians, Prosthetics, Medical Technicians and Transfusion Recorders

Source: PP No.32 1996 in Adisasmito (2007).

6. *Health Management*

Health management is to be achieved through effective health administration as well as the planning, execution, control, monitoring and accountability of the organisation of health caredevelopment.

Throughout the research area, patients are also interacting with a number of different modern health care providers (*cf.* Table 5.14). The development of the modern medical system has taken place in accordance with the development of the technologies and regulations concerning health care development. The concept of the National Health Coverage, for example, was introduced as a general concept of health insurance which is in line with Article 19 of Law No. 40 of 2004 concerning 'health insurance' on a national scale and on the basis of the principles of social insurance and equity (*cf* Republic of Indonesia 2004). In 2011, the Government of Indonesia passed Law No. 24 of 2011 concerning the *Badan Penyelenggara Jaminan Sosial* (BPJS) ('Social Insurance Organising Institution') which had been expected to be implemented in 2014, reaching the entire population of Indonesia (*cf.* Adisasmito 2007).

Official health policies in Indonesia also involve the establishment and operation of a health care system which ensures that patients are comfortable and satisfied with the medical treatment offered. In order to meet these requirements, the health care system in Indonesia is based on a network of health care providers on the supply side and people on the demand side, who make use of the services and materials offered by the providers.

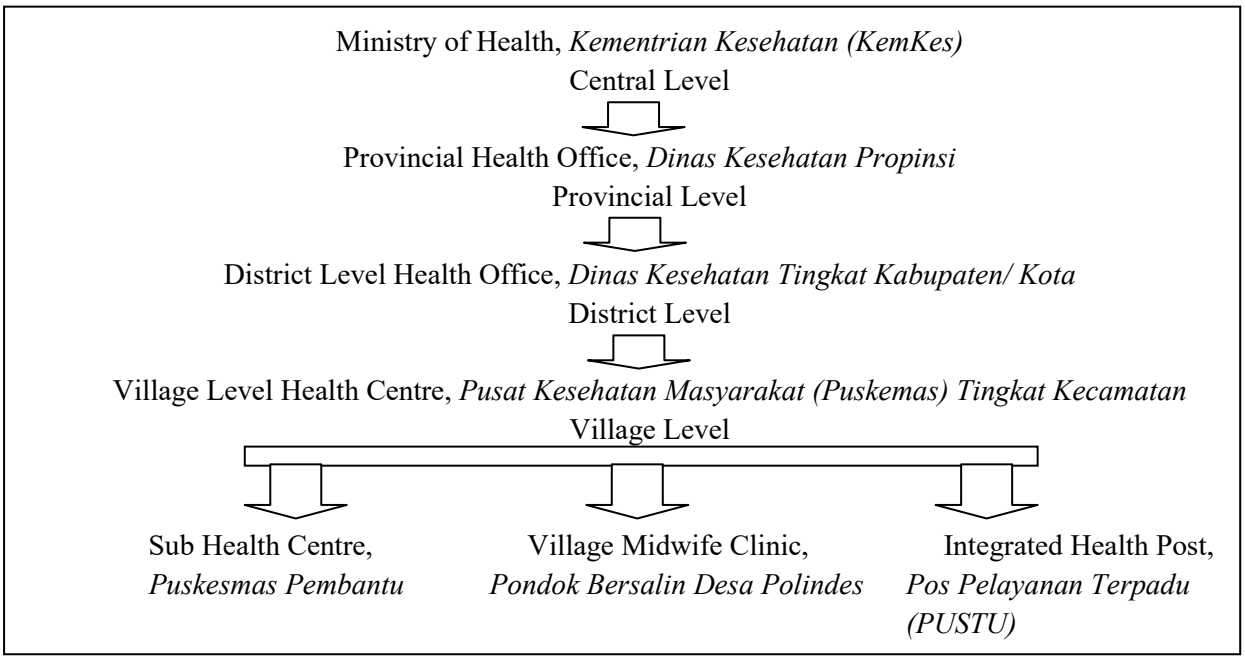

Figure 5.2 Organogram of the Modern Health Care System in Indonesia.
Source: Ministry of Health (2010).

In accordance with the Constitution of 1945, the National Health Care System was introduced in 1982 through a government decree which was adjusted in 2004 (*cf.* Rafei 2004).

The current health care system operates along well-structured lines of hierarchy and bureaucracy which include health centres at the local level, representing the main health agencies in every village. Figure 5.2 presents the structure of the National Health Care System of Indonesia.

Pusat Kesehatan Masyarakat (*Puskesmas*) ('Community Health Centre')

The *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre') was first introduced in 1971. In accordance with the strategy of 'Healthy Indonesia' adopted by the Ministry of Health in 2012 and the need for developing health sectors in the decentralised areas, the ministry implemented the idea of a public health centre at the local level. The concept of the 'Healthy Village' advocated in 2013 anticipates a future local society which lives in a healthy environment, exhibits healthy behaviour, is able to reach health services and ultimately has the highest degree of health (*cf.* Muninjaya 2004).

The public health centres operating at the local level not only function as a first contact point for patients to receive health care, but also act as centres and motivators for useful health development as well as for community and family empowerment. The basic health services which are provided by the health centres include not only Maternal and Child Health (MCH), general medical care, basic laboratory work and basic statistics, but also the provision of modern health information, including environmental sanitation, communicable disease control and health education for community groups. From all the services available, the representatives of the public health centre are entitled to implement the programmes which are most needed by the local communities.

Since 2010, various forms of health insurance available in Indonesia refer to *Asuransi Kesehatan* (ASKES) ('Health Insurance') which is allocated to civil servants (PNS), army employees (TNI) and police as well as retired civil servants and their families.

In addition, there is the *Jangkauan Programme Kesehatan* (JPK) ('Progressive Health Care Programme of *Jamsostek'*) which is allocated to employees in the private sector and their dependants. The *Jaminan Kesehatan Masyarakat (JAMKESMAS)* ('Community Health Insurance') is allocated to the poor whereby the costs are covered by the state government, while the *Jaminan Kesehatan Daerah/Programme Jaminan Kesehatan Masyarakat Umum* (JAMKESDA/PJKMU) is allocated to the poor whereby costs are covered by the regional government (*cf.* Adisasmita 2014). The local health care system in Sukamiskin offers first-line care at the *Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Post') which is related to the *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre') in Arcamanik. In turn, the *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre') coordinates its activities, including the distribution of information and health promotion with the district and village offices as well as with schools in the area.

Notes

[1] The 'Arcamanik Reading Corner' was established in 2001 with the purpose to help less fortunate members of the community to improve their reading skills and to provide the community of Arcamanik with further access to information and knowledge. The reading corner is also used as a community centre and was labelled the 'second best reading corner' in the Province of West Java. Furthermore, the reading corner has engaged in a number of activities, such as *i.a.* the Astrocamp, in collaboration with the Astronomic Student Association of the Bandung Technological Institute (ITB); the Boscha Observatory; the Programme for Identifying Dangers of Fire with the Fire Brigade; and activities undertaken with the Centre for Environment Studies.

[2] The *Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Post') was established in almost all hamlets by the government in 1984 as the result of a 'Community Empowerment

Effort' (UKBM). Each *Posyandu* is linked to the nearest public health centre and aims at disease prevention as well as health promotion among the members of the community. The*Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Post') implements five priority programmes which include: Family Planning (KB); *Kesehatan Ibu dan Anak* (KIA) ('Maternal and Child Health'); Nutrition; Immunization; and Diarrhoea Prevention. The health posts frequently oversee the undertaking of activities organised by community volunteers, the so-called *kader kesehatan*, such as the toddlers' care which refers to a programme specifically designed for the development of toddlers, involving the administration of immunisation and vitamin A, as well as oral rehydration therapy (ORT) (*cf.* Adisasmita 2014).

[3] In the present context, the English term 'local institution' is used as a direct reference to the Indonesian term '*institusi lokal*'. The Great Dictionary of Indonesian Language, *Kamus Besar Bahasa Indonesia*, defines '*institusi lokal*' as: (1) an institution; (2) an agency which is built with reference to law, culture or customs, such as clubs, associations or social organisations; or (3) a building where the activities of a club or organisation are held. In general, the word '*lokal*' can either be translated directly as '*local*' or can be used to describe one particular region. In other words, a local institution can refer to an institution which is located in a particular region whereby the regulations and rules of that region do not apply in other regions. Hodgson (2006) explains that any interpretation of the term 'local institution' is etymologically in line with the description of the term 'local institution' in the Indonesian Language. On the basis of this definition, Hodgson (2006: 2) states that: '*Institutions are the kinds of structures which matter most in the social realm: they make up the stuff of social life. The increasing acknowledgment of the role of institutions in social life involves the recognition that much of human interaction and activity is structured in terms of overt or implicit rules.*' Following Hodgson's statement, a local institution can be defined as an institution which is involved in the structure of local community life and contributes to the improvement of community life towards a better future. The objective towards a better future firmly rests on processes of interaction among the individual members of the community.

Chapter VI. TRADITIONAL HEALTH INFORMATION & COMMUNICATION SYSTEMS (THICS)

Embarking on the relationship between traditional medicine and traditional health information and communication, this chapter presents a description of the Traditional Health Information & Communication Systems (THICS) available in Sukamiskin. Since Sukamiskin is located in a Sundanese culture area, the Traditional Health Information & Communication Systems (THICS) is discussed against the background of the Sundanese culture. The Sundanese cosmovision and way of life are highlighted and followed by a description of the concept of health maintained by the inhabitants of Sukamiskin in relation to socio-cultural factors. Representing a component of the traditional medical system, *ubar kampung*, which is widely available in Sukamiskin, this chapter proceeds with the description of *lalab*, a special diet of raw vegetables of the Sundanese people which is known for its health benefits. Finally, current utilisation patterns of the Plural Health Information & Communication System are illustrated in a way to assess the overall health information-seeking behaviour of the inhabitants of Sukamiskin.

6.1 Indigenous Sundanese Belief Systems

6.1.1 The Cosmovision of the Sundanese People

According to Haverkort (1995: 456): '*the concept of cosmovision thus refers to the way a certain population perceives the world cosmos; it includes the assumed interrelationship between spirituality, nature and mankind; it describes the roles of supernatural powers and the way natural processes take place, as well as the relation of man and nature, and it makes explicit the philosophical and scientific premises on the basis of which prevention in nature (as is the case in agriculture and health care) take places'*.

The Sundanese cosmovision or worldview can be illustrated from different perspectives including *i.a.* traditional poetry, enchantments, *tatanen* ('agricultural traditions') and the use of *pusaka* ('weapons'). The Sundanese cosmovision entails a specific concern about the world order with special reference to the cosmovision's mystical, spiritual and theological characteristics. The specific features of the Sundanese cosmovision have been subject to cultural development and have undergone certain changes over time. The cosmovision of the Sundanese people has been significantly influenced by several cosmovisions, such as the cosmovision of the *Baduy* which is considered the origin of the Sundanese cosmovision; the Hinduistic cosmovision which advanced as a result of the development of the Hindu Kingdoms in Java; and eventually the cosmovision of Islam.

The *urang sunda* ('Sundanese people') have long been accustomed to living their life in harmony with nature which is regarded as the basic system of the universe. As a consequence of this conceptualisation, the members of the Sundanese communities adhere to the old belief in a vertical communication, *i.e.* transcendent, and in horizontal communication which is described in the philosophy of '*hirup nu hurip, hirup kudu nyontoan jeung picontoeun* dan *hirup kudu neundeun jeung ninggalkeun*'. The philosophy can be explained as follows:

Hirup Nu Hurip

> The words say that life concerns effort and relate to questions of how to make life beneficial to the life of others, the social environment, the nation and religion, thereby emphasizing the self-development of social obligations.

Hirup Kudu Nyontoan Jeung Picontoeun

The essence of the words above refers to the understanding of the Sundanese people of an individual consciousness of time and its cycle as a determining force whereupon members of the old Sundanese communities, '*urang sunda lama*', are held in high esteem.

Hirup Kudu Neundeun Jeung Ninggalkeun

In conclusion, these words stress that any individual character should be visionary as well as responsible for oneself, for others and for the environment.

The Old Sundanese Philosophy

Within the particular worldview of the Sundanese communities, the understanding of the world has changed in accordance with the history of its existence (*cf.* Sumardjo 2003). The *urang sunda lama* ('old Sundanese people') are known as *tri tangtu* or *tilu inditan manusa Sunda*, which are forming the three main foundations of the Sundanese communities. To this day, the Sundanese people rely on *tri tangtu* throughout their everyday life (*cf.* Figure 6.1).

THE TRI TANGTU CONCEPTS

LAMUN HAYANG HIRUP SALAMET (If we want to life well)	***Hirup*** (Alive)	***Euweuh*** (Non-existent)	***Tekad*** (Wants)	***Miang*** (Go)
	Nu hirup (Living)	***Aya*** (Existent)	***Ucap*** (*Words*)	***Bajuang*** (Fight)
	Kahirupan (Life)	***Euweuh deui*** (Re: non-existent)	***Lampah*** (Actions)	***Mulang*** (Go back)

Figure 6.1 Schematic Representation of the *Tri Tangtu* Concepts.
Source: Sumardjo (2003).

In general, the primary goal towards improving the quality of Sundanese community life can be achieved when the principle of *tilu iditanana* is embodied in the life of the individual. By achieving the principle, the six aspects of the Sundanese culture, *Sadrasa Kamanusaan Sundanya*, will be fullfilled (*cf.* Paragraph 6.1.2). Hence, each individual must act as a *ngertakeum bumi lamba* ('a whole human') and become a leader, who is visionary and trustworthy and able to *ngertakeun urang réa* ('prosper his people'). Since the Sundanese cosmovision contains both mythical as well as spiritual elements, the members of the Sundanese communities hold a strong belief in the afterlife. The cosmovision includes the concept of *lamun hayang hirup salamet laksanakeun tri tangtu dina kahirupan* which means if an individual craves to live a 'right' life, *khusnul khotimah*, then life should be lived in the way of *tri tangtu*.

In this way, a high quality of life can be achieved. Moreover, the Sundanese philosophy of life includes the objective to train humans always to be 'grateful' for the blessings which have been granted by the grace of God. The consciousness of the blessings of God is in line with the Sundanese people's general appreciation for the environment in which they live, as much in the material as in the immaterial universe. The old Sundanese communities are respecting the power of God, both vertically and horizontally, and have given rise to a new belief system which is accompanied by customs and social values.

The concept of *tri tangtu* relies on three indicators to measure the individual's balance, namely age maturity, intellectual maturity and emotional maturity. Hereafter, a combination of the indicators is referred to as *mesagi* which assesses the maturity of an individual's life concept between the abstract desires in his or her mind which are implemented through the three above-mentioned indicators. The *mesagi* can be visually depicted as a square, a triangle or a pentagon.

Furthermore, it is an idiom of maturity which is in accordance with the norms provided by *i.a.* the nation, religion and customs. The Sundanese people believe that when the three indicators are not balanced in rank, the patterns will not be balanced either.

The cosmovision of the Sundanese people is also applied in the government policies and economic strategies. The concept of *tri tangtu*, for example, is implemented in the governance structure and the layout of government buildings in the Pasundan region. The previous governance system in the region was known as *Rama-Resi-Prabu,* whereby *Prabu* is the implementer of governance systems, *Resi* is the law maker and *Rama* is the one responsible for noticing and evaluating food security and ongoing governance systems. The architectural layout of the government buildings continues to depict the concept of *tri tangtu* from the top until the lower levels of the building. Likewise, the Sundanese cosmovision is also visible in the economic value system of the Sundanese people. Besides, a triangular concept consisting of *melak – miara – ngala* is used as a philosophy in the cultivation of agricultural land, whereby the harvest will be successful if all the three indicators are fulfilled. The philosophy is also represented in the saying *wani-wani ngala lamun teu rumasa melakna* which means 'if it is not cultivated, it cannot be harvested'. Moreover, the cosmovision of the Sunda region plays an important role in the application of militant doctrines and values, such as loyalty and integrity in the everyday life of the Sundanese people. The similar concept of *nengah* which relates to the social values of the Sundanese people is expressed in the saying *nu melak kuring nu miara batur nu ngala babarengan* which means 'I planted, my friends maintained, then we share the harvest'.

Furthermore, Sundanese art also considers the three points of power in which harmony between the three points increases the quality of art. In general, Sundanese art is focused on transcendent rather than social communication which is not merely about the performance, but represents a form of art which is used as a medium to communicate with God, known as *kalangenan*.

Up	*Para* (Roof space)	*Tepas* (Terrace)	Storage	The back of the *Para*
Middle	*Imah* (House)	*Tengah imah* (The middle area of the house)	Human being area	*Goah,* the back of kitchen to store food supply
Bottom	*Kolong*	Kitchen	Pets area	The back of *Kolong* usually utilised for fishery

Figure 6.2 Schematic Representation of Household Appliances & Residential Systems
Source: Kartiwa (2014).

The implementation of the principles and values of the particular Sundanese cosmovision in real life is embedded in the Sundanese culture and focuses on patterns of everyday behaviour and the use of language.

6.1.2 The Sundanese Way of Life

The main principle in the life of the Sundanese people refers to the way to live beneficially with respect to others and to nature. The concept of *hirupnuhurip*, which means giving benefits to others, is still highly esteemed by the Sundanese people. Ruhimat (2014) argues that among all ancient scriptures which he and other philologists have studied, there is no teaching which defies the theory. Thus, it is understandable that the Sundanese people are distinguished from the past, *bihari*, and the present, *kiwari*, while the purpose of life still relates to being someone who lives to contribute to nature: *'ngertakeunbumi lamba'*. Suryalaga (2010) explains that the objective to live according to the concept of *'ngertakeun bumi lamba'* is based on six aspects of the Sundanese culture, the *Sadrasa Kamanusaan*, which serve as indicators of the human moral:

1 MMT = *Moral manusia terhadap Tuhan- Hablumin-Allah* ('morality between humans and God - Hablumin-Allah'), marked by the quality of faith and submission;
2 MMP = *Moral Manusia terhadap Pribadi* ('morality between humans and oneself'), marked by the quality of human resources using the parameters of '*luhung elmu'* ('intelligence/IQ'), '*jembar budaya*' ('emotional intelligence/EQ'), '*pengkuh agama*' ('spiritual intelligence/SQ'), and '*rancage gawe*' ('actual intelligence/AQ');
3 MMM = *Moral Manusia terhadap Manusia* ('morality among humans – socialising'), marked by the balance between human rights and safety;
4 MMA = *Moral Manusia terhadap Alam* ('morality between humans and nature'), marked by ecological awareness, whether in the *sager* or *kabir* world, and an increased awareness for geopolitical unity, *i.e.* regional wisdom and regional unity including the cultural region;
5 MMW = *Moral Manusia terhadap Waktu* ('morality between humans and time'), marked by the need for humans to have a mission, vision and strategy which are dignified, clear and measured to raise awareness of optimalising one's life;
6 MMLB = *Moral Manusia dalam mencapai kesejahteraan Lahir-Batinnya* ('human morality to achieve physical and spiritual wealth'), marked by the awareness of living ethically and aesthetically, and within the common boundaries while having a sense of shame, fairness, honesty, reliability and sensibility (*cf.* Suryalaga 2010).

As listed in old Sundanese manuscripts, the Sundanese people tend to maintain nine different ways of life which are *Cageur, Bageur, Bener, Pinter, Teger, Pangger, Wanter, Singer* and *Cangker*. In this respect, an expression exists which states: *Cageurcan tangtu bageur, bageur can tangtu bener, bener can tangtu pinter, pinter can tangtu singer, singer can tangtu wanter, wanter can tangtu cangker* [1]. These nine different ways of life start with *cageur* and end with *cangker* whereby both terms are a reference to being healthy, and stress that when the body is healthy, people are ready to face any kind of challenge. In general, the Sundanese concept of the way of life concludes that every Sundanese individual should develop the following nine characteristics:

1 *cageur*: to have physical and inner health;
2 *bageur*: to be law abiding;
3 *bener*: to have a straight and true vision, mission and strategy of living;

4 *pinter*: to be able to overcome life-challenges well and properly;
5 *teger*: to have a strong personality;
6 *pangger*: to be consistent in making a commitment and to have firm, strong convictions;
7 *wanter*: to have a bold appearance with polite and confident manners;
8 *singer*: to have working ethos and skills; and
9 *cangker*: to have physical health and power and to be ready at all times.
(*cf.* Ampera 2013)

The Sundanese people moreover adhere to several philosophies of life which are expressed in proverbs and maxims, and are concerned with several relationships: the relationship between humans and God; the relations between the individual, the community and nature; and the philosophy behind spiritual and physical contentment. In other words, the philosophies of life of the Sundanese people can be summarised as follows:

- the philosophies concerning the relationship between humans and God;
- the Sundanese individual life philosophy;
- the Sundanese philosophy of the relationship between individuals and the community;
- the Sundanese philosophy of spiritual and physical contentment.

Garna (2008) adds the following three local philosophies of life:

- *nyaur kudu diukur, nyabda kudu diungang* ('maintain control when saying something');
- *sacangeren pageuh, pangkek sagolek* ('be firm and never break a promise');
- *ulah lah ka purwadaksina* ('remember ones origins, remain simple and do not be arrogant').
(*cf.* Garna 2008)

The traditional Sundanese ways and philosophies of life are forming a fundamental element in the Sundanese communities, such as Sukamiskin. However, the Sundanese principles and values described above are commonly appreciated and maintained by the older rather than by the younger inhabitants, who tend to lack the necessary knowledge, as it has not always been passed on by the previous generations.

6.2 Traditional Medical Concepts of the Sundanese People

6.2.1 Health and Illness in the Sundanese Culture

Winkelman (2009: 17) argues that the concept of health as part of a culture is visible in: '*concepts of desirable physical abilities, views of ideal, normal, and problematic physical conditions, preferred psychological dynamics, emotional states, and social relations, illness concepts and perceptions of symptoms and spiritual or metaphysical conditions and relations*'. Among the Sundanese communities, the concept of health refers to being physically and mentally healthy. On the basis of this concept, the Sundanese people apply specific patterns of behaviour which are directed at health promotion, disease prevention, and cure and recovery, to a number of activities including: choosing a suitable housing area while maintaining water reservoirs; choosing plants and trees which represent symbolic or functional elements; applying etiquettes towards nature, especially in farming and animal husbandry; and eating properly.

The Sundanese people view healthy living as a priority and place great emphasis on living in harmony with the universe, known in the Sundanese language as *ngertakeun bumi lamba* or in Islam as *rahmatan lilallamin.*

In general, the Sundanese concept of health is embedded in decisions of housing and food, as well as conservation of the natural environment. Farming patterns, for example, are based on the notion that the Sundanese people consider themselves partners and servants of God.

In this regard, farming practices, such as sowing, planting the field, manuring the soil and treating pests aim at ensuring harmony and communication between the elements of nature (*cf.* Kalsum & Kartiwa 2010). Similarly, research conducted in several Sundanese communities has shown that certain animals are kept in the vicinity of the houses and neighbourhoods while others, such as buffalos, are kept at a distance from the communities, largely for medical purposes.

The concept of health furthermore relates to the ideas of *tempat* ('place'), *lembur/palemburan* ('village'), *panyicingan* ('housing') and *kadaharan* ('food'). All ideas are in line with the expression, *poe teh kahirupan*, meaning the light or the sun is the source of life. At the same time, the concept of health is often associated with the source of illness. In the Sundanese culture, the sources of illness are either ordinary causes, such as weather conditions and other biological factor, or unusual causes which are provoked by the unseen, by other humans through *tenenung/teluh* ('magic'), by *dedemit* ('supernatural beings') or through *kasambet* ('being possessed' or 'in trance'). In other words, illness can be caused by elements of the mortal world such as people and the environment, as well as by elements of the immortal world.

The health concept of the Sundanese people is closely related to the ideas of the establishment of people's residential area and way of life. By consequence, the choice of housing and food is subject to a number of requirements.

Firstly, tempat ('place'), as the starting point, determines whether the place is suitable for establishing a neighbourhood. For this reason, the Sundanese people generally possess considerable knowledge about the indicators of a suitable residential area which includes the direction of the house and the degree of sloping. Thus, houses should be: (1) facing *ngaler-ngetan* ('the northeast'), rendering the terrain facing the northeast with moderately sloping contours, as it is considered to be the best place for settlement; (2) facing *ngaler* ('the north'), whereby the terrain is facing the north with northward sloping contours; or (3) facing *ngetan* ('the east'), a terrain facing the east with eastward sloping contours. The favourable direction of the house and the degree of sloping are believed to improve air circulation and cleaning of the house.

Following these considerations, the Sundanese people draw a sacred boundary within the residential area between the *lembur* ('clean') and *jarian* ('unclean') areas, with the latter referring to shower and sanitary facilities as well as to the 'unclean' areas in the west and north of the village. In general, the idea of a healthy environment refers to keeping the living areas clean. Once the place is identified as *pi-lembureun* ('suitable settlement site'), it will be defined as *paseuk bumi atawa paseuk bumi rewog tengtong atawa rawas gantung*, and will be marked with *kawung* trees, *jambe* trees or a kind of banana tree, such as *sewu, raja bulu, raja manggala, ambon* or *cau rendah*. These different markers do not only have a symbolic meaning, but also a pragmatic function, especially in relation to health.

Secondly, the *lembur* ('community'), which is defined as a neighbourhood with more than five household heads or more than five houses, needs to be established; a practice known as *lembur ngababakan*. Moreover, the establishment of such a community relies on the concept of maintaining *miaracai* ('water resources'), securing the prevention of water-borne diseases. Similarly, trees are playing a rather important role in the life of the Sundanese people, who

generally have considerable knowledge of the relation between the age of a tree and its moisture level. Practices of tree planting in the community and around the house are practiced on the basis of health considerations, where not all plants and trees are considered beneficial to human health. Planting trees with spines, for example, evokes the expression *matak loba pi katugenaheun* meaning that the person, who plants this tree, will suffer from heart problems. Trees, such as *dadap, teureup, mareme* and *kondang* which are known for their health-promoting characteristics are frequently found at *tampian* ('public wells'), while other trees, such as *hanjuang beureum, tiwu hideung, bambu koneng* and *bambu ampel* are found in the surroundings of the communities.

The different plants are also used as traditional medicine in a such a way that extracts from *bambu koneng* and *ampel* trees are used as eye drops, while the leaves and peelings of *teureup* and *dadap* trees which are known for their high water content are used as a rice base or binder whereas the scent of the trees can be applied to the treatment of fever. In the Sundanese communities, trees are generally multi-functional in terms of possessing various symbolic, cultural and health-related functions.

Thirdly, housing or *panyicingan* ('settlement'), more specifically a neighbourhood comprising two to three houses, has to be created. The Sundanese term for this particular type of housing, *'imah anu neggang tinu sejena'*, describes a rather uncommon place of settlement where inhabitants are sometimes considered to have more *leber wawanen* ('courage'). Following this interpretation, *panyicingan* are occasionally of temporary use.

In general however, the Sundanese people believe that the location of a settlement and residential site as well as the shape of the house influence the fortune in terms of the *pati* ('death') and *kalakuan* ('behaviour') of each individual. A traditional Sundanese house is divided into three parts, namely: *kolong* ('space underneath'), the space for living or centre; and *para* ('roof') (*cf.* Figure 6.2). The division of the house into three parts not only follows the Sundanese cosmovision, but also takes into account considerations of health. For the purpose of promoting health, the central part of the house is commonly covered with a floor made from *palupuh* ('bamboo'), while the walls are made of *bilik* ('woven bamboo'). *Palupuh* and *bilik* allow the air and sunlight to easily enter the house, whereupon bacteria can be quickly eradicated. The *para* ('top') of the house offers space to cleanse the air from the upper part of the house, thus serving as an air filter from air coming from outside.

Fourthly, *kadaharan* ('food') is also required to be selected on the basis of health considerations. In the understanding of the Sundanese people, food not only serves the fulfilment of the need of hunger, but also represents a source of ancillary energy in life. Hence, food in all its varieties and ways of acquisition is considered to be a source of health. The Sundanese people distinguish between different varieties of food, such as *bongborosan / beubeutian* ('tuber group') which includes not only cassava, potato and sweet potato, but also *seuseupanan* ('steamed food'); *beubeuleuman* ('roasted food'); and, *pupucukan / lalaban* ('salads'). The Sundanese concept of *panyaraman* relates to specific normative rules with regard to food which are expressed in proverbs, such as *ulah dahar diburuan* or*tong dahar ririungan di golodog batur*. While '*ulah dahar diburuan*' is related to bacteria floating in the air, *tong dahar ririungan di golodog batur* describes an uncontrolled diet whereby people unintentionally eat food which should not be consumed. Such behaviour may be the source of a supernatural disease which is sent by a person.

The Sundanese people follow a dietary pattern which includes breakfast, lunch and a meal at tea-time, but excludes dinner, thereby avoiding fast food and meat. The breakfast which is generally light but high in *mumuluk* ('energy') may consist of *beuleum sampeu* ('roasted cassava'), *ulen beuleum* ('roasted glutinous rice'), *beuleum cau asak / atah* ('roasted ripe or raw

banana') and *pais beunyeur* ('sugar'). While lunches are generally heavy, the meals consumed at tea-time are light. The people moreover avoid meat in their diet and consume chicken only on special occasions, such as religious or farming events whereby the consumption of meat requires the *kokolot lembur* ('permission of the elders') which ensures the proper handling of the food *(cf.* Kalsum & Kartiwa 2010). In addition to the choice of housing and food, the health concept of the Sundanese people is also related to a number of *pamali* ('taboos'). According to the Sundanese Dictionary, the meaning of *pamali* refers to: '*our parents' prohibition for not doing an activity which has a bad impact*' (Danadibrata 2006: 489). In other words, *pamali*are somewhat disguised prohibitions and forbidden objects which must be respected since disobedience can have serious negative consequences. The various degrees of taboo of the Sundanese communities are: *buyut*, prohibition and *pamali* (*cf.* Rosidi *et al.* 2000: 139). *Buyut* can be further specified into the following three purposes:

1 to protect the purity of the human soul;
2 to protect the purity of an area/territory; and
3 to protect tradition.

Rooted in an eastern tradition, *pamali* was at times considered a form of social control, describing a system of rewards and punishments maintained by the Sundanese people. The system of *pamali* has a strong psychological dimension and corresponds to the different ways of dynamic human communication, including a vertical social macro-communication and a horizontal micro-communication as well as a vertical-horizontal-diagonal communication (*cf.* Effendy 1993). In view of these considerations, taboos appear to considerably affect individual human behaviour on a rather individual level.

Different types of *pamali* can be identified on the basis of a number of factors, such as: the delivery of a message in the family or group; a person's self-interest;one's entry into a different group or organisation; positive and negative attitudes; disobedience; a decreased commitment to an agreement; latent interest; and conflict *(cf.* Suranto 2010). While the underlying motives of taboos are generally clear, three different types of *pamali* can be identified: (1) *pamali* related to time; (2) *pamali* related to attitude consciousness directed at *i.a.* general ethics and natural conservation; and (3) *pamali* related to health consciousness.

The concept of *pamali* is applied in the Sundanese communities largely as a preventive step or strategy to make people conscious of the necessity of health by understanding its meaning. Although the significance of *pamali* has been declining over the years, a number of families throughout the research area continue to respect *pamali* by offering it as advice to the children. Although the members of the Sundanese communities have widely embraced modernity, original Sundanese values and norms are maintained to this day.

The concept of illness from a Sundanese perspective

In the Sundanese tradition, *sasalad* ('common illness') is generally caused by weather and other natural conditions as well as by an unhealthy body. Common illnesses are divided into: illnesses caused by physical and weather conditions, such as *i.a. muriang* ('fever'), *borok* ('ulcers'), *ceboreun* ('diarrhoea') and malaria; and illnesses caused by accidents including *i.a. murag* ('falling'), parts of the body accidentally cut by a knife or a *kakadek* ('sharp weapon') and collisions. The treatment for pain as the result of a fall involves *teu meunang ibur* ('non-information') of others within the first few minutes of the incident, and the first visit of the patient by a woman, as it would otherwise be harder for the wound to heal.

Apart from common illnesses, the Sundanese people identify a number of metaphysical diseases which can be provoked by human behaviour or by supernatural beings and *dedemit* ('ghosts'). Diseases caused by human behaviour are known as *pangheureuyan* whereas diseases caused by supernatural beings and ghosts through trance are called *kasambet.* Metaphysical diseases can result from elements of a place, *i.e. lalampahan* ('patterns of behaviour and actions'), and *dahar* ('elements of consumption'). In an effort to prevent diseases caused by such invisible forces, the Sundanese people perform the *Sukuran-sukuran Lembur* tradition which is known as the *Hajat Lembur* ceremony in Tasikmalaya and as *Seren Taun* in Sumedang. In this context, the Sundanese people distinguish between three different types of supernatural diseases:

1 *Kabadi: 'ulah lalaku dina waktu kumapalang'*
In order to prevent this type of disease, it is prohibited to work at times not permitted by rules set in accordance with the cultural tradition. The disease can be treated by the religious healer, *ajengan*, or the shaman, an expert in traditional medicine;

2 *Lalampahan*
This category describes the daily, notably negatively intended, activities of a person, such as inflicting pain or harbouring jealousy which can not only trigger prejudices, but also cast harmful magic (*teluh*). Treatment can be administered by the *ajengan*;

3 *Katarumpangan*
These are illnesses caused by the ignorant behaviour of supernatural beings.
(Source: Interview with Kartiwa 2010)

6.2.2 The Influence of Islam on Health and Healing

The life and culture of the Sundanese people including the inhabitants of Sukamiskin is significantly influenced by the religious views and values of the Islamic faith. The Islamic worldview relates to the existence of the world as a whole, including the world from where people come and the world into which people proceed. This underlying idea is shown in three specific ways of interactive communication which, according to Islamic values, should be perfomed by humankind: (1) *hablum minallah*: interactive communication between humankind and God; (2) *hablum* minannas: interactive communication among humans; and (3) *hablum minal alam*: interaction between humankind and nature.

The three ways of Islamic communication bear resemblance to the concept of *tri tangtu*, the patterns of communication maintained by the *urang sunda lama* ('traditional Sundanese communities'). The first form of communication can be linked to the command of Allah (QS. Al-Dzariat: 56), by which worship is an interactive communication between humankind and their Creator. Furthermore, humankind must also have the ability to play their role in life as *Khalifah fi al-Ardhi* (QS. Al-Baqarah: 30; and QS. Al-An'am: 165) and to have the ability to prosper and to preserve the world as well as to spread mercy around nature (*cf.* Hidayatulloh 2013).

Among the Sundanese communities, the health care organisations frequently coordinate their activities with religious institutions whereby in the event of disaster or a pandemic, for example, clinics convey health information to the members of the community by using *bedug*, a specific type of drum, which is also used to call Moslems to prayer. Similarly, the *pesantren* cooperates with health centres, clinics and hospitals, in such a way that health information is exchanged and that students who are ill and cannot be dealt with in the *pesantren* are taken to a health care facility.

The influence of the Islamic values on patterns of health and illness behaviour maintained by the Sundanese people is moreover visible in local practices which are directed at health promotion, disease prevention, disease treatment and recovery. In general, the Islamic religion advocates health consciousness and prioritises and emphasises a high level of health which is increased through practices and campaigns of health promotion for preserving and enhancing the quality of life. In view of this understanding, work is regarded as a means, not only to achieve, but also to maintain a high level of health, whereupon people are encouraged to work even during episodes of illness. Similarly, religious doctrines place an emphasis on the maintenance of a high standard of personal and environmental hygiene as a way to promote health.

Practices of hygiene are frequently found in the *hadith* and other teachings of the Prophet which are spread by his advocates, and are set as good examples of promoting health. Recommendationson on how to maintain high standards of hygiene include bathing in certain circumstances and regular cleaning of surroundings and household appliances as well as teeth, hands, mouth and other parts of the body.

Efforts of disease prevention similarly relate to the objective of the *Perilaku Hidup Bersih dan Sehat (PHBS)* ('Clean and Healthy Life Patterns Programme') which is directed at individuals and their social as well as natural surroundings. Furthermore, Islamic doctrines such as the *hadith* offer guidelines for precautions against diseases. In one *hadith*, for example, the Prophet orders his companions to stay away from infectious diseases or areas infected by a disease and to isolate themselves when an infectious disease is spread. Another *hadith* by Bukhari states: '*So when you hear of these infectious diseases contracted somewhere, do not enter the area and if somewhere there are contagious infectious diseases, do not go out or you run away from it*.'

6.2.3 *Ubar Kampung*: Indigenous Health Promotion, Disease Prevention and Treatment

Ubar Kampung is a term used by the Sundanese people to describe the indigenous system of Traditional Medicine (TM) in the Sundanese language whereby *ubar* means medicine and *kampung* means the traditional residential area. Based on these definitions, *ubar kampung* can also be interpreted as the medicine used by the Sundanese people in their traditional residential areas. The components of *ubar kampung* usually refer to spiritual and plant-based medicine, with the latter being cultivated by local farmers while the knowledge about cultivation and its application has been passed on in stories from generation to generation.

Based on personal experience, the stories generally contain indigenous wisdom about preserving nature in a way to bring health and wealth to the people (*cf.* Moektiwardoyo 2010). The inhabitants of Sukamiskin have maintained a vast knowledge and wide beliefs in the concept of *ubar kampung* over many generations. Living in close relation with the natural environment, any form of pain or disorder, often viewed as a disturbance which must be overcome, is connected to the natural elements, and supports the belief that healing is effected by the Creator through His nature (*cf.* Adnyana & Soemardji 2008).

Generally, *ubar kampung* is widely affordable and relatively easy to obtain. Its components are used for many purposes, such as the treatment of disease and rehabilitation; increasing the resistance of the body against disease; health promotion; and maintaining the balance and stability of the human body. *Ubar kampung* is typically applied to the treatment of common diseases in indigenous communities, such as infectious diseases, including *i.a.* inflammations and ulcers, and non-degenerative diseases of the back or neck pain caused by wear-and-tear on a spinal disc. Following the advance of modern medical technology, it has become common in

some cases to treat a number of degenerative diseases, such as hypertension, diabetes and cancer, with a combination of traditional and modern forms of medicine (*cf.* Moektiwaydoyo 2010).

The Sundanese people distinguish between two categories of treatment on the basis of *ubar kampung*: (1) *jampe-jampe*, referring to treatment with prayers and spells, used in the treatment of *i.a. jampe rieut* ('headache'), *jampe nyeuri beuteung* ('stomach ache') or *jampe budak ceurik anu teucipanonan* ('a child crying without tears'); and (2) treatments with potions.

Potions can equally be divided into two types, namely: (1) a direct potion consisting of unprocessed ingredients, and (2) the processed potion consisting of medicinal ingredients which are processed prior to being prepared as a potion.

Throughout the research area, treatment on the basis of the Sundanese tradition of *ubar kampung* is applied as follows:

Remedy against diarrhoea
The remedy consists of *guava* and *haremeng* leaves and the 'short' banana fruit. The *guava* leaves and banana fruits can be eaten straight away while the *haremeng* leaves can be eaten as *lalaban* ('salads').

Remedy against headache
The *Erythrina Variegata* or *dadap* tree bark which is considered cold is directly related to the aching head, and water from the bark is poured onto the aching part, known as *diceuceuhkeun*. Besides having a physical medical function, *dadap* also has metaphorical value.

Illustration 6.1 *Tanaman Obat Keluarga* (*TOGA*) in Sukamiskin.
Photograph by W. Erwina (2010).

Remedy against cough
The water contained inside *bamboo* or dew from water which has been stored overnight is drunk as a remedy for cough.

In 1983, the Government of Indonesia launched a project called *Tanaman Obat Keluarga* (TOGA) ('Family Garden with Medicinal Plants'), as part of the *Pemberdayan Kelompok Keluarga* (PKK), ('Empowerment of Family Welfare Movement') in an effort to support the national policy of stimulating practices of self-treatment with Medicinal, Aromatic and Cosmetic (MAC) plants in small gardens as an alternative source of health care with a view to reducing disease in local communities, as well as improving nutrition, conserving nature, replanting MAC plants and distributing profits and growths (*cf.* Slikkerveer & Slikkerveer 1995). The idea of *TOGA* involves the concept of *Berdiri diatas kaki sendiri* (*BERDIKARI*), meaning 'standing on one's own feet' and has encouraged practices of self-help of the people in providing sources of nutrition and medicine for the family while motivating the prevention of disease. Relying on the general availability and attainability of MAC plants in the communities, *TOGA* is closely linked to the concept of *ubar kampung* and has become an important philosophical principle in Indonesia since its independence (*cf.* Illustration 6.1).

Table 6.1 presents a list of MAC plants which are used as components of *ubar kampung* in Sukamiskin. Thereafter, a number of selected medicinal plants are depicted in Illustration 6.2.

Table 6.1 List of MAC Plants used as Components of *Ubar Kampung* in Sukamiskin.

No.	*Ubar Kampung*	Indonesian Name	Latin Name	Utilisation/Efficacy
1	*Babadotan (*)(**)(***)*	*Bandotan*	*Ageratum conyzoides* L.	Leaves: General use in traditional medicine
2	*Balingbing wuluh/ Calincing(*)(**)(***)*	*Belimbing wuluh*	*Averrhoa bilimbi* L.	Fruits: Hypertension, *Beri-Beri*, Diabetes, Vertigo, Cough Leaves: Influenza
3	*Cikur (*)(**)(***)*	*Kencur*	*Kaempferia galanga* L.	Roots: Coryza, Tetanus, Stomatitis, Cough, Tormina, Abcess, Hyperemesis, Muscular Sturdiness
4	*Cincau (*)(**)(***)*	*Cincau hijau*	*Cyclea barbata* Miers	Leaves: Dysentery, High Blood Pressure, Poisoning Roots: Fever, Enteritis
5	*Kiurat (*)(**)(***)*	*Daun sendok*	*Plantago major* L.	Leaves: Dysentery, Abscess, Scabies, Tormina, Diabetes, Trachoma, Distorsion, Menstrual Disorder, Albuminuria, Otitis interna
6	*Hanjuang (*)(**)(***)*	*Andong*	*Cordyline fructiosa* (L.) A.Chev.	Young Leaves: Eaten Roots (cultivated as a hedge or ornamental plant): Diarrhoea
7	*Honje (*)(**)(***)*	*Kecombrang*	*Etlingera elatior* (Jack) R.M.Smith.	Roots (used as dyestuff and cordage) Flowers: Perspiration, Depuration
8	*Jawer kotok (*)(**)(***)*	*Iler*	*Plectranthus scutellaroides* (L.) R.Br.	Leaves: Haemorrhoids, Abscess, Puerperalis, Tympanitis, Constipation Diabetes, Ulcer, Trachoma Roots: Colic
9	*Kahitutan(*)*	*Daun kentut*	*Paederia foetida* L.	Leaves: Eaten, general use in traditional medicine Fiber of Steam (used as cordage)
10	*Ki Kuda (*)(**)(***)*	*Kedondong laki*	*Lannea coromandelica* (Houtt.) Merr.	Tree (cultivated as hedge or roadside tree)
11	*Ki Oray (*)(**)(***)*	*Sambiloto*	*Andrographis paniculata* (Burm. F.) Nees.	Leaves/Whole Plant: Angina, Ulcer, Thyroid, Dystentery, PruritusMushroom/Cassava/Lobster Poisoning, Diabetes Insect/Snake Bites, Eczema, Apendicitis, Coryza, Trachoma, Diphtery
12	*Ki Sambang (*) /Tuyok (**)(***)*	*Bunga tahi ayam*	*Aerva sanguinolenta* (L.) Blume	Leaves: Diaphoretic; Abscess, Colic, Nausea, Rheumatism, Cough

(Continued) Table 6.1

No.	*Ubar Kampung*	Indonesian Name	Latin Name	Utilisation/Efficacy
13	*Koneng (*)(**)(***)*	*Kunyit*	*Curcuma longa* L.	Roots: Apendicitis, Uteritis, Angina, Icterus, Asthma, Ulcer, Pruritus, Abscess, Rheumatism, Rhinitis, Colic, Constipation, Anaemia, Hypotension, Eczema, Febris puerperalis, Diarrhoea, Morbilli, Icterus, Leucorrhea, Scabies
14	*Koneng gede (*)(**)(***)*	*Temulawak*	*Curcuma zanthorriza* Roxb.	Roots: Convulsion, Haemorrhoids, Malaria, Diarrhoea, Anorexia, Helminthiasis, Anaemia, Varicella, Gastritis, Cholangia, Constipation, Eczema, Acne, Haematuria
15	*Kumis ucing (*)(**)(***)*	*Kumis kucing*	*Orthosiphon aristatus* (Blume) Miq.	Leaves: Diuretic; Angina (Adenoiditis), Epilepsia, Dysmenorrhea, Renal Calculus, Cholelithiasis, Urolithiasis, Dysuria, Diabetes
16	*Malati (*)(**)(***)*	*Melati*	*Jasminum sambac* (L.) Aiton.	Flowers: Flavour in food Leaves: Fever
17	*Kimalaka(*)(**)(***)*	*Meniran*	*Phyllanthus emblica* L	Roots: Fish Poisoning Leaves: Menstruation problems, after childbirth
18	*Nangka walanda (*)(**)(***)*	*Sirsak*	*Annona muricata* L.	Juice of ripe fruit: Anorexia, Constipation, Waist pain, Gall Stones, Leaves: Cancer
19	*Saga areuy (*)(**)(***)*	*Saga kecil*	*Abrus precatorius* L.	Leaves: Diarrhoea, Cough, Angina, Tonsilitis, Aphthae tropicae, Haemorrhoids Seeds: Trachoma
20	*Seureuh (*)(**)(***)*	*Sirih*	*Piper betle* L.	Leaves: Antiseptic; Cough, Rheumatism, Nosebleed
21	*Cau (*)(**)(***)*	*Pisang*	*Musa X paradisiaca* L.	Fruits: Eaten
22	*Turi (*)(**)(***)*	*Turi*	*Sesbania grandiflora* (L.) Pers.	Latex of Leaves: Abscess, Ulcer Leaves: Pyrexia, Combustion Roots: Hemeralopia
23	*Jahe (*)(**)(***)*	*Jahe*	*Zingiber officinale* Roscoe.	Roots: Anti-inflammatory, Analgesic; Vertigo, Rheumatism, Phthisis, Pruritus, Cholera, Diphtery, Neurasthenia, Hyperemesis, Distorsion, Swellings
24	*Bawang bodas (*)(**)(***)*	*Bawang Putih*	*Allium sativum* L.	Bulb: Cough, Asthma, Hyperemesis, Otitis interna, Scabies, Pityriasis, Coryza, Pruritus, Insect Bites, Hypotension, Cholera
26	*Bawang bereum (*)(**)(***)*	Bawang merah	*Allium ascalonicum* L.	Bulb: Baby Fever

(Continued) Table 6.1

No.	*Ubar Kampung*	Indonesian Name	Latin Name	Utilisation/Efficacy
27	*Jambu kulutuk (*)(**)(***)*	Jambu batu	*Psidium guajava* L.	Leaves (source of tannin) Leaves, Barks and Roots: Dysentry, Gastritis
28	*Katuk (*)(**)(***)*	Katuk	*Sauropus androgynus* (L.) Merr.	Leaves: Increase production of breast milk
29	*Saledri (*)(**)(***)*	Seledri	*Apium graveolens* L.	Leaves: Hypertension
30	*Paria (*)(**)(***)*	Pare	*Momordica charantia* L.	Fruits and Seeds: Diabetes
31	*Jeruk nipis (*)(**)(***)*	Jeruk nipis	*Citrus aurantiifolia* (Christm.) Swingle	Fruits: Cough

Source:
(*) IbuYanti, (**) Bapak Hendi, (***) Ibu Santi

Seureuh (Sirih) (*)(**)(***)
Piper betle L.

Cincau (Cincau hijau) (*)(**)(***)
Cyclea barbata Miers

Kumis ucing (Kumis kucing) (*)(**)(***)
Orthosiphon aristatus (Blume) Miq.

Ki Oray (Sambiloto) (*)(**)(***)
Andrographis paniculata (Burm. F.) Nees.

Nangka walanda (Sirsak) (*)(**)(***)
Anona muricataL.

Malati (Melati) (*)(**)(***)
Jasminum sambac Aiton.

Source: (*) IbuYanti, (**) Bapak Hendi, (***) Ibu Santi

Illustration 6.2 Six Examples of MAC plants used in *Ubar Kampung* in Sukamiskin. Photograph by W. Erwina (2010).

As regards the use of the *Tanaman Obat Keluarga* (TOGA), the Sundanese people maintain certain patterns of behaviour which are directed at disease prevention as an important component of *ubar kampung*. Such practices include the selection of foods which are not processed but

contain freshly picked leaves, *lalab* and fruits. The *jambu batu* tree (*guava*), for example, is used as traditional medicine whereby the leaves as well as the fruits and seeds are applied in medical treatment. They contain not only tannin and the essential oil eugenol, but also fixed oil, resin, tannic matter, triterpenoid, malic acid and acid apple.

6.2.4 *Lalab*: Raw Vegetable Dish of the Sundanese People

According to Unus (1987:1): '*The culture and knowledge of the Sundanese who are living in West Java is close to nature and its environment. Their daily lives even dissolve into the nature and environment'*. Indeed, nature is regarded as a source not only of life, but also of survival, whereby communal activities, such as food preparation and consumption are embedded in the peoples' interaction with nature. Locally consumed varieties of food which are prepared on the basis of the components of the natural resources, such as plants and leaves, refer to *lalab*, *beubeutian*, such as *cassava,* white radish, fruits, the soft stalk of a coconut tree and *enau/kawung* used for vegetable soup. Leaves which are consumed as *lalab* include *i.a. daun mareme, daun kemangi, kangkung, seledri, daun putat, daun pepaya* and *daun/pucuk jambu mede (cf.* Surjadi 2006). Also, a number of specific plants, such as string beans, peas, peanuts, mung beans, chickpeas, *roay* ('lupin beans'), *jaat* ('winged beans') and *paria* ('bitter melon'), are used particularly for whole meals. Presently, however, the advent of globalisation shows a change in the choice of local food and beverages among the Sundanese people (*cf.* Surjadi 2006). Nevertheless, the Sundanese people maintain considerable, and notably integrated, knowledge of the different uses of indigenous plant resources for nutrition, health, medicine and beauty as well as of the toxicity of locally available MAC plants.

The various plants which are consumed as *lalab* consist of known and unknown, cultivated and wild plants growing in forests and highlands, around the fields, in gardens and on farms and around the house yards (*cf.* Unus 1987). The Sundanese Dictionary (1976) defines '*lalab*' as raw plant parts which are consumed as a side dish with *sambel* ('hot spicy sauce') as it is a common accompaniment to *lalab* (*cf.* Unus 1987). *Lalab* generally consists of plant parts, such as seeds, roots, tubers, young leaves, twigs, shoots, fruits or flowers which are known to contain substances with great nutritional and beneficial health value, such as *i.a.* carbohydrates, fat, proteins, vitamins and minerals. Apart from plant parts, the use of *lalab* can also involve whole plants, such as the *buabok* plants, for example (*cf.* Osche & Brink 1931; Unus 1987).

Young leaves and shoots are known to be easily digested and can be consumed directly without being cooked. The parts of the plants most frequently consumed as *lalab*, however, are flowers and fruits. The use of *lalab* involves not only 18 kinds of young flowers and fruits which are distinguished by their unique colour and are known to taste better than ripe fruits, but also 17 kinds of other fruits. In contrast to the young flowers and fruits, ripe fruits which are consumed as *lalab* are generally recognised for their high content of proteins, vitamins and minerals. Seeds which can be cooked or eaten raw are similarly valued for their high nutritional value. The tubers and shoots which are commonly consumed as *lalab* are usually the parts of *kencur*, *kunci,* radishes, carrots and *bamboo*. Parts of the plants consumed as *lalab* also include the crusts of tubers. Although most crusts are used as cattle feed, a number of crusts, such as the *pisang tanduk* crust, the *pisang nangka* crust and the *ketela pohon* crust are also used in the local consumption of *lalab*.

Usually, *lalab* is added to a number of dishes with a view to balancing the nutrition and counterpoising the fats of grilled meals. In this way, *lalab* is primarily vegetarian and qualifies as a healthy dietary pattern (*cf.* Illustration 6.3). *Lalab* is typically consumed as a side dish to different types of food, such as *i.a.* fish and chili, and as a salad, in which *lalab* is combined

with, for example, lettuce, cucumber, basil, cassava leaf, papaya leaf and tomato. Furthermore, a number of special Indonesian dishes, such as *nasi goreng, pecel lele/ayam* and *gepuk*, are often combined with *lalab*. It is moreover a common habit among the Sunda and Indonesian people to eat *lalab* and other vegetables especially prepared for consumption with *lalab* together with peanut sauce. Examples of such dishes include *lotek, pecel* and *gado-gado* which contain *i.a.* string beans, cucumber, cassava leaves, banana buds, papaya leaves, edible riverine plants and

In addition to the use of *lalab* which are growing in the wild for food and medicine, several *lalap* are used as land markers, fences, avalanche blockades, green fertilizer and decorative plants (Slikkerveer & Slikkerveer 1995). Virtually all plants which are consumed as *lalab* are originally wild plants found in mountains, forests, fields, farms, gardens, and on the edge of villages and city parks. Table 6.2 presents a list of plants consumed as *lalab* by the research population of Sukamiskin, while Illustration 6.4 shows the most commonly consumed *lalab* in the research area. The food consumption in the Sundanese culture does not distinguish meals eaten at specific times, such as breakfast, lunch or dinner, or meals consumed by a specific age group.

Illustration 6.3 Example of *Lalab* Dishes.
Photograph by Herryawan (2015).

Table 6.2 List of plants used as *Lalab* used in Sukamiskin.

No.	Indonesian Name	Sunda Name	Latin Name
1.	*Beluntas*	*Baruntas (*)(**)(***)*	*Pluchea indica* (L.) Caas.
2.	*Mentimun*	*Bonteng (*)(**)(***)*	*Cucumis sativus* L.
3.	*Kol*	*Engkol (*)(**)(***)*	*Brassica oleracea* L. var. *capitata* L.
4.	*Pepaya*	*Gedang (*)(**)(***)*	*Carica papaya* L.
5.	*Kecipir*	*Jaat (*)(**)(***)*	*Psophocarpus tetragonolobus* (L.) DC
6.	*Kangkung*	*Kangkung (*)(**)(***)*	*Ipomoea aquatica* Forsskal.
7.	*Kacang panjang*	*Kacang Panjang (*)(**)(***)*	*Vigna unguiculata* (L.) Walp.
8.	*Katuk*	*Katuk (*)(**)(***)*	*Sauropus androgynus* (L.) *Merr.*
9.	*Kencur*	*Cikur (*)(**)(***)*	*Kaempferia galanga* L.
10.	*Leunca*	*Leunca (*)(**)(***)*	*Solanum* americanum Mill.
11.	*Mangkokan*	*Mamangkokan (*)(**)(***)*	*Polyscyas scutellaria* (Burm f.) Fosberg
12.	*Kemangi*	*Surawung/Selasih (*)(**)(***)*	*Ocimun americanum* L.
13.	*Kacang Biduk*	*Roay Katopes/Kacang Peda (*)(**)(***)*	*Lablab purpureus* (L.) Sweet
14.	*Terung*	*Térong engkol (*)(**)(***)*	*Solanum macrocarpon* L.
15.	*Labu*	*Waluh (*)(**)(***)*	*Cucurbita moschata*
16.	*Labu air*	*Waluh siem (*)(**)(***)*	*Sechium edule* (Jacq.) Swartz.
17.	*Genjer*	*Génjér (*)(**)(***)*	*Limnocharis flava* (L) Buchenau
18.	*Jengkol*	*Jéngkol(*)(**)(***)*	*Archidendron pauciflorum* (Benth.) I.C. Nielsen
19.	*Seladah air*	*Saladah (*)(**)(***)*	*Nasturtium officianale* R.Br.
20.	*Petai*	*Peuteuy (*)(**)(***)*	*Parkia speciosa* Hassk.
21.	*Kacang Buncis*	*Buncis (*)(**)(***)*	*Phaseolus vulgaris* L.
22.	*Pegagan kecil*	*Antanan alit (*)(**)(***)*	*Hydrocotyle sibthorpioides* Lam.
23.	*Pegagan Merah Besar*	*Antanan Bereum ageung (*)(**)(***)*	*Centella asiatica* (L.) U*rban*
24.	*Pegagan Putih Besar*	*Antanan Bodas ageung (*)(**)(***)*	*Centella asiatica* (L.) U*rban*
25.	*Singkong*	*Sampe (*)(**)(***)*	*Manihot esculenta* Crantz.
26.	*Kacang Tanah*	*Suuk (*)(**)(***)*	*Arachis hypogaea* L.
27.	*Eceng*	*Eceng(*)(**)(***)*	*Eichhornia crassipes* (Martius) Solms
28.	*Jonge Patah kemudi*	*Jongé (*)(**)(***)*	*Emilia sonchifolia* (L.) DC
29.	*Getang*	*Jotang (*)(**)(***)*	*Acmella oleracea* (L.) R.K. Jansen
30.	*Petai cina lamtoro*	*Peteui Cina (*)(**)(***)*	*Leucaena leucocephala* (Lamk.) de Wit.
31 .	*Petai selong*	*Peteui selong (*)(**)(***)*	*Leucaena leucocephala* (Lamk.) de Wit.
32.	*Jambu mete/monyet*	*Jambu Médé/siki (*)(**)(***)*	*Ancardium occidentale* L.
33.	*Puring*	*Puring/Katomas (*)(**)(***)*	*Codiaeum variegatum* (L.) Rumph.
34.	*Saga besar*	*Saga* gede *(*)(**)(***)*	*Adenanthera pavonina* L.
35.	*Walangan*	*Walangan katuncar (*)(**)(***)*	*Eryngium foetidum* L.
36.	*Seledri*	*Saledri (*)(**)(***)*	*Apium graveolens* L.
37.	*Singkong*	*Daunsampe (*)(**)(***)*	*Manihot esculenta* Crantz
38.	*Sintrong Air*	*Sintrong cai (simtang)) (*)(**)(***)*	Erechtites valerianifolia (Link ex Wolf) Less. ex DC
39.	*Sintrong*	*Sintrong tegal(*)(**)(***)*	*Crassocephalum crepidioides* (Benth.) S.Moore
40.	*Terung Pipit*	*Takokak (*)(**)(***)*	*Solanum torvum* Sw.
41.	*Tomat*	*Tomat (*)(**)(***)*	Solanium lycopersum L.
42.	*Jahe*	*Jahe (*)(**)(***)*	*Zingiber officinale* Roscol.
43.	*Kacang iris*	*Kacang Hiris(*)(**)(***)*	*Cajanus cajan* (L.) Mills

Genjer - Limnocharis flava (L)
(*)(**)(***)

Daun pepaya- Carica papaya L.
(*)(**)(***)

Leunca - Solanum americanum Mill.
(*)(**)(***)

Tomat - Solanum lycopersicum L.
(*)(**)(***)

Terong - Solanum macrocarpon L.
(*)(**)(***)

Surawung - Ocimun americanum L.
(*)(**)(***)

Waluh siem-Sechium edule (Jacq.) Swartz.
(*)(**)(***)

Daun waluh - Cucurbita moschata
(*)(**)(***)

Kacang panjang hejo -
Vigna cylindrica Skeels (*)(**)(***)

Bonteng (Timun) - Cucumis sativusL
(*)(**)(***)

Source: (*) IbuYanti, (**) Bapak Hendi, (***) Ibu Santi

Illustration 6.4 The 10 Most Commonly Consumed *Lalab* in Sukamiskin.
Photograph by W. Erwina (2014)

6.3 Traditional Sundanese Information & Communication Systems

6.3.1. Information & Communication among the Sundanese People

In Sukamiskin, communication is established in both languages, *i.e.* the mother tongue or local language, and Indonesian, the national language. The patterns of personal communication continue to rely on traditional communication systems available in the communities. Channels of interpersonal communication are used between *i.a.* parents and children; parents and other parents; spouses; grandparents and grandchildren, notably on a more distant level; and neighbours. In the wider community, interpersonal communication is moreover maintained between informal leaders, elders, the clergy and respected community members.

Communication within the Sundanese communities, however, is dominated by the use of non-verbal communication shown in the Sundanese concept of *Pancacuriga.* The indicators of this type of communication are *Silih Asih, Silih Asah* and *Silih Asuh*. Translated as the 'five devices' or 'five types of knowledge', the concept of *Pancacuriga* means that each kind of knowledge has its own meaning which can be a letter, a word, a picture, such as an icon, a symbol, a logo, a sign or a herald, a body movement, a ceremony, a ritual or even the entirety of cultural elements (*cf.* Suryalaga 2010a).

The five concepts of *Pancacuriga* are referred to as *silib*, *sindir*, *simbul*, *siloka* and *sasmita* and are as such used abundantly by the *dalang ('*puppeteer') in his puppet show. According to Suryalaga (2010a), the five concepts can be explained, notably in idiomatic English, as follows:

1 *silib*: something said indirectly by referring to something else or alluding;
2 *sindir*: something said indirectly by using different expressions or allusions;
3 *simbul*: a message delivered in the form of a symbolor icon;
4 *siloka*: a message delivered in the subjunctive or in the form of aphorisms; and
5 *sasmita*: a meaning related to feelings or aphorisms.
(*cf.* Suryalaga 2010a)

According to this explanation, not all concepts of *Pancacuriga* can be regarded as examples of non-verbal communication. The concept of '*simbul*' focuses on patterns of body language and style, and involves social communication. The symbols and icons are used as formal and informal learning devices for children, adolescents and parents alike. As such, the symbols are interpreted as *i.a.* dance and theatrical movements, gestures when speaking and movements in rituals whereby all movements are generally maintained on a regular basis and in relatively generic symbolic forms.

Furthermore, the importance of non-verbal communication, as it is maintained by the Sundanese people in various situations, is expressed in the term *mbabas an jeung paribasa* and is referred to as high and low contact communication in communication science. The conceptualisation of high and low contact communication is known as *sisindiran* among the Sundanese people and comprises *rarakitan, paparikan* and *wawangsalan*. According to Suparli (2012), one example of non-verbal communication used in the Sundanese communities is illustrated by *budaya sindir-sampir* characterised by *sampiranana*, in which the main focus is not on the satirical comment, but on the covered meaning in the idiomatic sentence or *sampiran*. Apprentices, who demonstrate interest in mastering the patterns of non-verbal communication, are expected to have a positive character, often referred to as '*surti*' in the Sundanese language. Examples of '*Surti*' are: the apprentice who is able to feel empathy towards others (*bisa maca kahayang batur samemeh dipokkeun*)*;* the apprentice who understands people's minds (*méré samemeh dipenta*); or the apprentice who becomes aware of his surroundings by donating to the needy of his own accord. The concept and value of '*surti*' are embedded in the cosmology of the Sundanese people and as such relate to the six aspects of Sundanese culture, *Sadrasa Kamanusaan*.

The social rules which exist in the Sundanese communities are expressed in numerous communication media, including well-preserved manuscripts and practices of folklore. Among others, the phrases *éntép seureu* and *undak usuk basa*, for instance, illustrate the rules of utterance which are subject to age, *i.e.*: '*levels of people who are invited to speak and people are talking about; particularly for older people, people of the same age, younger, colleagues, or just when meeting each other*' (*cf.* Interview with Suryalaga 2009). In this way, it becomes clear that the *undak usuk basa* act as means of expression of social rules among the Sundanese people in specific situations of the use of language. The social rules involved in *éntép-seureuh* are apparent in the specific processes of communication. In fact, the Sundanese people traditionally engage in the communication process through an introduction rather than through a direct revelation of ideas, and continue with an expression of contents and end with the delivery of a closing statement. In this way, the introduction and the closing are at times longer than the content itself. Besides language, other elements which reinforce the expression of social rules through the communicator in the process of delivering a message to the communicant include *anggah-unggung* ('body language'), and *mind parangi* ('facial expression') (*cf.* Suryalaga 2009).

In general, the Sundanese people believe that the formation of habits begins with a mental learning process, particularly through activities which are performed regularly in social life whereby language is used as the main medium of social interaction. The advantage of language is that it functions as a cultural recorder, rendering language an expression of the local culture. The organisation of language is practiced by the Sundanese people as a source of expression of social rules which must be implemented by the community, and is subject to changes over time. Conversations with the elderly have long been characterised by the use of smooth idioms and sentence structures as well as certain gestures, such as slightly bent shoulders which are humble and follow the patterns of hand movement. Nowadays, however, the rules for talking to an acquaintance of the same age as well as of both a young and old age, to a close friend or a newly

met colleague have become more flexible. Following an overall decline of the use of the ancient Sundanese language, the Sundanese language of today is used only on the subtle and standard level. The changes in the use of a number of *undak usuk basa* in people's everyday life are primarily caused by two aspects, *i.e. teu nyaho basa* ('ignorance of language conventions'), and *nga daban maneh* ('smoothening the path for oneself') (*cf.* Suryalaga 2009).

In view of the rules of social interaction between the Sundanese people themselves as well as between the Sundanese and non-Sundanese people, the level of the communicant and the situation of the communication tend to determine the level of language which should be used. The normative pattern of formal, standard language distinguishes between eight levels of the Sundanese language which should be used appropriately:

A. Polite language (*basalemes*):
1. very polite (*lemespisan*);
2. polite for others (*lemeskeur batur*);
3. fine to moderately private (*keur pribados* / *sedeng*);
4. clumsy (*lemes*), finely responsible(*panengah*);
5. *lemes* in the village;
6. polite for children.

B. Rough language (*loma*):
1. familiar, rough, neutral (*loma*);
2. rough, rough once (*garihal* / *linings* / *songong*).
   (*cf.* Interview with Suryalaga 2009)

The type of common language which is currently used by the Sundanese people refers to the levels of *lemes keur batur* and *keur pribados / sedeng*.

6.3.2 Traditional Information & Communication Systems (THICS)

The Health Information & Communication Systems (HICS) in the Sundanese communities include a variety of sources which range from ancient manuscripts and expressions of art to a number of specific institutions. Ancient Sundanese manuscripts offer a great amount of local information on health and disease. Health problems are a major concern in these manuscripts which often define particular types of medicine for treatment.

Darsa (2011) lists 15 of these scripts as follows:

1 *Kapalsastra* ('Science and Medicine');
2 *Sarwa Wyadi* Literature ('Science of Various Diseases');
3 *Yaksami* Literature ('Pulmonary Medicine');
4 *Sarwosadawédya* ('Science of Various Treatments');
5 *Usadilata* Literature ('Medicinal Crop Science');
6 *Usadawédya* ('Medical Sciences');
7 *Sarpa Wisosada* Literature ('Medical Science of Poison');
8 *Sarwa Wydayanang Janapada* ('Various Diseases Society');
9 Animal fibers *Sarwa Wydaya* ('Notes on Various Animal Diseases');
10 *Kajamasosada* Literature ('Science of Hair Care');
11 *Sarwa Pārnosada* Literature ('Science of Various Severe Disease Medicines');

12 Library *Wydadikang Nirosada* ('Book of the Diseases without Cure');
13 *Gamyosadi* Literature ('*Panacea* Science');
14 *Ayurveda* Literature ('Medical Science');
15 *Sarwa Kusalasala* Literature ('Various Medical Sciences').

The information presented in the ancient Sundanese manuscripts has, however, remained largely unknown to many Sundanese people, including the majority of the inhabitants of Sukamiskin. Nevertheless, the elders in the communities often represent valuable sources of health information.

In addition to ancient manuscripts, communication among the Sundanese people is facilitated through expressions of art as part of the local culture. The inhabitants of rural areas commonly appreciate the use of traditional forms of art as media to convey certain messages which usually include the transmission of cultural values. In other words, expressions of art often entail a message which is implicitly and creatively inserted within the traditional medium (*cf.* Istiyanto 2008). While a number of traditional media, such as folk performances have continuously had a strong resonance in the community, others have been abandoned over time. In general, the dissemination of information through traditional folk art has remained rather popular among the audience.

Following this rather strong presence of the traditional media in the community, the dissemination of information through the mass media requires considerable effort, particularly in more pluralistic societies with a compound social system (*cf.* Rogers & Shoemaker 1971). In this way, a combination of communication techniques which includes existing traditional media is needed in order to transmit an important message. The government is encouraged to maintain a positive attitude towards folk media and to use them optimally not only as a means of entertainment, but also as an incentive for the achievement of national development goals. The traditional media are in fact readily accepted by the local community as they offer not only information in the local language, but also legitimacy, flexibility and a two-way form of communication.

Examples of traditional media used by the Sundanese people include a number of traditional communication tools, such as various *bamboo* percussion instruments, including the *kohkol, lisung* or *tutunggulan kohkol, bedog, iket* and *tektek ngeyeuk sereuh.* Each tool can convey messages through symbols which are familiar to the Sundanese people. The *bamboo* percussion or *kohkol*, for example, is usually sounded to inform the public of the death of a community member whereby the '*kurulung'* motive is hit three times followed by three times the *trung* motive; a disaster which struck an individual; a natural disaster; or the threat of a natural disaster.

Also known as *ketungan*, the *kohkol* is a kind of 'clappers' which functions as a command control for general information. When the news concerns illness, the heads of families usually gather at the sound of the clappers and then meet the elders, or the elders may decide to visit the sick person first. Similar to clappers, the *lisung* or *tutunggulan* is an information medium which can convey more varied messages, such as information regarding weddings or circumcision ceremonies as well as entertainment events (*cf.* Illustration 6.5 a & b).

Illustration 6.5 a & b: The *Lisung* (left) & *Kohkol* (right) are Traditional Media used by the Sundanese People. Photographs by Kartiwa & Fadli (2013).

The traditional media also include forms of traditional mass media, *i.e.* oral folklore and folktales which refer to a type of story often containing a message for the community. Table 6.3 presents several types of folklore and folktales which continue to exist in the Sundanese culture and are passed on orally from generation to generation.

Table 6.3 Folklore and Folktales in the Sunda Region.

No	Type	Example
1	Stories using vertical rhymes	*Lutung Kasarung*, *Mundinglaya* in *Kusumah*
2	*Salajur*	*Susuru Amongsari*; *Lembusari*
3	Fairytale / Fable	*Si Kabayan*
4	Legend	*Sasakala Tangkuban Parahu*, *Situ Bagendit*
5	*Wayang* (puppet)	Puppet, Smacking, *Bebe*r, Skin, Wing
6	*Uga*	*Uga Siliwangi Valey Cawuna*, Bandung
7	*Divisi*	*Divisi Siliwangi Pancaniti*
8	*Cacandran*	*Ku Heurin* Bandung *Tangtung*
9	*Paribasa*	*Bihari ngancik dikiwari, historian ayeuna sampeuru*

Source: Suryalaga (2010)

In addition to the traditional communication tools and folklore, the performing arts represent an example of traditional communication and information media in the Sundanese communities. Performing arts appear to have a primary function as a means of ceremony and a secondary function as a reminder for the community to come together, and a medium of communication

and interaction with prestigious and business value (*cf.* Caturwati 2011; Soedarsono 2011). The contents of the messages implicitly portrayed in the performing arts and conveyed through verbal and non-verbal symbols relate to religion, education, moral and governmental information, such as health, agriculture and social matters.

Illustration 6.6 *Wayang Golek* (Collection of the Sri Baduga Museum Bandung). Photograph by W. Erwina (2013).

In the Sundanese communities, the Health Information & Communication Systems moreover include a number of institutions which represent sources and mediators of information.

While performing arts can generally be categorised as speech, dialogue and lyrics, the following types of performing arts have also been observed in the Sundanese communities:

1 *Sandiwara Sunda*: a Sundanese play with stories taken from puppetry (*pewayangan*), everyday life, chronicles and *cerita desik*;
2 *Wayang Golek*: a three-dimensional wooden puppet-show with selected stories from *Ramayana* and *Mahabharata* accompanied by the *gamelan*, the *pelog* and the *salendro* during the show (*cf.* Illustration 6.6);
3 *Gending Karesmen* (Sundanese Opera): a Sundanese traditional opera with stories taken from historical accounts/legends and dialogues in the form of sung poetry accompanied by dance movements;
4 *Degung*: a Sundanese traditional music and song performance accompanied by the *gamelan*;
5 *Longser*: a folk theatrical form with a people's favourite story and a social function containing dialogues, dance movements and song lyrics as well as occasional interactive dialogues with the audience whereby the messages included in the play are conveyed through the song '*Es Lilin*';
6 *Beluk*: a Sundanese song performed to celebrate the 40-day-old baby and sung on high notes by four persons in the evening while the texts are read by the *juru ilo*;
7 *Gondang*: a mini-Sundanese musical drama using tools, such as the *lesung* and *alu* accompanied by the sounds of *kecapi, gendang, goong* as well as voices of boys, and shouting to each other;

8 *Reog*: a performance played by men using different types of drums (*dogdog*) accompanied by dialogues, dances and humorous anecdotes in the messages;
9 *Calung*: a traditional musical instrument made from bamboo which is played by five persons, accompanied by dialogues, percussions, movements and songs;
10 *Pantun*: stanzas containing a particular story which is presented or read by a *juru pantun*, accompanied by the *kecapi* or Sundanese harp; and
11 *Blantek Sandiwara Parung Bogor*: a traditional musical play accompanied by tambourines, *tahyan* and strung pieces of metal known as *kecrek* (*cf.* Caturwati 2011).

Following the impact of Islam, the *pesantren*, for instance, has achieved considerable influence as a formal educational institution which teaches students the religious doctrines under the guidance of the clerics and the *ajengan*. The Sundanese scripts which are taught at Islamic boarding schools are known as the 'Old Sundanese Scripts'. These manuscripts are characterised by *i.a.* the use of *saeh* ('bark') material and stationery papers with pens made of plants and metal, as well as ballpoints, pencils and ink. The scripts are written in Arabic from the 16th century and *in pegon*, *i.e.* Arabic written in the Sundanese language from the 17th century, while the language used in the scripts also includes Sundanese words which have been absorbed from Arabic, Javanese and Malay languages (*cf.* Darsa 2011).

In order to promote health and to expand health programmes, the *pesantren* are collaborating with external agencies and participate actively in the events organised by the health centres or other organisations. Notification of crucial events, such as upcoming disasters as well as important information on obituaries and emergency calls, are usually received through the loudspeakers of the mosques or through the use of the *bedug* ('drum') normally calling for prayer. The *pesantren* represent the oldest boarding schools in Bandung with no communities settling in the area surrounding the school at the time of its establishment. By consequence, migrant communities which are settling in the area have naturally adapted their life in a way developed by the *ajengan* and have also been influenced by the philosphies of life taught at the schools, such as the creed 'the good man is one who knows his time' which represents an important concept of social life. In addition, members of the surrounding communities have great respect for the school and its students. Although the advent of modernity has introduced a number of changes in the life and culture of the communities surrounding the *pesantren*, the values of life advocated by the schools are still maintained and implemented in the curriculum.

The *pesantren* have also played a significant role in the dissemination of information regarding the use of traditional and religious medicine. The information has primarily been distributed by three descendants of *Ajengan* '*mama*', among them *Ajengan Dimyati*, a famous physician (*ca*. 1920-1960), who used prayers and medicines derived from plants in his treatment of patients. The death of *Ajengan Dimyati* brought the transfer of his knowledge onto his successors to an end, whereupon the *pesantren* started to offer new forms of treatment, such as medicines introduced by the Dutch. Nevertheless, several forms of medical treatment advocated by the *pesantren* to this day refer primarily to medicines derived from MAC plants.

In order to adequately obtain, seek and disseminate information or news specifically regarding health issues, the *pesantren* has also been using a number of different media, such as the Internet, Television and other communication devices including *i.a.* mobile phones and telephones. In general, the health concept maintained by the *ajengan* entails the activity of *wirid* which is included in the curriculum as obligatory for all incoming students at the time of their arrival. *Wirid* can be compared to yoga activities and is normally performed during breaks for meals three times a day, namely in the morning, afternoon and evening.

In addition to the *pesantren* which was established in 1818 in Cianjur, West Java and is still using the Sundanese language, schools have similarly become a source of public information (*cf.* Moriyama 2005). During the provision of formal education at different levels, including primary, secondary and higher education as well as college education, students are generally taught by teachers or lecturers, who have adopted the European educational system. These schools also use a substantial amount of Sundanese literature in the form of printed books categorised as a 'Sundanese Classical Library' which involves the use of paper as well as metal pens, ballpoints, pencils, ink, typewriters and printing presses. The scripts include the *Carakan, Pegon*, Latin and Sundanese languages, influenced by Arabic, Javanese, Malay, Dutch and other foreign languages. In this way, the *Pegon* script contains information on diseases and medical treatment. Between 1850 and 1908, books written in the Sundanese language used the Java script, Latin and the Arabic language called *Pegon*, while books about health, such as '*Wawancan Piwoelang Panoelak Panyakit Koelera'*, for example, have been published using the Arabic alphabet. In addition to the schools available in the community, the *Taman Bacaan* ('Community Library') also represents an institution which offers information on various topics including health and disease. As the library has been established in response to the increase in the publication and sale of manuscripts and books, it appears to meet the general public desire for reading (*cf.* Moriyama 2005).

6.3.3 Utilisation of Health Information and Communication Systems (HICS)

The process of utilisation of information and communication is generally described as utilisation of information and communication in terms of any pattern of human behaviour which relates to sources and channels of information and communication, and includes active and passive forms of seeking and utilising of information (*cf.* Wilson 2000). The type of message which is transmitted largely depends on the physical, mental and spiritual demands, needs and wishes of the people seeking and utilising health information. The messages usually evoke ideas of health promotion, disease prevention and treatment and involve specific information on food, drinks and life style. Messages are usually delivered on the basis of different elements involved in the communication process and are conveyed either directly by applying the rules of verbal and non-verbal communication, such as *Lentong*, *Pasemon*, *Rengkuh* and *Surti*, or through the use of media tools including *i.a.beduk* and *kentongan*; or by means of the performing arts which are often used as channels for delivering specific forms of health information. In this way, the patterns of utilisation behaviour of health information and communication by the Sundanese people are a reflection of their cultural behaviour. As Winkelman (2009: 96) indicates:'*Cultural communication and social interaction in society and nonverbal cultural norms are concerned with priorities, and social and informational aspects of interaction involve posture, spacing, gestures, physical and eye contact, interpersonal space, tone of voice, and timing*'. In other words, patterns of communication behaviour are influenced by a number of factors of the local cultural system, such as family structure and roles, community institutions, health facilities organisations, education, as well as health beliefs and practices (*cf.* Winkelman 2009).

In view of the role of all these factors, the utilisation patterns of health information and communication by the Sundanese people relate to the concept of *rekés*. The concept of *rekés* attempts to guide the Sundanese people towards a way of life which has the quality of '*nu hurip'* achieved by expanding the *mandala* ('sacred area'). In other words, *rekés* is known as a way to purify the individual with a clean lifestyle and spirit which indicates that they are able to perform certain *rekés* actions, *i.e.* communication with God or transcendental communication.

While the concept of *rekés* continues to have a useful reputation in rural communities and remote villages, the members of the urban communities have also recently begun to revitalise this tradition, especially with regard to the *tarékah* ('medical systems') (*cf.* Interview with Suparli 2013).

In general, the Sundanese people begin their search for health information by consulting sources of information about health and *rekés*. Thereafter, they purify themselves while praying to God hoping to receive an *ilapat* ('clue') about their appropriate treatment which usually appears in a dream and becomes visible in the individual, that he or she is very devout. Following the appearance of this sign, the utilisation continues in accordance with the instructions received through the *ilapat.*

In the Sundanese communities, the process of utilising health information and communication generally takes usually place at two sources: (1) information retrieved from the family; and (2) information retrieved from the community. In the family, the principal keepers of health information are the parents while in the community, such information is predominantly provided by the community leader and the elders, the traditional healer or an indigenous institution. Patterns of such utilisation behaviour within the family generally involve the mediation of the parents, known as *kolot*. The parents select the child, who will receive the knowledge of health either directly from them or from a skilled person who will educate the child. Thereafter, the knowledge, customs and traditions, usually kept within the nuclear family, are passed down on to the child. In addition to the parents, grandparents similarly provide such a source of health information and communication within the family. In the case of the event of sickness in the family, the members usually consult the health knowledge and information retrieved from their parents. Medical treatment within the family is administered on the basis of the personal experience of the parents and initially practiced in the form of traditional home remedies. If the disease had never been experienced before by a family member, the parents will search and utilise the information about the appropriate medical treatment among people outside the family, such as neighbours, health experts or community leaders.

The utilisation behaviour of health information and communication within the community is usually executed by the younger members either from the *kokolot/sesepuh* ('community elders') or from the representatives of the indigenous institutions such as the *dukun* ('traditional healer') and *peraji* ('traditional birth attendant'). Apart from consulting the community elders, people also consult their neighbours and fellow community members, who have experienced similar diseases, in order to utilise the appropriate Health Information and Communication System (HICS). Practices of utilisation of health information and communication in the community tend to rely on the traditional institutions which are understood and accepted by the entire community. These institutions are not only represented by the above-mentioned *duke* ('traditional healer') and *peerage* ('traditional birth attendant'), but also by the *shaman* ('which doctor'), who acts as a traditional healer in rural communities and is known for the ability to treat both mental and spiritual diseases.

Although patterns of health utilization behaviour generally represent the response to an episode of illness, different preventive measures, such as the ceremonies occasionally performed by the Sundanese people in the rural communities as mentioned above, such as *sedekah bumi* in Kuningan, *sérén taun* in Banten, *hajat lembur* and *nyangku* in Tasikmalaya are. In this regard, information about the prevention of diseases is primarily utilised by the older community members. Likewise, information and communication on health promotion are communicated regularly within both the family and the community. Parents commonly disseminate such health information to each member of the family by means of verbal or non-verbal communication. The community leaders usually circulate information about health promotion to the people in public

meetings which are held at special times, such as when there is a full moon to hold a *selamatan* (‘ceremonial meal’) for a new-born baby. Also Islamic religious leaders, *ulama* or *ajengan*, provide health information in their *pengajian* (‘Islamic prayer meetings’), held at either regular or particular times. In addition, information and communication on health promotion is provided as part of the performing arts or through other information media. In general, the communicators of health information and communication possess great credibility among the community members, causing the information recipients to widely utilise and apply their information on many occasions.

Note

[1] The concept of *cageur*, translated as ‘healthy’or ‘health’, is a fundamental necessity in the life of the Sundanese people which refers to a not only physical, but also spiritual condition which is closely intertwined with the Sundanese peoples’ character, attitude to life and work ethic. Health education among the Sundanese communities usually begins with ‘health promotion’, *i.e.* the introduction of information on the parts of the human body which also includes the introduction of restrictions as simplified forms of taboos. The introductory phase of health education involves the dissemination of information on pregnancy, birth and children in different stages as well as socialisation, maturity and death. On the basis of such initial health-promoting activities, health education continues with efforts of disease prevention, namely by introducing types and cases of disease which have occurred in the family or in a particular community. Still within the scope of the preventive efforts is the introduction of the type of medicine and teaching, usually around the existing medicines in the community. The third stage relates to the curative/healing efforts which follow the tradition according to each cultural area (*cf.* Hazbini *et al*. 2012).

Chapter VII. MODERN HEALTH INFORMATION & COMMUNICATION SYSTEMS (MHICS)

Embarking on the relationship between the modern medical system and the Modern Health Information & Communication Systems (MHICS), this chapter begins with an overview of the strategy of 'Better Health for Indonesia', followed by an assessment of the recent policies of the government of public health education in relation to health promotion, and its implementation in Sukamiskin. The next paragraph describes the recent policy of decentralisation of public health education and promotion, and its implementation in the research area. Then, the chapter elaborates on the concept of the Modern Health Information & Communication System (MHICS), as it operates in Sukamiskin, also outlining the recent development of the related local health information technology. Finally, an assessment is presented of the current process of integration in partnerships of various Health Information Systems (HIS).

7.1 Public Health Education and Promotion in Indonesia

7.1.1 The Strategy of 'Better Health for Indonesia'

In Indonesia, the public health sector represents the development of modern medicine and public health and is managed by the Ministry of Health led by a Minister, who is directly responsible to the President. In performing his duties, the Minister is assisted by several functionaries of the Directorate General, namely: (a) the Medical Development Efforts Division; (b) the Disease Restraint and Public Health Division; (c) the Nutrient Development of Mother and Infant Health Division; and (d) the Pharmaceutical Development and Health Equipment Division. The different divisions are present in all provincial and residential offices. The Ministry of Health (2010) supports and promotes the 'Vision of Indonesia' as an independent society and pursues the following objectives:

1. raising the degree of people's health by empowering them in both private and civil situations;
2. protecting people's health by assuring the availability of the plenary health's efforts, which are equitable and qualified;
3. assuring the availability and distribution of health resources; and
4. creating good governmental management systems.
   (*cf.* Ministry of Health 2012)

In order to reach these objectives, the Ministry of Health encourages the values of a centred, inclusive, responsive, effective and clean society. By consequence, the Ministry of Health has designed the following strategies with a view to accomplishing its objectives, including health promotion activities, as follows:

1. raising people's empowerment with regard to health development in private and public situations through national and global cooperation;
2. securing the availability of equitable, affordable and qualified health services and of evidence-based disease-preventive and health-promoting efforts;
3. improving the financial health development, particularly the national health insurance;
4. encouraging the development and utilisation of equitable and qualified human health resources;

5. ensuring the availability, equity, affordability, safety, efficacy, benefits and quality of medicines, medical equipment and food; and
6. advocating health management in the form of decentralisation of accountable, transparent, efficient and effective health management efforts to fulfil responsibility.
(*cf.* Ministry of Health 2012)

According to the Ministry of Health (2010), during the period of time of 2010-2014, priority in modern health planning has been given *'to improve the access and quality of health care'*. The health efforts which have been taken thereafter in order to realise the objective by 2014 include several aspects which are related to the provision of information to the general public as follows:

1. public health programmes which include an integrated preventive programme to ensure the provision of basic immunization to 90% of infants; the provision of clean water to 67% of the population; the provision of basic quality sanitation to 75% of the population; a reduction in the maternal mortality rate of 228 to 118 per 100,000 births in 2007; and a reduction in the infant mortality rate of 34 to 24 per 1,000 births in 2007;

2. a family planning programme which aims to improve the quality and range of family planning services offered through 23,500 government and private clinics;

3. health facilities which ensure the availability of hospitals with minimum international accreditation in the major cities of Indonesia whereby the targeted number of three cities in 2012 has been raised to five cities;

4. medicines which are used following the enforcement of the National List of Essential Medicines (NLEM) as the basis for medicines' procurement throughout Indonesia; and

5. the National Health Insurance which achieved a total coverage of poor families in 2011 and has since gradually expanded to include coverage of other families between 2012 and 2014.
(*cf.* Ministry of Health 2010)

Furthermore, the promotive activities include efforts to prevent and eradicate sexual diseases. However, the prevalence of infectious diseases, such as *i.a.* tuberculosis, malaria, HIV/AIDS, dengue fever and diarrhoea has remained a critical health problem for the people of Indonesia. In addition, the health of the citizens is prioritised in the 'Vision of Health Service 2013-2018' of the Ministry of Health (2010) which includes the following goals:

- the development of human resources which are reliable and religious;
- the realisation of a society which is physically and mentally healthy;
- the increase of the quality of environmental conditions through basic and public sanitation;
- the improvement of the quality of referral and access within primary health care towards being easy, equitable and affordable; and
- the support of empowerment of communities with regard to health.

7.1.2 Policies Regarding Public Health Promotion

In Indonesia, the policies and regulations concerning the promotion of modern health have been developed and implemented by the government, encompassing not only the central government,

but also the regional and local governments. In this way, the public health policies have initially been formulated in the Constitution of 1945 of the Republic of Indonesia, in consultation with the People's Advisory Assembly, government regulations, presidential decrees, local regulations at the provincial level and city district regulations.

The Constitution of 1945 has been amended four times between 1999 and 2002 in a public, annual plenary session by the People's Consultative Assembly as the country's supreme institution. The general basis of the modern health policies in Indonesia is formulated in Article 28A of the Constitution of 1945: '*Everyone deserves the right to live and to survive in life*.' Paragraph 2 of Article 28B continues: '*Every child has the right to take place in living, growing and amending*'. Table 7.1 presents a number of government regulations which have been issued in the health sector, including the integration of traditional medicine and social security.

Table 7.1 Government Regulations (PP) concerning Health and Health Information (2012).

No.	Government Regulation	Concern
1	PP 103 of 2014	Traditional Health Services (*Pelayanan Kesehatan Traditional*)
2	PP 84 of 2013	The Ninth Amendment of Regulation No.14 of 1993 on the Implementation of the Social Workers Security Programme
3	PP 85 of 2013	Procedures for the Administering Agency for Inter-Institutional Relations of Social Security

Source: Ministry of Health (2012)

Health policies have been formulated by the Ministry of Health of Indonesia which addresses rather operational topics, such as licensing or the forming of organisations in the area of health agencies. Table 7.6 illustrates a number of decrees of the Ministry of Health, known as *Keputusan Menteri Kesehatan* (*Kepmenkes*). With regard to health information, the Ministerial Decree No. 424/MENKES/SK/XII/2012, for example, deals with the concept of e-health as well as with the formation of an e-health Workgroup.

In general, modern medical treatment involves the use of generic medicines produced by pharmacies which have an affiliation with the Ministry of Health. The partnership between pharmacies and the Ministry allows clients in most cases to purchase medicine at an affordable price. Meanwhile, the Ministry of Health is able to supervise the distribution of patent and generic medicines. Regarding the use of pharmaceutical medicine, the environment of health care services available in Indonesia moreover involves a distinction between government-owned and privately-owned services. In government hospitals, medicine prescriptions are managed and supervised directly by the government, while in private hospitals, prescriptions are usually handled independently. Throughout Indonesia, medicines are also available over the counter in pharmacies and other drug stores.

In Indonesia, the Ministry of Health has defined health promotion as a primary objective within its strategies towards achieving the goal of 'Healthy Indonesia'. Furthermore, the concept of health promotion has been framed in the government regulation SK Menkes RI No. 1193/2004 regarding the National Health Promotion Policy and has hereafter provided a sound basis for the establishment of health programmes. Throughout Indonesia, strategies of health promotion have been implemented through the idea of *Perilaku Hidup Bersih dan Sehat (PHBS*) ('Clean and Health Life Patterns Programme') which emphasises hygienic living and healthy behaviour while supporting the materialisation of a new, healthy Indonesian society. In this way, the idea follows a transition from the old environment with room for improvement to the new environment as the standard of achievement, thereby raising hope and aspiration among the society. PHBS moreover deals with the implementation of health promotion in consideration of

socio-cultural aspects and aims at provoking intrinsic changes in the behaviour of humans and their interaction with the natural environment in order to ensure its perseverance. Figure 7.1 shows the flow chart of health information as formulated in 'Health Indonesia' among different health care systems throughout the country (*cf.* Ministry of Health 2010).

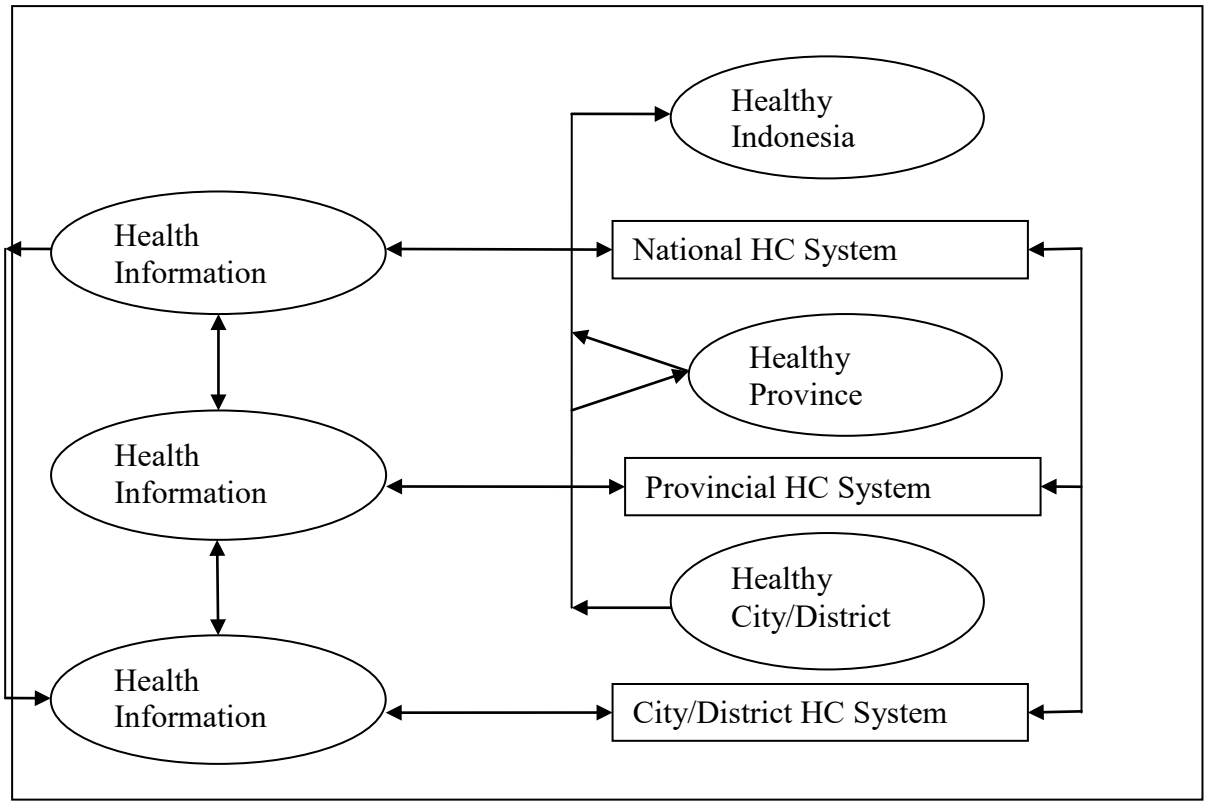

Figure 7.1 Flow Chart of Health Information among Different Health Care (HC) Systems. Source: Ministry of Health (2010)

The *Perilaku Hidup Bersih dan Sehat (PHBS)* ('Clean and Health Life Patterns Programme') describes the underlying requirements for health promotion to achieve its objectives as well as the essential efforts and activities which should be undertaken. The different health promotion strategies seek to: (1) empower the individual, family and society to live healthily; (2) maintain an environment which encourages and supports the realisation of *PHBS* in the society; and (3) provide advocacy for decision- and policy-makers. Supporting the empowerment of the society can, for example, stimulate public participation in health promotion programmes. While social empowerment involves the society as a whole, strategies towards ensuring advocacy for decision- and policy-makers are directed at public figures in health and other sectors, who are employed either formally as *i.a.* teachers, village chiefs or district heads, or informally as *i.a.* religious figures. Finally, health promotion strategies include ways to raise public awareness of the benefits of health promotion, as it emphasises the importance of healthy life patterns.

Throughout Indonesia, health policies have encompassed a significant number of strategies and programmes of health promotion. Considerable efforts have been taken in order to educate community members on various health topics, such as *e.g.* the choice of medicine. In this way, the Active Mother Learning programme, *Cara Belajar Ibu Aktif (CBIA),* which was developed in Yogjakarta, has been implemented as a trial project to improve the community members', particularly mothers', knowledge about the use of medicine as well as about conventional and

alternative forms of medical treatment. *CBIA* focuses on a variety of topics including the administration of the power of suggestion as a form of medical treatment to patients who are terminally ill. The programme also addresses the concepts of availability, accessibility and distribution of health care facilities and aims at developing a profound understanding of the benefits and advantages of medicine use among the members of the community.

In the same fashion, the Medicine Information Service, *Pelayanan Informasi Obat (PIO)*, is a service offered by health care practitioners which concerns the dissemination of information about medicine use to the community and provides detailed explanations as to the different prices of medicines as well as when and how to take the medicine. Besides being offered under trial at hospitals in West Java, *PIO* is run as a pilot project in several public health centres, hereby offering information about medicines to both patients and the public.

7.1.3 Public Health Promotion in Sukamiskin

The objectives of health planning of Bandung are specified in a regional long-term development plan, known as the *Rencana Pembangunan Jangka Panjang Daerah* (RPJPD) for the period of time of 2005-2025. The number of health personnel registered by the Bandung Health Office amounts to 59 doctors per 100.000 residents, thereby exceeding the national standard of 40 doctors per 100.000 people. Similarly, the ratio of nurses and midwives is 172 per 100,000 residents with the national standard set at 117 per 100,000 people. Moreover, the human resources for health services available in the city include 136 medical staff members, 246 nursing staff members, 62 pharmacy workers and nutritionists, 69 community health workers and eleven sanitary people (*cf.* Strategic Plan of Bandung Health Office 2014). Apart from these human resources, the modern health care facilities available in Bandung, are shown in Table 7.2. From the total of 30 hospitals located in the city, eleven are owned by the government providing supplies and funding, while there are 19 private hospitals. Throughout Bandung, hospitals represent the core facilities for the delivery of modern health care services to the population.

Table 7.2 Modern Health Care Facilites available in Bandung

No.	Health Care Facility	Total
1	Community Health Center *(Puskesmas)*	73
2	*Puskesmas* with Maternity Services	5
3	Mobile *Puskesmas*	13
4	*Puskesmas*with ICU/Emergency Room	16
5	Hospital	30
6	Psychiatric Hospital	2
7	Maternity Hospital	3
8	Other Specified Hospital	9
9	Pharmacy	97
10	Traditional Medicine Facility	105

Source: *Renstra Kesehatan Kota Bandung* (2014).

In addition to national and regional modern health systems and the availability of human resources and health care facilities, the health profile of Indonesia is characterised by the prevalence of a number of specific diseases. The prevalence of the ten most recorded diseases in Sukamiskin is shown in Table 7.3.

As regards the ten most recorded diseases, listed in Table 7.3, six cases of dengue fever have been reported in the community in October 2010. The community health centres available in

Sukamiskin are undertaking a number of activities of disease prevention and health promotion in the area. The health centres offer vaccinations to infants and pregnant women whereby infants are vaccinated with Bacillus Calmette-Guérin (BCG) and against polio, diphtheria, pertussis, tetatnus and measles, while pregnant women are vaccinated against tetanus.

Table 7.3 Priority List of the Ten Most Recorded Diseases in Sukamiskin (2012)

No.	Disease	Cases
1	Primary Hypertension	1.016
2	Gastric Ulcer	844
3	Non-Specific Acute Upper Respiration Infection	792
4	Acute Nasopharynxitis (Common Cold)	603
5	Acute Pharynxitis	324
6	Diarrhoea & Gastroenteritis	300
7	Myalgia	256
8	Headache	236
9	Unclassified Skin and Hypodermal Disorder	227
10	Other Acute Upper Respiration Infection	151

Source: Report of *Puskesmas* Arcamanik (2012)

Furthermore, the community health centres organise various indoor and outdoor health-promoting events which offer counselling for conditions, such as dengue fever, tuberculosis, HIV/AIDS, Avian Influenza, elephantiasis as well as non-communicable and contagious diseases in addition to information on vitamins, nutrition, smoking, narcotics, hygiene, breastfeeding and occupational as well as environmental health. Table 7.4 presents an overview of a number of health promotion events held indoors and outdoors in Sukamiskin in 2012.

Table 7.4 Health Promotion Events held by Health Centres in Sukamiskin (2012)

	August		September		October	
Purpose	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor
Dengue Fever	0	-	-	-	-	-
Tuberculosis	3	-	4	1	4	-
Nutrition	4	-	4	-	4	-
Smoking	-	-	-	1	-	-
Breastfeeding	3	-	4	-	4	-
Environmental Health	-	-	-	-	4	-
Jampersa	1	-	-	-	1	-
Total	11	-	12	2	17	-

Source: Report of *Puskesmas* Arcamanik (2012)

Moreover, the community health centres support the development of *RW Siaga* ('Alert Community Associations'). In Arcamanik, 32 out of 51 community associations have been selected as *RW Siaga*. Overall, visitation and participation at the health centre among the inhabitants of Sukamiskin have recently been decreasing from 74.2% to 64.4% and have remained below the target of 75%.

In Bandung, the strategies of health promotion have mainly focused on gaining a common perception of promoting health and on inviting the private sector to cooperate in health promotion activities by using public ads, such as *Telkomse,* in order to enable the public to gain awareness and to protect themselves against disease (*cf.* Interview with Lucyati 2015).

Regarding the utilisation of information technology in health promotion, the West Java Health Agency has implemented a digital short message service which can be used to report events, such as *i.a.* extraordinary disasters or infant deaths due to poisoning.

Although new software has been developed to generate cumulative data and to create appropriate websites, health agencies continue to use traditional means, such as cards, for the management of medical and health progress records, as well as monthly and annual reports for delivering information to provincial and central agencies. The health agency of Bandung, however, has developed a health information technology programme which includes: (1) the concept of Smart City, *i.e.* a city which can monitor and control existing resources to be used effectively and efficiently in order to provide adequate services to its citizens and to identify the needs of its citizens; (2) a Health Information System (HIS); (3) an Integrated Emergency Management System which deals with emergency patients by means of providing pre-hospital, in-hospital and between-hospital care in order to ensure a rapid response; (4) a SMS Gateway which is currently employed in six primary care clinics including the Arcamanik health centre, which provides an online registration of patients whereby the registration and access control reader application tool serves as the patient's identity card; (5) an application of public services which includes the e-Health Data Warehouse, e-licence, e-Promotion, Sikda 2.0 and the e-Health Decision Support System; and (6) a social media application which involves public participation and is used as a tool to monitor and verify the programme's achievements and to assess public complaints in comparison to national development programmes (*cf.* Raksanagara 2015).

The community health centre located in Arcamanik has adopted a number of these health promotion strategies which include the dissemination of health information, policies of community empowerment and development as well as advocacy planning and social support. Efforts of health promotion are targeted at individuals and families as well as at particular groups and organisations in the research area. The health promotion material provided either follows health promotion programmes developed for Bandung or Indonesia at large or deals with particular topics which are tailored to the health situation in Sukamiskin. For example, information about the Avian Influenza is provided in Sukamiskin in neighbourhood meetings and through the distribution of leaflets around the village.

Various efforts have also been taken in the research area to advance community empowerment, *e.g.* by means of identifying, introducing and implementing communal health motivation programmes. Hereby, community members are invited to jointly run these programmes. Throughout the research area, a programme focussing on washing hands as a way to promote a clean and healthy life is carried out at schools and involves teachers instructing their students how to wash their hands. Efforts towards supporting community empowerment have moreover led to the appointment of *kader* ('community volunteers') advocating family planning programmes at institutions, such as the health post or the Islamic boarding school. In addition, advocacy strategies are directed at decision-makers in the field of both health and other sectors while strategies of social support are directed at both formal and informal community leaders, such as religious figures. Plans of advocacy are usually carried out in the form of *i.a.* discussions, meetings or outreach programmes. The community health centre in Arcamanik organises an annual meeting which offers a 'question and answer' session held between community leaders as representatives of the community and health workers. The meeting usually addresses the role of health care services and existing health issues in the community and tries to find solutions.

At the community level, health promotion is implemented through weekly gatherings which are attended by the community members and the village authorities. Furthermore, health is promoted through visual media or, in case of a lack of electricity, through other forms of media

which are compatible with the place and its facilities. In cooperation with radio stations in the Bandung area, health information is broadcast in the form of public discussions. Similarly, cooperation between villages and the government of Bandung results in the use of billboards and health posters as well as promotion cars by public health centres, integrated health posts, district administrations and schools in order to disseminate information about health promotion (*cf.* Illustration 7.1).

Illustration 7.1 Health Information Billboard
Photograph by W. Erwina (2012)

Illustration 7.2 (a, b & c) Examples of Health Information in Sukamiskin provided by the Ministry of Health of Indonesia and by UNPAD
Photograph by W. Erwina (2014)

Since the budget for health promotion uses funding from the State Treasury, the government plays an important role in the promotion of public health and in the implementation of health programmes which usually require an extended period of time among communities.

7.2 Recent Decentralisation of Health Education and Promotion

7.2.1 Public Health Promotion and Regional Autonomy

In the public health sector, decentralisation refers to the delegation of authority from the central government to local governments in an attempt to manage health problems at the community level. Consequently, the local government enjoys a degree of regional autonomy and has full responsibility towards addressing health issues prevalent in the area. Regional autonomy refers to a unity of legal communities, which has the authorisation to regulate and manage the interests of local people (*cf.* Widjaya 2002).

In general, decentralisation refers to the transfer of authority and power from higher levels of government to a lower level in the political hierarchy of administration or territories (*cf.* Mills *et at*. 1990). Decentralisation can also be defined as the transfer of responsibility in planning, decision-making, power and resource utilisation as well as of administrative authority of the central government to various organisations, such as:

1 the territorial ministry units of the central government;
2. a lower level of government;
3. a semi-autonomous organisation;
4. regional authority bodies; and
5. non-governmental or voluntary organisations
   (*cf.* Omar 2001).

In Indonesia, decentralisation has been a major theme over the past two decades. According to Rafei (2007), Indonesia entered the era of regional autonomy and decentralisation in 2001 although the initiating legal Act No. 21 of 1999 was introduced in May 1999. First attempts towards implementing decentralisation in Indonesia have been – albeit unsuccessfully – made since the colonial period of time. The practical preparations for the nationwide implementation of decentralisation and regional autonomy in 2001 have been executed over a period of 19 months. In comparison, the development of decentralisation, particularly in the field of health, in The Netherlands had been gradually prepared over a period of 30 years. In Indonesia, decentralisation has been linked to the economic crisis of the 1990s.

In general, efforts to implement decentralisation in Indonesia have been different from the strategies pursued in most other developing countries. In fact, any attempt to introduce structures of regional autonomy has to take into account the great diversity of *i.a.* ethnicity, culture and geography in order to avoid potential dissatisfaction and disunity. In order to be effective, Act No. 21 of 1999 had to be applicable to over a hundred government rules. Since only about 20 Government Acts, *Peraturan Pemerintah (PP),* have been published, each local government makes its own interpretation on the existing provisions. In other words, interpretation of the law of decentralisation and regional autonomy can differ from region to region. Consequently, the different interpretations often cause confusion, particularly in the public service sector including health care services, and can hereby have a negative impact on the strategies to improve the lives of the poor.

The process of implementing decentralisation in Indonesia has been divided into three phases: 1) the introductory phase between 2001 and 2003, in which all districts have been expected to have started to enforce decentralisation according to the regulations and in which the central and local governments planned to carry out capacity building programmes without leaving the continuity of service delivery to the communities; 2) the consolidation phase between 2004 and 2007, in which the governance and fiscal reforms continued with intensive assistance to local governments while organisations or local councils had to be established; and 3) the stabilisation phase which started in 2007 and in which the central government as well as local governments and organisations have achieved maturity, although capacity building to strengthen local governments has been maintained.

7.2.2 Community Health Education and Promotion in Sukamiskin

According to Law No.22/1999 concerning Regional Autonomy, and the Amendment by Law No.32/2004 on Regional Government, the responsibilities of the central government have been transferred to the local government which hereafter has the lawful authority and mandatory duty to address and manage the health problems. Issued by the Ministry of Health, the decrees No.004/2003 concerning Policies and Strategies of Decentralisation of Health and No.1457/2003 concerning the Minimum Service Standard (MSS) are moreover directives on the implementation of health programmes which have been adopted by local governments (*cf.* Ministry of Health 2005). In general, the aim of these efforts is to decentralise national development initiatives in the health sector according to the aspirations of the local communities by means of empowering, accumulating and optimising local potential, and to hereby generate regional benefits and achieve the national goal of 'Healthy Indonesia in 2010'.

In this context, the government of Bandung introduced the community empowerment Programme *Bandung Bersih* ('Clean Bandung'), which urges the people to be concerned about the cleanliness of the city. In this way, efforts have been taken to provide comfortable spaces and public parks throughout the city. The region of Sukamiskin became one of the main targets of the programme since it provides sports facilities which are also used during national events. Similarly, a 'Pick up Garbage' movement is organised every Monday, Wednesday and Friday involving all community members including students (*cf.* Figure 7.5).

Illustration 7.3 a & b Posters of the *Bandung Bersih* Programme in the Bandung City Campaign 2017.

Decentralisation of the health sector is normally achieved as part of the overall strategies of political and economic decentralization. Accordingly, Segall (2003) concludes that decentralisation is likely to have a most positive impact on the health care system provided the concept is chosen and implemented carefully and gradually on the basis of a detailed plan of action. Wang *et al*. (2012) and Martineau & Buchan (2001) agree that one of the key elements in the success of decentralisation refers to the selection of actors, who demonstrate the ability to deal with change. The introduction of changes in structures of authority, responsibility and duties as a result of the implementation of decentralisation, can lead to conflicts among health workers, managers and decision-makers, particularly in countries such as Indonesia which have enforced decentralisation in a relatively short period of time. Decentralisation aims at stimulating health care services to be effective and efficient while encouraging the health information systems to act professionally (*cf.* Adisasmito 2007).

In general, community members are no longer objects but subjects, who can participate in the process of health care development. Decentralisation of the health care services primarily focuses on strategies of disease prevention and health promotion and seeks to adopt a 'bottom-up' approach which not only relies on local resources, but also supports the development of a diverse sector of health (*cf.* Adisasmito 2007). Furthermore, decentralisation of services within the health sector also involves the transfer of responsibilities regarding the dissemination of health information and communication among the local authorities and community members. Nevertheless, the implementation of decentralisation of health care development is also subject to a number of difficulties, such as unprepared professionals, a lack of continuity between primary and secondary health care services and discrepancies in ideas between the local government and national health care planning (*cf.* Adisasmito 2007). Essentially however, decentralisation and regional autonomy provide greater authority to local governments, including the local governments of urban districts, in a way to improve welfare and to promote the health of people, especially of the poor and marginalised members of the community.

The activities of information and communication involve a communicator and a communicant as well as media delivering messages between the former. In view of this general outline, messages can be delivered by government institutions, such as the Agency of Communication and Informatics in Bandung which adopts government programmes designed for the public and provides its content to the community. The spread of information from the government of Bandung to the communities regularly involves printed material in the form of *i.a.* leaflets, brochures or booklets which are used as media to accompany programmes which have been or will be implemented. The media are usually tailored to the information needs of the target population and adapt to the local standards of time and speed at which the information should be delivered.

The Office of Information & Communication in Bandung has identified a number of steps as part of a long-term development plan which is integral to activities related to Health Information Systems (HIS). Bulgan (2009) presents the plan of *Rencana Pembangunan Jangka Menengah Daerah* (*RPJPMD*) as follows: '*The local government breakthrough from Bandung city is RPJPMD, i.e. a long-term development plan in secondary areas. The RPJPMD already compiled the various dynamics of information substances to be conveyed to the public through the media of television, Internet, radio and others. It always tries the dynamics of the actual position on the substance of the information submitted to the public*.'

In view of the development plan, the selection of media which are appropriate for the dissemination of health information is considered an important step in delivering the desired health information to the public. In this way, it appears that health information reaches a wider audience and provokes a quicker response if it is disseminated through an integrated system

supported by information technology. Since the spread of information in print requires a rather long time from the moment the information is created, television and Internet indeed appear to be more effective in the dissemination of information. Nevertheless, the different types of media have their respective advantages and disadvantages which both play a substantial role in the delivery of information. Although electronic media operate faster than printed media, the substance of the information delivered remains the same whereupon health information is commonly delivered through a mix of electronic and printed media.

The media remain the major supporting tools in achieving the ultimate goal of enhancing the understanding of health information among members of the society.

7.2.3 Partnerships in Health Information & Communication

According to Rafei (2007), a health care partnership is currently based on the involvement of all sectors which are needed to improve the health and quality of human life. The three main counterparts within any health care partnership refer to the government, the public and the private sector. As such, these sectors cooperate towards achieving a common goal, gaining a basic commitment and creating understanding among each other. The partnership creates synergy and provides reinforcement to each partner involved for the achievement of the goal. Provided the partnership is not misinterpreted as an opportunity for funding or sponsorship, it can indeed have beneficial effects on the health sector. In this way, Rafei (2007) highlights that partnerships can, for example, help to reduce disparities in health care by means of advancing empowerment and public health development. The realisation of partnership programmes is dependent on the socio-cultural environment in which people live. Religious leaders, for example, can enter into partnership with mothers, who are involved in a variety of communal activities and youth organisations. Partnerships generally aim at advancing solidarity and at accelerating information distribution while upholding socio-cultural structures, such as the family unity.

On the basis of a partnership between the health centre and elementary schools in the research area, the so-called 'Little Doctor Programme' (*Dokcil*) was implemented with the aim of teaching students about health issues within the school and distributing health information directly to the students. Students are taught how to comprehend and how to address not only personal health matters, but also health problems of friends and others. At the level of junior high school, health promotion strategies include a number of extracurricular activities, such as the *Palang Merah Remaja* (*PMR*) ('Youth Red Cross'). The programme of *PMR* is presented in class by the staff of the health centre, students of higher education or *PMR* Indonesia and usually offers health information on *i.a.* how to deal with accidents and how to stay healthy.

Throughout the research area, health care partnerships usually involve a number of community institutions, agencies and organisations, such as: the Village Medical Post, *Pos Obat Desa* (*POD*); the Occupational Health Post, *Pos Upaya Kesehatan Kerja* (*UKK*); the Health Post of the Islamic Boarding School, *Pos Kesehatan di Pondok Pesantren* (*Poskestren*); the Village Delivery Facility, *Pondok Bersalin Desa* (*Polindes*); Civil Society Organisations, *Lembaga Swadaya Masyarakat* (*LSM*); as well as private and non-governmental organisations including hospitals, maternity hospitals, Maternal and Child Health (MCH) centres, treatment centres, 24-hour clinics and medicine stores. Health care partnerships address a variety of topics culminating in the implementation of several health care programmes, such as: Sexual Diseases Eradication with Rural Public Health Maintenance Approaches (*P2M-PKMD*); a Housing Sanitation Programme with Rural Public Health Maintenance Approaches (*PLP-PKMD*); *Saka Bakti Husada* ('Health Service Scouts Troops'); *Tanaman Obat Keluarga* (*TOGA)* ('Household

Medicinal Plants'); Integrated Elderly Care, *Pos Pembinaan Terpadu* (*Posbindu*)*; Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post'); *Pemantauan dan Stimulasi (*'Monitoring and Stimulation of Toddlers' Development'); *Perkembangan Bayi* (*PSPB*) ('Toddlers' Family Building'), as well as environment clean-up movements. Funding for partnership agreements is provided by *i.a.* rural community health development funds; health school unit funds; funds of the Islamic boarding school; funds of local village cooperatives; funds from NGOs and other civil society organisations; and health insurances. In the Arcamanik district, the Modern Health Information & Communication Systems (MHICS) generally involve the exchange of information between a number of health care institutions and providers as well as patients. In Sukamiskin, a number of partnerships of health information & communication have been established, and include the following:

1. *Doctor and Patient Relationships*
   In the event of a patient's visit to the doctor which may regard a personal health issue or an issue of someone else such as a child, the doctor and the patient establish health communication, primarily in the form of questions and answers. The content of the conversation usually addresses thd causes of illness as well as examples of preventive and curative action. In this way, the doctor generally asks the patient to reveal information on topics such as family background and lifestyle, as they are important factors in making the diagnosis and determining the type of medical treatment and advice. The patient usually expects the doctor to share information about the recovery process and disease prevention.

2. *Nurse and Patient Relationships*
   The relationship between the nurse and the patient is established during the process of medical treatment. The nurse usually also facilitates communication with the patient in order to collect the patient's data, such as *i.a.* body weight and height, and offers more detailed information about the treatment process to the patient.

3. *Medical Assistant and Patient Relationships*
   The patient generally builds a relationship with a medical assistant during the process of treatment of an illness which is often less severe and does not require intensive special treatment and observation, hence the intermediary of a doctor.

4. *Midwife and Patient Relationships*
   In the medical field of reproduction, pregnancy, as well as Maternal and Child Health (MCH), communication between the midwife and the patient is established during pregnancy examinations, the delivery process, the course of recovery after the delivery and the infant immunisations. In general, the midwife also provides information to married couples on topics such as contraception and reproduction, as well as to mothers, on matters such as *makanan pendamping ASI* (*MPASI*) ('food supplements') which can be given to the child in addition to breast-feeding.

5. *Pharmacist and Clients/Patient Relationships*
   In general, the pharmacist provides medicines with or without prescription to the community members. In this way, the pharmacist also represents a source of health information and communication regarding the choice of medicine, their potential benefits and the instructions about the proper consumption of the medicine.

6. *Doctor and Health Representative Relationships*
   Doctors employed in public health centres also have the responsibility to provide health care training and information directly to different categories of the health personnel. They include community members who willingly choose to become the liaison between doctors and the community and who are directly involved in family welfare activities and family planning programmes. The partnership involves a two-way communication which usually addresses topics relevant within the community, such as particular health conditions and family planning.

7. *Inter-Organisation Partnerships*
   In Sukamiskin, an inter-organisational or inter-institutional partnership regarding the exchange of health information & communication is normally established between local organisations and institutions, such as between the health post and the *Pembinaan Kesejahteraan Keluarga (PKK)* ('Empowerment of Family Welfare Movement').

8. *Health Department and Public Health Centre Partnerships*
   Partnerships formed between the Health Department of Bandung and the Public Health Centres involve a mutual exchange of information & communication. In other words, health information & communication are distributed through both a 'top-down' and a 'bottom-up' approach.

9. *Companies, Schools, PKK and Youth Organisations (Karang Taruna) Partnerships*
   The objective of partnerships between companies, schools, the *Pemberdayan Kelompok Keluarga (PKK)* ('Empowerment of Family Welfare Movement') and youth organisations usually relates to the provision of materials, such as *i.a.* milk, healthy food and toothpaste, to the community members. In this way, companies may create partnerships as part of their Corporate Social Responsibility whereby partnerships may also create opportunities to promote products. Within the scope of these partnerships, the Bandung Police Department, for example, has established a partnership with youth organisations in order to provide counselling in the event of abuse.

10. *Universities and Schools Partnerships*
    University students and lecturers often engage in community service activities offering health checks and health counselling in schools to students and teachers, as well as observing the level of health and sanitation maintained at the schools.

11. *Universities, Public Health Centres, PKK and PAUD Partnerships*
    In the research area, university students, particularly from the Medical Faculties of General Medicine, Dentistry and Nursery, follow internships as co-assistants at the Public Health Centres. The students are trained to socialise with the community members and to provide services of health promotion, disease prevention and medical treatment to the local population by means of designing and putting up posters for dental care. Universities moreover cooperate with local institutions such as in the provision of health counselling and training of members of the *Pemberdayan Kelompok Keluarga (PKK)* ('Empowerment of Family Welfare Movement'). The Faculty of Education collaborates with the *Pendidikan Anak Usia Dini (PAUD)* ('Pre-School'), in the design and implementation of pre-school activities.

Moreover, in addition to the relationships and partnerships presented above, local authorities as well as academic institutions in the area organise a number of international health extension programmes (*cf.* Illustration 7.4). Usually, these partnerships are established between community members and the male, female and juvenile residents of the Sukamiskin Penitentiary Institution. Within the scope of this partnership, UNPAD participates in various community service activities which are directed at the residents of the penitentiary and are related to health, such as health examination, counselling and health product delivery as well as health information distribution through books.

Illustration 7.4 International Symposium on *Jamu,* organised through the Partnership between WTT, UL, UNPAD, and MAICh at UNPAD, MTF in 2005.
Photograph by Humas, UNPAD (2005).

7.3 Modern Health Information & Communication Systems (MHICS)

7.3.1 Health Education through Institutions & Organisations

Health information and communication in combination with health education throughout the research area is provided by a number of formal and informal institutions and organisations. Health education is a government health extension programme which focuses on the distribution of information to neighbourhoods and communities on *i.a.* medical treatment of diseases, such as Filariasis, Avian Influenza or Dengue Fever. In Sukamiskin, the organisations and institutions which are providing public health information and communication in combination with health education include the following:

1 *Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post'),
The *Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post') is a health care delivery service unit which is found in every community unit in Sukamiskin. As such, the health post also provides health information to families and mothers about topics, such as a healthy

lifestyle, the provision of nutritious food to infants, breastfeeding and how to routinely fill the book on Maternal and Child Health (MCH), '*Kesehatan Ibu dan Anak*' (*KIA),* which records the growth of the infant. In addition to offering health education, health posts administer immunisations and nutritious food *(cf.* Illustration 7.5).

2. *Public Schools*
   The health education in schools covers the subjects of biology, chemistry, physics and health, which are taught directly or indirectly to the students. In general, the process of communication between teachers and students takes place in an interactive setting, which offers the opportunity for questions and answers and hereby generates a two-way channel of communication. Schools moreover serve as institutions for the implementation of the Clean and Healthy Life Patterns Programme, *Perilaku Hidup Bersih dan Sehat* (*PHBS*), through which children are taught how to wash their hands thoroughly and in the right way. In collaboration with food companies, schools also adopt programmes which focus on the provision of nutritious food in the form of milk and green pea porridge. Furthermore, the dental health outreach programme, which involves the Faculty of Dentistry of UNPAD, educates teachers and students on how to maintain healthy teeth.

3. *The Empowerment of Family Welfare Movement* (PKK)
   The *Pembinaan Kesejahteraan Keluarga* (PKK) ('Empowerment of Family Welfare Movement') is facilitated by the central government as well as by local government and involves the provision and exchange of practical knowledge of housewives which is used in order to increase the level of family welfare and social care among the community members. Activities include training in the processing of nutritious food for the family, managing the neighborhood environment and maintaining a healthy lifestyle (*cf.* Figure 7.8).

4. *Neighbourhood Youth Associations*
   The 'Neighbourhood Youth Association' is an organisation which allows young community members to associate and communicate with each other in a way to address common problems, including health issues. The health education offered to the 'Neighbourhood Youth Associations' is tailored for the young community members, who are viewed as potential facilitators of change in the community, and addresses topics such as drug use, free sex and HIV/AIDS.

5. *Mosques*
   The mosque is not only a place of worship, but also the centre of Muslim education, and hereby accommodates religious institutions and organisations, such as the *tadzkir* assembly. The *tadzkir* assembly functions as a religious centre of health education, where members can exchange information and conduct studies on Islamic doctrines related to health and healing.

6. *Pendidikan Anak Usia Dini* (*PAUD*) ('Pre-School')
   Health education offered at pre-schools meets the need for educational activities which are directed at children below the age of five, serving as preparation for school. In this way, psychomotoric training is offered to children while parents are taught how to develop skills in guiding and educating their children. Parents are moreover provided with information about specific topics of interest, such as nutritional counselling for families (*cf.* Figure 7.8).

7. *Pesantren (*'Islamic Boarding School')
   The students of the Islamic boarding school play an active role in the distribution of health information which is based on Islamic doctrines and includes religious forms of medical treatment, relevant to the communities.

8. *Taman Bacaan Masyarakat (TBM)* ('Community Reading Corner')
   The *TBM* provides health information to the community in the form of magazines, books, newspapers and leaflets [1&2]. Furthermore, the facility issues a *berwarna* ('newsletter') containing information on various health activities.

Illustration 7.5 The Provision of Nutritional Information to Parents and Children at the Pre-School.
Photograph by W. Erwina (2009).

Illustration 7.6 The Programme of *Pembinaan Kesejahteraan Keluarga (PKK)* ('Empowerment of Family Welfare Movement') in Sukamiskin.
Photograph by W. Erwina (2013).

Apart from the local institutions and organisations listed above, activities of Health Information & Communication (HIC), such as counselling in schools, usually involve representatives of the Department of Health as well as other agencies, institutions, organisations, companies and private organisations. Furthermore, health education at the local level is offered through the joint efforts of the villages, the hamlets and the neighbourhoods. In this way, activities are always integrated and regulated by the community, while the facilitators of health education are required to notify the Village Head about the progress of the activities. All engagements in health activities, usually related to personal health conditions within the community or the environment, rely on complex Health Information & Communication Systems (HICS).

Regarding the establishment of Health Information Systems (HIS), the government draws on legal regulations by taking into account the principle of appropriateness. In this way, attention is paid to the norms of respectability in the society which often tend to remain narrowly defined. Within the Agency of Communication and Informatics in Bandung, for example, decisions can in principle be made without reference to the Mayor, since it is the Agency's basic task to communicate information and to facilitate dialogue between the government and the public. The agency which was part of the Public Relations Office of the Department of Information until 2000 was subsequently established as a more independent information & communications service agency, and as such was identified as having the best government website in Indonesia.

Although the media generally tend to overlook the hierarchy of local governments, local governments continue to work with the media in disseminating information provided by the government to the public. The local governments within the area of Bandung, for example, have implemented programmes which are tailored to the needs of the health information of the communities and focussed on the direct communication between government agencies and the public through *i.a.* television programmes. Hereby, the vertical integration of different levels of systems of communication and the mass media appears to be an adequate means of identifying information needs as well as addressing complaints and resolving them properly. In this way, the Ministry of Communication and Informatics can react to complaints filed by the community and respond to them through *e.g.* the engagement of the related work units.

The integration of communications systems and the mass media relates to the facilitation of communication and does not involve an interference in the work performance of the institutions and services involved. Systems of information and communication are dynamic constructs which operate between the government and the communities by means of drawing on the communal legislature. In the light of these considerations, the main task of the Agency of Communication and Informatics in Bandung is to develop an Information & Communication System (ICS) which encourages the inhabitants of hamlets and neighbourhoods to become active and to obtain information through the media, such as the Internet, as quickly as possible. For the purpose of implementing an integrated system of information & communication and of disseminating information to the public, Internet facilities, such as cybercafés and ID cards which are available against cash at the coffeehouses, are locally provided by the city government.

7.3.2 New Channels of Modern Health Information & Communication

Modern Health Information & Communication Systems involve several elements, *i.e.* a message; the communicator, who communicates the message to others; the communication media; and the receiver of the message. Within the Modern Health Information & Communication System (MHICS), the message can refer to various issues of health promotion, disease prevention and treatment. Moreover, the message usually focuses on the health demands, wants and needs of the person receiving the message, known as the 'communicatee'.

Throughout Indonesia, messages are on the one hand conveyed directly through the intermediary of a communicator. In detail, communicators of health information can be found in different social settings and can refer to: government communicators such as the President or the Ministry of Health; public institution communicators including cities, districts, villages, hamlets and neighbourhoods; health institution communicators such as *i.a.* hospitals, health centres, health posts and the *Pemberdayan Kelompok Keluarga (PKK)* ('Empowerment of Family Welfare Movement'); other institution communicators including schools, colleges, Islamic boarding schools, public reading corners and public libraries; and family communicators, namely parents, relatives and neighbours. On the basis of face-to-face or mouth-to-mouth communication, messages are hereby passed on either within a formal context such as studies, seminars, conferences or government statements, or within an informal context such as family gatherings or activities organised by the local health post.

On the other hand, messages are conveyed through the use of communication media such as: printed media, *i.e.* books, newspapers, magazines, tabloids, newsletters, posters and leaflets; audio and audio-visual mass media including radio, television and films; and new or electronic and convergent media such as the Internet, e-books, e-journals, e-radio and e-TV. Finally, the communicatee can be the head of the family, the husband or wife, a child, a family relative, a teacher or a student. Communicatees could also include community members, who participate in health programmes such as *i.a.* The *Pemberdayan Kelompok Keluarga (PKK)* ('Empowerment of Family Welfare Movement'), or the *Pendidikan Anak Usia Dini (PAUD)* ('Pre-School').

Throughout Indonesia, modern health information & communication are indeed established in different community settings ranging from the family as the smallest unit up to the community as the biggest unit by means of sharing information involving two or more parties. In general, different channels, *i.e.* levels and scopes, of information & communication can be distinguished. Interpersonal communication, for example, accommodates personal beliefs, orientations, expectations and predispositions as well as suggestions. With respect to health, such underlying levels and scopes of information & communication can significantly affect the healing process as well as attempts towards disease prevention. In detail, Modern Health Information & Communication Systems involve the following information & communication channels:

Interpersonal Communication

Interpersonal communication is a form of communication which is established between individuals and involves more than one person. One example of interpersonal communication with regard to health is the communication between the doctor and the patient. In order to advance medical treatment and to promote health, this interpersonal channel of communication draws on the interaction between the doctor and the patient and on the exchange of relevant information, *e.g.* through a health care interview or anamnesis.

Health Group Communication

In Sukamiskin, the health post and the *Pemberdayan Kelompok Keluarga (*PKK) ('Empowerment of Family Welfare Movement') are groups which hold regular discussions, particularly on health issues. In detail, people gather and discuss health matters on the basis of their own experiences and needs and try to find possible solutions. In addition to health care institutions and organisations, health communication is facilitated by groups which do not specifically focus on health issues but nevertheless distribute health information indirectly through conversations. Mothers waiting for their children at the pre-school, for example, exchange health information through conversation between each other or with the teachers. In fact, health group communication can involve a variety of social groups.

Health Communication Channels

Health information & communication are moreover facilitated by a considerable number of health communication channels, *i.e.* through different types of information technology and the mass media. In Sukamiskin, the communication channels which are normally used for transferring health information refer to:

1. direct communication between different parties such as doctors, patients, a health team or paramedics through various media such as phones, mail, fax or email whereby the media are primarily interactive and personal, generating a two-way channel of communication and allowing the involved parties to observe reactions and to give direct feedback;

2. the mass media communication through different media: radio, television, film or billboards;

3. new media communication on the basis of Internet use and media convergence [3]; and

4. communication on the basis of books and newspapers.

The next paragraph will further elaborate on these communication channels within the context of the recent progress of the process of digitisation.

7.3.3 The Progress of Digitisation: Radio, TV, Newspapers and the Internet

Until recently, radio broadcasts have had a loyal audience, not least reinforced by programmes, which are tailored to the interests of the listeners. Youth segments, for instance, offer programmes, which appeal to the interests of the young and accommodate music as well as information about religion, the news and political issues. Radio programmes have the advantage of allowing the audience to perform other activities, such as travelling or household work simultaneously while listening to the radio. In general, the radio represents a type of mass medium which can also play an important role in delivering health information to the public, in the form of community advertisements or special shows with interactive dialogue (*cf.* Table 7.5).

Table 7.5 Radio Stations with a Health Information Programme.

No.	Radio Station	Frequency	Name of Programme	Broadcast Time (WIB) & Length	Major Broadcaster
1	K-Lite FM	107, 1 FM	Healthy Life	Saturday, 09.00–12.00 180 Minutes	*Yani Radio Bisnis*
2	U-FM	104, 3 FM	Healthy Life	Thursday, 08.00–09.00 60 Minutes	*Imam RadioWanita*
3	MQ-FM	102, 7 FM	Healthy Clinic	Everyday, 10.00–11.30 90 Minutes	*Nasyid Radio Islami*
4	B-Radio	95, 6 FM	Fit Healthy	Tuesday, 19.00–20.00 60 Minutes	*Irwan Radio Dewasa*
5	Radio Mora	88, 5 FM	*MOTIF*	Monday–Saturday, 15.00–16.00 60 Minutes	*Wildan Radio Hukum dan Demokrasi Mora Interaktif*
6	Radio Zora FM	90, 1 FM	Morning Zone	Everyday, 06.00–09.00 180 Minutes	*Hida Radio Dewasa*
7	Radio Walagri	93, 3 FM	Enjoying Life	Everyday, 08.00–10.00 120 Minutes	*Naniek Radio Kesehatan*

In addition to the radio, health information is disseminated audio-visually through the medium of television, whereby the audio-visual distribution of information has been considered more effective than radio broadcasting. Health information, which is delivered through television media, appears to be easily comprehensible to the public. Table 7.6 presents an overview of the different national and regional television stations, which are also broadcasting health programmes in Indonesia and West Java.

Table 7.6 TV Stations with a Health Information Programme.

No.	TV Station	Name of Programme	Showtime (WIB)
National			
1	RCTI	*Jalinan Kasih*	Saturday, 09.30-10.00
2	Indosiar	*Sehati (Sehat Ala MbakTini*)	Saturday, 05.00- 05.30
3	SCTV	*Pundi Amal*	
4	Kompas TV	*Tanya Dokter*	Monday-Friday, 07.30-08.30
		Dapur Nutrisi	Tuesday, 11.00-12.00
5	Metro TV	e-Lifestyle	Sunday, 13.30-14.00
		Indonesia Cinta Sehat	Tuesday, 11.00-12.00
6	TVRI	*Yuk Hidup Sehat*	Monday-Friday, 09.30-10.30
7	Global TV	Spot On	Monday-Friday, 14.30-15.30
8	TV One		
(Continued) Table 7.6			
No.	TV Station	Name of Programme	Showtime (WIB)
9	ANTV	Clinic Secret Herbal *Ekstrak*	Saturday, 08.00-08.30
10	Trans TV	Dr. Oz Indonesia	Saturday-Sunday, 15.30-16.30
11	Trans 7	*Khazanah*	Monday-Sunday, 05.30-06.00
		Syafaat	Wednesday-Friday, 09.15-10.00
12	Net		
13	MNCTV		
Regional (West Java)			
14	TVRI Jawa Barat & Banten		
15	STV	*Dialog Kesehatan*	Monday-Sunday, 23.00-00.00
16	Bandung TV	*Dokter Kita*	Weekly
		Dialog Khusus	
		Alternatif Sehat Bersama Bandung TV	
		Klinik Totok Perut Mega Power	
		Klinik Teh Mayang	
		Mutiara Therapy	
17	PJTV		
18	IMTV		
10	NET Bandung		

Currently, a number of mobile companies are also launching their products in Indonesia at a rather affordable price, which is endorsed by the service provider companies offering telecommunication services such as *i.a.* Multimedia Message Services (MMS) and email. In general, the use of mobile phones allows for flexibility, since the medium can be adjusted to the capabilities and needs of the user. The online networks, which are provided on the mobile phones, include: the Global System for Mobile Communication (GSM); the Code Division Multiple Access (CDMA); and the Third-Generation Technology (3G). Activation of a mobile phone in Indonesia usually requires the purchase of a starter pack, which costs between 3,500

and 10,000 rupiah, and can be done by the customer. The mobile phone is subsequently registered by the respective service provider company, which records the customer data. *Telkomsel* represents a service provider company in Indonesia, which offers telecommunications services along with different products such as *Kartu Halo, Simpati* and *Kartu As*.

Apart from these mass media and new media communication channels, books represent a vital source of health information. Health information is not only found in books, which are written specifically on health-related subjects, but also in books covering other genres. In other words, the health information seeker can find information on both traditional and modern medicine in *i.a.* novels, short stories and handbooks. In addition to books, newspapers are a medium which is affordable for most people and through which health information can easily reach the public. As such, newspapers deliver health information to people living in big cities as well as in suburbs and rural communities (*cf.* Illustration 7.7 a & b). Table 7.7 provides an overview of the different newspapers available in Indonesia, which offer a column on health information.

Illustration 7.7 (a & b) Books on Traditional Medicine in a Bookstore in Bandung (left) & a Kiosk selling Newspapers and Magazines in Sukamiskin (right). Photograph by W. Erwina (2014)

Furthermore, magazines and tabloids usually target specific groups of readers, which are identified on the basis of particular characteristics, such as age and gender, and can be easily reached. Throughout Indonesia, there are various types of magazines and tabloids, which specialise in delivering health information, as shown in Table 7.18.

Table 7.7 Newspapers with a Health Information Column.

No.	Name of Newspaper	Issued
National		
1	Kompas	Daily
2	Koran Sindo	Daily
3	Republika	Daily
4	The Jakarta Post	Daily
5	Koran Tempo	Daily
6	Media Indonesia	Daily
7	Rakyat Merdeka	Daily
Regional (West Java)		
5	TribunJabar	Daily
6	Pikiran Rakyat	Daily
7	Radar Bandung	Daily
8	Galamedia	Daily
9	Bandung Ekspres	Daily

Table 7.8 Magazines and Tabloids with a Health Information Column.

No.	Name of Magazine	Name of Column	Issued
1	Intisari	Health (*Kesehatan*)	Monthly
2	Readers Digest		Monthly
3	Kartini	Sex and Health (*Kesehatan dan Seks*)	Monthly
4	Nova	Health (*Kesehatan*)	Weekly
5	Nirmala	Nutrition, Herb, Therapy, Bodywork	Monthly
6	Men's Fitness	Health (*Kesehatan*)	Monthly
7	Muslim	Islamic Guidance, Diseases	Monthly
8	Ayah Bunda	Health	Once in two weeks
9	Oto Digest	Medical	Monthly
10	Mother & Baby	Pregnancy and Birth, Your Life, Your Baby	Monthly
11	TumbuhKembang	Around Us	Monthly
12	Parents Guide	Ask The Expert, Parenting, Pregnancy, Growing Up	Monthly
13	Trubus	Traditional Remedies	Monthly
14	Bestlife	Good Life	Monthly
15	Femina	Diet	Monthly
16	Sekar	Beauty, Diet	Monthly
17	Noor	Life Style	Monthly
18	Kartini	Sexual and Reproduction Health	Monthly
19	Mom & Kiddie	Health (*Kesehatan*)	Once in two weeks
20	Aura	Health (*Kesehatan*)	Weekly
21	Wanita Indonesia	Sex and Health (*Seks dan Kesehatan*)	Weekly
22	Bintang	Health Reflection (*Cerminan Kesehatan*)	Weekly
23	Kecantikan	Beauty (*Cantik*), Healthy (*Sehat*)	Monthly
24	Nurani	Health (*Kesehatan*)	Weekly
25	Tabloid Bekam	Treatment (*Pengobatan*), Health (*Kesehatan*)	Weekly
26	Nyata	Sex Consultation (*Seks*), Psychic (*Kejiwaan*)	Weekly
27	Nakita	Experts Consultation (*Konsultasi Ahli*),	Weekly
		Baby's World (*Dunia Bayi*)	Weekly

Table 7.9 Online Media Providing Health Information in Indonesia.

No.	Online Medium	Name of Programme	URL
1	Kompas.com	Kompas Health	http://health.kompas.com/
2	Detik.com	Detik Health	http://health.detik.com
3	Intisari-online	Mind Body and Soul	http://www.intisari-online.com/
4	ReadersDigest		http://www.readersdigest.co.id
5	Tabloidnova.com	Health (*Kesehatan*) Beauty (*Kecantikan*)	http://www.tabloidnova.com
6	Men's Health	Health (*Kesehatan*)	http://www.menshealth.co.id
7	MajalahMuslimsehat	Diseases (*Penyakit*)	http://majalahmuslimsehat.com/
	Healthy (*Bugar*)	Herbal and Nature (*Herbal dan Alam*)	
		Body (*Jasmani*) Nutrition (*Nutrisi*)	
8	Mother & Baby	Health Tips (*Tips Kesehatan*)	http://www.motherandbaby.co.id/
9	Parents Guide	Ask the Expert	http://www.parentsguide.co.id/
		Parenting, Growing Up, Pregnancy	
10	Trubus Online	Health Information (*Info Sehat*)	http://www. Trubus-online.co.id/
		Herbal Clinic (*Klinik Herbal*)	
11	Bestlife	Lifestyle	http://www.bestlife.co.id/
12	Femina	Beauty (*Cantik*)	http://www.femina.co.id/
		Diet, *Kuliner*	
13	Majalah Sekar	*Sekar Info*	http://www.majalahsekar.com
		Fashion and Beauty (*Gaya dan Cantik*)	
14	Noor	Health Information	http://www.noor-magazine.com/
		(*Info Kesehatan*)	
15	Tabloid Bintang	Lifestyle (*Gaya Hidup*)	http://tabloidbintang.com
16	Tabloid Nakita	Pregnancy	http://www. Tabloid-nakita.com/
		New Parent Our Toddlers (*Balita Kita*)	
		Consultation (*Konsultasi*)	
17	AndrieWongso	Tips	http://www.andriewongso.com/
		Health Corner	
18	Antara News	Lifestyle (*Gaya Hidup*)	http://www.antaranews.com/
19	Astaga!	*Seks*	http://www.astaga.com
		Articles (*Artikel*)	
20	AyahBunda	*Prakonsepsi*	http://www.ayahbunda.co.id/
21	Chic Magazine	Health	http://www.Chicmagz.com/
22	Cumi-Cumi.com	Cumix	http://www.cumicumi.com/
23	Dunia Fitness	Fat Loss	http://duniafitnes.com/
		Training, Sixpack, Health, Nutrition	
24	Gatra	Life & Health	http://www.gatra.com/
25	Ghiboo	Beauty	http://www.ghiboo.com/
26	Inilah.com	Lifestyle (*Gaya Hidup*)	http://www.inilah.com/
27	Kumpulan Info	Health (*Kesehatan*)	http://kumpulan.info/
		Beauty (*Kecantikan*)	
28	Lintas Berita	Lifestyle	http://www.lintasberita.web.id/
29	Merdeka	Health (*Sehat*)	http://www.merdeka.com/
30	MSN News	Lifestyle (*Gaya Hidup*)	http://plasa.msn.com
		Sports (*Olahraga*)	
31	Okezone	Health	http://www.okezone.com/
32	Sahabat Nestle	Anak Sehat	https://www.sahabatnestle.co.id
		Gaya Hidup Sehat	
33	Viva News	Life	http://www.viva.co.id/
34	Wolipop Lifestyle	Beauty	http://wolipop.detik.com/

New media communication allows for the distribution of health information through the Internet. Today, a number of online media are available in Indonesia, which specifically offer health information which is appealing to users interested in the most recent information on health and healing (*cf.* Table 7.9).

The important role of the Modern Health Information & Communication Systems (MHICS) which are disseminated through the various media as mentioned above to the local communities will also be further documented and measured in the household surveys among the respondents in Sukamiskin, analysed in the following chapter (Chapter VIII).

Notes

[1] A magazine is a popular periodical serving the peoples' interest which usually contains articles on a variety of topics written by various authors in a non-scholarly style. Primarily printed on glossy paper, most magazines are richly illustrated and also contain advertisements. These magazines offer short articles which are usually less than five pages long, and are frequently unsigned and do not include a bibliography or list of references for further reading. Most magazines are issued weekly or monthly and are available at newsstands, in bookstores and on subcription (*cf.* Reitz 1993).

[2] A newspaper is a serial publication which is usually printed on newsprint and is issued daily, or on certain days of the week or weekly. Newspapers normally contain news articles, editorial comments, regular columns, letters to the editors, cartoons, advertisements and other pieces of writing which are of current and often local interest to the general public (*cf.* Reitz 1993).

[3] The Internet refers to high-speed fiber optic networks which use Transmission Control Protocols (TCP) or Internet Protocols (IP) to interconnect computer networks around the world, thereby enabling users to communicate via email, to transfer data and files via File Transfer Protocols (FTP), to find information on the World Wide Web and to access remote computer systems, such as online catalogues and electronic databases, easily and effortlessly, using an innovative technique called packet switching. The Internet was first introduced in 1969 as APRA net, a project of the United States Department of Defence, and has rapidly been developed and extended up until today (*cf.* Reitz 1993).

Chapter VIII. PATTERNS OF UTILISATION OF THE PLURAL HEALTH INFORMATION & COMMUNICATION SYSTEM (PHICS)

This chapter presents the quantitative analysis of the data collected during the household surveys conducted in the research area of Sukamiskin in the regency of Bandung. These household surveys have been conducted as an extension to the preceding qualitative research with a view to measuring and analysing the spread of these findings over the entire community. A description is presented of the way in which the sample surveys are showing the correlations between the independent and intervening variables of the inhabitants of Sukamiskin and their utilisation behaviour of the Plural Health Information & Communication System (PHICS), sub-divided over the Traditional and Modern Health Information & Communication Systems (T&MHICD) for the improvement of their health. In order to document and understand the quantitative outcome data, different categories of variables are analysed which can potentially be identified as significant determinants of the reported utilisation patterns of the respondents in Sukamiskin. In this way, the conceptual model which has been applied to this study is presented as the basis of the stepwise statistical analysis of the quantitative data whereby the categories of respectively predisposing, enabling, and intervening variables are analysed as possible significant variables, *i.e.* determinants of the dependent variables of utilisation of the Plural Health Information & Communication System.

The quantitative analysis uses the data obtained through the structured questionnaires which have been completed in 125 households through information provided by the household head selected in Sukamiskin for the sample surveys. The Chapter continues to provide information on the way in which the data are subsequently entered into an electronic database, followed by a number of steps taken in order to prepare the data for the final analysis in SPSS.

It is shown, that the data are initially subjected to a bivariate analysis, in which the independent and intervening variables are distributed over the dependent variables through the method of cross-tabulation. As mentioned above, the dependent variables have been divided into two categories of utilisation, respectively: the Traditional Health Information & Communication System (THICS) and the Modern Health Information & Communication System (MHICS), with a view to adequately representing the reported utilisation of the Plural Health Information & Communication System (PHICS).

The significant variables which have been identified as influencing the Traditional and Modern Health Information & Communication Systems (T&MHICD) are described specifying their weight, distributed over the various levels of influence, encompassing the scores (2, 3 or 5) which in this case include the 5 scores of ‘very low’; ‘low’; ‘average’; ‘high’ and ‘very high’ in the model of Mutual Relations Analysis. Subsequently, the influence of all independent and intervening variables on the dependent variables is measured in relation to the interaction among and between all variables. In this way, the results of the multivariate analysis using the OVERALS technique are shown to identify the relative influence of the variables, *i.e.* the specific determinants of the utilisation behaviour of respondents of the Plural Health Information & Communication System (PHICS).

Finally, the multiple regression analysis is presented with a view to assessing the correlations and related weights among and between the different groups of variables which are presented as blocks of variables in the model. This chapter concludes with an interpretation and discussion of the results of the quantitative analysis in relation to the structure of the final analytical model.

8.1 Bivariate and Mutual Relations Analysis

8.1.1 Preparation of the Analysis: Data Sets and Variables

On the basis of the conceptual model selected for this study, two sets of data encompassing the different categories or blocks of variables in two sets have been identified, as follows:

Set 1
Independent Variables
Block 1 Predisposing Socio-Demographic Variables
Block 2 Predisposing Psycho-Social Variables
Block 3 Enabling Variables
Block 4 Perceived Need of Health Information Variables
Block 5 Institutional Variables

Intervening Variables
Block 6 Intervening Variables

Set 2
Dependent Variables
Block 7: Utilisation of Traditional Health Information & Communication Systems (THICS)
Block 8: Utilisation of Modern Health Information & Communication Systems (MHICS)

From the original answer categories of all the 137 questions in the quantitative questionnaire, 23 variables, *i.e.* 21 independent and 2 dependent variables as described in detail below, have been created and labelled, partly through methods of recalculation. The particular label which is assigned to each variable within the statistical programme for data analysis (using SPSS), is presented in parenthesis after the name of the variable. Since virtually all of the 125 survey respondents adhere to Islam, the variable 'religion' has been deleted from the data set. The total of 23 variables include the following socio-demographic variables, psycho-social variables, enabling variables, perceived need of health information variables, institutional variables, intervening variables and dependent variables:

Set 1: *Independent Variables*
Predisposing Socio-Demographic Variables (4):
'**Household Size**' ('HHsize'): 'Household Size' assesses the total number of family members living with the household head. The variable was not subjected to recalculation whereupon the following original answer categories are used in the analysis as scores: 'one'; 'two'; 'three'; 'four'; 'five'; 'six'; 'seven'; 'eight'; 'nine'; and 'ten'.
'**Age'** ('Age'): Similar to 'Household Size', the variable 'Age' did not require any recalculation. The following original answer categories are used in the analysis as scores: '26-30'; '31-35'; '36-40'; '41-45'; '46-50'; '51-55'; '56-60'; '61-65'; '66-70'; and '71-75'.
'**Formal Education'** ('EduForm'): Subject to recalculation, the original answer categories as scores of 'no education', 'elementary school not finished', 'elementary school finished', 'secondary school not finished', 'secondary school finished', 'senior high school not finished', 'senior high school finished', 'diploma not finished', 'diploma finished', 'bachelor not finished', 'bachelor finished', 'master degree' and 'PhD' have been reduced to 'no education', 'primary school', 'secondary school', 'senior high school' and 'university'.

‘**Profession’** (‘Prof’): Similar to ‘Formal Education’, answer categories have been regrouped from ‘main occupation’ and ‘additional occupation’ which included eleven categories, to ‘farmer’, ‘teacher’, ‘personal servant’, ‘civil servant’, ‘religious leader’, ‘entrepreneur’, ‘labourer’, ‘private sector worker’, ‘unemployed’, ‘retired’ and ‘other’. The ‘other’ category refers to military personnel, caddies and taxi drivers (*ojek*).

Predisposing Psycho-Social Variables (9):
‘**Knowledge Level on Traditional Medicine’** (‘KnowTHI’): As a result of methods of recalculation which have been applied to the original answer categories, this variable came to include the following five scores: ‘very little’; ‘little’; ‘average’; ‘much’; and ‘very much’.
‘**Knowledge Level on Modern Medicine**’ (‘KnowMHI’): Regrouping of the original answer categories similarly resulted in the distinction of the scores ‘very little’, ‘little’, ‘average’, ‘much’ and ‘very much’ as the scores of this variable.
‘**Knowledge of Availability of Libraries**’ (‘KnowLib’): Following processes of recalculation, the categories of this variable eventually included the scores ‘very little awareness’, ‘little awareness’, ‘average awareness’, ‘much awareness’ and ‘very much awareness’.
‘**Belief in Power of Traditional Medicine**’ (‘BeliefTHI’): Responses within the original answer categories have been combined and regrouped as scores into ‘low belief’, ‘average belief’ and ‘strong belief’.
‘**Belief in Power of Modern Medicine**’ (‘BeliefMHI’): Likewise, the original answer categories have been combined and regrouped as scores, thereby resulting in ‘low belief’, ‘average belief’ and ‘strong belief’.
‘**Belief in Power of Printed Word**’ (‘BeliefPW’): Similar to ‘Belief in Power of Traditional Health Information’ and ‘Belief in Power of Modern Health Information’, the answer categories of this variable have been regrouped as scores for ‘low belief’, ‘average belief’ and ‘strong belief’.
‘**Opinion on the Quality of Health Information**’ (‘OpQualHI’): The original answer categories have been subjected to methods of recalculation and eventually resulted in the following five scores: ‘very low appreciation’; ‘low appreciation’; ‘average appreciation’; ‘high appreciation’; and ‘very high appreciation’.
‘**Opinion on the Cost of Health Information**’ (‘OpCostHI’): The original answer categories of this variable underwent a similar method of recalculation whereby they resulted in the scores ‘very low’, ‘low’, ‘average’, ‘high’ and ‘very high’.
‘**Opinion on the Service of Health Information**’ (‘OpServHI’): In the same fashion, the original answer categories of the variable ‘Opinion on the Service of Health Information’ have been regrouped into the scores ‘very low’, ‘low’, ‘average’, ‘high’, and ‘very high’.

Enabling Variables (1):
‘**Socio-Economic Status**’ (‘SES’): In the quantitative analysis of data, the enabling variable ‘Socio-Economic Status’ which assesses the economic capability of each individual to make use of the available Health Information & Communication Systems was generated through factor analysis. Factor analysis is executed on a series of related variables including financial resources, family income, property of land, cost of livelihood, house and domestic animal resources, property of transportation tools and social status. The original answer categories of all variables were eventually regrouped into the scores ‘poor’, ‘average’ and ‘well-to-do’.

Perceived Need of Health Information Variables (2):
'**Need Traditional Health Information**' ('NeedTHI'): Subject to methods of recalculation, this variable came to include the following answer categories as three scores: 'low perceived need'; 'medium perceived need'; and 'high perceived need'.
'**Need Modern Health Information**' ('NeedMHI'): In the same fashion, the original answer categories of this variable have been regrouped into the scores 'low perceived need', 'medium perceived need' and 'high perceived need'.

Institutional Variables (2):
'**Exposure to Institutional Health Information**' ('ExpoHI'): Recalculations have been carried out on the original answer categories of this variable. As a result, the following new scores have been introduced: 'very low'; 'low'; 'average'; 'high'; and 'very high'.
'**Member Health Information Institution**' ('MemInst'): Likewise, the categories of this variable are a result of recalculation and include the scores 'very few', 'few', 'average', 'many' and 'very many'.

Intervening Variables: (3):
'**Exposure to Electronic Media**' ('ExpoElec'): The original answer categories of the variable 'Exposure to Electronic Media' have been regrouped into the scores 'very low exposure', 'low exposure', 'average exposure', 'high exposure' and 'very high exposure'.
'**Exposure to Printed Media**' ('ExpoPrint'): Similarly, responses to the original answer categories of this variable have been restructured thereby resulting in the scores 'very low exposure', 'low exposure', 'average exposure', 'high exposure' and 'very high exposure'.
'**Awareness of Epidemics**' ('Epidemics'): Since this variable was not subjected to methods of recalculation, the following original answer categories are used in the analysis as the scores: 'no' and 'yes'.

Set 2: *Dependent Variables* (2):
The dependent variables encompass the Plural Health Information & Communication System (PHICS), and are sub-divided into 2 sub-systems: the Traditional Health Information & Communication System (THICS) and the Modern Health Information & Communication System (MHICS).
'**Utilisation of Traditional Health Information & Communication System** ('UseTHI'): The original answer categories of this variable have been established on the basis of the responses which the household head has provided to the questions regarding the utilisation of the Traditional Health Information & Communication System (THICS) over a period of twelve months preceding the household surveys. In this way, the variable was recalculated on the basis of three questions regarding the frequency, with which respondents obtained traditional health information on medical treatment, disease prevention and health promotion. The answer categories have been regrouped into the following five scores: 'very low utilisation'; 'low utilisation'; 'average utilisation'; 'high utilisation'; and 'very high utilisation'.
'**Utilisation of Modern Health Information & Communication Systems**' ('UseMHI'): In the same fashion, this variable was recalculated on the basis of three questions which related to the frequency of receiving modern health information on medical treatment, disease prevention and health promotion for each respondent. The original answer categories of this variable similarly offered a detailed assessment of the household head's utilisation of the Modern Health Information & Communication System (MHICS) over a period of twelve months preceding the

survey and have been regrouped into the scores of 'very low utilisation', 'low utilisation', 'average utilisation', 'high utilisation' and 'very high utilisation'.
The variables presented above are first subjected to the bivariate analysis which is carried out through the method of cross-tabulation. In this way, each of the 21 independent variables, *i.e.* the predisposing socio-demographic and psycho-social, enabling, perceived need of health information, institutional and intervening variables, is distributed over the two dependent variables, upon which the relationship between the variables is presented in the form of frequency distributions within a cross-tabulation. In order to determine whether there is a statistically significant correlation between the respective independent variable and the dependent variables, Pearson's Chi-square test is applied to each cross-tabulation.

This test has been selected, since according to Aiglsperger (2014: 240): *'[…] [T]he test calculates the degree of probability, to which the relationship between the variables occurs by chance. Accordingly, the more significant the results of the Chi-square test are, the less likely it is that the relationship between variables occurs by chance*' [1].

Following Slikkerveer (1990), Agung (2005), Djen Amar 2010) and Aiglsperger (2014), the levels of significance values of the Pearson's Chi-square test are arranged as follows:

<.001 - 'most strongly significant';
.01 to .001 - 'very strongly significant';
.05 to .01 - 'strongly significant';
.10 to .05 - 'weakly significant';
.15 to .10 - 'indication of significance'; and
>.15 - 'non-significant'.

Following Pearson's Chi-Square test, the exact test of Cramer's V is applied to the cross-tabulation in order to further explore the strength of the relationship between the variables. Generally, the occurrence of significance within the correlation between two variables refers to a degree of probability rather than to an automatically occurring association between variables. In order to closely study the relationship between all variables in the model, the quantitative analysis of the research findings hereafter extends beyond the bivariate analysis of cross-tabulations of variables towards a multivariate and multiple regression analysis.

8.2 Results of the Bivariate Analysis

In general, the bivariate analysis is a measurement which tests the correlation between the variables in the analytical model, in this case between the independent and intervening variables and the dependent variables, while also indicating the weight of the categories or scores of the variables, often amounting to 2, 3 or 5 scores. In other words, the bivariate analysis calculates the strength, *i.e.* the significance, of each relationship between on the one hand the independent and intervening variables, and on the other hand the two categories of dependent variables, and indicates the related weight. The independent variables include predisposing socio-demographic and psycho-social variables, enabling variables, perceived need of health information variables and institutional variables as well as intervening variables.

The dependent variables refer to the reported utilisation by the respondents of the two - traditional and modern - components of the Plural Health Information & Communication System (PHICS) available in the research area. The level of significance of each relationship between variables is indicated by the results of Pearson's Chi-Square test. The application of the rank order of levels of significance presented above qualifies the relationship between the two

variables as either most strongly significant, very strongly significant, strongly significant, weakly significant, an indication of significance or non-significant. The general distribution of the independent and intervening variables over the dependent variable of the levels of utilisation of the Traditional Health Information & Communication System (MHICS) shows a range from the score for 'very low utilisation' of 85 (68.0%) to the score for 'very high utilisation' of 18 (14.4%) of the score of 'very high utilisation'. A similar general distribution of the independent and intervening variables over the dependent variable for the levels of utilisation of the MHICS shows a range from the score for 'very low utilisation' of 76 (60.8%) to the score for 'very high utilisation' of 15 (12.0%) (cf. Tables 8.1 – 8.6). The following description of the relationships between the independent, intervening and dependent variables will be presented as far as a certain level of significance has been found.

8.2.1 Predisposing Variables

Identified in the model as predisposing, *i.e.* background, variables, the socio-demographic and psycho-social variables are presumably affecting the utilisation patterns of the Health Information & Communication Systems (HICS) by respondents at the individual level in a differential way. The socio-demographic variables refer to 'household size', 'age', 'formal education' and 'profession'.

The psycho-social variables distinguish between 'knowledge level on traditional medicine', 'knowledge level on modern medicine', 'knowledge of availability of libraries', 'belief in power of traditional medicine', 'belief in power of modern medicine', 'belief in power of printed word', 'opinion on the quality of health information', 'opinion on the cost of health information' and 'opinion on the service of health information'. As indicated before, not only the level of significance is calculated, but also the weights of these variables are measured and recorded according to the related scores in the output in SPSS.

Table 8.1 shows the distribution of the significant socio-demographic variables in Block 1 over the two dependent variables (N=125), as follows:

'Age'
In the category of socio-demographic variables, a *strongly significant* correlation is found between the variable 'Age' and the reported pattern of utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .022). In the utilisation pattern, the category of 'Age between 56-60 years' shows the relatively high number of 11 (68.7%) with the score of 'Very low utilisation' for the MHICS. In the same category, no other comparable significant correlations of the variable 'Age' are found (*cf.* Table 8.1).

'Profession'
In the same category, a *weakly significant correlation* is found between the variable 'Profession' and the reported pattern of utilisation of the Traditional Health Information & Communication System (THICS) (Pearson's Chi-Square = .022). In the utilisation pattern, the category of 'Unemployed' shows the relatively high number of 10 (90.9%) with the score for 'Very low utilisation' of THICS. In the same category, no other comparable significant correlations of the variable 'Profession' are found (*cf.* Table 8.1).

Table 8.2 shows the distribution of the significant psycho-social variables in Block 2 over the two dependent variables (N=125), as follows:

'Knowledge Level on Traditional Medicine'
In the category of psycho-social variables, a very *strongly significant* correlation is found between the variable 'Knowledge Level on Traditional Medicine' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .004). In the utilisation pattern, the category of respondents with 'Very little knowledge of traditional medicine' show the relatively high number of 9 (90.0%) with the score for 'very low utilisation' of THICS.

Similarly, in the category of psycho-social variables, a *weakly significant* correlation is found between 'Knowledge Level on Traditional Medicine' and the utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .064). In the utilisation pattern, the category of respondents with 'Very little knowledge of traditional medicine' also show the relatively high number of 10 (100.0%) with the score of 'very low utilisation' of the MHICS (*cf.* Table 8.2).

'Knowledge level on Modern Medicine'
In the category of psycho-social variables, a *most strongly significant* correlation is found between the variable 'Knowledge Level on Modern Medicine' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .000). In the utilisation pattern, the category of respondents with 'Very little knowledge of modern medicine' show the relatively high number of 28 (80.0%) with the score for 'Very low utilisation' of the THICS.

Similarly, in the category of psycho-social variables, a *very significant* correlation is found between 'Knowledge Level on Modern Medicine' and the utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .001). In the utilisation pattern, the category of respondents with 'Very little knowledge of modern medicine' also show the relatively high number of 19 (76.0%) with the score for 'Very low utilisation' of the MHICS (*cf.* Table 8.2).

'Knowledge of Availability of Libraries'
In the category of psycho-social variables, a *weakly significant correlation* is found between the variable 'Knowledge of Availability of Libraries' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .079). In the utilisation pattern, the category of respondents with 'Little knowledge of the availability of libraries' show the relatively high number of 35 (66.0%) with the score for 'Very low utilisation' of THICS.

In contrast, in the category of psycho-social variables, a *strongly significant* correlation is found between 'Knowledge of Availability of Libraries' and the utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .040). In the utilisation pattern, the category of respondents with 'Very much knowledge of availability of libraries' also show the relatively high number of 6 (75.0%) with the score for 'Very high utilisation' of MHICS (*cf.* Table 8.2).

'Belief in Power of the Printed Word'
In the category of psycho-social variables, a *weakly significant correlation* is found between the variable 'Belief in Power in the Printed Word' and the reported pattern of utilisation of the

Modern Health Information & Communication Systems (MHICS) (Pearson's Chi-Square = .077). In the utilisation pattern, the category of respondents with such 'Low belief in the Printed Word' show the relatively high number of 12 (85.7%) with the score for 'Very low utilisation' of the Traditional Health Information & Communication Systems (THICS). In the same category, no other comparable significant correlations of the variable 'Belief in Power of the Printed Word' are found (*cf.* Table 8.2).

8.2.2 Enabling Variables

Table 8.3 shows the distribution of the significant enabling variables in Block 3 over the two dependent variables (N=125), as follows:

'Socio-Economic Status' (SES)'
In the category of enabling variables, a *weakly significant correlation* is found between the variable 'Socio-Economic Status (SES)' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .065). In the utilisation pattern, the category of respondents with 'Poor SES' show the relatively high number of 50 (75.8%) with the score for 'Very low utilisation' utilisation for THICS.

Similarly, in the category of enabling variables, a *strongly significant* correlation is found between the variable 'Socio-Economic Status (SES)' and the utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .022). In the utilisation pattern, the category of respondents with 'Poor SES' also show the relatively high number of 45 (68.2%) with a score for 'Very low utilisation' of MHICS (*cf.* Table 8.3).

8.2.3 Perceived Need of Health Information Variables

Table 8.4 shows the distribution of the significant perceived need of modern health information variables in Block 4 over the two dependent variables (N=125), as follows:

'Need of Modern Health Information'
In the category of perceived need of health information variables, a *most strongly significant* correlation is found between the variable 'Need of Modern Health Information' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .000). In the utilisation pattern, the category of respondents with a 'Medium perceived need of modern health information' show the relatively high number of 77 (68.7%) with the score for 'Very low utilisation' of THICS.

Similarly, in the same category of 'Need of Modern Health Information', a *most strongly significant* correlation is found between the variable 'Need of Modern Health Information' and the reported pattern of utilisation of the Modern Health Information & Communication Systems (MHICS) (Pearson's Chi-Square = .000). In the utilisation pattern, the category of respondents with a 'Medium perceived need of modern health information' show the relatively high number of 72 (64.3%) with a score for 'Very low utilisation' of MHICS (*cf.* Table 8.4).

8.2.4 Institutional Variables

Table 8.5 shows the distribution of the significant institutional variables in Block 5 over the two dependent variables (N=125), as follows:

'Member Health Information Institution'
In the category of institutional variables, a *strongly significant* relationship is found between the variable 'Member Health Information Institution' and the reported pattern of utilisation of the Traditional Health Information & Communication System (THICS) (Pearson's Chi-Square = .018). In the utilisation pattern, the category of respondents with 'Very few memberships' show the relatively high number of 51 (71.8%) with the score for'Very low utilisation' of THICS. In the same category, no other comparable significant correlations of the variable 'Member Health Information Institution' are found (*cf.* Table 8.5).

8.2.5 Intervening Variables

Table 8.6 shows the distribution of the significant intervening variables in Block 6 over the two dependent variables (N=125), as follows:

'Exposure to Electronic Media'
In the category of intervening variables, a *very strongly significant* correlation is found between the variable 'Exposure to Electronic Media' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .003). In the utilisation pattern, the category of respondents with 'Low exposure to Electronic Media' show the relatively high number of 48 (78.7%) with the score for 'Very low utilisation' of THICS.

Similarly, in the category of intervening variables, a *very strongly significant* correlation is found between the variable 'Exposure to Electronic Media' and the utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .001). In the utilisation pattern, the category of respondents with a 'Low exposure to Electronic Media' show the relatively high number of 42 (68.8%) with the score for 'Very low utilisation' of MHICS (*cf.* Table 8.6).

'Exposure to Printed Media'
In the category of intervening variables, a *very strongly significant* correlation is found between the variable 'Exposure to Electronic Media' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .024). In the utilisation pattern, the category of respondents with 'Low exposure to Printed Media' show the relatively high number of 68 (75.6%) with the score for 'Very low utilisation' of THICS.

Similarly, in the category of intervening variables, a *very strongly significant* correlation is found between the variable 'Exposure to Printed Media' and the utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .005). In the utilisation pattern, the category of respondents with a 'Low exposure to Printed Media' show the relatively high number of 61 (67.7%) with the score for 'Very low utilisation' of MHICS (*cf.* Table 8.6).

'Awareness of Epidemics'
In the category of intervening variables, a *strongly significant* correlation is found between the variable 'Awareness of Epidemics' and the reported pattern of utilisation of the Traditional Health Information & Communication Systems (THICS) (Pearson's Chi-Square = .019). In the utilisation pattern, the category of respondents *with* an 'Awareness of Epidemics' show the relatively high number of 46 (80.7%) with the score for 'Very low utilisation' of THICS.

Similarly, in the category of intervening variables, a *very strongly significant correlation* is found between the variable 'Awareness of Epidemics' and the utilisation of the Modern Health Information & Communication System (MHICS) (Pearson's Chi-Square = .006). In the utilisation pattern, the category of respondents *with* an 'Awareness of Epidemics' show the relatively high number of 44 (77.2%) with the score for 'Very low utilisation' of MHICS (*cf.* Table 8.6).

8.2.6 Dependent Variables

'Use of Traditional Health Information & Communication Systems'
The dependent variable identified in the analytical model as the variable 'Use of Traditional Health Information & Communication Systems' in Block 7 shows various levels of a significant correlation with the following variables:

Block 1	
Predisposing Socio-Demographic Variables:	'Age'
	'Profession'
Block 2:	
Predisposing Psycho-Social Variables:	'Knowledge Level on Traditional Medicine'
	'Knowledge Level on Modern Medicine'
	'Knowledge of Availability of Libraries'
Block 3:	
Enabling Variables:	'Socio-Economic Status (SES)'
Block 4:	
Perceived Need of Health Information Variables:	'Need Modern Health Information'
Block 5:	
Institutional Variables:	'Member Health Information Institution'
Block 6	
Intervening Variables:	'Exposure to Electronic Media'
	'Exposure to Printed Media'
	'Awareness of Epidemics'

'Use of Modern Health Information & Communication Systems'
The dependent variable identified in the analytical model as the variable 'Use of Modern Health Information & Communication Systems' in Block 8 shows various levels of a significant correlation with the following variables:

Block 1:	
Predisposing Socio-Demographic Variables:	'Age'
Block 2:	
Predisposing Psycho-Social Variables:	'Knowledge Level on Traditional Medicine'
	'Knowledge Level on Modern Medicine'
	'Knowledge of Availability of Libraries'
	'Belief in Power of the Printed Word'
Block 3:	
Enabling Variables:	'Socio-Economic Status (SES)'
Block 4:	
Perceived Need of Health Information Variables:	'Need Modern Health Information'

Block 6:
Intervening Variables: 'Exposure to Electronic Media'
'Exposure to Printed Media'
'Awareness of Epidemics'

8.3 Mutual Relations Analysis

8.3.1 Overview of Significant Variables

In order to further assess the overall configuration of the results of the bivariate analysis concerning the correlations in the different independent and intervening blocks of variables in relation to the three dependent blocks of variables identified in the analytical model, an overview is presented in Table 8.7 of the variables which show statistically significant values for Pearson's Chi-square test, with the respective values and levels of significance.

Table 8.1 Significant Variables resulting from the Bivariate Analysis.

Set, Block and Name of the Variable	Value	Level of Significance
Independent Variables		
Block 1: Predisposing Socio-Demographic Variables		
Age of MHICS	.022	'strongly significant'
Profession of THICS	.056	'weakly significant'
Block 2: Predisposing Psycho-Social Variables		
Knowledge Level on Modern Medicine of THICS	.000	'most strongly significant'
Knowledge Level on Traditional Medicine of THICS	.004	'very strongly significant'
Knowledge Level on Traditional Medicine of MHICS	.064	'weakly significant'
Knowledge Level on Modern Medicine of MHICS	.001	'very strongly significant'
Knowledge of Availability of Libraries of MHICS	.040	'strongly significant'
Knowledge of Availability of Libraries of THICS	.079	'weakly significant'
Belief in Power of the Printed Word of MHICS	.077	'weakly significant'
Block 3: Enabling Variables		
Socio-Economic Status (SES) of MHICS	.022	'strongly significant'
Socio-Economic Status (SES) of THICS	.065	'weakly significant'
Block 4: Perceived Need of Health Information Variables		
Need Modern Health Information of THICS	.000	'most strongly significant'
Need Modern Health Information of MHICS	.000	'most strongly significant'
Block 5: Institutional Variables		
Member Health Information Institution of THICS	.018	'strongly significant'
Intervening Variables		
Block 6: Intervening Variables		
Exposure to Electronic Media of MHICS	.000	'most strongly significant'
Exposure to Electronic Media of THICS	.003	'very strongly significant'
Exposure to Printed Media of MHICS	.005	'very strongly significant'
Awareness of Epidemics of MHICS	.006	'very strongly significant'

(Continued) Table 8.1

Set, Block and Name of the Variable	Value	Level of Significance
Exposure to Printed Media of THICS	.024	'strongly significant'
Awareness of Epidemics of THICS	.019	'strongly significant'

8.3.2 Model of Mutual Relations Analysis

As indicated in Figure 8.1 as well as in Table 8.7, the most strongly significant variables in Block 2, *i.e.* the predisposing psycho-social variables, with a value of Pearson's Chi-square test of .000 relates to the 'Knowledge Level on Modern Medicine' of respondents who report the utilisation of the Traditional Health Information & Communication Systems. In addition, most strongly significant variables which similarly show a Pearson's Chi-Square test value of .000 are found in Block 4, *i.e.* among the perceived need of health information variables.

The bivariate analysis also reveals that the variable 'Need Modern Health Information' is most significantly related with patterns of reported utilisation by the respondents of both the traditional and modern health information & communication systems. Finally, the variable 'Exposure to Electronic Media' in Block 6 of the intervening variables shows a most strongly significant value of .000 in relation to patterns of behaviour of respondents who report the utilisation of the modern health information & communication system.

Figure 8.1 shows the Mutual Relations Model, developed by Slikkerveer (2012), in which the variables with a certain degree of significance resulting from the bivariate analysis are represented as groups in their related blocks of variables of the analytical model, as such providing an overview of the significant blocks in the overall configuration of independent, intervening and dependent variables.

It is evident that the model provides a clear indication of the dominant role which the significant psycho-social variables (7) and the significant intervening variables (6) are playing in the overall configuration of interaction among the independent (14) and intervening (6) variables in correlation with the dependent variables (2). The next paragraph further provides an overview of all significant variables of the model.

Table 8.2 Distribution of the Significant Socio-Demographic Variables over the Dependent Variables (N=125).

Variable	Utilisation of Traditional Health Information & Communication Systems (THICS)												Utilisation of Modern Health Information & Communication Systems (MHICS)											
	Very low		Low		Average		High		Very high		Total		Very low		Low		Average		High		Very high		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Age																								
26-30 years	1	100.0	-	-	-	-	-	-	-	-	1	100.0	-	-	-	-	1	100.0	-	-	-	-	1	100.0
31-35 years	5	62.5	3	37.5	-	-	-	-	-	-	8	100.0	6	75.0	1	12.5	-	-	1	12.5	-	-	8	100.0
36-40 years	10	71.4	2	14.3	1	7.1	-	-	1	7.2	14	100.0	9	64.3	1	7.1	3	21.5	1	7.1	-	-	14	100.0
41-45 years	22	64.7	4	11.8	1	2.9	1	2.9	6	17.7	34	100.0	21	61.8	8	23.5	1	2.9	1	2.9	3	8.9	34	100.0
46-50 years	13	59.1	1	4.5	1	4.5	1	4.5	6	27.4	22	100.0	11	50.0	2	9.1	-	-	1	4.5	8	36.4	22	100.0
51-55 years	11	61.2	3	16.7	-	-	1	5.6	3	16.7	18	100.0	8	44.4	5	27.8	1	5.6	2	11.1	2	11.1	18	100.0
56-60 years	12	75.0	2	12.5	1	6.2	-	-	1	6.2	16	100.0	11	68.7	1	6.2	2	12.5	1	6.2	1	6.2	16	100.0
61-65 years	6	100.0	-	-	-	-	-	-	-	-	6	100.0	6	100.0	-	-	-	-	-	-	-	-	6	100.0
66-70 years	2	66.7	-	-	-	-	-	-	1	33.3	3	100.0	1	33.3	1	33.3	-	-	-	-	1	33.3	3	100.0
71-75 years	3	100.0	-	-	-	-	-	-	-	-	3	100.0	3	100.0	-	-	-	-	-	-	-	-	3	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .970 / Cramer's V = .209)													(Pearson's Chi-Square = .022 / Cramer's V = .332)											
Profession																								
Farmer	2	66.7	1	33.3	-	-	-	-	-	-	3	100.0	2	66.7	-	-	1	33.3	-	-	-	-	3	100.0
Teacher	1	16.7	2	33.3	-	-	-	-	3	50.0	6	100.0	-	-	3	50.0	-	-	-	-	3	50.0	6	100.0
Personal servant	7	70.0	-	-	1	10.0	-	-	2	20.0	10	100.0	7	70.0	2	20.0	1	10.0	-	-	-	-	10	100.0
Civil servant	9	60.0	2	13.3	-	-	-	-	4	26.7	15	100.0	9	60.0	-	-	2	13.3	2	13.3	2	13.3	15	100.0
Religious leader	1	50	-	-	-	-	1	50	-	-	2	100.0	1	50.0	1	50.0	-	-	-	-	-	-	2	100.0
Entrepreneur	16	61.5	4	15.4	2	7.7	-	-	4	15.4	26	100.0	15	57.7	4	15.4	1	3.8	2	7.6	4	15.5	26	100.0
Labourer	14	82.4	1	5.9	-	-	-	-	2	11.7	17	100.0	9	53.0	3	17.6	2	11.8	1	5.9	2	11.7	17	100.0
Private sector worker	6	54.5	2	18.2	1	9.1	-	-	2	18.2	11	100.0	7	63.6	2	18.2	-	-	-	-	2	18.1	11	100.0
Unemployed	10	90.9	-	-	-	-	1	9.1	-	-	11	100.0	8	72.7	2	18.2	-	-	1	9.1	-	-	11	100.0
Retired	5	71.4	1	14.3	-	-	-	-	1	14.3	7	100.0	6	85.7	-	-	-	-	-	-	1	14.3	7	100.0
Other	14	82.3	2	11.8	-	-	1	5.9	-	-	17	100.0	12	70.5	2	11.8	1	5.9	1	5.9	1	5.9	17	100.0
General Total	85	68.0	15	12.0	4	3.2	4	3.2	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12	125	100.0
(Pearson's Chi-Square = .056 / Cramer's V = .332)													(Pearson's Chi-Square = .477 / Cramer's V = .282)											

Table 8.3 Distribution of the Pyscho-Social Variables over the Dependent Variables (N=125).

Variable	Utilisation of Traditional Health Information & Communication Systems (THICS)												Utilisation of Modern Health Information & Communication Systems (MHICS)											
	Very low		Low		Average		High		Very high		Total		Very low		Low		Average		High		Very high		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Knowledge Level on Traditional Medicine																								
Very little	9	90.0	-	-	-	-	-	-	1	10.0	10	100.0	10	100.0	-	-	-	-	-	-	-	-	10	100.0
Little	33	80.5	6	14.7	1	2.4	-	-	1	2.4	41	100.0	30	73.2	6	14.6	2	4.9	1	2.4	2	4.9	41	100.0
Average	27	64.3	7	16.7	1	2.3	-	-	7	16.7	42	100.0	25	59.5	7	16.7	3	7.1	1	2.4	6	14.3	42	100.0
Much	14	51.9	2	7.4	1	3.7	1	3.7	9	33.3	27	100.0	10	37.1	5	18.5	2	7.4	4	14.8	6	22.2	27	100.0
Very much	2	40.0	-	-	1	20.0	1	20.0	1	20.0	5	100.0	1	20.0	1	20.0	1	20.0	1	20.0	1	20.0	5	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .004 / Cramer V's = .265)													(Pearson's Chi-Square = .064 / Cramer's V = .225)											
Knowledge Level on Modern Medicine																								
Very little	19	76.0	3	12.0	-	-	1	4.0	2	8.0	25	100.0	19	76.0	4	16.0	1	4.0	-	-	1	4.0	25	100.0
Little	28	80.0	3	8.6	3	8.6	-	-	1	2.8	35	100.0	23	65.8	6	17.1	2	5.7	2	5.7	2	5.7	35	100.0
Average	35	68.7	7	13.7	-	-	2	3.9	7	13.7	51	100.0	31	60.8	7	13.7	3	5.9	5	9.8	5	9.8	51	100.0
Much	2	33.3	1	16.7	1	16.7	-	-	2	33.3	6	100.0	3	50.0	1	16.7	1	16.7	-	-	1	16.6	6	100.0
Very much	1	12.5	1	12.5	-	-	-	-	6	75.0	8	100.0	-	-	1	12.5	1	12.5	-	-	6	75.0	8	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .000 / Cramer's V = .209)													(Pearson's Chi-Square = .001 / Cramer's V = .287)											
Knowledge of Availability of Libraries																								
Very little awareness	30	81.1	2	5.4	1	2.7	-	-	4	10.8	37	100.0	28	75.7	3	8.1	3	8.1	2	5.4	1	2.7	37	100.0
Little awareness	35	66.0	6	11.3	2	3.8	3	5.7	7	13.2	53	100.0	31	58.5	8	15.1	3	5.7	4	7.5	7	13.2	53	100.0
Average awareness	9	53.0	4	23.5	-	-	-	-	4	23.5	17	100.0	9	52.9	3	17.7	1	5.9	-	-	4	23.5	17	100.0
Much awareness	11	68.7	3	18.7	1	6.3	-	-	1	6.3	16	100.0	8	50.0	5	31.2	1	6.2	1	6.2	1	6.2	16	100.0
Very much awareness	-	-	-	-	-	-	-	-	2	100.0	2	100.0	-	-	-	-	-	-	-	-	2	100.0	2	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .079 / Cramer's V = .221)													(Pearson's Chi-Square = .040 / Cramer's V = .233)											
Belief in Power of the Printed Word																								
Low belief	9	64.4	1	7.1	1	7.1	1	7.1	2	14.3	14	100.0	12	85.7	-	-	2	14.3	-	-	-	-	14	100.0
Average belief	10	71.4	2	14.3	-	-	-	-	2	14.3	14	100.0	10	71.4	1	7.1	1	7.1	2	14.4	-	-	14	100.0
Strong belief	66	68.0	12	12.4	3	3.1	2	2.1	14	14.4	97	100.0	54	55.8	18	18.5	5	5.1	5	5.1	15	15.5	97	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12	125	100.0
(Pearson's Chi-Square = .919 / Cramer V = .114)													(Pearson's Chi-Square = .077 / Cramer V's = .238)											

Table 8.4 Distribution of the Enabling Variables over the Dependent Variables (N=125).

Variable	Utilisation of Traditional Health Information & Communication Systems (THICS)												Utilisation of Modern Health Information & Communication Systems (MHICS)											
	Very low		Low		Average		High		Very high		Total		Very low		Low		Average		High		Very high		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Socio-Economic Status (SES)																								
Poor	50	75.8	8	12.1	2	3.0	1	1.5	5	7.6	66	100.0	45	68.2	9	13.6	5	7.6	4	6.1	3	4.5	66	100.0
Average	24	64.9	4	10.8	2	5.4	2	5.4	5	13.5	37	100.0	24	64.9	7	18.9	2	5.4	1	2.7	3	8.1	37	100.0
Well-to-do	11	50.0	3	13.6	-	-	-	-	8	36.4	22	100.0	7	31.8	3	13.6	1	4.6	2	9.1	9	40.9	22	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .065 / Cramer's V = .243)													(Pearson's Chi-Square = .022 / Cramer's V = .313)											

Table 8.5 Distribution of the Perceived Need of Health Information Variables over the Dependent Variables (N=125).

Variable	Utilisation of Traditional Health Information & Communication Systems (THICS)												Utilisation of Modern Health Information & Communication Systems (MHICS)											
	Very low		Low		Average		High		Very high		Total		Very low		Low		Average		High		Very high		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Need Modern Health Information																								
Low perceived need	8	100.0	-	-	-	-	-	-	-	-	8	100.0	4	50.0	3	37.5	-	-	1	12.5	-	-	8	100.0
Medium perceived need	77	68.7	15	13.4	4	3.6	3	2.7	13	11.6	112	100.0	72	64.3	16	14.3	8	7.1	6	5.4	10	8.9	112	100.0
High perceived need	-	-	-	-	-	-	-	-	5	100.0	5	100.0	-	-	-	-	-	-	-	-	5	100.0	5	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .000 / Cramer's V = .371)													(Pearson's Chi-Square = .000 / Cramer's V = .414)											

Table 8.6 Distribution of the Institutional Variables over the Dependent Variables (N=125).

Variable	Utilisation of Traditional Health Information & Communication Systems (THICS)												Utilisation of Modern Health Information & Communication Systems (MHICS)											
	Very low		Low		Average		High		Very high		Total		Very low		Low		Average		High		Very high		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Member Health Information Institution																								
Very few	51	71.8	8	11.3	2	2.8	1	1.4	9	12.7	71	100.0	44	62.0	12	16.9	4	5.6	4	5.6	7	9.9	71	100.0
Few	16	61.5	7	26.9	-	-	1	3.8	2	7.7	26	100.0	18	69.2	3	11.5	3	11.5	-	-	2	7.7	26	100.0
Average	11	64.7	-	-	1	5.9	1	5.9	4	23.5	17	100.0	10	58.8	2	11.8	1	5.9	1	5.9	3	17.6	17	100.0
Many	6	66.7	-	-	-	-	-	-	3	33.3	9	100.0	3	33.3	1	11.1	-	-	2	22.2	3	33.3	9	100.0
Very many	1	50.0	-	-	-	-	1	50.0	-	-	2	100.0	1	50.0	1	50.0	-	-	-	-	-	-	2	100.0
General Total	85	68.0	15	12.0	2	1.6	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .018 / Cramer's V = .245)													(Pearson's Chi-Square = .431 / Cramer's V = .181)											

Table 8.7 Distribution of the Intervening Variables over the Dependent Variables (N=125).

Variable	Utilisation of Traditional Health Information &Communication Systems (THICS)												Utilisation of Modern Health Information & Communication Systems (MHICS)											
	Very low		Low		Average		High		Very high		Total		Very low		Low		Average		High		Very high		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Exposure to Electronic Media																								
Very low exposure	7	70.0	1	10.0	1	10.0	1	10.0	-	-	10	100.0	8	80.0	1	10.0	1	10.0	-	-	-	-	10	100.0
Low exposure	48	78.7	6	9.8	2	3.3	-	-	5	8.2	61	100.0	42	68.8	8	13.1	2	3.3	5	8.2	4	6.6	61	100.0
Average exposure	13	68.4	4	21.0	-	-	1	5.3	1	5.3	19	100.0	12	63.1	5	26.3	-	-	1	5.3	1	5.3	19	100.0
High exposure	14	63.7	1	4.5	1	4.5	1	4.5	5	22.8	22	100.0	12	54.6	4	18.2	2	9.1	1	4.5	3	13.6	22	100.0
Very high exposure	3	23.1	3	23.1	-	-	-	-	7	53.8	13	100.0	2	15.4	1	7.7	3	23.1	-	-	7	53.8	13	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .003 / Cramer's V = .268)													(Pearson's Chi-Square = .001 / Cramer's V = .287)											
Exposure to Printed Media																								
Very low exposure	68	75.6	9	10.0	2	2.2	3	3.3	8	8.9	90	100.0	61	67.7	12	13.3	5	5.6	6	6.7	6	6.7	90	100.0
Low exposure	5	71.4	1	14.3	1	14.3	-	-	-	-	7	100.0	4	57.1	2	28.6	1	14.3	-	-	-	-	7	100.0
Average exposure	8	53.3	3	20.0	1	6.7	-	-	3	20.0	15	100.0	6	40.0	5	33.3	1	6.7	1	6.7	2	13.3	15	100.0
High exposure	2	50.0	-	-	-	-	-	-	2	50.0	4	100.0	2	50.0	-	-	-	-	-	-	2	50.0	4	100.0
Very high exposure	2	22.2	2	22.2	-	-	-	-	5	55.6	9	100.0	3	33.3	-	-	1	11.1	-	-	5	55.7	9	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .024 / Cramer's V = .241)													(Pearson's Chi-Square = .005 / Cramer's V = .261)											
Awareness of Epidemics																								
No	39	57.4	8	11.8	3	4.4	3	4.4	15	22.0	68	100.0	32	47.1	12	17.6	6	8.8	7	10.3	11	16.2	68	100.0
Yes	46	80.7	7	12.3	1	1.8	-	-	3	5.3	57	100.0	44	77.2	7	12.3	2	3.5	-	-	4	7.0	57	100.0
General Total	85	68.0	15	12.0	4	3.2	3	2.4	18	14.4	125	100.0	76	60.8	19	15.2	8	6.4	7	5.6	15	12.0	125	100.0
(Pearson's Chi-Square = .019 / Cramer's V = .307)													(Pearson's Chi-Square = .006 / Cramer's V = .342)											

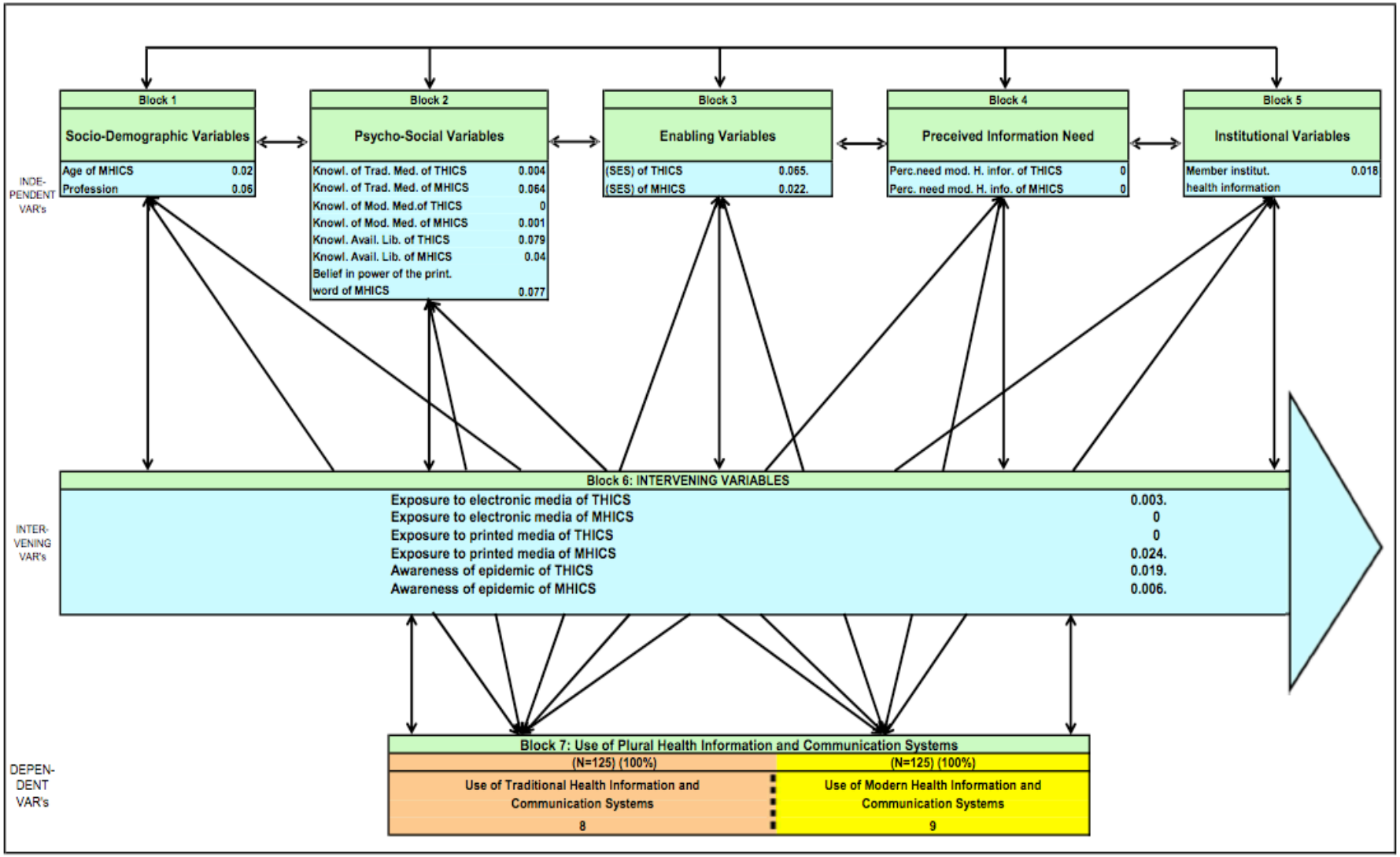

Figure 8.1 Model of the Mutual Relations Analysis with the Blocks of Significant Factors (20) in Sukamiskin. (Adapted from Slikkerveer 2012).

8.4 Multivariate Analysis: OVERALS

8.4.1 OVERALS: Nonlinear Canonical Correlation Analysis

The bivariate analysis which has been applied as the first step to the data collected from the household surveys and presented in the form of cross-tabulations, provides a first impression of the nature of the correlations between the predisposing, enabling and intervening variables on the one hand, and the dependent variables of utilisation of the Plural Health Information & Communication System (PHICS) on the other hand. On the basis of the analytical model selected for this study which has been adapted from the model of transcultural health care utilisation behaviour developed by Slikkerveer (1990; 2001) during his research carried out in the Horn of Africa, an advanced multivariate analysis, more specifically a Non-linear Canonical Correlation Analysis using the technique of OVERALS, is carried out as the second step in the analysis of the present data.

As an extension to the bivariate techniques of statistical data analysis, a multivariate analysis is applied to the present data in order to further analyse the different determinants of the respondents' behaviour while focusing on the interrelationships and interactions between all variables identified in the analytical model. The OVERALS programme allows variables to be measured at the nominal, ordinal and interval level whereby stability of the results can be obtained by using the Bootstrap method (*cf.* Burg & De Leeuw 1988). Furthermore, OVERALS selects weights for each set of variables in a way to maximise the canonical correlation between variables through the provision of so-called 'canonical variates' for each set of variables. This method can be regarded as a factor analysis of two sets of categories of variables, in which the variable from the first set should have a maximum correlation with the variable from the second set. The statistical technique also calculates the eigenvalue for each dimension whereby the concept of 'dimension' refers to a specific number of possible combinations of variables within each set. The canonical correlations coefficients and the eigenvalues are generally very stable provided that the sample size is not too small. As Aiglsperger (2014: 255) mentions: '*In addition to assessing the correlation between sets of variables, OVERALS evaluates the correlations between the canonical variates and the original variables which are known as 'canonical' or 'component loadings"*

Van Burgh, Noordenmeer & De Haes (1944) underscore that the confidence intervals for component loadings are larger than for eigenvalues but are nevertheless stable. The results of the multivariate analysis which is carried out on the basis of the OVERALS technique usually focuses on a description of the canonical correlation coefficients and the component loadings. The results of the canonical correlation analysis applied to the present data are presented in the form of component loadings of the two sets of independent and dependent variables for which two dimensions are chosen. The OVERALS analysis produces a list of 23 variables including their scaling level and offers the component loading of each variable on each dimension (*cf.* Table 8.8).

In order to present the OVERALS solution graphically, the component loadings are projected onto the canonical space, resulting in a plot which indicates the category of quantifications and the category of coordinates (*cf.* Figure 8.2).

The variables are labelled and operationalised as follows:

Set of Independent and Intervening Variabes
Predisposing Socio-Demographic Variables: 'HHsize', 'Age', 'EduForm', 'Prof';
Predisposing Psycho-Social Variables: 'KnowTHI', 'KnowMHI', 'KnowLib', 'BeliefTHI', 'BeliefMHI', 'BeliefPW', 'OpQualHI', 'OpCostHI', 'OpServHI';
Enabling Variables: 'SES';
Perceived Need of Health Information Variables: 'NeedTHI', 'NeedMHI';
Institutional Variables: 'ExpoHI', 'MemInst';
Intervening Variables: 'ExpoElec', 'ExpoPrint', 'Epidemics';

The component loadings presented in Table 8.8 indicate that the variables 'ExpoElec' (-0.570), 'NeedMHI' (-0.560) and 'KnowMHI' (-0.559) have a large effect on Dimension 1. As shown in Figure 8.2, a significantly high correlation appears to exist between the intervening variable 'Exposure to Electronic Media' in Set 1 and the dependent variable 'Utilisation of Modern Health Information & Communication Systems' in Set 2.

Table 8.8 Component Loadings of the two Sets of Variables with a Total of 23 Variables on two Dimensions (N=125).

Set	Variable	Dimension 1	Dimension 2
1	HHsize (a, b)	0.089	0.200
	Age (b, c)	0.085	0.303
	EduForm (b, c)	-0.209	0.170
	Prof (b, d)	-0.045	-0.324
	KnowTHI (b, c)	-0.458	-0.038
	KnowMHI (b, c)	-0.559	0.142
	KnowLib (b, c)	-0.140	0.077
	BeliefTHI (b, c)	-0.018	0.157
	BeliefMHI (b, c)	-0.044	-0.157
	BeliefPW (b, c)	-0.046	-0.153
	OpQualHI (b, c)	-0.203	-0.168
	OpCostHI (b, c)	-0.158	-0.086
	OpServHI (b, c)	0.065	-0.306
	SES (b, c)	-0.414	-0.095
	NeedTHI (b, c)	-0.187	0.161
	NeedMHI (b, c)	-0.560	0.134
	ExpoHI (b, c)	-0.023	0.051
	MemInst (b, c)	-0.167	-0.108
	ExpoElec (b, c)	-0.570	-0.026
	ExpoPrint (b, c)	-0.468	0.127
	Epidemics (b, d)	0.403	-0.009
2	UseTHI (b, c)	-0.812	0.457
	UseMHI (b, c)	-0.846	-0.394

a = Optimal Scaling Level: Numerical
b = Projections of the Single Quantified Variables in the Object Space
c = Optimal Scaling Level: Ordinal
d = Optimal Scaling Level: Single Nominal

On the second dimension, the variables 'Prof' (-0.324), 'OpServHI' (-0.306) and 'Age' (0.303) have a medium effect. Similarly, the variable 'Opinion on the Service of Health Information' in Set 1 tends to correlate with the dependent variable 'Use of Modern Health Information & Communication Systems' in Set 2 (*cf.* Figure 8.2). The strongest component loadings are, however, found among the dependent variables which indicate a strong correlation between the dependent variables as well as between both sets of variables.

The largest effect is produced by the variable 'UtilisationMHI' on the first dimension (-0.846) followed by 'UtilisationTHI' on the first dimension (-0.812). On the second dimension, the variables have a medium effect of 0.457 for 'UtilisationTHI' and -0.394 for 'UtilisationMHI'. With the exception of the variable 'OpServHI', the results of the multivariate analysis support the findings of the bivariate analysis, particularly with regard to the variables 'ExpoElec', 'NeedMHI' and 'KnowMHI'.

8.4.2 Projection of Variables and Objects in the Canonical Space

Figure 8.1 presents a graphical impression of all 23 variables as points in the canonical space which hereby helps to gain a better understanding of the complex coherence among the variables.

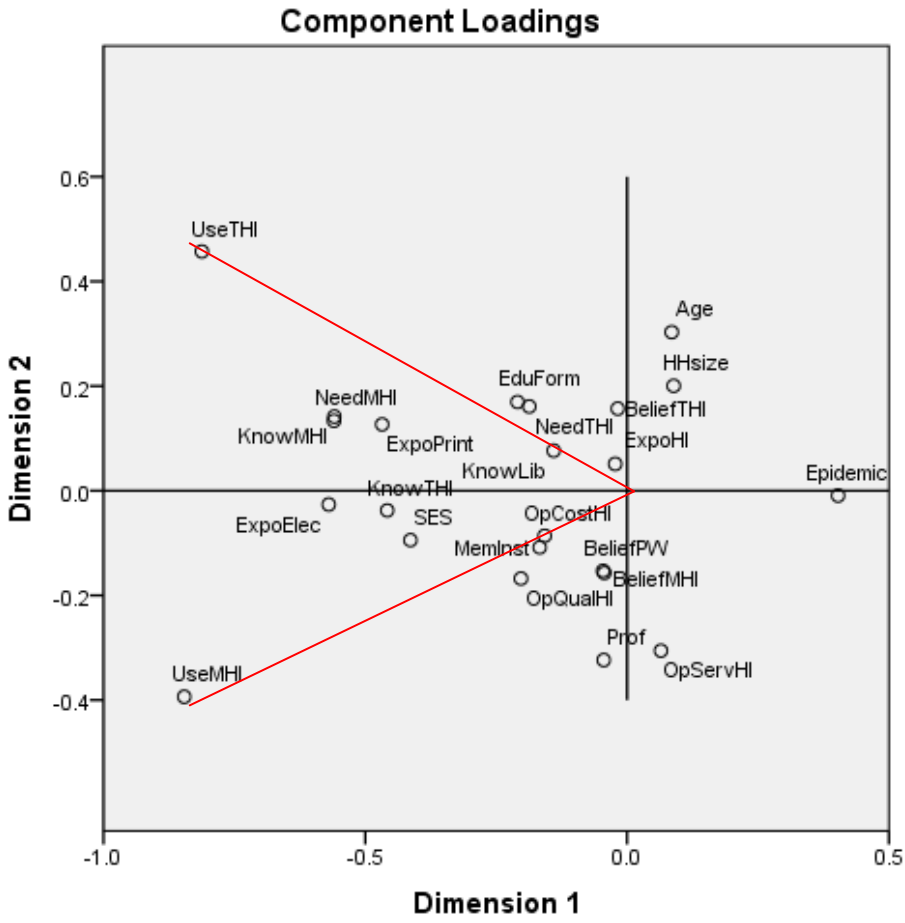

Figure 8.2 Graphic Representation of the Projection of Component Loadings of the two Sets of Variables onto the Canonical Space with a Total of 23 Variables on two Dimensions (N= 125).

In addition, Figure 8.3 shows the scatter plot for all 23 optimally scaled variables and highlights the divergence between the dependent variables 'Utilisation of Traditional Health Information & Communication Systems' and 'Utilisation of Modern Health Information & Communication Systems'. The dependent variables have been projected in the canonical space in relation to 21 predictor variables (*cf.* Ambaretnani 2012).

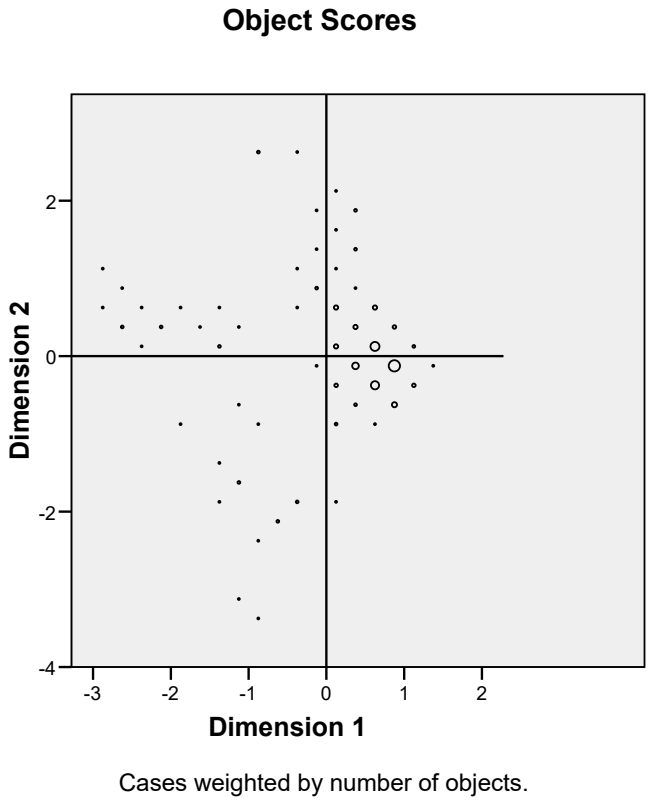

Figure 8.3 Projection of 23 optimally scaled Variables from Set 1 and Set 2 in Canonical Space.

8.5 The Analytical Model: Multiple Regression Analysis

8.5.1 Calculation of Correlation Coefficients

For the purpose of this study, the OVERALS technique is used to assess not only the correlation between variables, but also the correlation between the different blocks of variables identified in the model, *i.e.* the interaction between the blocks of independent, intervening and dependent variables.

Table 8.9 Calculated Multiple Correlation Coefficients (r) of Eight Blocks of Factors on two Dimensions (N=125)

Block ←→ Block	Dimension	Calculation[a]	Multiple Correlation Coefficient (r)
1 ←→ 2	1	2 x 0.890 – 1 =	0.780
	2	2 x 0.808 – 1 =	0.616
1 ←→ 3	1	2 x 0.758 – 1 =	0.512
1 ←→ 4	1	2 x 0.794 – 1 =	0.588
	2	2 x 0.681 – 1 =	0.316
1 ←→ 5	1	2 x 0.753 – 1 =	0.506
	2	2 x 0.645 – 1 =	0.290
1 ←→ 6	1	2 x 0.783 – 1 =	0.506
	2	2 x 0.705 – 1 =	0.410
1 ←→ 7	1	2 x 0.721 – 1 =	0.442
1 ←→ 8	1	2 x 0.737 – 1 =	0.474
2 ←→ 3	1	2 x 0.767– 1 =	0.534
2 ←→ 4	1	2 x 0.778 – 1 =	0.556
	2	2 x 0.711 – 1 =	0.422
2 ←→ 5	1	2 x 0.896 – 1 =	0.792
	2	2 x 0.825 – 1 =	0.650
2 ←→ 6	1	2 x 0.897 – 1 =	0.794
2 ←→ 7	1	2 x 0.821 – 1 =	0.642
2 ←→ 8	1	2 x 0.809 – 1 =	0.618
3 ←→ 4	1	2 x 0.723 – 1 =	0.446
3 ←→ 5	1	2 x 0.625 – 1 =	0.250
3 ←→ 6	1	2 x 0.688 – 1 =	0.376
3 ←→ 7	1	2 x 0.640 – 1 =	0.128
3 ←→ 8	1	2 x 0.700 – 1 =	0.400
4 ←→ 5	1	2 x 0.743 – 1 =	0.486
4 ←→ 6	1	2 x 0.824 – 1 =	0.648
4 ←→ 7	1	2 x 0.758 – 1 =	0.516
4 ←→ 8	1	2 x 0.637 – 1 =	0.274
5 ←→ 6	1	2 x 0.677 – 1 =	0.354
5 ←→ 7	1	2 x 0.618 – 1 =	0.236
5 ←→ 8	1	2 x 0.637 – 1 =	0.274
6 ←→ 7	1	2 x 0.762 – 1 =	0.524
6 ←→ 8	1	2 x 0.772 – 1 =	0.544

[a]The values in the calculation are the eigenvalues for the first and second dimension.

Following the OVERALS analysis of each block of variables, the relationships between the different blocks of variables which highlights the explanatory value of the analytical model towards predicting people's utilisation behaviour is addressed by means of a multiple regression analysis, as it includes an assessment of the interactions between all 23 variables in the two data sets, grouped in the related categories or blocks in the model.

In this way, nonlinear canonical correlation analysis is suitable for determining the coherence between categories of independent and intervening variables as well as dependent variables, thus for interpreting the coherence of the final explanatory model of the respondents' utilisation of the Traditional and Modern Health Information & Communication Systems (T&MHICS).

The multiple regression analysis estimates the significance of the final model of utilisation behaviour by means of analysing the association between the different blocks of factors which is expressed by a multiple correlation coefficient (r). For this research, the multiple correlation coefficients are calculated on the basis of the eigenvalue which OVERALS produces for each dimension (Ed), and by subsequently applying the formula 'rd= 2 x Ed – 1' (*cf.* Agung 2005, Ibui 2007, Leurs 2010, Djen Amar 2010, Ambaretnani 2012, Aiglsperger 2014). Table 8.9 shows the multiple correlation coefficients (r) which are calculated for all possible correlations between the different blocks of variables in the model.

As regards Table 8.9, the strongest correlation is found between Block 2 of the predisposing psycho-social variables and Block 6 of the intervening variables (r1 = 0.794), as well as between Block 2 of the predisposing psycho-social variables and Block 5 of the institutional variables (rl = .792, r2 = .650). The results moreover reveal a strong correlation between Block 1 of the predisposing socio-demographic variables and Block 2 of the predisposing psycho-social variables (rl = .780, r2 = .616).

The strongest correlations with the dependent variables are found between Block 2 of the predisposing psycho-social variables and Block 7 of the utilisation variables of the Traditional Health Information & Communication System (THICS) (r1 = 0.642) as well as between Block 2 of the predisposing psycho-social variables and Block 8 of the utilisation variables of the Modern Health Information & Communication System (MHICS) (r1 = 0.618). Strong correlations moreover exist between Block 6 of the intervening variables and Block 8 of the utilisation variables of the MHICS (r1 = 0.544), between Block 6 of the intervening variables and Block 7 of the utilisation variables of THICS (r1 = 0.524), as well as between Block 4 of the perceived need of health information variables and Block 7 of the utilisation variables of THICS (r1 = 0.516).

8.5.2 The Final Model of Utilisation of the Plural Health Information & Communication System (PHICS)

On the basis of the results gained from the multiple regression analysis, Figure 8.4 shows the final model of patterns of utilisation of the plural health information & communication system displayed by the research participants in Sukamiskin. The correlations (r) between the blocks of independent, intervening and dependent variables which have been calculated by means of multiple regression analysis are presented. These correlations show the relative value of interaction between the blocks and hereby highlight the validity of the multivariate model.

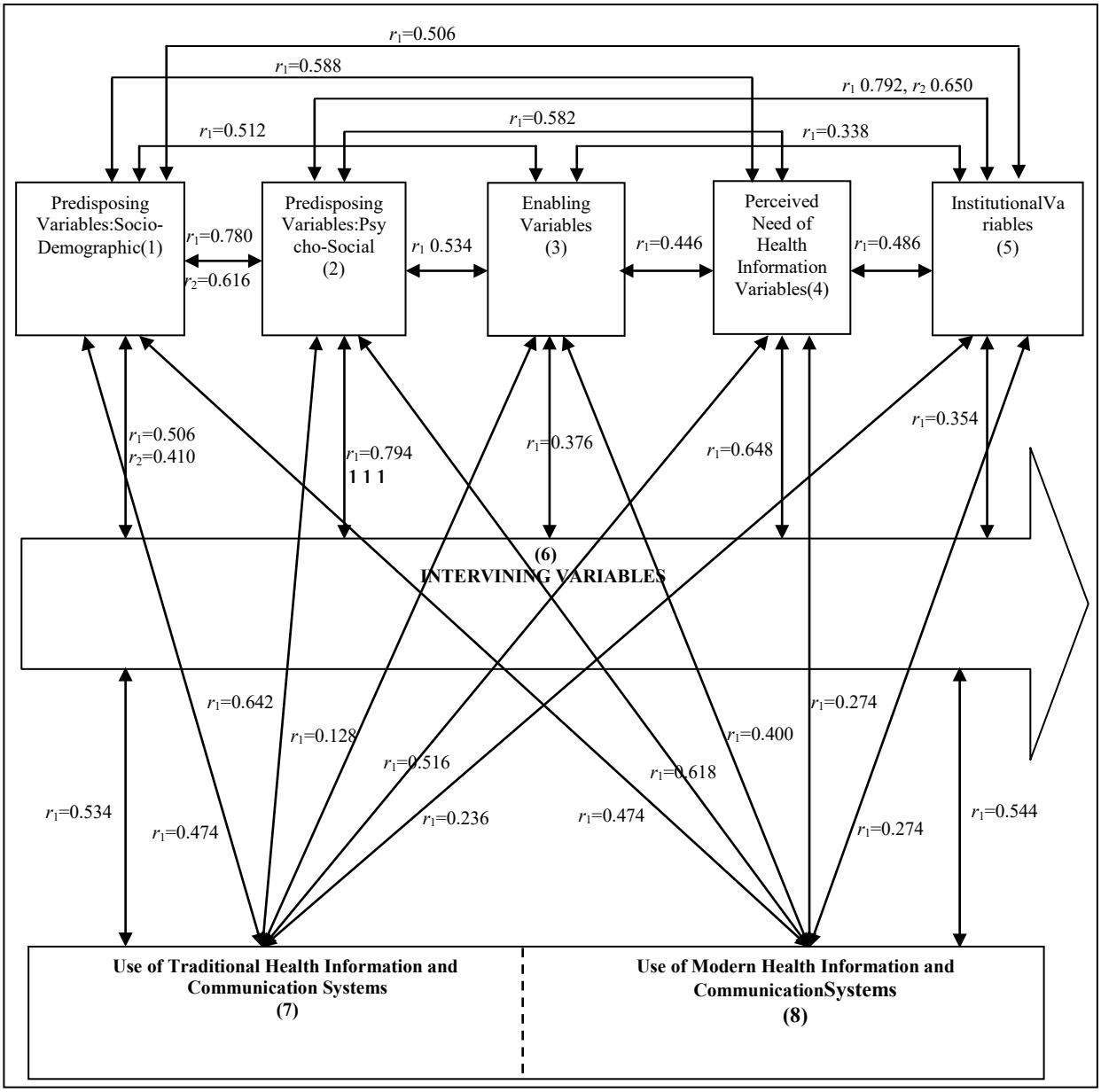

Figure 8.4 The Final Model of Utilisation of the Plural Health Information & Communication System (PHICS), indicating the Multiple Correlation Coefficients.

8.6 Interpretation of Results

As indicated in Paragraph 8.2, the average pattern of utilisation of the Traditional Health Information & Communication System (THICS) shows scores of 85 (68.0%); 15 (12.0%); 4 (3.2%); 3 (2.4%) and 18 (14.%), distributed over respectively 'Very low'; 'Low'; Average; 'High' and 'Very high' utilisation, and the Modern Health Information & Communication System' (MHICS) with scores of 76 (60.8%); 19 (15.2%); 8 (6.4%); 7 (5.6%) and 15 (12.0%), distributed over respectively 'Very low'; 'Low'; Average; 'High' and 'Very high' utilisation.

Here, the results of the bivariate analysis are showing that a number of significant correlations exist between the independent and intervening variables in relation to the dependent variables (*cf.* Tables 8.1, 8.2, 8.3, 8.4, 8.5 and 8.6). The related significant correlations can be interpreted as follows:

Independent variables:

Socio-demographic variables

The bivariate analysis illustrates that the socio-demographic variables 'Age' and 'Profession' correlate with different values of significance with the dependent variables.

The *strongly significant* correlation with the variable 'Age' emerging in the very high utilisation of the Modern Health Information & Communication System' (MHICS) is largely determined by less than two-thirds (68.7%, n=11) of respondents in the category of **'**Age' between 56-60 years' of age. This score indicates that most of the elderly in the community are hardly utilising the MHICS, largely due to their limited access to the modern media.

The *weakly significant* correlation with the variable 'Profession' emerging in the very low utilisation of the Traditional Health Information & Communication System' (THICS) is largely determined by over four-fifths (90.9%, n=10) of the respondents in the category of the **'**Unemployed'. This score indicates that the unemployed in the community are hardly utilising THICS.

Psycho-social variables

The bivariate analysis also illustrates that the independent variables 'Knowledge Level on Traditional Medicine', 'Knowledge Level on Modern Medicine', 'Knowledge of Availability of Libraries' and 'Belief in Power of the Printed Word' correlate significantly with the dependent variables.

The *strongly significant* correlation with the 'Knowledge Level on Traditional Medicine' emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by over four-fifths (90.0%. n= 9) of the respondents in the category with 'Very little knowledge of traditional medicine'. This score indicates that the respondents with very little knowledge of traditional medicine are hardly utilising THICS.

The *weakly significant* correlation with the variable 'Knowledge Level on Traditional Medicine' emerging in the very low utilisation of the Modern Health Information & Communication System' (MHICS) is largely determined by virtually all (100.0%, n=10) of the respondents in the category with 'Very little knowledge of traditional medicine'. This score indicates that respondents with very little knowledge of traditional medicine are not utilising MHICS.

The *most strongly significant* correlation with the variable 'Knowledge Level on Modern Medicine' emerging in the very low utilisation of the Traditional Health Information & Communication System' (THICS) is also largely determined by four-fifths (80%, n=28) of the respondents in the category with 'Very little knowledge of modern medicine'. This score indicates that the respondents with very little knowledge of modern medicine are hardly utilising THICS.

Similarly, the *very significant* correlation with the variable 'Knowledge Level on Modern Medicine' emerging in the very low utilisation of the Modern Health Information & Communication System' (MHICS) is largely determined by three-quarters (76.0%, n=19) of the respondents in the category with 'Very little knowledge of modern medicine'. This score indicates that respondents with very little knowledge of modern medicine are hardly utilising MHICS.

The *weakly significant* correlation with the variable 'Knowledge of the Availability of Libraries' emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by two-thirds 75.0%. n=35) of the respondents in the category with 'Little knowledge of available libraries'. This score indicates that more than half of these are not utilising THICS.

In contrast, the *strongly significant* correlation with the variable 'Knowledge of Availability of Libraries' emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by more than three-fourths of the respondents (75.0%, n= 6) in the category of respondents with 'Little knowledge of available libraries'. This score indicates that those respondents with very much knowledge of the availability of libraries are very much utilising the Modern Health Information & Communication System (MHICS). These results are supported by the findings of the canonical correlation analysis which reveal that the predisposing psycho-social variables in fact determine patterns of utilisation of traditional and modern health information & communication systems. Throughout the research area, knowlegde of traditional and modern medicine is primarily transferred by means of traditional communication from generation to generation (*cf.* Chapter 6). However, nowadays, traditional health information can also be easily obtained from various modern sources of health information in printed or recorded form and is hereby available *i.a.* at libraries, on the Internet or in television programmes.

The *weakly significant* correlation with the variable 'Belief in Power in the Printed Word' emerging in the very low utilisation of the Modern Health Information & Communication System (MHICS) is largely determined by more than four-fifths (85.7%, n=12) of the respondents in the category with a 'Low belief in the power of the printed word'. This score indicates that the respondents with a low belief in the power of the printed word are hardly utilising MHICS.

The above-mentioned results are also supported by the findings of the canonical correlation analysis which reveal that the predisposing psycho-social variables not only determine but also dominate the patterns of utilisation of both the Traditional and Modern Health Information & Communication Systems (T&MHICS), together forming the Plural Health Information & Communication Systems (PHICS). Throughout the research area, knowlegde of traditional and modern medicine is primarily transferred by means of traditional communication from generation to generation (*cf.* Chapter 6). Nowadays, traditional health information can also easily be obtained from various modern sources of health information in printed or recorded form and is hereby available *i.a.* at libraries, on the Internet or in television programmes.

Enabling Variables

The bivariate analysis also shows that the variable 'Socio-Economic Status' (SES)' correlates significantly with the dependent variable of the Traditional Health Information & Communication System (THICS) and is strongly significant with the dependent variable of the Modern Health Information & Communication System (MHICS).

The *weakly significant* correlation with the variable 'Socio-Economic Status (SES)' emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by two-thirds (75.8%, n= 50) of the respondents in the category with a 'Poor Socio-Economic Status (SES)'. This score indicates that respondents with a poor socio-economic status are hardly utilising THICS. These results support the limited access of the poor to a number of sources of health information, such as the Internet which involves operating costs, for example, for the use of a computer or a smartphone.

Similarly, the *strongly significant* correlation with the variable 'Socio-Economic Status (SES)' emerging in the very low utilisation of the Modern Health Information & Communication System' (MHICS) is largely determined by over two-thirds (68.2%, n=45) of the respondents in the category with a 'Poor Socio-Economic Status (SES)'. This score indicates that the respondents with a poor socio-economic status (SES) are hardly utilising MHICS. The modern medical systems available in the research area are still considered expensive and sometimes less effective by the majority of community members. Furthermore, access to a number of sources of health information, such as the Internet, involves several operating costs, for example, for the use of a computer or a smartphone.

Perceived Need of Health Information Variables

The bivariate analysis also illustrates that the perceived need of health information variables most strongly correlate significantly with the dependent variables.

The *most strongly significant* correlation with the variable 'Need of Modern Health Information' emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by more than three-fourths of the respondents (68.7%, n=77) in the category with a 'Medium perceived need of modern health information'. This score indicates that respondents with a medium perceived need of modern health information are hardly utilising the THICS.

Similarly, the *most strongly significant* correlation with the variable 'Need of Modern Health Information' emerging in the very low utilisation of the Modern Health Information & Communication System (MHICS) is largely determined by less than three-fourths (64.3%, n= 72) of the respondents in the category with a 'Medium perceived need of modern health information'. This indicates that respondents with a medium perceived need of modern health information are hardly utilising MHICS.

Institutional Variables

The bivariate analysis also illustrates that the institutional variable 'Member Health Information Institution' srongly correlates significantly with the dependent variables of the Traditional Health Information & Communication System (THICS).

The *strongly significant* correlation with the variable 'Member Health Information Institution' emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by more than three-fourths (68.7%, n=77) of the respondents in the category with 'Very few memberships of institutional health information'. This indicates that respondents with very few memberships of institutional health information are hardly utilising THICS.

In addition, patterns of utilisation of traditional health information & communication reported by the household heads are to a certain extent influenced by those respondents who are related to institutional health information. On the contrary, exposure to institutional health information has no correlation with the reported utilisation of the Plural Health Information & Communication System.

Intervening Variables

The bivariate analysis also illustrates that the institutional variable 'Member Health Information Institution' correlates with different values of significance with the dependent variables.

The *very strongly significant* correlation with the variable 'Exposure to Electronic Media' emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by three-fourths (78.7%, n=48) of the respondents in the

category with ‘Low exposure to electronic media’. This indicates that more than half of the respondents with a low exposure to electronic media are hardly utilising THICS. Similarly, the *very strongly significant* correlation with the variable ‘Exposure to Electronic Media’ emerging in the very low utilisation of the Modern Health Information & Communication System (MHICS) is largely determined by more than two-thirds (68.8%, n=42) of the respondents in the category with a ‘Low exposure to electronic media’. This score indicates that respondents with a low exposure to electronic media are hardly utilising MHICS.

The *very strongly significant* correlation with the variable ‘Exposure to Printed Media’ emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by three-quarters (75.6 %, n=68) of the respondents in the category with ‘Very low exposure to printed media’. This score indicates that three-quarters of the respondents with a low exposure to printed media are hardly utilising THICS.

Similarly, the *very strongly significant* correlation with the variable ‘Exposure to Printed Media’ emerging in the very low utilisation of the Modern Health Information & Communication System (MHICS) is largely determined by less than two-thirds (67.7%, n=61) of the category of respondents with ‘Very low exposure to printed media’. This indicates that more than half of the respondents with a low exposure to printed media are hardly utilising the Traditional Health Information & Communication System (THICS).

The inhabitants of Sukamiskin are highly exposed to health information on a daily basis. The information is distributed by a number of media including television, newspapers, magazines, brochures, banners, ballyhoos and posters. The ‘Bandung TV’ station, for example, is located in Sukamiskin and runs a popular programme on health information. The vicinity of Bandung moreover facilitates access to the Internet and radio programmes for the community members. Health information in printed form, such as books and magazines is available in the community reading corners of the public libraries which are owned by the community.

The *strongly significant* correlation with the variable ‘Awareness of Epidemics’ emerging in the very low utilisation of the Traditional Health Information & Communication System (THICS) is largely determined by more than three-quarters (80.7%, n=46) of the respondents in the category with an ‘Awareness of Epidemics. This score indicates that much more than half of the respondents with an awareness of Epidemics are hardly utilising THICS.

Similarly, the *very strongly significant* correlation with the variable ‘Awareness of Epidemics’ emerging in the very low utilisation of the Modern Health Information & Communication System (MHICS) is largely determined by more than three-quarters (77.2%, n=44) of the respondents in the category with ‘Very low Awareness of Epidemics’. This indicates that the respondents *with* a low awareness of epidemics are hardly utilising MHICS. In general, the inhabitants of Dengue Fever and Avian Influenza, not least because of the information which is obtained from the media.

The Mutual Relations Analysis provides a clear overview of the different categories of significant variables in relation to the two distinct categories of the dependent variables.

The general distribution of levels of utilisation of the Traditional Health Information & Communication System (THICS), ranging between ‘Very low’, ‘Low’, ‘Average’, ‘High’ to ‘Very high’ over the various significant independent and intervening variables of the analysis amounts to respectively 68.0%, 12.0%, 3.2%, 2.4% and 14.4%., which indicates that there is, on the one hand, a generally **very low level of utilisation** by more than two-thirds (68.0%, n=85) of the rates reported, while on the other hand a generally **very high level of utilisation** of almost one-fifth (14.4%, n=18) of therates reported of THICS. This distribution justifies the overall interpretation that if the average proportion of utilisation of 3.2% (n=4) is taken as the center of the distribution, there is a net four-fifths (80%) of rates of very low to low utilisation reported,

while almost one-fifth (16.8%) of rates of very high to high utilisation are reported for THICS by the respondents in the research area. In other words, the balance of utilisation of THICS has clearly shifted towards its very low to low utilisation by the respondents.

Similarly, the general distribution of levels of utilisation of the Modern Health Information & Communication System (MHICS), ranging between 'Very low', 'Low', 'Average', 'High' and 'Very high' over the various significant independent and intervening variables of the analysis amounts to respectively 60.8%, 15.2%, 6.4%, 5.6% and 12.0%., indicating that there is, on the one hand, a generally **very low level of utilisation** of more than half (60.8%, n=76) of the rates reported, while on the other hand, a generally very **high level of utilisation** of more than one-tenth (12.0%, n=15) of the rates is reported for MHICS. This distribution justifies the overall interpretation that if the average proportion of utilisation of 6.4% (n=8) is taken as the center of the distribution, there is a net rate of more than two-thirds (76%) of the rates of very low to low utilisation reported, while almost one-fifth (17.6%) of the rates of very high to high utilisation are reported for MHICS by the respondents in the research area.. In other words, the balance of utilisation of MHICS has clearly shifted towards its very low to low utilisation by the respondents.

In comparison, the Traditional Health Information & Communication System (THICS) is relatively more under-utilised than the Modern Health Information & Communication System (MHICS), with respectively a net rate of four-fifths (80%) of rates *versus* more than two-thirds (76%) of the rates reported by the respondents of the sample surveys. The implications of these findings will be presented in the next chapter (Chapter IX), with special attention for the development of a model of integration of traditional and modern systems of health information and communication**.**

Notes

[1] Pearson's Chi-Square test allows to determine whether or not there is a statistically significant association between two variables. The Chi-Square value provides a measure of the overall difference between the observed frequencies and the expected frequencies. The greater the overall difference, the larger the value of the Chi-Square and the more significant the relationship between variables (*cf.* Miller *et al*. 2002).

[2] In general, intervening variables influence the standard relationship between independent variables and dependent variables from the outside. In this research, the intervening variables refer to 'Exposure to Electronic Media', 'Exposure to Printed Media' and 'Awareness of Epidemics' of the respondents. Electronic media include television, radio and the Internet while printed media refer to newspapers, magazines and tabloids. Both electronic and printed media disseminate health information mostly in the form of news, columns, opinions, advertisements and publicity. The third intervening variable 'Awareness of Epidemics' addresses the awareness of each individual for health information on Epidemics. The variable relates to individuals who seek information on how to avoid being struck by an epidemic as well as to individuals who are already affected by an epidemic, and are thus searching for information appropriate to finding treatment.

Chapter IX. CONCLUSIONS AND IMPLICATIONS

9.1 Conclusions

This final Chapter of this thesis presents the conclusions and implications of the study of the respondents' utilisation behaviour of the Plural Health Information & Communication System (PHICS) in Sukmiskin which includes the description and explanation of the significant factors influencing the patterns of utilisation by the local people of the two related distinct Health Information & Communication Systems (HICS) forming together the plural configuration in the research area, and the identification of the possible contribution to the improvement of local health information problem-solving, also known as 'information literacy'.

In addition, the implications of the research findings are described to encompass the theoretical and practical implications, as well as to provide a basis for the development of an empirical model of integration of Traditional and Modern Health Information & Communication Systems (T&MHICS) as a planning tool for realising 'Information Society Indonesia' (2003) in the near future.

In order to arrive at the conclusion of the realisation of this study's general aim, an overview is presented below of the conclusions, sub-divided into a number of specific objectives which have been achieved, and can be listed as follows:

Firstly, following the Introduction in Chapter I, the theoretical elaboration of the new field of health information & communication (HIC), and the conceptualisation of Plural Health Information & Communication Systems (PHICS) is presented in Chapter II, after which the complex process of utilisation of the constituting traditional and modern systems is presented as the subject of the special ethnoscience perspective on health information and communication utilisation. In addition, the recent development of a health communication strategy in Indonesia is described, providing a base for the policy-oriented dimension of the study. Special emphasis is placed on these PHICS which encompass two distinct components: the Traditional Health Information & Communication Systems (THICS) and the Modern Health Information & Communication Systems (MHICS). These concepts are described in an interesting process, where local medical knowledge systems exist alongside global medical knowledge systems, so far resulting in a theoretical distinction between the two systems, although it would be more beneficial to the local participants if in the practical setting, integration would be realised to provide them with the choice of alternative options among both systems. Such an integrative process has been referred to as the process of 'glocalisation', which as an integrated approach could also be functional in Indonesia in designing national health information and communication policies, as is further elaborated below.

The process of globalisation on the development of Health Information & Communication Systems (HICS) in Indonesia shows a dual impact on the health sector, which supports the argument of Diaz-Bonilla *et al.* (2002) who indicate that: *'Globalisation affects global health which in turn may improve or worsen the health of the poor in developing countries'.* In this context, globalisation is also related to the current world health problem which has been characterised by what WHO (1999) identifies as 'the double burden of disease'.

Furthermore, the development of Information & Communication Technology has evidently affected the field of communication, particularly after the recent digital revolution, manifest in both the Traditional Health Information & Communication Systems (THICS) and the Modern Health Information & Communication Systems (MHICS) in Indonesia. The Health Information System (HIS) is found to refer to the integration of devices, procedures and policies used to manage information in a systematic cycle with a view to support the implementation of

integrated and comprehensive health management within the framework of health care services to the community. Moreover, the theory shows that health information is required in all health programmes, ranging from the analysis of the situation, priorities, and alternative solutions through programme development, implementation and monitoring to the evaluation of health plans.

In addition, special attention is given to the theories and principles of the Utilisation of Plural Health Information & Communication Systems (PHICS), where it has become clear that the understanding of local utilisation patterns of PHICS – which so far received little attention in the literature – is crucial to the decision-making process of the health-seeking behaviour of the local people. Finally, the theoretical orientation of the study indicates that attention to the practical side of policy-based research in Health Information & Communication Systems (HICS) is also important for the future integration of different traditional and modern health information and communication systems (T&MHICS) in order to improve the overall health information and communication system among the population, which, in turn will contribute to the improved health and well-being of the population.

Secondly, the selected research methodology and the related appropriate analytical model and its components for the execution of the stepwise Bivariate, Mutual Relational, Multivariate and Multiple Regression Analysis of the collected quantitative data in Sukamiskin is presented in Chapter III. The 'Leiden Ethnosystems Approach' is chosen to gain a better understanding and explanation of the indigenous perceptions, practices, beliefs, values and philosophies associated with the level of health information and communication among the participants. The combination of three methodological principles of this approach, developed by Slikkerveer (1989; 1990), include the 'Participant's View' (PV), associated with the anthropological concept of the *emic* view of cultures from within as contrasted to the *etic* view from outside. In addition, the Field of Ethnological Study (FES) is rooted in the Leiden Tradition of Structural Anthropology which refers to the later introduced concept of 'culture area' rendering Indonesia, regardless of its diversity of sub-cultures as one culture area. Finally, the Historical Perspective (HP) is used to facilitate the (pre-)historical analysis of complex contemporary patterns, including in religion, agriculture, resource conservation as well as in medicine in the research area of Sukamiskin.

The 'new' ethnoscience which considers local and regional systems of knowledge and practice within a more dynamic context of processes of development and change allows the analysis of the utilisation process of the distinct traditional and modern health information and communication systems. It is shown that such a perspective includes the execution of complementary qualitative and quantitative surveys, where in-depth interviews are followed by various household surveys.

The appropriate conceptual model is constructed on the basis of the Tanscultural Utilisation Model, developed by Slikkerveer (1990; 1995, 2012) allowing the assessment of the cognitive and behavioural components of particular groups or communities as 'systems' in a rather process-oriented mode. The research uses a multidimensional approach towards ethno-information and ethno-communication on health and disease which is based on the significant evidence that an individual's behaviour is affected by a number of factors, *i.e.* socio-demographic, psycho-social, economic, institutional and intervening variables.

Also special reference is made to a number of studies in various sectors and research settings which have successfully implemented the ethnosystems approach and the related conceptual model mentioned above.

The study of the Plural Health Information & Communication Systems in the Sunda Region of West Java, Indonesia embarks on explanatory research and uses the complementary

qualitative and quantitative methods and techniques for data collection and analysis regarding the knowledge, beliefs and practices in this field of the community members in Sukamiskin in West Java.

Thirdly, the description of Indonesia as a newly-developing country in Asia providing the background to the study in the Sunda Region is presented in Chapter IV, followed by the presentation of the general profile of the community of Sukamiskin. It includes a presentation of the characteristics of government and political organisations as well as Indonesia's administration which has recently been reduced from 27 to 34 provinces. Similarly, a description is provided of the geography and socio-demography of the Sunda Region, focused on the Province of West Java. It is shown that Indonesia is not only traversed by various international channels of transportation, running from west to east and *vice versa*, but it is also involved in many international commercial contacts pertaining to the acceleration of economic growth and the establishment of many multinational corporations. Indonesia's large population and the densely populated regions account for the present number of 263,991,379 in habitants

The research area of the community of Sukamiskin is also described. Because of its abundant natural resources and fertile areas, West Java, the fifth largest province of Indonesia, is dominated by the agricultural sector. The *kelurahan* ('community') of Sukamiskin is located within the administrative boundaries of the urban area of Bandung, the Capital of the Province of West Java.

Fourthly, the description of the daily life in Sukamiskin is presented in Chapter V. It describes the data both available in existing resources and collected among the people of the research population, *i.e.* the residents of the community of Sukamiskin, and the sample population comprised of the selected household heads. It shows that Sukamiskin is characterised as a community in the Arcamanik District, located in the eastern part of the city of Bandung, comprising four villages, namely Cisaranten Kulon, Cisaranten Bina Harapan, Sukamiskin and Cisaranten Endah. The area of Arcamanik District covers 512,99 ha and is approximately 700 metres above sea level. The name of Sukamiskin is explained as originating from the words *suka* which means market, and *miskin* which means musk perfume or fragrance. Hence, Sukamiskin refers to a market where people used to sell many different perfumes. The local administration in Sukamiskin includes six government administrators, *i.e.* six civil servants, and one internship worker. The six civil servants are the *lurah*, the head of the village, the secretary of the *lurah*, the head of the governmental section, the head of the secretary of the village, the head of the economic and law development section, the head of the social section and the head of the service section. In 2013, due to the population growth, the number of neighbourhoods has increased by five neighbourhoods, increasing the total of 83 to 88 neighbourhoods in 2013.

In addition, a general description is presented on the plural medical system, operational in Sukamiskin. The present health care practitioners are *bidan* ('midwives'), *dukun* ('traditional healers') acupuncturists, acupressurists, masseurs and *ajengan* ('religious healers'), doctors, obstetricians, paediatricians, and dentists. Several methods of treatment are also documented as performed by members of the community of Sukamiskin themselves in the form of traditional home remedies. The traditional treatment by the Islamic community of Sukamiskin is performed by the use of *bekam*, *rukiyah* ('holy water') and prayers. Other traditional treatments are acupressure, acupuncture and bone setting.

The structure of modern health care and related facilities available in Sukamiskin are referred to hospitals, *BKIA* ('maternal hospitals'), *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre'), clinics, *Pos Pelayanan Terpadu* (*Posyandu*) ('Integrated Health Post'), pharmacies, traditional remedy stores and *jamu* kiosks.

The members of the community of Sukamiskin perform primarily professions such as farmers, teachers, lecturers, domestic servants, religious leaders, entrepreneurs, labourers, private sector workers or are retired. The ethno-cultural composition shows a majority of the Sundanese people, followed by Javanese, Batak and other population groups, while the majority of the inhabitants in Sukamiskin are Muslim. The research population includes all the residents of Sukamiskin living in 14 hamlets and 83 neighbourhoods. The households which have been selected as the unit of the research consist of 125 household heads and a total of 617 household members. It is found, that in their daily activities, the community members use both the Indonesian and Sundanese language since the majority of the people have a Sundanese ethno-cultural background. Although the Sundanese culture is still embedded in specific socio-cultural values, it shows evidence of strong Islamic influence.

Fifthly, the Traditional Health Information & Communication System (THICS) in the community of Sukamiskin is described against the background of the belief systems, health concepts, information & communication systems, health policies and strategies and the recent impact of autonomy and technology of information and communication. THICS in the research area are built on the Sundanese values. The discussion about the Sundanese culture begins with the belief system in the Sundanese cosmology and the way of life. The *urang sunda* ('Sundanese people') have since many generations been accustomed to conducting their life in harmony with nature as their major philosophy, considering it a part of the universe. This concept forms the basis of the old Sundanese worldview of *tri tangtu*, which involves a vertical and a horizontal communication order expressed in the local philosophy '*hirup nu hurip, hirup kudu nyontoan jeung picontoeun* dan *hirup kudu neundeun jeung ninggalkeun*'.

Since it has become clear that the cosmology of the Sundanese people places greater emphasis on the mythic-spiritual matters, the communities share the belief that there is another life after life on earth. Hence, the concept '*lamun hayang hirup salamet laksanakeun tri tangtu dina kahirupan*' means that if an individual desires to live a *khusnul khotimah (*'right') life, then one should live one's life according to the principles of *tri tangtu*. In this way, humans can achieve a maximum quality of life. Likewise, the Sundanese people in Sukamiskin maintain the seven Sundanese ways of life which are *Cageur, Bageur, Bener, Pinter, Singer, Wanter* and *Cangker.*

In general, the health concept in the Sundanese people's perspective relates to decisions on housing, food, and maintenance of the water reservoir. The underlying concepts include: *tempat* ('place'), *lembur/palemburan* ('village'), *panyicingan* ('housing') and *kadaharan (*'food'), all of which follow the *poe teh kahirupan (*'the light or the sun') as the source of life. Indeed, the place to live in, the food resources, and even the work place as well as the animals in the community have always been associated with *poe teh kahirupan* ('the light or the sun'). Meanwhile, the health concept is often associated with the source of the disease. According to the Sundanese perspective, the source of a disease is generally an ordinary cause due to the weather and biological factors, and extraordinary events which are evoked by the unseen, or by other humans through *tenenung/teluh* ('magic'), *dedemit* ('supernatural beings') or *kasambet* ('being possessed' or 'in trance').

The Sundanese language is the mother tongue or local language, while *Bahasa Indonesia* is the national language. The traditional communication in Sukamiskin can be classified into several types, namely interpersonal communication, small group, public use of direct and indirect ways. Direct interpersonal communication is documented as performed by conversation orally or by gesture. Futhermore, interpersonal communication occurs between parents and children, parents with parents, husband and wife and others. At a greater distance than usual, communication is carried out between grandmothers and grandparents to their grandchildren, and also between neighbours.

Moreover, the use of non-verbal communication is described as more dominant in the Sundanese community which is expressed in the Sundanese concept called *PANCACURIGA.* The indicators of this type of communication are *Silih Asih, Silih Asah* and *Silih Asuh*. *Pancacuriga* refer to five devices (knowledge), where each device has its own meaning which can be represented in a letter, a word, a picture (icon, symbol, logo, sign, herald), body movement, thing, ceremony, ritual form or even in the whole cultural elements (*cf.* Suryalaga 2010 a). Moreover, communication channels in a wider range typically utilise communication media. Some of the information media is the *kohkol* (bamboo percussion) and the *lisung or tutunggulan kohkol, bedog, iket,* and *tektek ngeyeuk sereuh.* The set of tools is referred to as traditional communication tools because it can provide meaning through symbols which are comprehended by the Sundanese people.

Sixthly, the documentation of the indigenous knowledge and the indigenous classification of Medicinal, Aromatic and Cosmetic (MAC) plants used for *lalab* and *ubar kampung* by the people of Sukamiskin are also presented in Chapter VI. A number of elements in the traditional health care system are rooted in the Sundanese culture which is noticeable in the field of Medicinal, Aromatic and Cosmetic (MAC) plants and related herbal dietary ingredients.

In this chapter, specifically collected information of indigenous medicinal plants is presented in a list representing the local classification of these medicinal plants of which certain parts are used as components of *ubar kampung* ('traditional medicine') in the research area. As an illustration, a selection of photographs of these indigenous medicinal plants is presented in Illustration 6.3 of Chapter VI.

It is shown that the centuries-old use of these MAC plants in Sukamiskin has also contributed to the government programme launched in 1983, known as *Tanaman Obat Keluarga* (TOGA)', ('Family Garden with Medicinal Plants'), as part of the *Pemberdayan Kelompok Keluarga* (PKK) ('Empowerment of Family Welfare Movement'), documented by Slikkerveer & Slikkerveer (1995).

Additionally, the *pamali* is described as one of the Sundanese's traditional communication forms which oblige the people not to violate the community prohibitions. In the Indonesian language, *pamali* or prohibition is also called taboo and is a cultural norm that does not allow people to do, use or talk about a particular thing as people find it offensive. In the health sector, *pamali* found in the Sundanese communities is quite effective in the preventive efforts against various diseases, and is also easily understood by the public since it uses the local language. Through a simple sentence of *pamali*, the society may become aware of the importance of health.

The chapter concludes with a description of the Islamic influence on the concepts of health promotion, disease prevention and treatment. In order to provide a guideline on health for its adherents, Islam has taken precautions against diseases as stated in one of the sayings of the Prophet Muhammad (*hadith*). Actually, preventive efforts are an essential component of the *Perilaku Hidup Bersih dan Sehat* (PHBS) ('Clean and Healthy Life Patterns Programme') for the people and their environment. In this context, the local peoples' efforts to cure an illness in accordance with the teaching of Islam is presented, while other types of therapies available outside the area of Sukamiskin are also described, such as the use of bee stings, white rice grains, leeches and acupuncture.

Seventhly, the Modern Health Information & Communication System (MHICS) in the community of Sukamiskin is described in Chapter VII. It starts with a description of the related modern health facilities available in Sukamiskin: *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre'), *Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post'), clinics, and the pharmacies and drugstores. Thereafter, it also explains about the dissemination of health information through the utilisation of the printed media (newspapers, magazines, tabloids,

books kept in libraries), the public media (posters, ballyhoos, fliers, and other), the electronic media (television, radio) and the digital media (e-book, e-news, e-TV and other) including social media. Additionally, several health information technology programmes in Bandung are listed, ranging from the Smart City to the Bandung Health Card. Also, the availability of information institutions disseminating modern health information is described, including the Bandung TV (Television), a Community Library or Community Reading Corner (TBM), Community Radio, newspapers and magazines kiosks. Similarly, the roles of schools, boarding schools, sport centres, health centres, *Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post'), *polindes*, the *Pendidikan Anak Usia Dini* (PAUD) ('Pre-School'), the *Pemberdayan Kelompok Keluarga (*PKK) ('Empowerment of Family Welfare Movement'), village pharmacies, and other institutions are also documented so as to convey health information and educate the members of the community about public health. The *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre') located in Arcamanik has performed promotional activities about health information through three phases, namely: advocacy, community empowerment and community development.

The targets of health information are the individuals, families, groups and organisations located in the *kelurahan* environment. The material provided can be the health programmes of Bandung or the national health programme or particular topics according to the health situation in Sukamiskin. For example: information about the Avian Influenza is presented in Sukamiskin and is carried out through the hamlet (RW) in the form of meetings or by distributing leaflets around the village. The Health Information Systems are also using different partnerships in Health Information & Communication, and there are several institutions which are involved in these rather important partnerships, such as:

1 *POSYANDU (Pos Pelayanan Terpadu) (*'Integrated Health Post');
2 *POD (*'the Village Medical Post');
Post UKK (the Occupational Health Post);
3 *LSM (*the Civil Society Organisations);
4 Private Organisations/Non-Governmental Organisations (hospital, maternity hospital, maternal and child health centre, treatment centre, 24-hour clinic, pharmacy);
5 Funds (PKMD Funds, Rural Public Health Development), Health School Unit Funds, Funds of Islamic Boarding School Health Pattern, Funds of Local Village Cooperative *Koperasi Unit Desa* (*KUD*) Health Pattern, Funds fromNGOs and other Civil Society Organisations, Health Insurance, Workers' Health Insurance, and Private Health Insurance; and
6 Other forms: the Friday-Service Clean Movement, Cleanup Movement, Exterminating Mosquito Nests, *Pemberantas an Sarang Nyamuk* (*PSN*), Free Services Movement, Cross-subsidy, and private sector participation in a particular programme.

In Sukamiskin, the exchange within the Modern Health Information & Communication System (MHICS) also occurs between several institutions, not only between doctors, nurses, midwives and apothecaries and patients, but also in organisations, universities, the *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre'), the *Pemberdayan Kelompok Keluarga (*PKK) ('Empowerment of Family Welfare Movement'), the *Pendidikan Anak Usia Dini* (PAUD) ('Pre-School'), and the *Taman Bacaan Masyarakat (*TBM) ('Community Reading Corner'). Related forms of Health Education are performed in a number of activities involving the health education programme in its role to stimulate preventive and promotional efforts which involve both personnel and institutions active in health information and communication in the research area.

Finally, new channels of modern health information and communication are indicated, in which the progress of digitisation in radio, TV, newspapers and the internet in Indonesia is playing an increasingly important role.

Eighthly, the results of the stepwise bivariate, the mutual relations, the multivariate and the multiple regression analyses of the quantitative data from the household surveys are presented in Chapter VIII. The results show and explain the differential relationship of significant independent and intervening factors in relation to the local peoples' reported utilisation of the Plural Health Information & Communications System (PHICS) in Sukamiskin, sub-divided in the Traditional and Modern Health Information & Communications System (T & MHICS) in the research area.

As the analyses are focusing on the utilisation of the local peoples' utilisation patterns of on the one hand, the Traditional Health Information & Communication System (THICS), and on the other hand, the Modern Health Information & Communication System (MHICS), an empirical basis is provided for the determination of significant factors influencing such behaviour by the implementation of the analytical model. The implementation of the model developed by Slikkerveer (1990; 1995) shows the results of the various levels of significance – or no significance – of the correlation between the independent and intervening variables in relation to the dependent variables. The conclusion of these results include the following:

Independent Variables

Block 1: Predisposing Socio-Demographic Variables:
- Age of respondents in the MHICS': strongly significant'
- Profession of respondents in the THICS: 'weakly significant'

Block 2: Predisposing Psycho-Social Variables
- Level in the Modern Medicine of respondents in the THICS: 'most strongly significant'
- Knowledge Level on Traditional Medicine of respondents in the THICS: 'very strongly significant'
- Knowledge Level on Traditional Medicine of respondents in the MHICS: 'weakly significant'
- Knowledge Level on Modern Medicine in the MHICS: 'very strongly significant'
- Knowledge of Availability of Libraries of respondents in the MHICS: 'strongly significant'
- Knowledge of Availability of Libraries of respondents in the THICS: 'weakly significant'
- Belief in Power of the Printed Word of respondents in the MHICS : 'weakly significant'

Block 3: Enabling Variables
- Socio-Economic Status (SES) of respondents in the MHICS: 'strongly significant'
- Socio-Economic Status (SES) of respondents in the THICS : 'weakly significant'

Block 4: Perceived Need of Health Information Variables
- Need Modern Health Information of respondents in the THICS: 'most strongly significant'
- Need Modern Health Information of respondents in the MHICS: 'most strongly significant'

Block 5: Institutional Variables
- Member Health Information Institution of respondents in the THICS: 'strongly significant'

Intervening Variables

Block 6: Intervening Variables
- Exposure to Electronic Media of respondents in the MHICS: 'most strongly significant'
- Exposure to Electronic Media of respondents in the THICS: 'very strongly significant'
- Exposure to Printed Media of respondents in the MHICS: 'very strongly significant'
- Awareness of Epidemics of respondents in the MHICS: 'very strongly significant'
- Exposure to Printed Media of respondents in the THICS: 'strongly significant'
- Awareness of Epidemics of respondents in the THICS: 'strongly significant'

The subsequent Mutual Relations Analysis shows the dominating influence of the block of the psycho-social variables (8) on the dependent variables, followed by the block of the intervening variables (6), while the other blocks of respectively socio-demographic variables (2), enabling variables (2), perceived information variables (2) and institutional variables are showing significance in equal numbers of two variables per block.

The results of the Canonical Correlation Analysis underscore that the predisposing psycho-socio variables contribute most to the dependent variables. The intervening variables consisting of 'Exposure to Electronic Media', 'Exposure to Printed Media' and 'Awareness of Epidemics' also show a rather strong influence on the dependent variables of utilisation both in the Traditional and in the Modern Health Information & Communication Systems.

This result is explained, on the one hand, by the society using the printed media as a source of information, comprising newspapers, magazines, books, posters, ballyhoos, leaflets, and brochures. On the other hand, information is also found in its electronic form through the radio, television, and the Internet as a health portal and news. In addition, information is also acquired through communication via facebook, twitter, and other social media. However, it is the health problem of the household heads which mostly triggers them to utilise both the available Traditional and Modern Health Information & Communication Systems.

Among the categories or blocks of variables, the independent socio-demographic variables are significant, meaning that 'age' and 'profession' are playing an important role. The utilisation of the Traditional Health Information & Communication System is predominantly reported by household heads aged between 36 to 60 years. Based on their age-span, they are very active in seeking Health Information & Communication as the result of health problems of members of their household. The professions reported include domestic servants, civil servants, teachers, religious leaders, entrepreneurs, woman labourers in the private sector, and retired people. Education, however, does not apparently play a significant role for those respondents who are not educated or for those who have a higher or university education in the utilisation of THICS and the utilisation of MHICS.

The analysis further confirms that the psycho-social variables are dominating the significant correlations with the utilisation of THICS, *i.e.* the level of knowledge on traditional medicine, knowledge on modern medicine, and knowledge of availability of libraries. The knowlegde of traditional and modern medicine is usually transferred locally from generation to generation among the Sundanese people.

Presently, traditional health information can be easily obtained from various resources of information in printed or recorded form, available in libraries, the Internet, and radio and television programmes. Furthermore, the correlation of the socio-economic status (SES) of the household heads with the utilisation of MHICS is very strong in comparison to the utilisation of THICS, since the modern medical system is still considered expensive by most members of the community, while the utilisation of MHICS also requires the availability of costly computers or smart phones to access the Internet.

Another independent variable, the 'perceived need of health information', is significant in both the utilisation of THICS and the utilisation of MHICS, especially the 'perceived need of modern health information' which reveals a strong correlation. On the other hand, there is no correlation of perceived need and utilisation of THICS. Currently, the utilisation of MHICS is considered less important by the respondents than the utilisation of THICS, whereas in the institutional variables only the 'Member Health Information Institution' is significant in the utilisation of THICS.

The multivariate analysis further underscores the strongly significant correlation between the intervening variables and the utilisation of both the THICS and the MHICS compared to the other variables. Likewise, 'Exposure to electronic media', 'Exposure to printed media', and 'Awareness of Epidemics' are showing a further substantiation of the very strongly and most strongly significant correlations. In their daily life, the respondents have been exposed to a lot of health information through various media: television, newspapers, magazines, brochures, banners, ballyhoos and posters. As mentioned before, the Bandung TV station is located in Sukamiskin and has a special programme on health information. Similarly, the city of Bandung facilitates its citizens with ample access to the Internet and to radio health programmes. In this context, the village also owns several public libraries called 'reading rooms/corners' which facilitate the access and utilisation of printed information from newspapers, magazines and books about health.

The multiple regression analysis which implements the OVERALS technique is used to assess not only the correlation between variables, but also the correlation between the different blocks of variables identified in the model, *i.e.* the interaction between the blocks of independent, intervening and the dependent variables. These calculated correlations show the relative value of interaction between the blocks hereby highlighting the validity of the multivariate model.

Finally, the last part of Chapter VIII (Paragraph 8.6) provides a more detailed interpretation of the above-mentioned conclusions of the results of the stepwise analyses, seeking an explanation of the various levels of significance among the independent, intervening and dependent variables in the model which can be regarded as determinants of the utilisation of the Traditional Health Information & Communication System (THICS) and the Modern Health Information & Communication System (MHICS) in the community of Sukamiskin.

In conclusion, the subsequent steps in the analysis all confirm that the general distribution of levels of utilisation of the Traditional Health Information & Communication System (THICS), ranging between'Very low', 'Low', 'Average', 'High' and 'Very high' over the various significant independent and intervening variables of the analysis amounts to respectively 68.0%, 12.0%, 3, 2%, 2.4% to 14.4%. These findings indicate that while leaving average utilisation (3.2%) out of the calculation, there is, on the one hand, a generally very low to low level of utilisation rate of 80.0%, that is four-fifths, of almost all scores as reported by respondents, while on the other hand a generally high to very high level of utilisation of 16.8%, which is less than one-fifth of almost all scores as reported by respondents, is reported for THICS. This distribution justifies the overall interpretation that there is a net rate of 63.2%, that is more than three-fifths under-utilisation of the THICS as reported by respondents in the research area.

Similarly, the general distribution of levels of utilisation of the Modern Health Information & Communication System (MHICS), ranging between 'Very low', 'Low', 'Average', 'High' and 'Very high' over the various significant independent and intervening variables of the analysis amounts to respectively 60.8%, 15.2%, 6.4%, 5.6% to 12.0%.

These results indicate that while leaving average utilisation (6.4%) out of the calculation, there is, on the one hand, a generally very low level of utilisation of 76.0%, that is three-quarters of almost all scores as reported by respondents, while on the other hand a generally high to very high level of utilisation of 17.6%, which is less than one-quarter of almost all scores as reported by respondents, for the Modern Health Information & Communication System (MHICS). This distribution justifies the overall interpretation that there is a net rate of 58.4%, that is more than two-quarters under-utilisation of the MHICS as reported by respondents in the research area.

These results regarding the various levels of significance between and among all individual variables, grouped into the various categories of variables, are well-reflected in the mutual relations analysis among the blocks of variables, and further substantiated by the results of the

multivariate analysis, while the multiple regression analysis underscores the similar levels of significance between and among all eight blocks of variables in the analytical model, expressed in correlation coefficients.

Ninthly, the theoretical and practical implications of the study are presented in the next Paragraphs, and finalised with the development of a strategic model of an Integrated Health Information & Communication System (IHICS) as a planning tool in order to provide a contribution to the improvement of the local people's level of health literacy, and as such to 'Information Society Indonesia' (2003) within the context of public health development in the near future.

9.2 Implications

In addition to the conclusions mentioned above, the major implications on a theoretical, methodological and practical level are presented below as this study's contribution to the body of knowledge in health information and communication science from the ethno-communication perspective of the local peoples in the community of Sukamiskin.

9.2.1 Theoretical Implications

Most theories associated with Health Information & Communication Systems (HICS) are related to studies carried out within the context of the providers of health information through Modern Health Information & Communication Systems (MHICS), in which the recent electronic developments of the media and the internet are dominating. Similarly, most studies are dealing with the health information providers, including medical doctors, nurses and administrative staff focused on building electronic data bases of patients, treatments and medicines with a view to improving the modern health institutions and their medical services.

However, less attention has been paid to the situation and perspectives of the consumers of health information through traditional health services, particularly with regard to the local people and their utilisation of their Traditional Health Information & Communication Systems (THICS), functional at the community level. Such community-based research is most important to identify and improve the level of the local peoples' health information literacy.

In this context, the results of the study in Sukamiskin also strengthen the theoretical functionality of Parrott (2004) regarding the multiple discourse approach to health information and communication in three 'spheres of influence', i.e. the societal discourse, expert discourse, and lay discourse.

The focus of this research on the domain of the lay discourse concerning health information and communication among local participants has further strengthened the understanding of the utilisation of indigenous knowledge sources and experiential information regarding health and disease in the community.

Furthermore, this study has also shown that such a 'bottom-up' approach has direct relevance for health education as an instrument to inform and communicate with local people on changes in their behaviour for health improvement. The process of the provision of health information is associated with a series of theories and principles of health communication, including persuasive communication, behavioural communication, risk communication, media advocacy, entertainment education, interactive health communication, development communication, and participatory communication. In those activities, health promotion and disease prevention have become important elements.

The implementation of the distinction between the Traditional and Modern Health Information & Communication System (T&MHICS) further implies the support for the comparative approach needed for the development of ethno-communication as a discipline which is based on a culturally-relativistic orientation, *i.e.* treating each culture or sub-culture on the basis of its own system of values, norms and traditions [1].

The study of *Iber Kesehatan* from such an ethno-communication perspective on Health Information & Communication Systems (HICS) in Sukamiskin also implies improved understanding and explanation of various factors related to health promotion, disease prevention and treatment at the community level. Such a body of knowledge of the participants refers to the concept of health information literacy comprising the individual's ability to meet the need of health information, to determine the source of information, and to understand the indigenous medical knowledge and practice.

The implications for the further development of *Literasi Informasi Ilmiah dan Pengetahuan Lokal* ('Scientific Information Literacy and Local Knowledge Model') include the adaptation of the Big 6, Sconnul, and ALA's Literacy Information Model to the particular condition of Indonesia's multicultural society and its wealth of local knowledge and practices, used by Padjadjaran University (UNPAD) in the training of literacy information for new students in 2015-2016.

In addition to the above-mentioned implications of the study for the improvement of the health information literacy level, another interesting implication refers to the seeking behaviour for health information and communication by members of the community. Seeking such forms of information is described by Willson (1981) and operationalised in the reported search for information in libraries. The study in Sukamiskin also found that among the independent variables, the perceived need of health information factors and institutional factors of reading corners, the *Pemberdayan Kelompok Keluarga* (PKK) ('Empowerment of Family Welfare Movement'), and mosques constitute variables which affect the utilisation of the Plural Health Information & Communication System (PHICS). Although the research in Sukamiskin implemented a comparative approach towards the two distinct Rational and Modern Health Information and Communication Systems (T&MHICS), the reported differential distribution of the utilisation patterns of both systems shows a rather similar picture of dominance of very low and low scores, providing a base for comparison between and within both systems.

In addition to the above-mentioned theoretical implications, a few methodological implications of the study in Sukamiskin also deserve special attention.

The first methodological selection of the ethno-science methodology, developed in the 'Leiden Ethnosystems Approach', has shown its efficacy and functionality of understanding and explaining relevant local phenomena, which implies the indispensable implementation of this approach in similar studies on indigenous peoples' knowledge, beliefs and practices as in this case of health information and communication at the community level. Furthermore, the functionality of the conceptual model of transcultural utilisation behaviour of respondents – developed by Slikkerveer (1990; 1995) – selected for the study and analysis in Sukamiskin, has shown impressive achievements in terms of the actual measurement of the spread of relevant factors and variables which are showing various levels of significance in the subsequent stepwise analyses of collected data from the household surveys. Although the study has been carried out within the context of two distinct Traditional and Modern Health Information and Communication Systems (T&MHICS) in the Sundanese region of West Java, the comparative approach of both qualitative and quantitative research components has contributed to a better understanding and explanation of local peoples' utilisation behaviour of the two systems at the community level in the research area.

The usefulness of the related stepwise analyses in terms of the bivariate, multiple relations, multivariate and multiple regression analyses is supported by the interesting results, which show direct relevance to not only the local people of the community of Sukamiskin, but also to the situation of Plural Health Information and Communication Systems (PHICS) elsewhere in Indonesia. In this way, the methodological orientation and results of this research link up well with the tradition of similar LEAD Studies recently carried out in East Africa, Indonesia and the Mediterranean Region (*cf.* Anak Agung Gde Agung 2005; Ibui 2007; Leurs 2010; Djen Amar 2010; Ambaretnani 2012; Chirangi 2013; Aiglsperger 2014).

9.2.2 Practical Implications

Since health promotion and disease prevention are generally regarded as the main basis for the development of a healthy society in Indonesia, the adequate selection of available sources of related health information and communication has – as mentioned above – direct relevance for the local peoples' level of health information literacy, and in turn, for their health and well-being. In particular, the participation of the community members is required not only to gain an adequate understanding of health and disease, but also to make use of existing local associations and institutions for acquiring such information, such as the *Arisan* and TOGA of local women's associations and councils. Also, the *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner'), established as a form of a public library by the citizens themselves, are generally supported as a trusted source of health information.

The practical implications of the study concern both the Traditional and Modern Health Information & Communication Systems (T&MHICS) in Sukamiskin, and can further be elaborated as follows.

As regards the Traditional Health Information & Communication System (THICS), an important implication of the study refers to the active support for the related traditional media, which operate at the local community but which also tend to be used by the current modern media. As it is found that the utilisation of the Traditional Health Information and Communication Systems (THICS) have proven their effectiveness in the delivery of significant forms of health information, special attention should be given to the provision of practical information about the prevention and dangers of local diseases and healthy lifestyles through these traditional information systems. Such systems also include the puppet performances of *lisung* and *kohkol* which are still very popular among the local people, and as such deserve special attention by the government. Puppet performances have shown to be rather effective in informing the public on matters of family planning, special treatment of epidemics and the proper utilisation of medicines.

The general practical implication of the positive function of the Traditional Health Information and Communication Systems (THICS) in the research area as part of the Sundanese tradition needs to be preserved and strengthened in the society in general, and especially in Sukamiskin, so that the communication system using traditional tools is not lost due to the recent processes of globalisation and modernisation.

As regards the Modern Health Information & Communication System (MHICS), the practical implication of the study is that an answer should be developed to the specific need among the respondents that the Ministry of Education and Culture of Indonesia, which is managing the *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner'), should also be actually involved in the development and management of these libraries in the field of health and disease as an extension of the related government health programmes.

In addition, the utilisation of Information & Communication Technology (ICT) in both available Health Information & Communication Systems (HICS) has also been found as a practical means for the respondents to gain a proper understanding of various issues of health and disease in the community. As a practical implication, it should be applied at the local level of the community, such as in traditional institutions of the *Pemberdayan Kelompok Keluarga* (PKK) ('Empowerment of Family Welfare Movement'), the *arisan*, and the *pengajian* or *karang taruna*. A partnership between the various institutions is required to develop and utilise health information and communication more adequately in order to realise the goal of a healthy society.

The Regional Commission for Broadcasting of West Java is the gatekeeper for the content of health information disseminated through electronic and printed channels, including the provision of the clarification of the information and promotion services and health products. In addition, the Ministry of Communication and Informatics provides the facilities and networking technologies for the benefit of the acquisition and dissemination of health information. The *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner'), which has been established by the Sukamiskin community, is equipped with a more complete source of health information for the health workers of health centres in Sukamiskin in various activities, and as such should also receive support from the ministry and other agencies in the provision of traditional health information about home remedies, *jamu* ('herbal medicine') and indigenous healers and healing practices, a policy also supported by the World Health Organisation.

Another practical implication refers to the local health education activities which should not only be directed to women since the understanding of health problems involves issues of both men and women. Indeed, health information and communication are shown to be the concern of all members of the community, from various backgrounds. Moreover, the Sundanese people tend to follow the matrilineal law, where men are expected to hold responsibility and take decisions for all members of the family, including decisions about health and healing.

Furthermore, the practical implications for the design and development of modern health policies refer to a general need by the local population for relevant and adequate Health Information & Communication Systems (HICS), which also includes the utilisation and development of Information and Communication Technology (ICT) in the rural areas. Since the government has enforced the regulations on health advertising which involves the community health workers in order to control such information systems, a health information literacy programme should be developed in collaboration with various stakeholders in order to educate the local people in important matters of health and disease. The study also shows that the decentralised government institutions should take into account the prevailing level of health information by understanding the problems which exist in the local communities, since the study also implies that local understanding of health and healing is crucial for the decision-making process by respondents in the communities.

Since health information literacy is also confirmed as an important step towards the education of the public as early as possible on the recent process of globalisation of health information, it can be improved through practical health education, especially in the field of health information to the public through both traditional and modern institutions. An important implication is that the further involvement of local institutions in the dissemination of health information as crucial for improving the information literacy of the local population should be encouraged by the government. The improvement of the level of health information literacy should also include preventive activities in health, where individuals who possess advanced knowledge about health tend to have the ability to search, access, and utilise health information appropriately for guiding their health and illness behaviour.

Since the provision of health information on the Internet and through the *Sistem Penilaian Informasi Kesehatan Online* (SPIKO) ('Online Health Information Searching System') has recently expanded, they also have to become practical tools in health information literacy activities in order to select and monitor the accuracy of the various forms of health information. Hence, the *SPIKO* software needs to be developed further so that it can be used by more people in the communities.

Similarly, the two-step flow of communication as a strategy to achieve a literate society should further focus on Information Literacy Training of the cadres of the *Pemberdayan Kelompok Keluarga* (PKK) ('Empowerment of Family Welfare Movement'), so that the acquired information can be disseminated to the other members of the community. The study also implies that when health literacy education can be performed in cooperation with various related institutions, including universities, it will be more attuned to the practical problems of the population, and as such be more effective. In this context, the Faculty of Medicine and the Department of Information Science of the Faculty of Communication provide an example where such institutional support is specifically examining the library information literacy, resulting in the provision of positive results in improving the health literacy level of the local people.

Furthermore, the study implies that it is essential that in Indonesia the Health Information Literacy Standards are formulated and standardised in the same manner as the standard of indicators on the information literacy skills of individuals has been developed by the Ministry of Health and the Ministry of Communications and Informatics (*Menkominfo*). Such standardisation aims at measuring the information literacy skills acquired by the community through the standardisation of a medium-term and long-term strategic plan of various programmes in the field of health. It also means that the programmes formulated by the government should be in accordance with the practical needs of the health information and communication of the community.

Additionally, the modern media have also been used for various forms of public health information, while sharing of knowledge is largely carried out by individuals using information technology as one of the forms of public education. Additionally, newspaper rubrics and citizen journalism using the printed and electronic media have provided public space for sharing information on health and disease. The ease of access and low cost to access to information in the field of health require the standardisation of the contents of information which are conveyed through the modern media/new media, in order to prevent privacy violations of the *Informasi dan Transaksi Elektronik* (ITE) ('Electronic Transaction and Information Law the Freedom of Information Act') enforced in Indonesia. Hence, the supervision of various parties involved in the field of information and communication should develop into the spearhead in the control of dissemination of health information.

In order to gain a common understanding of the interpretation regarding the ethics and regulations in the field of communication and information, various professional associations including the 'Indonesian Broadcasting Commission' should play the role of modern media gatekeeper. Meanwhile, the traditional media are frequently integrated as a medium to convey information of modern health information, such as the puppet shows which are also broadcast on television, radio, or via the Internet on Youtube, so that more people can take notice at relatively low cost.

The concepts of local health promotion and disease prevention are reflecting the values of indigenous knowledge of the Sundanese people, which have recently been revitalised in regional development in the field of health care, farming, housing, tree planting, and animal husbandry patterns at present.

Since the study amply shows that the indigenous medical knowledge and practices reflect the rich heritage of the Sundanese people, the practical implication of the study is to further study, document and operationalise these indigenous knowledge systems with a view to integrating them into sustainable systems in the near future.

Since the further understanding of local systems of health information can also clarify the linkage relationships between the concepts of health, illness and the local philosophy in the community, the source of information itself should be protected, preserved and functionalised for the overall improvement of the health and well-being of the local population.

Furthermore, as the concepts of health promotion and disease prevention as part of both the Traditional and Modern Health Information & Communication Systems (THICS) cover the entire human life cycle from conception in the womb until death, more attention should be given to their role in the various health education programmes of the government in order to contribute to the improvement of people's health and well-being throughout the country.

Finally, as the health of the population is a shared responsibility of many stakeholders at various levels of the society, the multidisciplinary approach towards the various aspects, factors and processes operational in the Plural Health Information & Communication Systems (PHICS) in Sukamiskin has developed into a trans-disciplinary study which pertains to various theoretical and practical implications which are not only contributive to the sustainable development of the community of Sukamiskin in West Java, but also to the achievement of the general aim of 'Healthy Indonesia' in the near future.

The overall implications, however, embark on the research findings that in a relative perspective, both the Traditional and Modern Health Information & Communication Systems (T&MHICS) seem to be largely utilised below the medium available level, which implies a concerted effort from all stakeholders concerned to render both systems more accessible and relevant to the provision of adequate information and communication on health and disease as a means to improve the health and well-being of the population.

9.3 Towards a Model of an Integrated Health Information & Communication System (IHICS)

Following the *eighth specific objective* of this study, as mentioned in the Introduction in Chapter I, to present the conclusions and the theoretical and practical implications of the study, with special attention for the development of a strategic model of an Integrated Health Information & Communication System (IHICS), this Paragraph further elaborates on the design of such a model as a planning tool in order to provide a contribution to the improvement of the local people's level of health literacy in Sukamiskin.

Among the major findings of the research is the fact that although there are two distinct systems*, i.e.* the Traditional and the Modern Health Information & Communication Systems (HICS) operational in the study area, while the local people tend to identify and refer to both systems as originating from different historical origins, each with its special body of knowledge and practices, the subject matter of the concepts of health and disease provides to a certain extent a common base for both systems for equal comparison and selection in the case that respondents need to call upon specific information and communication, such as in health and disease.

Interestingly, however, is the overall result that respondents tend to know what type of health information and communication system has to be consulted and utilised in order to find the most effective solution to their health-related problems in terms of appropriate health and illness behaviour in order to cope adequately with their perceived or diagnosed morbidity. At the same time, the study found that respondents who were used to consulting the Traditional Health

Information & Communication System (THICS) in some exceptional cases tend to utilise both systems, particularly where the experience of symptoms seems to be caused by 'modern' diseases, such as *Diabetes Mellitus*, *Cardiovascular Disease, Hypertension* and *Stress,* where the Modern Health Information & Communication System (MHICS) appears to provide more advanced disease-related information.

Another important consideration concerning the sporadically reported utilisation of both systems refers to the multiple discourse approach to health information and communication concerning the separation between the three domains of influence, i.e. the societal discourse, expert discourse, and lay discourse, introduced by Parrot (2004), where this study focuses on the domain of the lay discourse operational at the community level. The research in Sukamiskin indicates that in the exceptional cases where respondents report their utilisation of both the Traditional and Modern Health Information & Communication System (T&MHICS) for the same perceived morbidity, the information from one traditional system was not able to provide sufficient health-related knowledge to reach a solution, by the result of which the other modern system was utilised. In these cases, there was a transition reported from the traditional to the modern system, albeit still conceptualised in the terms of Parrot (2004) as still functioning within the domain of the 'lay discourse'. In a few cases, however, the opposite pattern has been reported where a transition has been reported from the modern to the traditional system, where modern medicines and treatment were not effective in providing an appropriate treatment for the illness. In these cases, the experience of symptoms seems to be caused by 'traditional' diseases, such as Common Cold, Mental Disorders, Headache and Lucoderma, where the Traditional Health Information & Communication System (THICS) appears to provide rather effective illness-related information. Furthermore, it has become clear that a general need exists among the local people of additional, up-to-date health information and communication, largely related to 'common' diseases' emerging within the households. Moreover, since such common diseases are mostly covered by the Traditional Health Information & Communication System (THICS), the population has lately become aware of the serious impact of 'new' diseases such as HIV and AIDS, which are mostly dealt with by the Modern Health Information & Communication System (MHICS). By consequence, from the consumers' perspective of the local population, it is in some cases rather difficult to exactly identify the morbidity symptoms and make the right choice as to what system to refer to in order to find the appropriate health information and communication.

The same situation is found in the follow-up behaviour of people after identifying the illness or disorder and selecting the course of action for treatment when it comes to the actual utilisation of the various traditional and modern medical systems in the area. As regards the utilisation of traditional medical systems, the World Health Organization (1999; 2002a; 2002b) has designed an advanced strategy for governments, especially in developing countries, to integrate traditional medicine and modern medicine in order to increase the access and utilisation of both medical systems, pertaining to the general improvement of the health of the population.

In view of, on the one hand, the sporadic interchangeable utlisation of both the Traditional and Modern Health Information & Communication Systems (T&MHICS), reported in Sukamiskin, and on the other hand, the already functioning integration of Traditional Medicine and Modern Medicine in Indonesia, promoted by the government, a similar approach should be designed and implemented regarding the integration of the Traditional and Modern Health Information & Communication Systems (T&MHICS). Following the information-oriented integration approach promoted and successfully implemented in Finland by Mykkänen *et al.* (2004), the integration process in the research area of Sukamiskin is equally based on the information exchange and set-up of a relevant database, with a focus on reaching a common definition of perceived and

diagnosed morbidity documented for both systems in the research area.,As regards the differentiation between a 'top-down' or a 'bottom-up' process for the definition of the integration solution in Sukamiskin, elaborated by Mykkänen *et al.* (2004), the 'bottom-up' process is chosen as it is based on the initiation from the practical high-priority needs of the population of different forms of traditional and modern health information and communication operational in the community. The information-oriented approach towards 'horizontal integration' between the two systems would not only extend the possibilities for the people to access and acquire appropriate information and communication concerning a wide range of illnesses prevailing in the research area, but it would also increase the opportunities to identify and use effective medicines and treatment as provided by the two systems.

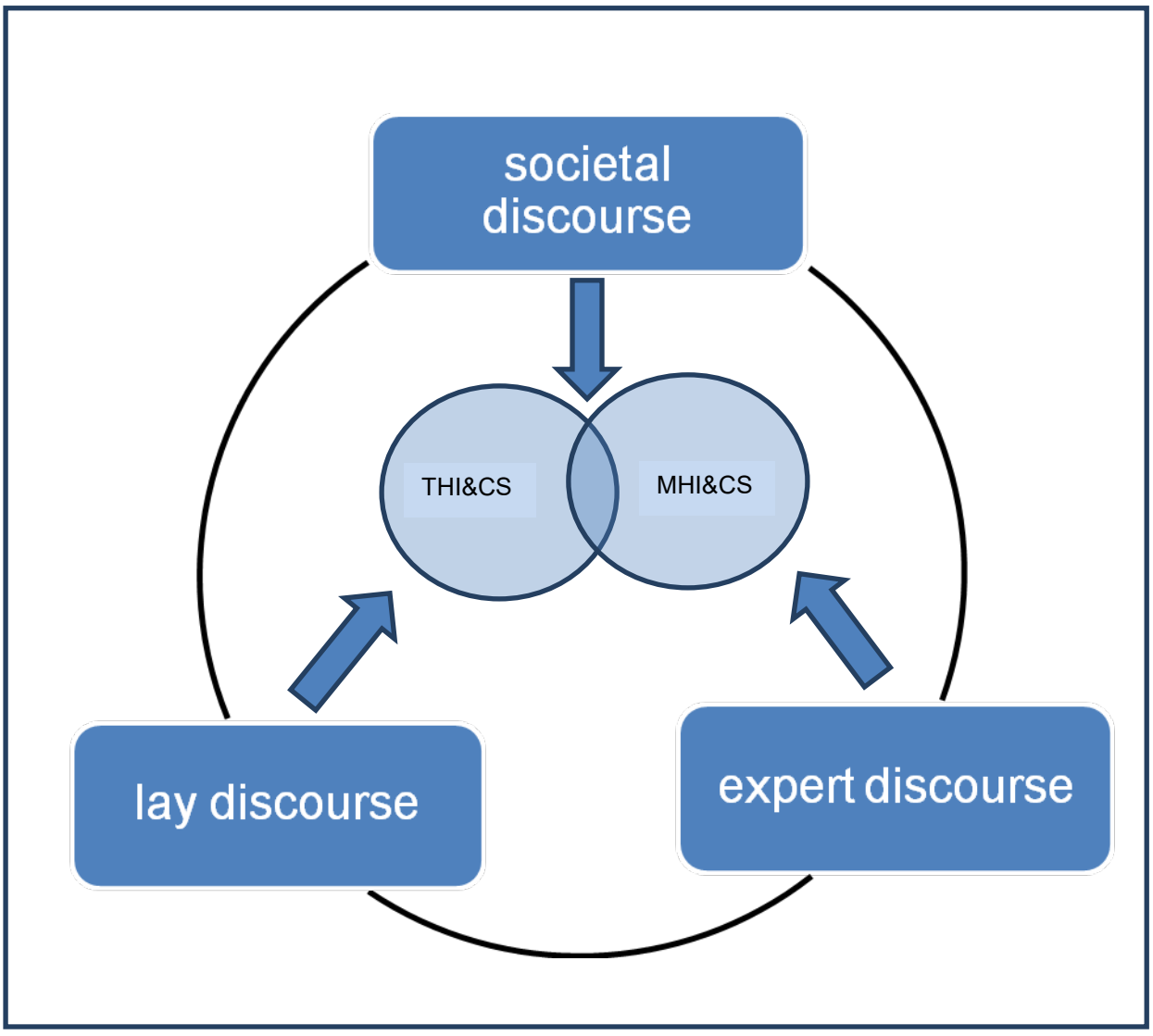

Figure 9.1 Schematic Representation of the Model of an Integrated Health Information & Communication System (IHICS)
Source: Adapted from the Model of Integrated Local and Global Knowledge Systems of Slikkerveer (2018).

Figure 9.1 shows a schematic representation of the proposed Model of an Integrated Health Information & Communication Systems (IHICS) against the background of the three domains of the societal discourse, the lay discourse and the expert discourse, operational in the research area of Sukamiskin. The input from these three domains into the new model is reflected in the three arrows, each of which is directed to the Model of an Integrated Health Information & Communication Systems (IHICS), represented by the two overlapping circles in the middle.

In this model, an integrated and multidimensional approach is represented towards the interactive development of the societal, lay and expert discourses with a view to designing and implementing a hybrid system of traditional and modern health information and communication pertaining to the improvement of the health literacy level of the local population. Figure 9.1 at page 202.

As mentioned above, the proposed integration would not only extend the possibilities for the people to access and acquire appropriate information and communication concerning a wide range of illnesses prevailing in the research area, but it would also facilitate the process of local decision-making regarding the people's health and illness behaviour, and eventually, their health care utilisation behaviour.

Eventually, the ethnoscience study, particularly the ethno-communication study in Sukamiskin, has paved the way for the merger of both systems into one hybrid system which links up very well with the Sundanese culture of the local people. Indeed, since information on health and healing has always been a dynamic integral part of Indonesia's cultural diversity; the understanding of different forms of traditional and modern health information has become important for the people.

Since the understanding of the participants' view on health and illness is central to the ethnoscience study of the consumers' perspective on indigenous and modern health information and communication, ethnoscience may become one domain of analysis that should be represented in information science in similar research.

It is hoped that the above-mentioned strategic model of an Integrated Health Information & Communication System (IHICS) as a planning tool could be developed with a view to providing a contribution to the improvement of the local people's level of health literacy, and as such to 'Information Society Indonesia' (2003) within the context of public health development in the near future.

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Appendix I: The Dewey Decimal Classification (DDC) System

The Dewey Decimal Classification (DDC) system is a general knowledge organisation tool that is continuously revised to keep pace with knowledge. The system was conceived by Melvil Dewey in 1873 and first published in 1876. The DDC is published by OCLC Online Computer Library Centre, Inc. OCLC owns all copyright rights to the Dewey Decimal Classification, and licenses the system for a variety of uses.

The DDC is the most widely used classification system in the world. Libraries in more than 135 countries use the DDC to organize and provide access to their collections, and DDC numbers are featured in the national bibliographies of more than 60 countries. Libraries of every type apply Dewey numbers on a daily basis and share these numbers through a variety of means including WorldCat and the OCLC Online Union Catalog. Dewey is also used for other purposes, *e.g.* as a browsing mechanism for resources on the web.

The DDC has been translated into over thirty languages. Translations of the latest full and abridged editions of the DDC are completed, planned, or underway in Arabic, Chinese, French, German, Greek, Hebrew, Icelandic, Italian, Korean, Norwegian, Russian, Spanish, and Vietnamese.

610 Medicine & health
611 Human anatomy, cytology & histology
612 Human physiology
613 Personal health & safety
614 Incidence & prevention of disease
615 Pharmacology & therapeutics
616 Diseases
617 Surgery & related medical specialties
618 Gynecology, obstetrics, pediatrics & geriatrics
619 [Unassigned]

Abbreviations

AACR	Anglo American Cataloging Rules
AIDS	Acquired Immune Deficiency Syndrome
ASI	*Air Susu Ibu*
ASEAN	Association of South-East Asian Nations
ASKESKIN	*Asuransi Kesehatan Indonesia*
BCG	Bacillus Calmette-Guérin
BERDIKARI	*Berdiri diatas kaki sendiri* ('standing on one's own feet')
BPJS	*Badan Penyelenggara Jaminan Sosial* (Social Insurance Organising Institution)
BPS	*Badan Pusat Statistik* (Central Bureau of Statistics)
CBIA	*Cara Belajar Ibu Aktif* (Active Mother Learning)
DBD	*Deman Berdarah* (dengue fever)
FES	Field of Ethnological Study
HICS	Health Information & Communication System
HIS	Health Information System
HIV	Human Immunodeficiency Virus
HP	Historical Perspective
ICT	Information & Communication Technology
IUD	Intra Uterine Device
ITE	*Informasi dan Transaksi Elektronik* (Electronic Transaction and Information)
JAMKESMAS	*JaminanKesehatanMasyarakat* (Community Health Insurance)
KemKes	*Kementrian Kesehatan* (Ministry of Health)
Kepmenkes	*Keputusan Menteri Kesehatan* (Decree of the Ministry of Health)
KBBI	*Kamus Besar Bahasa Indonesia* (Indonesian Dictionary)
KIA	*Kesehatan Ibu dan Anak* (Maternal and Child Health) (MCH)
KUD	*Koperasi Unit Desa* (Local Village Cooperative)
LSM	*Lembaga Swadaya Masyarakat* (Civil Society Organisation)
MDGs	Millennium Development Goals
MHICS	Modern Health Information & Communication System
MMA	*Moral Manusia terhadapAlam* (Morality between Humans and Nature)
MMLB	*Moral Manusia dalam mencapai kesejahteraan Lahir-Batinnya* (Human Morality to Achieve Physical and Spiritual Wealth)
MMM	*Moral Manusia terhadap Manusia* (Morality among Humans)
MMP	*Moral Manusia terhadapPribadi* (Morality between Humans and Oneself)
MMT	*Moral manusiaterhadapTuhan* (Morality between Humans and God)
MMW	*Moral Manusia terhadap Waktu* (Morality between Humans and Time)
MPASI	*Makanan Pendamping Air Susu Ibu* (XXXXX)
NGO	Non-Governmental Organisation
NHS	National Health Care System
P2M	*Pemberantas an Penyakit Menular* (Eradication of Communicable Diseases)
PAUD	*Pendidikan Anak Usia Dini* ('Pre-School')
PHBS	*Perilaku Hidup Bersih dan Sehat* (Clean and Healthy Life Patterns Programme)
PHICS	Plural Health Information & Communication System
PIO	*Pelayanan Informasi Obat* (Medicine Information Service)

PKK	*Pembinaan Kesejahteraan Keluarga* (Empowerment of Family Welfare Movement)
PKMD	*Pembangunan Kesehatan Masyarakat Desa* (Development of Community Health)
PLP	*Penyehatan Lingkungan Pemukiman* (Environmental Sanitation)
POD	*Pos ObatDesa* (Village Medical Post)
Polindes	*Pondok Bersalin Desa* ('Village Delivery Facility')
Posyandu	*Pos Pelayanan Terpadu (*'Integrated Health Post')
Posbindu	*Pos Pembinaan Terpadu* (Integrated Care Post)
Poskestren	*Pos Kesehatan di Pondok Pesantren* ('Health Post of the Islamic Boarding School')
PSN	*Pemberantas an Sarang Nyamuk* (Exterminating Mosquito Nests)
Puskesmas	*Pusat Kesehatan Masyarakat* ('Community Health Centre')
Pustu	*Puskesmas Pembantu* (Sub Health Centre)
PV	Participant's View
RT	*Rukun Tetangga* (Neighbourhood)
RW	*Rukun Warga* (Hamlet)
SES	Socio-Economic Status
SICS	Sundanese Information & Communication Systems
SKN	*SistemKesehatanNasional* (National Health Care System)
SPSS	Statistical Programme for Social Sciences
TAP-MPR	*Ketetapan Majelis Pemusyawaratan Rakyat* (Decree of the People's Consultative Assembly)
THICS	Traditional Health Information & Communication System
TOGA	*Tanaman Obat Keluarga* (Household Medicinal Plants)
WHO	World Health Organisation

Summary

This study has been carried out in the community of Sukamiskin, a *kelurahan* ('village') in Bandung, the Capital of West Java Province, located in the Sunda Region of Indonesia. The study of the *Plural Health Information & Communication Systems (PHICS)* in Sukamiskin has taken place from 2005 until 2014. The sample population representative for the research area in this study includes 125 houshold heads selected in Sukamiskin, Bandung. The background of this research is formed by the concept of *health* as the basic right of every human being and which is the pillar of the strategic plan of 'Indonesia's Health 2014'.

People all over the world are making a great effort to promote and maintain their health or to prevent disease by utilising different traditional, transitional or modern medical systems or a combination for treatment, often within the available pluralistic medical configurations. The study of patterns of health care utilisation is showing the differential influence of various socio-demographic, psycho-social, socio-economic, institutional and environmental factors. The health care utilisation studies are crucial for the understanding and explanation of peoples' health and illness behaviour, which, in turn, is important for the improvement of health care services (*cf.* Slikkerveer 1990; 1995). Parallel to the historical development of the different medical systems, also the related health and communication systems among the people have been extended with new information, knowledge, and experience, which have similarly led to the development of different *Traditional and Modern Health Information & Communication Systems (T&MHICS).*

Since the utilisation of these different information systems show a resemblance with the utilisation of the various medical systems, and further understanding is important for the improvement of these systems, this research investigates how different independent and intervening factors influence the dependent factors of the utilisation of the two existing forms of the *Traditional Health Information & Communication Systems (THICS)* and the *Modern Health Information and Communication System (MHICS)* in the pluralistic situation in Sukamiskin.

The general aim of this research can be summarised as to document, study and analyse the utilisation of the *Plural Health Information & Communication System (PHICS)* by the local population of Sukamiskin in the Sunda Region of West Java through the identification, documentation, and analysis of significant factors influencing the related utilisation patterns, differentiated within, on the one hand, the *Traditional Health Information & Communication System (THICS)* and, on the other hand, the *Modern Health Information & Communication System (MHICS)* at the community level.

In addition, the implications of the research findings are used as a basis for the development of an empirical model of integration of the *Traditional Health Information & Communication Systems (THICS)* and the *Modern Health Information & Communication System (MHICS)* to serve as a planning tool for realising the 'Information Society Indonesia' (2003) within the context of health in the near future.

In order to realise this general aim, a subdivision is made in a number of specific objectives to be achieved which can be summarised as follows:

Firstly, the theoretical orientation of the new field of *Health Information & Communication (HIC)* is presented in Chapter II, placing special emphasis on *Plural Health Information & Communication Systems (PHICS)*, including a description of the impact of globalisation on this system in Indonesia. In this way, Chapter II provides such theoretical framework which encompasses the introduction of the concept of health information which seeks to shed light on the conceptualisations of health and health information, health information needs and management and the media involved in health information.

On the basis of these conceptualisations, the chapter subsequently highlights the approaches towards health information literacy and health education. Following an initial outline of principles, the focus shifts to the various concepts of health information and communication, the models of health communication, the interrelationship between health communication and health promotion, the media and the relations between traditional and modern health information and communication, and their relevance to public health

The operationalisation of the definition of Gann (1986: 13) who states that: *'Every individual is responsible to his/her own health; for looking out on signs of ill health, carrying out basic self-care measures on behalf of herself or himself or his (or more likely her) family, deciding when to consult the doctor, coping with long term chronic illness or disability, and making adjustments in lifestyle to improve health'* has proved to be rather useful in the theoretical framework of this research. In addition, the multiple discourse approach to health communication in three spheres of influence, *i.e.* the societal discourse, expert discourse, and lay discourse, introduced by Parrott (2004), has provided the basis of this study to focus mainly on the domain of the lay discourse concerning the health information and communication among local participants in terms of the understanding and utilisation of indigenous knowledge sources and experiential information regarding health and disease at the community level, derived from cultural, social, and individual experience which guides and adapts the community health and illness behaviour of the local people.

Finally, the chapter concludes with highlighting a new approach towards the formal integration of various forms of *Health Information & Communication (HIC),* thereby specifying the development of communication and the integration of *Traditional and Modern Health Information & Communication Systems (T&MHICS)* into *Integrated Health Information & Communication Systems (IHICS).* The theories and ideas described in this chapter has provided a comprehensive framework for the subsequent execution of the research which has been conducted on the *Plural Health Information & Communication System (PHICS)* in the community of Sukamiskin in the Sunda region of West Java, Indonesia.

Secondly, the selected ethnoscience research methodology and the related appropriate analytical model and its components for the execution of the stepwise Bivariate, Mutual Relations, Multivariate and Multiple Regression Analysis of the collected quantitative data are described in Chapter III. As such, the chapter presents an overview of the research methods and techniques selected for the study area of Sukamiskin in order to document, study and analyse the utilisation of the *Plural Health Information & Communication System (PHICS)* by the local population of Sukamiskin in the Sunda Region of West Java through the identification, documentation, and analysis of significant factors influencing the related utilisation patterns, differentiated within, on the one hand, the *Traditional Health Information & Communication System (THICS)* and, on the other hand, the *Modern Health Information & Communication System (MHICS)* at the community level. The 'Leiden Ethnosystems Approach' is described as an approach developed by Slikkerveer (1990; 2006), representing a specific ethnoscience method to analyse local knowledge systems within a particular culture area. The 'Leiden Ethnosystems Approach' is built up of three methodological principles: the *Historical Dimension* (HD), the *Participant's View* (PV) and the *Field of Ethnological Study* (FES). In addition to the operationalisation of the specific research approach, the chapter also provides an outline of the complementary qualitative and quantitative research components which have been studied in the 14 *rukun warga* (RW) ('hamlets') in Sukamiskin, Bandung.

The description of the qualitative research which involves observations and in-depth interviews with key-informants, is followed by a description of the design of the structured questionnaire used to conduct the quantitative surveys in the 83 samples of the *rukun tetangga* (RT) ('neighbourhoods') in the study area.

Additional information on the local population has been obtained from the list of residents available in the villages from which the household samples have been selected randomly in accordance with the location of the neighbourhoods in order to cover every *rukun warga* and *rukun tetangga*. Subsequently, the process is described of the distribution of the structured questionnaire among the selected samples and completed on the basis of the selected respondents of the sample under the guidance of the researcher and her team.

Furthermore, Chapter III offers a detailed description of the factors and blocks – and their operationalisation - of the conceptual model developed by Slikkerveer (1995; 2003) which has been selected for this research, providing the basis of the empirical multivariate model of utilisation behaviour based on the findings of the research. Chapter III concludes with a description of the specific processes of subsequent statistical analysis of data collected during the quantitative household surveys including the Non-Linear Canonical Correlation Analysis using the technique of OVERALS, whereby data are entered into the *Statistical Package for the Social Sciences* (SPSS), Versions 11.5, 17.0 and eventually Version 20.

Thirdly, the overview of the research setting of the study is presented in Chapter IV, encompassing a synopsis of the Culture Area of the Republic of Indonesia, followed by the Province of West Java. It includes a presentation of the characteristics of government and political organisations as well as Indonesia's administration which has recently been reduced from 27 to 34 provinces. Similarly, a description is provided of the geography and socio-demography of the Sunda Region, focused on the Province of West Java. It is shown that Indonesia is not only traversed by various international channels of transportation, running from west to east and *vice versa*, but it is also involved in many international commercial contacts pertaining to the acceleration of economic growth and the establishment of many multinational corporations. Indonesia's large population and the densely populated regions account for the present number of 263.991.379 in habitants. Distinguished as the fourth most populous country worldwide, however, the population shows a decline in annual growth from 2.7% in 1968 to 1.1% in 2017 (*cf.* United Nations 2017).Although Indonesia has the largest Muslim population in the world, it is not an Islamic state.

In addition, the research area of the community of Sukamiskin is described.Because of its abundant natural resources and fertile areas, West Java, the fifth largest province of Indonesia is dominated by the agricultural sector. The *kelurahan* ('community') of Sukamiskin is located within the administrative boundaries of the urban area of Bandung, the Capital of the Province of West Java.

In this chapter, also an overview is presented of the administration of the area at the various levels, ranging from the Governor of the Province through the Regent, who is assisted by a Vice-Regent, and the Mayor, who governs the city. Each *kabupaten* ('regency') and *kota* ('city') in Indonesia are subdivided into *kecamatan* ('districts'). The position of the *camat* ('head of the district') is described as heading the regional office in the territorial district which is sub-divided into *desa, kelurahan, kampung* or *nagari* ('administrative villages'). The lowest level of governance within the Regency is maintained by the *kepala desa* ('head of the village') and the *lurah* ('head') of the *kelurahan* ('urban village').

Fourthly, the description of the daily life in Sukamiskin is presented in Chapter V. It describes the data both available in existing resources and collected among the people of the research population, *i.e.* the residents of the community of Sukamiskin and the sample population comprised of the selected household heads. It shows that Sukamiskin is characterised as a community in the Arcamanik District, located in the eastern part of the city of Bandung and comprising four villages, namely Cisaranten Kulon, Cisaranten Bina Harapan, Sukamiskin and Cisaranten Endah. It is documented that in 2013, due to the population growth the number of neighbourhood has increased with five neighbourhoods amounting a total from 83 to 88 neighbourhoods in 2013.

The chapter concludes with an outline of the plural medical system available in the research area which comprises a traditional, a transitional anda modern medical system, which as such is related to the different systems of health information and communication in the area. The present health care practitioners are described as the *bidan* ('midwives'), *dukun* ('traditional healers') acupuncturists, acupressurists, masseurs and *ajengan* ('religious healers'), doctors, obstetricians, paediatricians, and dentists.Several methods of treatment are also documented as performed by members of the community of Sukamiskin themselves in the form of traditional home remedies. The traditional treatment by the Islamic community of Sukamiskin is largely performedby the use of *bekam*, *rukiyah* ('holy water') and prayers. Other traditional treatments are acupressure, acupuncture and bone setting. The structure of modern health care and related facilities available in Sukamiskin are described in terms of the hospitals, *BKIA* ('maternal hospitals'), *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre'), clinics, *Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post'), pharmacies, traditional remedy stores and *jamu* kiosks.

Fifthly, the *Traditional Health Information & Communication System (THICS)* in the community of Sukamiskin is described in Chapter VI against the background of the belief systems, health concepts, information and communication systems, health policies and strategies and the recent impact of autonomy and technology on information and communication. The *Traditional Health Information & Communication System (THICS)* in the research areais built on the prevailing Sundanese norms and values. The discussion about the Sundanese culture begins with the belief system of the Sundanese cosmology and the traditional way of life. The *orang sunda* ('Sundanese people') have over many generations accustomed their life to live in harmony with nature as their major philosophy, considering it a central part of the universe. This concept forms the basis of the local Sundanese worldview of *tri tangtu,* which involves a vertical and a horizontal communication order, expressed in the local language as: '*hirup nu hurip, hirup kudu nyontoan jeung picontoeun* dan *hirup kudu neundeun jeung ninggalkeun*'.

Furthermore, the traditional communication in Sukamiskin can be classified into several types, namely interpersonal communication, small group communication, and public use of direct and indirect ways of communication. Direct interpersonal communication is documented as performed by conversation orally or by gesture. Futhermore, interpersonal communication occurs between parents and children, parents with parents, and husband and wife. A more distant than usual communication is carried out between grandmothers and grandparents to their grandchildren, andalso between them and their neighbours.Moreover, the use of non-verbal communication is described as more dominant in the Sundanese community which is expressed in the Sundanese concept called *PANCACURIGA.*

Sixthly, the documentation of the indigenous knowledge and the indigenous classification of Medicinal, Aromatic and Cosmetic (MAC) plants used for *lalab* and *ubar kampung* by the people of Sukamiskin is also presented in Chapter VI. A number of elements in the traditional health care system arerooted in the Sundanese culture which are noticeable in the field of Medicinal, Aromatic and Cosmetic (MAC) plants and related local herbal dietary ingredients.
Specifically collected information of indigenous medicinal plants is documented in a list representing the local classification of these medicinal plants of whichcertain parts are used as components of *ubar kampung (*'traditional medicine') in the research area. In addition, a selection of photograps of these indigenous medicinal plants is presented in Illustration 6.3 of Chapter VI.

It is shown that the centuries-old use of these MAC plants for medicine in Sukamiskin has also contributed to the government programme launched in 1983, as part of the *Pemberdayaan Kelompok Keluarga (*PKK) ('Empowerment of Family Welfare Movement'), known as *Tanaman Obat Keluarga* (TOGA)', ('Family Garden with Medicinal Plants'), later documented by Slikkerveer & Slikkerveer (1995).

Additionally, the *pamali (*'prohibition') is described as one of the Sundanese's traditional communication forms which obligesthe people not to violate the community prohibitions. In the Indonesian language, *pamali* is also called taboo andis a cultural norm which does not allow people to do, use or talk about a particular subject if people experience it as offensive. In the health sector, *pamali* in the Sundanese communities is found quite effective in the preventive efforts against various diseases, and is also easily understood by the public since it uses the local language. Through a simple sentence of *pamali*, the society may become aware of the importance of health. In this context, the local peoples' efforts to cure an illness in accordance with the teaching of Islam is presented, while also other types of therapies available outside the area of Sukamiskin are also described such as the use of bee stings, white rice grains, leeches and acupuncture.

Seventhly, the *Modern Health Information & Communication System (MHICS)* in the community of Sukamiskin is described in Chapter VII, starting with a description of the related modern health facilities available in Sukamiskin: *Pusat Kesehatan Masyarakat* (*Puskesmas*) ('Community Health Centre'), *Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post'), clinics, pharmacies and drugstores. Thereafter the dissemination of health information is explained through the utilisation of the printed media (newspapers, magazines, tabloids, books kept in libraries), the public media (posters, fliers etc.), the electronic media (television, radio) and the digital media (e-book, e-news, e-TV etc.), including the social media. Also, attention is paid to the role of health information technology programmes in Bandung, ranging from the Smart City to the Bandung Health Card. In addition, the availability of information institutions disseminating modern health information is described, including the Bandung TV (Television), Community Library or Community Reading Corner (TBM), Community Radio, and newspapers and magazines kiosks.

In addition, the role of schools, boarding schools, sport centres, health centres, *Pos Pelayanan Terpadu (Posyandu*) ('Integrated Health Post'), *polindes*, the *Pendidikan Anak Usia Dini* (PAUD) ('Pre-School'), the *Pemberdayaan Kelompok Keluarga (*PKK) ('Empowerment of Family Welfare Movement'), Village Pharmacies, and other institutions are also documented as to convey health information and educate about public health to the members of the community.
Related forms of Health Education are performed in several activities involving health education programmes in its role to stimulate preventive and promotional efforts which involve both personnel and institutions active in health information and communication in the research area.

Finally, new channels of modern health information and communication are indicated, in which the progress of digitisation in radio, tv, newspapers and the internet in Indonesia is playing an increasingly important role.

Eightly, the results of the stepwise bivariate, mutual relations, multivariate and multiple regression analyses of the quantitative data from the household surveys are presented in Chapter VIII. The results are showing and explaining the differential relationship of significant independent and intervening factors in relation to the local peoples' reported utilisation of the *Plural Health Information & Communications System (PHICS)* in Sukamiskin, sub-divided in, on the one hand the *Traditional Health Information & Communications System (THICS),* and on the other hand the *Modern Health Information & Communications System (MHICS)* in the research area.

The implementation of the model developed by Slikkerveer (1990; 1995) shows clearly the results about the various levels of significance – or no significance – of the correlations between the independent and intervening variables in relation to the dependent variables.

In summary, the conclusion of these results in terms of revealed correlations in the Bivariate Analysis is well illustrated by the Mutual Relations Analysis as follows: the dominating influence of the block of the psycho-social variables (8) is shown on the dependent variables, followed by the block of the intervening variables (6), while the other blocks of respectively socio-demographic variables (2), enabling variables (2), perceived information variables (2) and institutional variables are showing significance in equal numbers of 2 variables per block.

The results of the following Canonical Correlation Analysis underscore that the predisposing psycho-socio variables contribute most to the dependent variables. The intervening variables consisting of 'Exposure to Electronic Media', 'Exposure to Printed Media' and 'Awareness of Epidemics' indicate also a rather strong influence on the dependent variablesof utilisation of both the *Traditional and Modern Health Information & Communication Systems (HICS).* The intervening variables consisting of 'Exposure to Electronic Media', 'Exposure to Printed Media' and 'Awareness of Epidemics'which are show also a rather strong influence on the dependent variables of utilisation of both the *Traditional Health Information & Communication System (THICS)* and the *Modern Health Information & Communication System (MHICS)*. Also, the multivariate analysis further underscores the strongly significant correlation between the intervening variables and the utilisation variables of both the *Traditional and Modern Health Information & Communication Systems (T&MHICS)*, compared to the other variables. Likewise, 'Exposure to electronic media', 'Exposure to printed media', and 'Awareness of Epidemics' are showing a further substantiation of the very strongly and most strongly significant correlations.

The Multiple Regression Analysis which implements the OVERALS technique, shows not only the correlation between variables, but also the correlation between the different blocks of variables identified in the model, *i.e.* the interaction between the blocks of independent, intervening and the dependent variables. These calculated correlations show the relative value of interaction between the blocks and hereby highlights the validity of the multivariate model.

Finally, the last part of Chapter VIII*, i.e.* Paragraph 8.6 provides a more detailed interpretation of the above mentioned summary of conclusions of the results of the stepwise analyses, providing an explanation of the various levels of significance among the independent, intervening and dependent variables in the model which can be regarded as determinants of the utilisation of the *Traditional Health Information & Communication System (THICS)* and the *Modern Health Information & Communication System (MHICS)* in the community of Sukamiskin

The conclusion indicates that the subsequent steps in the analysis all confirm that the established distribution over the utilisation patterns justifies the overall interpretation that, on the one hand there is net 63.2% calculated, that is more than three-fifths under-utilisation of the *Traditional health Information & Communication System (THICS)* as reported by respondents in the research area, while on the other hand, that there is net 58.4% calculated , that is more than half under-utilisation of the *Modern health Information & Communication System (MHICS)* as reported by respondents in the research area.

Ninthly, following the conclusions, the theoretical and practical implications of the study are presented in Chapter IX. The theoretical implications are, that most research in this field is being conducted within the context of the providers of health information through *Modern Health Information & Communication Systems (MHICS),* in which the recent electronic developments of the media and the internet are dominating, while less attention is being paid to the situation and perspectives of the consumers of health information through traditional health information, particularly with regard to the local people and their utilisation of their *Traditional Health Information & Communication Systems (THICS)* functional at the community level.

Furthermore, this study has also shown that the 'bottom-up' approach has direct relevance for health education as an instrument to inform and communicate with local people on changes in their behaviour for health improvement. The implementation of the distinction between the *Traditional Health Information & Communication System (THICS)* and the *Modern Health Information & Communication System (MHICS)* further implies the support for the comparative approach needed for the development of ethno-communication as a discipline which is based on a culturally-relativistic orientation, *i.e.* treating each culture or sub-culture on the basis of its own system of values, norms and traditions.

The study of *Iber Kesehatan* from such an ethno-communication perspective on *Health Information & Communication Systems (HICS)* in Sukamiskin also implies improved understanding and explanation of various factors related to health promotion, disease prevention and treatment at the community level. Such body of knowledge of the participants refers to the concept of health information literacy comprising the individual ability to meet the need of health information, determine the source of information, and understand the indigenouss medical knowledge and practice. The study in Sukamiskin also found that among the independent variables, the perceived need of health information factors and institutional factors of reading corners, the *Pemberdayan Kelompok Keluarga (*PKK) ('Empowerment of Family Welfare Movement'), and mosques constitute variables which affect the utilisation of the Plural Health Information & Communication System (PHICS).

In addition to the theoretical implications, also a few methodological implications of the study in Sukamiskin deserve special attention. The first methodological selection of the ethno-science methodology, developed in the 'Leiden Ethnosystems Approach' has shown its efficacy and functionality of understanding and explaining relevant local phenomena, which implies the indispensable implementation of this approach in similar studies on indigenous peoples' knowledge, belief and practice as in this case in health information and communication at the community level. Furthermore, the functionality of the conceptual model of transcultural utilisation behaviour of respondents – developed by Slikkerveer (1990; 1995) selected for the study and analysis in Sukamiskin has shown impressive achievements in terms of the reliable measurement of the spread of relevant factors and variables which are showing various levels of significance in the subsequent stepwise analyses of collected data from the household surveys.

The practical implications of the study concern both the *Traditional Health Information & Communication System (THICS)* and the *Modern Health Information & Communication System (MHICS)* in Sukamiskin indicate that special attention should be given to the provision of practical information about the prevention and dangers of local diseases andhealthy lifestyles through the traditional information systems.

As regards the *Modern Health Information & Communication System (MHICS),* the practical implication of the study is that an answer should be developed to the specific need among the respondents that the Ministry of Education and Culture of Indonesia should also be actually involved in the development and management of local libraries in the field of health and disease as an extension of the related government health programmes.

In addition, the use of *Information & Communication Technology (ICT)* in the available *Plural Health Information & Communication System (PHICS)* has also been found as a practical means for the respondents to gain a proper understanding of various issues of health and disease in the community. Also since the provision of health information on the Internet and through the *Sistem Penilaian Informasi Kesehatan Online* (SPIKO) ('Online Health Information Searching System') has recently expanded, they also have to become practical tools in health information literacy activities in order to select and monitor the accuracy of the various forms of health information.

Since the study ample shows that the indigenous medical knowledge and practice reflect the rich heritage of the Sundanese people, the practical implication of the study is also to further study, document and operationalise these indigenous knowledge systems with a view to integrate them into sustainable knowledge systems in the near future. The overall implications, however, embark on the research findings that in a relative perspective, both the *Traditional Health Information & Communication System (THICS)* and the *Modern Health Information & Communication System (MHICS)* seem to be largely utilised below the medium available level, which implies the need of a concerted effort from all stakeholders concerned to render both systems more accessible and relevant to the provision of adequate information and communication on health and disease as a means to improve the health and well-being of the population.

Finally, special attention is paid to the development of a strategic model of an *Integrated Health Information & Communication System (IHICS)* as a planning tool in order to provide a contribution to the improvement of the local people's level of health literacy, and as such to the 'Information Society Indonesia' within the context of public health development in the near future. Figure 9.1 shows a schematic representation of the proposed *Model of an Integrated Health Information & Communication Systems (IHICS)* against the background of the three domains of respectively the societal discourse, the lay discourse and the expert discourse, operational in the research area of Sukamiskin. The input from these three domains *into the new model is reflected in the three arrows in the model, each of which is directed to the Model of an Integrated Health Information & Communication Systems (IHICS),* represented by the two overlapping circles in the middle.

In this model, a dynamic integrated and multidimensional approach is represented towards the interactive development of the societal, lay and expert discourses with a view to design and implement a hybrid system of traditional and modern health information and communication pertaining to the improvement of the health literacy level of the local population. Eventually, the ethnoscience study, particularly the ethno-communication study in Sukamiskin has paved the way for the merger of both systems into one hybrid system which links up very well with the Sundanese culture of the local people.

It is hoped that the above mentioned strategic model of an *Integrated Health Information & Communication System (IHICS)* indeed as a planning tool will be developed with a view to provide a contribution to the improvement of the local people's level of 'health literacy', and as such to the 'Information Society Indonesia' (2003) within the context of public health development in the near future.

In conclusion, this study hopes to attribute a new significant meaning to the concept of *Iber Kasehatan* as a construct of an *Integrated Health Information & communication Model (IHICM)* in order to provide a contribution to the health of the local population of Sukamiskin in Bandung, as well as in other regions in Indonesia and the rest of the world.

Samenvatting

Deze studie is uitgevoerd in de gemeenschap Sukamiskin, een *kelurahan* ('dorp') in Bandung, de Hoofdstad van de Provincie West Java, die gelegen is in de Sunda Regio van Indonesië.
Het onderzoek naar *Plural Health Information & Communication Systems (PHICS)* in Sukamiskin is gehouden van 2005 tot 2014. De steekproef die representatief is voor het onderzoeksgebied omvat 125 huishoudhoofden die in Sukamiskin, Bandung zijn geselecteerd.
De achtergrond van deze studie wordt gevormd door het begrip van *gezondheid* dat het grondrecht van ieder mens is en dat de pijler is van het strategische plan van *'Indonesia's Health 2014'.*

Mensen over de gehele wereld doen veel moeite om hun gezondheid te bevorderen en te handhaven of ziekte te voorkomen door gebruik te maken van verschillende traditionele, transitionele of moderne medische systemen of een combinatie daarvan voor hun behandeling, dikwijls binnen de beschikbare plurale medische configuratie. De bestudering van patronen van utilisatie van medische diensten tonen de verschillende mate van invloed aan van verscheidene socio-demografische, psycho-sociale, socio-economische, institutionele en milieufactoren. De studies van utilisatie van medische diensten zijn crucieel voor het begrip en de verklaring van het ziekte- en gezondheidsgedrag van mensen die op hun beurt belangrijk zijn voor de verbetering van de gezondheidsdiensten (*cf.* Slikkerveer 1990; 1995). Parallel aan de historische ontwikkeling van de verschillende medische systemen zijn de daarmee verbonden *Health Information & Communication Systems (HICS)* onder de lokale bevolking verder uitgebreid met nieuwe informatie, kennis en ervaring, die eveneens hebben geleid tot de ontwikkeling van verschillende *Traditional and Modern Health Information & Communication Systems (T&MHICS).*

Sedert de utilisatie van deze verschilende informatiesystemen een overeenkomst vertonen met de utilisatie van de verscheidene medische systems, en het verdere begrip belangrijk is voor de verbetering van deze systemen, onderzoekt deze studie op welke wijze verschillende onafhankelijke en interveniërende factoren de afhankelijke factoren van utilisatie beinvloeden van de twee bestaande vormen van het *Traditional Health Information & Communication System (THICS)* en het *Modern Health Information & Communication System (MHICS)* in de plurale configuratie in Sukamiskin.

De algemene doelstelling van dit onderzoek kan samengevat worden als het documenteren, bestuderen en analyseren van de utilisatie van de *Plural Health Information & Communication Systems (PHICS)* door de lokale bevolking van Sukamiskin in de Sunda Regio van West Java door middel van identificatie, documentatie, en analyse van significante factoren die de daarmee verbonden utilisatiepatronen beinvloeden, gedifferentieerd naar, enerzijds, het *Traditional Health Information & Communication System (THICS)* en anderzijds het *Modern Health Information & Communication System (MHICS)* op het niveau van de gemeenschap.

Daarnaast vormen de implicaties van de gevonden utilisatiepatronen de basis voor de ontwikkeling van een empirisch model van integratie van het *Traditional Health Information & Communication System (T&MHICS)* en het *Modern Health Information & Communication System (MHICS),* dat als een instrument kan dienen voor de planning van de 'Information Society Indonesia' (2003) in de context van gezondheid in de nabije toekomst. Teneinde dit algemene doel te bereiken is een onderverdeling gemaakt in een aantal specifieke doelstellingen, die gerealiseerd zijn en als volgt kunnen worden samengevat:

Ten eerste wordt de theoretische orientatie van het nieuwe onderzoeksterrein van *Health Information & Communication (HIC)* gepresenteerd in Hoofdstuk II, waarbij speciale nadruk wordt gelegd op *Plural Health Information & Communication Systems (PHICS),* inclusief een beschrijving van de invloed van globalisering op dit systeem in Indonesië. Op deze wijze geeft Hoofdstuk II een dergelijk theoretisch kader weer, dat gebaseerd is op de introductie van het begrip van gezondheidsinformatie dat licht tracht te werpen op de conceptualisering van gezondheid en gezondheidsinformatie, de behoefte aan gezondheidsinformatie en het beheer daarvan, en de daarbij betrokken media.

Op basis van deze conceptualiseringen licht het hoofdstuk vervolgens de benaderingen toe van *information literacy* en *health education*. In vervolg op een eerste schets van principes wordt de nadruk verlegd naar het begrip gezondheid. Na een eerste schets van beginselen, wordt aandacht besteed aan de verschillende concepten van gezondheidsinformatie en communicatie, de modellen van gezondheidscommunicatie, de relaties tussen gezondheids-communicatie en gezondheidsbevordering, de media en de relatie tussen traditionele en moderne gezondheidsinformatie en communicatie, en hun relevantie voor de volksgezondheid.

De uitwerking van de definitie van Gann (1986: 13) die stelt dat: *'Every individual is responsible to his/her own health; for looking out on signs of ill health, carrying out basic self-care measures on behalf of herself or himself or his (or more likely her) family, deciding when to consult the doctor, coping with long term chronic illness or disability, and making adjustments in lifestyle to improve health* ['Ieder individu is verantwoordelijk voor zijn of haar eigen gezondheid; het zoeken naar symptomen van een slechte gezondheid, het uitvoeren van elementaire maatregelen van zelfzorg namens hem- of haarzelf of zijn (of meer waarschijnlijk haar) familie, het beslissen wanneer de dokter geraadpleegd moet worden, het omgaan met langdurige chronische ziekte of invaliditeit, en het maken van aanpassingen in levensstijl om gezondheid te verbeteren'] bleek zeer nuttig te zijn voor het theoretische kader van dit onderzoek. Daarnaast heeft de *multiple discours approach to health communication*in drie door Parrot (2004) geintroduceerde invloedssferen, t.w. het maatschappelijke, het expert discours, en het leken discours, de basis gelegd voor de focus van deze studie op het domein van de discours rond de gezondheidsinformatie en communicatie onder de plaatselijke participanten in termen van begrip en gebruik van inheemse bronnen van kennis en op ervaring beruste informatie over gezondheid en ziekte op het niveau van de gemeenschap, afgeleid van de culturele, sociale en individuele ervaring die het gezondheids- en ziektegedrag van de lokale bevolking op het niveau van de gemeenschap begeleidt en aanpast.

Tenslotte wordt het hoofdstuk afgesloten met een toelichting op een nieuwe aanpak voor de formele integratie van verschillende vormen van *Health Information & Communication (HIC),* waarbij de ontwikkeling van de communicatie en de integratie van *Traditional and Modern Health Information & Communication Systems (T&MHICS)* in *Integrated Health Information & Communication Systems (IHICS)* nader wordt gespecificeerd. De theorieën en ideeën in dit hoofstuk hebben gezorgd voor een alomvattend kader voor de verdere uitvoering van het onderzoek dat is uitgevoerd in de *Plural Health Information & Communication System (PHICS)* in de gemeenschap van Sukamiskin in de Sunda Regio van West Java, Indonesië.

Ten tweede zijn de geselecteerde onderzoeksmethodologie van de *ethnoscience* en het bijbehorende geschikte analytische model en de componenten voor de uitvoering van de trapsgewijze *Bivariate, Mutual Relations, Multivariate* en *Multiple Regression Analysis* van de verzamelde kwantitatieve gegevens beschreven in Hoofdstuk III. Alszodanig wordt een overzicht van de onderzoeksmethoden en -technieken gepresenteerd, die geselecteerd zijn voor het

studiegebied van Sukamiskin teneinde de utilisatie van het *Plural Health Information & Communication System (PHICS)* door de lokale bevolking in de Sunda Regio van West Java te documenteren, bestuderen en te analyseren door middel van identificatie, documentatie en analyse van belangrijke factoren die invloed hebben op de gerelateerde utilisatiepatronen, gedifferentieerd naar enerzijds het *Traditional Health Information & Communication System (THICS)*, en anderzijds het *Modern Health Information & Communication System (MHICS)* op het niveau van de gemeenschap. De 'Leiden Ethnosystems Approach' wordt beschreven als een benadering die ontwikkeld is door Slikkerveer (1990; 1995, 2006), die in een bepaalde *ethnoscience* methode voorziet voor het analyseren van de lokale kennissystemen binnen een bepaalde cultuur. De 'Leiden Ethnosystems Approach' is opgebouwd uit drie methodologische principes: *Historical Dimension* (HD), *Participant's View* (PV) en *Field of Ethnological Study* (FES). Naast de operationalisering van de specifieke onderzoeksbenadering, biedt het hoofdstuk ook een overzicht van de aanvullende kwalitatieve en kwantitatieve onderdelen van het onderzoek, die bestudeerd zijn in de 14 *rukun warga* (RW) ('gehuchten') in Sukamiskin, Bandung.

De beschrijving van het kwalitatieve onderzoek waarbij waarnemingen en diepte-interviews met key-informanten zijn betrokken, wordt gevolgd door een beschrijving van het ontwerp van de gestructureerde vragenlijsten, die gebruikt zijn om de kwantitatieve enquêtes in de steekproef van 83 *rukun tetangga* (RT) ('wijken') in het onderzoeksgebied uit te voeren. Aanvullende informatie over de plaatselijke bevolking is uit de lijsten van ingezetenen verkregen, die in de dorpen beschikbaar waren, en waaruit de steekproef van de huishoudens in overeenstemming met de ligging van de wijken willekeurig is getrokken om elke *rukun warga* en *rukun tetangga* te bereiken. Vervolgens wordt het proces beschreven van de verdeling van de gestructureerde vragenlijsten onder de geselecteerde respondenten uit de steekproef en de invulling daarvan onder begeleiding van de onderzoeker en haar team.

Bovendien biedt Hoofdstuk III een gedetailleerde beschrijving van de factoren en blokken - en hun uitwerking - van het conceptuele model dat ontwikkeld is door Slikkerveer (1995; 2003), en voor dit onderzoek is geselecteerd en alszodanig de basis vormt van het empirische multivariate model van utilisatiegedrag, gebaseerd op de resultaten van het onderzoek. Hoofdstuk III wordt afgesloten met een beschrijving van de specifieke processen van de stapsgewijze statistische analyses van verzamelde gegevens tijdens de kwantitatieve huishoudsurveys, inclusief de Non-Linear Canonical Correlation Analysis met behulp van de techniek van OVERALS, waarbij gegevens worden ingevoerd in het *Statistical Package for the Social Sciences* (SPSS), versies 11.5, 17.0 en uiteindelijk versie 20.

Ten derde wordt het overzicht van het onderzoeksgebied gepresenteerd in Hoofdstuk IV, met een samenvatting van het cultuurgebied van de Republiek Indonesië, gevolgd door de Provincie West Java. Het bevat een uiteenzetting van de kenmerken van overheid en politieke organisaties, evenals van de Indonesische administratie die onlangs is uitgebreid van 27 tot 34 provincies. Evenzo wordt een beschrijving gegeven van de geografische en sociaal-demografische ontwikkeling in de Sunda Regio, gericht op de Provincie West Java. Aangetoond wordt dat Indonesië niet alleen doorkruist wordt door verschillende internationale transportwegen, die van west naar oost en *vice versa* lopen, maar ook is betrokken bij vele internationale commerciële contacten met betrekking tot de toename van de economische groei en de vestiging van vele multinationals. Het grote bevolkingsaantal van Indonesië en de dichtbevolkte gebieden zijn verantwoordelijk voor het huidige aantal van 263.991.379 inwoners.

Onderscheiden als het vierde dichtstbevolkte land in de wereld wordt thans echter een daling van de jaarlijkse bevolkingsgroei van 2,7% in 1968 tot 1,1% in 2017 waargenomen (*cf.* United Naties 2017). Hoewel Indonesië de grootste Islamitische bevolking ter wereld telt, is het geen Islamitische staat.

Vervolgens wordt het onderzoeksgebied van de gemeenschap van Sukamiskin beschreven. Vanwege de overvloedige natuurlijke hulpbronnen en vruchtbare gebieden, wordt West Java, als de vijfde grootste provincie van Indonesië, gedomineerd door de agrarische sector.
De *kelurahan (*'gemeenschap') van Sukamiskin ligt binnen de administratieve grenzen van het stedelijk gebied van Bandung, de Hoofdstad van de Provincie West Java.

In dit Hoofdstuk wordt tevens een overzicht van de admintratie van het gebied op de verschillende niveaus gepresenteerd, variërend van de Gouverneur van de Provincie via de Regent, die wordt bijgestaan door een Vice-Regent tot de Burgemeester, die de stad bestuurt. Elke *kabupaten* (‘regentschap’) en *kota* ('stad') in Indonesië zijn onderverdeeld in *kecamatan* (‘districten’). De positie van de *camat* ('hoofd van het district') wordt omschreven als leidinggevend aan het regionale kantoor in het territoriale district dat is onderverdeeld in *desa*, *kelurahan*, *kampung* of *nagari* ('administratieve dorpen'). Het laagste niveau van de administratie binnen de Regency wordt gehandhaafd door de *kepala desa* ('hoofd van het dorp’) en de *lurah* ('hoofd') van de *kelurahan* ('stedelijke dorp').

Ten vierde wordt een beschrijving van het dagelijks leven in Sukamiskin gepresenteerd in Hoofdstuk V. Het beschrijft de gegevens die zowel beschikbaar zijn in de aanwezige bronnen en als die verzameld zijn in de onderzoekspopulatie, d.w.z. de ingezetenen van de gemeenschap van Sukamiskin, waarbij de steekproef bestaat uit de geselecteerde huishoudhoofden. Daaruit blijkt dat Sukamiskin wordt gekenmerkt als een gemeenschap in het Arcamanik District, gelegen in het oostelijk deel van de stad Bandung, die bestaat uit vier dorpen, namelijk Cisaranten Kulon, Cisaranten Bina Harapan, Sukamiskin en Cisaranten Endah. Het is vastgesteld, dat in 2013, als gevolg van de groei van de bevolking het totaal aantal buurten is toegenomen van 83 tot 88 wijken in 2013.

Het hoofdstuk wordt afgesloten met een schets van het plurale medische systeem beschikbaar in de onderzoeksgebied, dat bestaat uit een traditioneel, een transitioneel en een modern medisch systeem dat alszodanig is gerelateerd aan de verschillende systemen van gezondheids-informatie en communicatie in het omderzoeksgebied. De huidige gezondheidsfunctionarissen worden beschreven als de *bidan* ('vroedvrouwen'), *dukun* ('traditionele genezers'), acupuncturisten, acupressuristen, masseurs en *ajengan* (‘religieuze genezers'), artsen, verloskundigen, kinderartsen en tandartsen. Verschillende methoden van behandeling worden ook gedocumenteerd zoals deze worden uitgevoerd door leden van de gemeenschap van Sukamiskin zelf in de vorm van traditionele huisgeneesmiddelen. De traditionele behandeling binnen de Islamitische gemeenschap van Sukamiskin wordt uitgevoerd door het gebruik van *bekam*, *rukiyah* ('heilige water') en gebeden. Andere traditionele behandelingen zijn acupressuur, acupunctuur en het zetten van gebroken beenderen. De structuur van de moderne gezondheidszorg en aanverwante faciliteiten die beschikbaar zijn in Sukamiskin worden beschreven in termen van de ziekenhuizen, *BKIA* ('ziekenhuizen voor Moeder- en Kindzorg'), *Pusat Kesehatan Masyarakat (Puskesmas)* (‘gezondheidscentra van de gemeenschap’), klinieken, *Pos Pelayanan Terpadu (Posyandu)* ('gezondheidsposten'), apotheken, winkels met traditionele medicijnen en *jamu* kiosken.

Ten vijfde wordt de *Traditional Health Information & Communication System (THICS)* in de gemeenschap van Sukamiskin beschreven in Hoofdstuk VI tegen de achtergrond van het geloofssysteem, de concepten van gezondheid, de *Information & Communication Systems (ICS),* het beleid en de strategieën van gezonheidszorg en de recente gevolgen van autonomie en technologie voor informatie en communicatie. Het *Traditional Health Information & Communication System (THICS)* in het onderzoeksgebied is gebaseerd op de heersende Sundanese normen en waarden. De discussie over de Sundanese cultuur begint met de Sundanese kosmologie en de traditionele manier van leven. De *orang sunda* ('Sundanese mensen') hebben gedurende vele generaties hun leven aangepast om in harmonie met de natuur te leven als hun belangrijkste filosofie, die als een centraal onderdeel van het universum wordt beschouwd. Dit concept vormt de basis van de lokale Sundanese wereldbeeld van *tri tangtu*, bestaande uit een verticale en een horizontale communicatie, uitgedrukt in de lokale taal als: *'hirup nu hurip, hirup kudu nyontoan jeung picontoeun dan hirup kudu neundeun jeung ninggalkeun'*.

Voorts kan de traditionele communicatie in Sukamiskin in verschillende categorieën worden ingedeeld, namelijk interpersoonlijke communicatie, communicatie in een kleine groep, en openbaar gebruik van directe en indirecte manieren van communicatie. Directe interpersoonlijke communicatie vindt plaats in een gesprek of door gebaren.

Tenslotte vindt interpersoonlijke communicatie plaats tussen ouders en kinderen, ouders met ouders, en tussen man en vrouw. Een meer afstandelijke dan gebruikelijke communicatie vindt plaats tussen grootmoeder en grootvader, en hun kleinkinderen, en ook tussen hen en hun buren. Overigens is het gebruik van non-verbale communicatie beschreven als meer dominant in de Sundanese gemeenschap die wordt uitgedrukt in het Sundanese concept van *PANCACURIGA.*

Ten zesde wordt ook de documentatie van de traditionele kennis en de inheemse classificatie van Medicinale, Aromatische en Cosmetische (MAC) planten die gebruikt worden voor *lalab* ('rauwe bladeren') en *ubar kampung* ('traditionele Sundanese geneeskunde') door de bevolking van Sukamiskin in Hoofdstuk VI gepresenteerd. Een aantal elementen van de traditionele gezondheidszorg zijn geworteld in de Sundanese cultuur die met name zijn vastgelegd op het gebied van Medicinale, Aromatische en Cosmetische (MAC) planten en de daarmee verbandhoudende plantaardige ingrediënten van het lokale dieet.

Specifiek verzamelde informatie van traditionele geneeskrachtige planten is gepresenteerd in een lijst van de inheemse classificarie, waarvan bepaalde delen worden gebruikt als componenten van *ubar kampung* ('traditionele geneeskunde') in het onderzoeksgebied. Daarnaast wordt in Hoofdstuk VI een selectie van foto's van deze inheemse geneeskrachtige planten gepresenteerd in Figuur 6.3. Het is gebleken, dat het eeuwenoude gebruik van deze MAC-planten in Sukamiskin ook heeft bijgedragen aan het regeringsprogramma dat in 1983 is gelanceerd als onderdeel van de *Pemberdayan Kelompok Keluarga (PKK)* ('Emancipatie van de Beweging voor Gezinswelzijn'), en bekend is als *Tanaman Obat Keluarga (TOGA)* ('Familie Tuin met Geneeskrachtige Planten'), dat uitgebreid is gedocumenteerd door Slikkerveer & Slikkerveer (1995).

Daarnaast wordt de *pamali* ('verbod') beschreven als één van de Sundanese traditionele communicatie vormen, waarin is bepaald dat de mensen geen inbreuk mogen maken op de verboden van de gemeenschap. In de Indonesische taal wordt *pamali* ook wel beschteven als het overtreden van een taboe en als een beschavingsnorm die niet toestaat dat mensen handelen, gebruiken of spreken over een bepaald onderwerp, indien men dat als beledigend ervaart.

In de gezondheidssector is vastgesteld, dat *pamali* in de Sundanese gemeenschappen zeer effectief is bij preventieve maatregelen tegen verschillende ziekten, en dat het ook voor het publiek gemakkelijk te begrijpen is omdat het gebruik maakt van de lokale taal. Via een eenvoudige zin van *pamali* wordt de samenleving zich bewust van het belang van de volksgezondheid.

In deze context worden de inspanningen van de lokale bevolking om ziekte te genezen overeenkomstig de leer van de Islam gepresenteerd, terwijl ook andere soorten van therapieën die buiten het gebied van Sukamiskin beschikbaar zijn, ook beschreven, zoals het gebruik van bijensteken, witte rijstkorrels, bloedzuigers en acupunctuur.

Ten zevende wordt het *Modern Health Information & Communication System (MHICS)* in de gemeenschap van Sukamiskin in Hoofdstuk VII beschreven, te beginnen met een beschrijving van de gerelateerde moderne medische voorzieningen die in Sukamiskin beschikbaar zijn: *Pusat Kesehatan Masyarakat (Puskesmas)* (‘Gezondheidscentra van de gemeenschap’), *Pos Pelayanan Terpadu (Posyandu)* ('Geïntegreerde Gezondheidsposten'), klinieken, apotheken en drogisterijen. Daarnaast wordt de verspreiding van gezondheidsinformatie verklaard aan de hand van het gebruik van de gedrukte media (kranten, tijdschriften, roddelbladen, en boeken in bibliotheken), de publieke media (posters, folders etc), de electronische media (televisie, radio) en de digitale media (e-book, e-news, e-TV etc.), waaronder de sociale media. Ook wordt aandacht besteed aan de rol van technologische programma's van gezondheidsinformatie in Bandung, variërend van de ‘Smart City’ tot de ‘Bandung Health Card’. Voorts wordt de aanwezigheid van instellingen beschreven die informatie verspreiden over moderne gezondheid, zoals de ‘Bandung TV’, de ‘Community Library’ of de ‘Community Reading Corner’ (TBM), en radio’s en kiosken met kranten en tijdschriften.

Bovendien wordt de rol van scholen, internaten, sportcentra, gezondheidscentra, *Pos Pelayanan Terpadu (Posyandu)* ('Geïntegreerde Gezondheidsposten'), *Polindes*, *Pendidikan Anak Usia Dini* (PAUD) ('Pre-Schools'), *Pemberdayaan Kelompok Keluarga* (PKK) (‘Emancipatie van de Beweging voor Gezinswelzijn’), dorpsapotheken en andere instellingen gedocumenteerd die gezondheidsinformatie en voorlichting over algemene gezondheidszorg verstrekken aan de leden van de gemeenchap.

Gerelateerde vormen van gezondheidsvoorlichting worden uitgevoerd in een aantal activiteiten waarbij het programma van gezondheidsvoorlichting is betrokken in de rol van het stimuleren van preventie- en promotie-acties, waarbij het personeel en de instellingen actief betrokken worden in de gezondheidsinformatie en communicatie in het onderzoeksgebied. Tenslotte worden nieuwe kanalen van moderne gezondheidsinformatie en communicatie aangegeven, waarin de voortgang van de digitalisering van radio, televisie, kranten en het internet in Indonesië een steeds belangrijker rol spelen.

Ten achtste worden de resultaten van de *Stepwise Bivariate, Mutual Relations, Multivariate* en *Multiple Regression Analyses* van de kwantitatieve gegevens uit de surveys van de huishoudens in Hoofdstuk VIII gepresenteerd. De resultaten vertonen en verklaren de differentiële relatie van de onafhankelijke en interveniërende factoren met door de lokale bevolking gerapporteerde utilisatie van het *Plural Health Information & Communications System (PHICS)* in Sukamiskin, gespecificeerd in enerzijds het *Traditional Health Information & Communications System (THICS),* en anderzijds het *Modern health Information & Communications System (MHICS)* in het onderzoeksgebied.

De toepassing van het door Slikkerveer (1990; 1995) ontwikkelde model geeft duidelijk de resultaten weer van de verschillende niveaus van significantie - of geen significantie - van de correlaties tussen de onafhankelijke en interveniërende variabelen in relatie tot de afhankelijke variabelen. Kort samengevat wordt de conclusie van de resultaten in termen van de aangetoonde correlaties in de *Bivariate Analysis* als volgt duidelijk geïllustreerd aan de hand van de *Mutual Relations Analysis*: de dominante invloed van het blok van de psycho-sociale variabelen (8) op de afhankelijke variabelen wordt aangetoond, gevolgd door de invloed van het blok van de interveniërende variabelen (6), terwijl de andere blokken van respectievelijk de socio-demografische variabelen (2), de in staat stellende variabelen (2), de gepercipieerde informatie variabelen (2) en de institutionele variabelen een significantie in gelijke aantallen van 2 variabelen per blok vertonen.

De resultaten van de daaropvolgende *Canonical Correlation Analysis* onderstrepen, dat de predisponerende psycho-sociale variabelen het meeste bijdragen aan de afhankelijke variabelen. De interveniërende variabelen, bestaande uit 'Blootstelling aan Electronische Media', 'Blootstelling aan Gedrukte Media' en 'Bewustwording van Epidemieën', wijzen ook op hun relatief sterke invloed op de afhankelijke variabelen van utilisatie van zowel het zowel het *Traditional Health Information & Communication System (THICS)* als van het *Modern Health Information & Communication System (MHICS)*. De interveniërende variabelen, bestaande uit 'Blootstelling aan Electronische Media', 'Blootstelling aan Gedrukte Media' en 'Bewustwording van Epidemieën' vertonen ook een relatief sterke invloed op de afhankelijke variabelen van utilisatie van zowel het *Traditional Health Information & Communication System (THICS)* als van het *Modern Health Information & Communication System (MHICS)*. Ook de *Multivariate Analysis* onderstreept nog eens de sterk significante correlatie tussen de interveniërende variabelen en ‘Utilisatie van het THICS’ en ‘Utilisatie van het MHICS' in vergelijking met de andere variabelen. Ook de variabelen 'Blootstelling aan Electronische Media', 'Blootstelling aan Gedrukte Media' en 'Bewustwording van Epidemieën' geeft een verdere onderbouwing van de zeer sterke significante correlaties.

De *Multiple Regression Analysis*, waarbij de OVERALLS techniek wordt toegepast , geeft niet alleen de correlatie tussen de variabelen aan, maar ook de correlatie tussen de verschillende blokken van variabelen in het model, met name de interactie tussen de blokken van onafhankelijke, interveniërende en afhankelijke variabelen. Deze berekende correlaties tonen de relatieve waarden aan van de interactie tussen de blokken, waarmee de geldigheid van het multivariate model duidelijk wordt aangetoond.

Tenslotte biedt het laatste deel van Hoofdstuk VIII, *i.e.* Paragraaf 8.6 een meer gedetailleerde interpretatie van de hierboven genoemde samenvatting van de conclusies van de resultaten van de stapsgewijze analyses, die een interpretatie verschaffen van de verschillende niveaus van significantie van de onafhankelijke, interveniërende en afhankelijke variabelen in het model die beschouwd kunnen worden als determinanten van de utilisatie van zowel het *Traditional Health Information & Communication System (THICS)* als van het *Modern Health Information & Communication System (MHICS)* in de gemeenschap van Sukamiskin.

De conclusie geeft aan, dat alle opeenvolgende stappen in de analyse bevestigen, dat de vastgestelde verdeling in de utilisatiepatronen de algemene interpretatie rechtvaardigt, dat aan de ene kant er een netto 63,2% is berekend, dat is meer dan drie-vijfde onder-utilisatie van het *Traditionele Health Information & Communication System (THICS)*, zoals gerapporteerd door de respondenten in het onderzoeksgebied, terwijl aan de andere kant, er een netto 58,4% is berekend, dat is meer dan de helft onder-utilisatie van het *Modern Health Information & Communication System (MHICS),* zoals gerapporteerd door de respondenten in het onderzoeksgebied.

Ten negende worden in aansluiting op de conclusies de theoretische en praktische implicaties van het onderzoek gepresenteerd in Hoofdstuk IX. De theoretische implicaties zijn, dat het meeste onderzoek op dit terrein wordt verricht in het kader van de verleners van gezondheidsinformatie via de *Modern Health Information & Communication Systems (MHICS),* waarin de recente electronische ontwikkelingen van de media en het internet domineren, terwijl minder aandacht wordt besteed aan de situatie en de visie van de consumenten van gezondheidsinformatie via traditionele gezondheidsinformatie, vooral ten aanzien van de lokale bevolking en hun utilisatie van hun *Traditional Health Information & Communication Systems (THICS)* die functioneel zijn op het niveau van de gemeenschap. Bovendien heeft dit onderzoek ook aangetoond, dat de 'bottom-up' benadering directe relevantie heeft voor de gezondheidseducatie als een instrument voor het informeren en communiceren met de lokale bevolking over veranderingen in hun gedrag ter verbetering van de gezondheid.

De toepassing van het onderscheid tussen het *Traditional Health Information & Communication System (THICS)* en het *Modern Health Information & Communication System (MHICS)* betekent een ondersteuning voor de comparatieve benadering die nodig is voor de ontwikkeling van etno-communicatie als een discipline die gebaseerd is op een cultureel-relativistische oriëntatie, dat wil zeggen dat elke cultuur of sub-cultuur op basis van haar eigen systeem van waarden, normen en tradities wordt behandeld. De studie van *Iber Kesehatan* vanuit een dergelijke etno-communicatie perspectief op *Health Information & Communication Systems (HICS)* in Sukamiskin impliceert tevens een beter inzicht en verklaring van de verschillende factoren die gerelateerd zijn aan gezondheids-bevordering, ziektepreventie en de behandeling op het niveau van de gemeenschap. Een dergelijke kennis van de participanten verwijst naar het concept van *health information literacy* die het individuele vermogen omvat om tegemoet te komen aan de behoefte aan gezondheidsinformatie, de bron van informatie te bepalen, en inzicht te verkrijgen in de inheemse medische kennis en praktijk. Het onderzoek in Sukamiskin constateert ook dat onder de onafhankelijke variabelen, de factoren van het besef van de noodzaak van gezondheidsinformatie en institutionele factoren van *Reading Corners,* van *Pemberdayan Kelompok Keluarga* (PKK) ('Emancipatie van de Beweging voor Gezinswelzijn') en moskeeën eveneens variabelen vormen, die van invloed zijn op de utilisatie van het aanwezige *Plural Health Information & Communication System (PHICS).*

Naast de theoretische implicaties verdienen ook enkele methodologische implicaties van de studie in Sukamiskin bijzondere aandacht. De eerste methodologische selectie van de methodologie van *ethnoscience* van de *'Leiden Ethnosystems Approach'* heeft haar nut en functionaliteit voor het begrip en de verklaring van relevante lokale verschijnselen duidelijk aangetoond, dat de onmisbare toepassing impliceert van deze methode in soortgelijke studies over kennis, opvattingen en praktijken van inheemse volken, zoals in dit geval in gezondheidsvoorlichting en communicatie op het niveau van de gemeenschap in West Java. Bovendien heeft de functionaliteit van het concepuele model van transcultureel utilisatiegedrag van respondenten - ontwikkeld door Slikkerveer (1990; 1995) en ook gekozen is voor de bestudering en analyse in Sukamiskin - indrukwekkende resultaten opgeleverd in termen van de betrouwbare meting van de verspreiding van relevante factoren en variabelen met verschillende niveaus van significantie in de daaropvolgende stapsgewijze analyses van verzamelde gegevens van de surveys van de huishoudens.

De praktische implicaties van de studie betreffen zowel het *Traditional Health Information & Communication System (THICS)* als het *Modern Health Information & Communication System (MHICS)* in Sukamiskin, waarbij blijkt dat bijzondere aandacht moet worden besteed aan het verstrekken van praktische informatie over de preventie en de risico's van lokale ziektes en van een gezonde levenswijze via de traditionele informatiesystemen.

Wat betreft het *Modern Health Information & Communication System (MHICS),* is de praktische implicatie van het onderzoek, dat een antwoord moet worden ontwikkeld op de specifieke behoefte van de respondenten, dat het Ministerie van Onderwijs en Cultuur van Indonesië ook daadwerkelijk betrokken moet worden bij de ontwikkeling en het beheer van lokale bibliotheken op het gebied van gezondheid en ziekte als een verlengstuk van de gerelateerde gezondheidsprogramma's van de regering.

Bovendien werd het gebruik van Informatie- en Communicatie Technologie (ICT) in het aanwezige *Plural Health Information & Communication System* (PHICS) ook vastgesteld als een praktisch middel voor de respondenten om een goed begrip van verschillende kwesties van gezondheid en ziekte in de gemeenschap te verkrijgen.

Aangezien ook de verstrekking van gezondheidsinformatie op het Internet en via het *Sistem Informasi Penilaian Kesehatan Online (SPIKO)* ('Online Zoeksysteem voor Gezondheidsinformatie') onlangs is uitgebreid, dienen deze ook praktische hulpmiddelen te worden in activiteiten van *health information literacy* om de juistheid van de verschillende vormen van gezondheidsvoorlichting te selecteren en te controleren.

Sinds het onderzoek ook ruimschoots aantoont, dat de inheemse medische kennis en praktijk het rijke erfgoed van de Sundanese bevolking weerspiegelen, is de praktische consequentie van dit onderzoek ook om verdere studie, documentatie en operationalisering van deze inheemse kennissystemen uit te voeren met het doel om deze te integreren in duurzame kennissystemen in de nabije toekomst.

De algehele implicaties gaan echter uit van de onderzoeksbevindingen, dat in een relatief perspectief zowel het *Traditional Health Information & Communication System (THICS)* als het *Modern Health Information & Communication System (MHICS)* grotendeels onder het gemiddelde aanwezige niveau gebruikt worden, hetgeen de behoefte impliceert aan een gezamenlijke actie van alle betrokken *stakeholders* om beide systemen toegankelijker en meer relevant te maken voor het verstrekken van adequate voorlichting en communicatie over gezondheid en ziekte als een middel ter verbetering van de gezondheid en het welzijn van de bevolking.

Tenslotte wordt bijzondere aandacht besteed aan de ontwikkeling van een strategisch model van een *Integrated Health Information & Communication System (IHICS)* als een instrument van planning om een bijdrage te leveren aan de verbetering van het *level of health literacy* van gezondheidsinformatie van de lokale bevolking, en alszodanig aan de 'Information Society Indonesia' (2003) in het kader van de ontwikkeling van de volksgezondheid in de nabije toekomst.

Figuur 9.1 vertoont een schematische weergave van het voorgestelde model van het *Integrated Health Information & Communication Systems (IHICS)* tegen de achtergrond van de drie domeinen van respectievelijk het maatschappelijk discours, het leken discours en de expert discours, operationeel in het onderzoeksgebied van Sukamiskin. De input van deze drie domeinen in het nieuwe model wordt weergegeven in de drie aangegeven pijlen in de figuur, die gericht zijn op het model van een *Integrated Health Information & Communication System (IHICS)*, uitgebeeld door de twee overlappende cirkels in het midden van de figuur.

In dit model is een dynamische geïntegreerde en multidisciplinaire benadering weergegeven gericht op de interactieve ontwikkeling van de maatschappelijke, leken and expert discoursen met het oog op het ontwerpen en toepassen van een hybride systeem van traditionele en moderne gezondheidsinformatie en communicatie ten behoeve van de verbetering van het *health literacy level* van de lokale bevolking. Uiteindelijk heeft het *ethnoscience* onderzoek, vooral de etno-communicatie in Sukamiskin de weg vrijgemaakt voor de fusie van beide systemen in één hybride systeem dat zeer goed aansluit op de Sundanese cultuur van de lokale bevolking.

Gehoopt wordt dat het strategische model van *Integrated Health Information & Communication System (IHICS)* inderdaad als instrument voor planning verder zal worden ontwikkeld met het doel om een bijdrage te leveren aan de verbetering van het niveau van *'health literacy'* van de lokale bevolking, en alszodanig aan de 'Information Society Indonesia' (2003) in het kader van de ontwikkeling van de volksgezondheid in de nabije toekomst.

Als conclusie hoopt deze studie een nieuwe zinvolle betekenis te geven aan het concept van *Iber Kasehatan* door de constructie van het *Integrated Health Information & Communication Model (IHICM)*, teneinde een bijdrage te leveren aan de gezondheid van de lokale bevolking van Sukamiskin in Bandung, evenals in andere gebieden in Indonesië en de rest van de wereld.

Curriculum vitae

Wina Erwina was born on the 6th of February 1967 in Bandung Indonesia. After finishing high school in Jakarta in 1985, she continued her studies at PadjadjaranUniversity (UNPAD) and received her BA Degree in Library Science in the Faculty of Communication in 1991, where she has been registered since 1993 as a Junior Lecturer. She continued her education in The Netherlands at the Institute of Cultural and Social Studies at Leiden University, where she received her MA Degree in Anthropology and Development Sociology in 1997. In 2009 she joined the Leiden Ethnoscience and Development (LEAD) Programme at Leiden University as a PhD Candidate in Communication and Information Science, with a specialisation in ethno-communication.

She gained practical experience as a Broadcaster and News Anchor in TVRI Bandung from 1988-2002; and joined the Twinning Programme between Leiden University and Universitas Padjadjaran (TWINMAP) in 2002. In addition, she was Head of the *Knowledge Center and Library of the Faculty of Communication* at PadjadjaranUniversity from 2000-2009 where she was also Secretary of the *Centre of Scientific Information and Library* (CISRAL) from 2002-2005. In 2015 she was appointed Head of the Central Library of Universitas Padjadjaran.

Wina Erwina was a Member of the Organising Committee of the International Exhibition on *Jamu*of the World Think Tank in Indonesia, Greece, The Netherlands, and Singapore from 2004-2005, and Member of the *Indonesian Resource-Center of Indigenous Knowlegde* (INRIK) since 1995. From 2011 – up until today, she is the Coordinator of the UNPAD Team of the Project on *Human Evolution and Development* (HEAD) of the Scientific Heritage Archive of the LEAD Programme of Leiden University and Secretary of the *Committee for Information Literacy* of Universitas Padjadjaran from 2011-2015. She was also Head of *Asosiasi Penyelenggara Pendidikan Tinggi Ilmu Perpustakaan dan Informasi Indonesia* (APTIPI) ('Association of higher Education Providers Library and Information Science Indonesia) from 2012-2016 and 2017-2020, Chairman of the West Java Library Board 2017-2020, Head of the Department of Information and Library Science from 2010-2014; and Head of the Study Programme of Library Science at the Faculty of Communication from 2010-2014.

She co-developed the Model of *Pustakawan Cilik* (PUSCIL) ('Children Librarian for Primary School') in 2014, the *Sistem Penelusuran Informasi Kesehatan Online*' (SPIKO) in 2012, the Information Literacy Model from 2011-2015; the Portable Database for the OTC-EU research of LEAD in 2010; the Digitisation System of the Historical Archive HEAD at LEAD in 2010; the System Electronic Filing System (EFS) Kaltim Bontang in 2008; the Procedings of SKIM Malaysia in 2007; the Design Services and Digital Library System FIKOM 2006; the Documentary *Jamu*in 2005; the Video Company Profile 'Almamater' in 2004; the CISRAL Digital Systems Software in 2003; and the INDAKS *Kasepuhan* Documentary in 1997.

She also participated in the Study Programme of Repository System in 2012; and in the Mapping the Cultural Reading Cities/Districts of West Java –BAPUSIPDA.

Wina Erwina also participated in community service programme under the responsibility of Universitas Padjadjaran (UNPAD) in 2013, 2014, and 2015 '*HIBAH BUKU UNPAD'* to all Libraries and in the *Taman Bacaan Masyarakat* (TBM) ('Community Reading Corner') in West Java. She followed international training courses such as the Photo and Film Ethnography Documentary Course in Leiden in 1997, the International Tutor Training Course in Integrated Microfinance Management (LEAD-UNPAD) in 2011 and the Executive Training for Higher Education Management (ETHEM) of LEAD in 2014.