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Musuto Mutaragara Chirangi

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in 1965

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Afya Jumuishi:
Towards Interprofessional Collaboration between Traditional and Modern
Medical Practitioners in the Mara Region of Tanzania

Musuto Mutaragara Chirangi

"The task is not to ignore or overthrow - much less to denigrate - Traditional Medicine, but to recognise and develop its potential and help its practitioners to expand their own knowledge. Our scientists have to get the cooperation of traditional practitioners and of elders in our different areas, so as to combine Traditional Medicine with modern scientific knowledge and techniques. This can be done."

Mwl. Julius Kambarage Nyerere,
in: Mshingeni *et al*. (1991: xxi)

This dissertation is dedicated to our beloved father, the late Mutaragara Chirangi wa Muhongo (1932 - 2007), an exemplary social, political and religious individual whose challenging legacies on innate strategic planning, efficient use of time, attention to the disadvantaged, zero tolerance on corruption, indefatigable documentation and preservation of indigenous knowledge shall continue to be evidenced in the annals of his prosopography.

Preface

Born and nurtured in the post-colonial hangovers in Tanzania, I was acculturated to be incurious, insouciant, isolative and if possible sceptical to most of our African indigenous traditions (in Swahili: *kujitenga na mila za jadi*) not excluding African traditional medicine. This can well be conferred by some religious teachings and or manuals which erroneously send a wrong signal which suggests that becoming a Christian or a Muslim is equivalent to denying one's indigenous traditions and values indiscriminately, commonly known as acquiring the 'new' religious life from the old traditional way. Thus one's association with indigenous knowledge and practice was translated as to mean backsliding towards the road to hell.

Consequently, I have lived a lifestyle which gave birth to the hypocritical 'dual citizenship' of, on the one hand being an African and therefore naturally expected either to be knowledgeable of some indigenous medicaments and practices or permission to consult traditional medical practitioners secretly or even in darkness, and on the other hand, condemning to the highest pitches all traditional and associated indigenous medical practices and beliefs as 'magic', 'witchcraft', and 'abracadabra' in religious meetings in mosques, tents, synagogues and churches under the citizenship of Christianity, Islam, or non-African traditional faiths.

Notwithstanding, having served in a rural hospital in Tanzania as the Hospital Manager for more than ten years, I have also observed the significance of Tradition Medicine (TM) for the local population's health and disease. Furthermore, apart from getting reports and having discussions on this subject in the District Health Management Team (DHMT), as a born Tanzanian, I can dare from the *emic* (insider's) point of view as opposed to the *etic* (outsider's) point of view to express my own experience of how people from different age, education, religion and ethnicity have utilized Tradition Medicine (TM) for a variety of reasons, including protection of their family or their property, rehabilitation, attaining higher social status, fortune telling, competition in sport, and, of course, improvement of their health status.

Although today, Tanzania embraces the ideal of incorporating Tradition Medicine (TM) into the formal medical system, there still exists, however, a big gap in mutual trust and collaboration between the practitioners of the traditional and modern systems. While, on one hand, I have witnessed proponents of traditional medicine who were dissatisfied and disillusioned with the results being in contrast with the over-romanticized claims of Tradition Medicine (TM) to cure any illness or disease, on the other hand, I have observed a blank condemnation of all traditional practitioners and medicines by people branding Tradition Medicine (TM) as 'witchcraft' without efficacy or scientific evidence.

In my personal life, I remember that my beloved grandmother Nyamurugwa wa Kafwenyi, religiously known as Pili binti Hussein who had sustained injuries with multiple fractures of the femur because of an accident was taken for treatment (in a reasonably coerced manner by our extended family members) to the renowned traditional bonesetter *Omufumu* Mariko of Mugango, after her treatment in a modern hospital had not improved her condition. Later, however, she died not knowing whether she was really better or worse off by undergoing herbal medicine, traditional joint manipulation and mobilization techniques. Many questions remained unanswered, but I often felt bitterness when some modern medical practitioners blamed complications to traditional medicine and 'unprofessional' treatment of the *Omufumu,* allegations they could not prove. As such, more questions than answers still linger in my mind. If both medical systems seek to improve our health, why then is there still a situation of most practitioners who do not collaborate to exchange their knowledge, experience and skills to reduce the problem of insufficient medical care?

Why is it, that they cannot work together for the sake of the improvement of peoples' health by advising their clients to make more rational choices in health care, which in turn will also render themselves to become more efficient?

If their differences in knowledge, belief and behaviour are to remain the stumbling block on the road to integrated health care development, how is it possible that a surgeon, an internist, a psychiatrist, a physiotherapist, a (pastoral) counsellor and other modern medical personnel with equal differences have continued to work together within the formal medical systems in many countries? It is important to recognize that numerous traditional medical practitioners are not opposed to modern medical practices. In contrast, however, several studies have shown that quite a number of modern medical practitioners not only openly oppose Traditional Medicine (TM), but also that they suffer from unjustified prejudice and rivalry. Such situation expresses their suffering of the *groupthink* syndrome over their fellow practitioners, who are better equipped with valuable indigenous knowledge and skills and who are practicing with great cultural competencies. As Goldberg (2002) argues, it is evident that both medical systems have much to offer and that the wisest form of health care is one which makes use of each of them in an integrated manner, as such meeting patients' needs in an optimal way.

It was against this background that I took in 2002 the initiative to establish an Integrated Health Care Initiative Project with the Swahili name *Jadi na Utamaduni katika Afya (JUA)* under the KMT-Community Based Health Promotion Programme of Mara Tanzania. This project focused in particular on enhancing the capacity of the traditional medical practitioners in the Mara Region with a view to evaluate and address crucial questions related to the delivery of quality health services in a situation of integrated health care development.

The preliminary promising results, which included the first collaboration of traditional (male) circumcisers with clinicians and nurses from the Nyerere Designated District Hospital, emerged during the two seasonal male circumcision periods among the Kuryans of Serengeti District. No sooner did I realize its impact, before my motivation was further strengthened to undertake a scientific study on multiple factors which seem to correlate to collaboration between the practitioners of the two systems. As such, this study should also evoke a discussion on integrated health and healing and form the basis for future policy reforms in the Tanzania integrated health care system. Such premise has prompted me to further study the theoretical issues concerned, followed by my qualitative and quantitative field work in the Mara Region combining human resource management with medical anthropological and organisational behavioural models.

Embarking on my acquired knowledge in health policy, organisational management and human resource management, I am convinced that interprofessional collaboration of traditional and modern medical practitioners is part of the process towards fully integrated health care. Such change is not only inevitable, but actually imperative in our present world of complex plural medical systems, Tanzania not excluded. In my opinion, both extreme stands of blatant refusal and denigration of all forms of indigenous knowledge, as well as the over-validation of anything which is indigenous while dubbing modern medicine as 'colonial' are not helpful to the present process of health sector reform of Tanzania. Integration of the two medical systems aims at bringing efficiency, equity and quality health care to all people in Tanzania. As such, the situation of our nation calls for all researchers and policy makers concerned to work diligently together in search of an optimal form of integrated health care services.

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List of Abbreviations

AMO	Assistant Medical Officer
AICT	African Inland Church of Tanzania
BAKWATA	Baraza Kuu la Waislam Tanzania
CAM	Complementary and Alternative Medicine
CBA	Community Based Approach.
CBHPP	Community Based Health Promotion Programme
CHAWATIATA	*Chama cha Waganga wa Tiba Asilia Tanzania*
	(Association for Traditional Healers and Birth Attendants in Tanzania)
COA	Clinical Oriented Approach
Collabo	Collaboration
DDH	Designated District Hospital
EKS	Ethnobotanical Knowledge System
GDP	Gross Domestic Product
GNP	Gross National Product
GP	General Practitioner
HIV / AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
HE	Health Education
HRM	Human Resources Management
HSR	Health Sector Reform
ICD	International Classification of Diseases
IMR	Infant Mortality Rate
ILO	International Labour Organisation
ITM	Institute of Traditional Medicine (TM)
ISIC	The International Standard Industrial Classification
JUA	*Jadi na Utamaduni katika Afya* (Traditions and Culture in Health)
KKKT	Kanisa la Kiinjili la kilutheri Tanzania (The Evangelical Lutheran Church)
KMT	Kanisa la Mennonite Tanzania (The Tanzanian Mennonite Church)
LEAD	Leiden Ethnosystems and Development
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MH	Modern Health Care
MHP	Modern Health Care Practitioner
MM	Modern Medicine
MMR	Maternal Mortality Rate
MO	Medical Officer
MoHSW	Ministry of Health and Social Welfare
NM	Nurse Midwife
PASW	Predictive Analytics Software
PHCSDP	Primary Health Care Services Development Programme
PMORALG	Prime Minister's Office-Regional Administration and Local Government
RC	Regional Commissioner
RCT	Roman Catholic of Tanzania
RCH	Reproductive and Child Health
SACCOS	Saving and Credits Cooperative Society
SDA	Seventh- day Adventist Church
SES	Social Economic Status

SPSS	Statistical Package for the Social Sciences
SSIs	Social Security Institutions
Swah	Swahili
SWOC	Weaknesses, Opportunities and Challenges
TAWG	Tanga AIDS Working Group
TB	Tuberculosis
TBA	Traditional Birth Attendant
THP	Traditional Medical Practitioner
TM	Traditional Medicine (TM)
TN	Trained Nurse
TRAFFIC	The Wildlife Trade Monitoring Network which is a joint programme of World Wide Fund for Nature and the World Conservation Union
Tshs	Tanzanian Shillings
TUCTA	Tanzania Union Congress of Tanzania
Tz	Tanzania
UNESCO	United Nations Educational, Scientific and Cultural Organization
VCTC	Voluntary Counselling and Testing Centre
WHA	World Health Assembly
WHO	World Health Organisation

CHAPTER I   INTRODUCTION

1.1   Recent Development of Health and Healing in Africa

1.1.1   Integrative Medicine of Ethno- and Biomedical Systems

Africa has a long history of prolonged use of Traditional Medicine (TM), complemented since the colonial period of time with Modern Medicine (MM) to result in today's complicated situation of plural medical systems, where in addition to socio-demographic and psycho-social factors, the cultural context of health and healing in terms of the indigenous peoples' medical knowledge and practice continue to substantiate a major determinant of the patterns of health care utilisation. In his study on *Plural Medical Systems in The Horn of Africa*, Slikkerveer (1990) introduced the model of transcultural health care utilisation in order to analyse and explain these important aspects of the pluralistic medical configurations in this part of Africa. However, evenly balanced investment as well as resolute political will to promote the formal integration of Traditional Medicine (TM) and Modern Medicine (MM) into a new system of integrative medicine for improved health care development has generally lagged behind, so that clients and patients still have to resort to making choices among and within medical systems and sub-systems in order to obtain adequate health care. While in a growing number of countries in Asia, traditional medical systems are not merely tolerated vis-à-vis the modern medical system, but in fact recognized as a formal part of the state-regulated structure of health care – Sri Lanka, Pakistan, India, Thailand, and China - such an emancipatory process of Traditional Medicine (TM) has been less progressive after independence in many countries of Sub-Saharan Africa. In those African countries which had previously been under French colonial rule, including Mali, Upper Volta and Cameroon, the trend towards liberalization of Traditional Medicine (TM) has been rather slow, while African countries formerly under British colonial rule with less interference from the state have experienced more liberal recognition of indigenous medical systems and their healers (Bannerman *et al*. 1983).

Today, the objective of such envisaged integration between ethno- and biomedical systems, often referred to as *integrative medicine*, is to achieve quality optimal coverage of health care needs of the entire population through concerted joint efforts of different professionals resulting in what is well encapsulated in the Swahili concept of *afya jumuishi* (*integrated health care)*. However, over the past decades, major progress has been made in the recognition and revitalisation of Traditional Medicine (TM) into more formal medical systems, fervently encouraged by international organizations such as World Health Organization (1982; 2002; 2008; 2012; 2012). While legal obstacles have been removed, in practice such collaboration has not yet fully been operationalised at the national level to reach fully integration as defined by WHO. (2002b

Such delayed health care development is not only in contrast with a growing number of science-based recommendations and supra-national strategies for integrated health care, but also runs against the demand of about 80% of the local populations in developing countries, who continue to use Traditional Medicine (TM) for their primary health needs.

While there are many examples of successful interprofessional collaboration among medical practitioners within the modern health sector, such as among physicians, nurses, counsellors, pharmacists, health facility chaplains and paramedics in Africa, not excluding Tanzania, there are fewer numbers of cases of successful efforts of interprofessional collaboration between traditional and modern medical practitioners.

The experience gained by the pioneering *Primary Health Training for Indigenous Healers Programme* (PRHETI) among the Techiman Bono in Ghana has been exemplary in the development of effective collaboration between indigenous healers and modern physicians (Warren 1989; Warren, Slikkerveer & Brokensha 1995). Similar early positive experience has been described in a case study on the utilisation of indigenous healers in Primary Health Care in Ethiopia by Slikkerveer (1982). These examples in Africa have only been followed by a low number of cases of successfully engaging indigenous healers in AIDS prevention programmes in Mozambique as reported by Green (1999), in family planning in Ivory Coast, as reported by Wilson *et al*. (1999), and in the treatment of potentially life-threatening conditions in South Africa, as reported by Puckree *et al.* (2002).

In addition to the continuing negative attitudes of most governments towards the cooperation of physicians with non-medically trained personnel rooted largely in both Western medical ethics and codes of conduct and cosmopolitan medical dominance, several present-day health care delivery systems are still suffering from a biomedical bias, ignorance of local peoples' health demands and the provision of merely non-integrated health care services to their clients and patients (1).

Slikkerveer (2001) underscores the significance of the population demand of clients and patients for a comprehensive form of health care services, which goes beyond the mere physical and mental care as the ultimate basis for an integrated medical system (2). Comprehensive care needs holistic approaches which include not only modern health care but also various other forms of traditional and complementary and alternative health care. In his review of the recent health care development process, Slikkerveer (2001) describes the subsequent approaches and strategies of health care delivery in developing countries with changing foci running from the 1950s Public Health Programmes through the 1960s Basic Health Services; the 1970s Health Planning Processes; the 1980s Primary Health Care; the 1990s Community Health and the 2000s 'Rediscovery of Traditional Medicine (TM) for Integrated Medical Systems'. The major arguments for the development of integrated medical systems include, among others:

- increased failures of Modern Medicine (MM) to comply with patient's expectations;
- sky-rocketing prices for modern health care and medicines;
- increased chemophobia among patients against bio-medical interventions;
- non-effective modern care for mental, chronic and allergic disorders;
- failure to link-up with the socio-cultural background of patients;
- positive reorientation towards indigenous knowledge systems and Traditional Medicine (TM); and
- readily available, culturally appropriate and financially affordable traditional medicines for common illnesses for the larger part of the population.

In general, two main theoretical conceptualisations exist with regard to the term *integrated health care*. Raak *et al*. (2005) refers to a coherent and coordinated set of services, which are planned, managed and delivered to individual service users across a range of organisations and by a range of cooperating professionals and informal health personnel, mainly *within* the modern medical system. It covers the full spectrum of health and health care-related social care. In integrated care, multidisciplinary protocols as well as interdisciplinary practitioners work together for a common cause. The main goal is to achieve better quality of care. In the *Ten Lessons in Collaboration,* Gardner (2005) states that collaboration is a complex partnership, a process which grows over time.

Another perspective on *integrated health care* which is more appropriate for the transcultural situation in Tanzania as elsewhere in Sub-Saharan Africa has been developed for the particular medical configuration in developing countries, where, as Leslie (1976) and Landy (1977) indicate, two key concepts which play a crucial role in the integration process: *medicine* and *medical system.* Land's (1977: 131) classical definition of medicine states that: '*A society's medicine consists in those cultural practices, methods, techniques and substances, embedded in a matrix of values, traditions, beliefs and patterns of ecological adaptation that provide the means for maintaining health and preventing or ameliorating disease and injury in its members'.*

In this context, Landy (1977: 1310) defines a medical system as '*The total organization of its social structures, technologies and personnel that enable it to practice and maintain its medicine (as defined) and to change its medicine in response to varying intracultural and extracultural challenges'.*

Dunn (1976) extends such a theoretical orientation with a more dynamic interpretation of medical systems in relation to health behaviour of clients and patients, which is divided into deliberate or non-deliberate behaviour. In this 'web-like-thinking' view, also known as the 'medical ecological approach', Dunn (1976: 135) categorises a medical system as: *'the pattern of social institutions and cultural traditions that evolves from deliberate behaviour to enhance health, whether or not the outcome of particular items of behaviour is ill health'.* This definition is most appropriate for the present study in Tanzania – as elsewhere in developing nations – where such a medical system is conceptualised as a plural medical system in which local, regional and cosmopolitan medical systems and sub-systems are interacting. Such a pluralistic perspective on medical systems has also been successfully operationalized for the study and analysis of the patterns of transcultural heath care utilisation among different ethno-cultural groups in the Horn of Africa (*cf.* Slikkerveer 1995).

The practical implications of such dynamic orientation towards different medical systems, which is directly related to the integrative 'Indigenous Knowledge & Development' (IK&D) paradigm of the 1990s will be further described in relation to the recent re-orientation of the World Health Organization (2007) towards the promotion of integration of medical systems in developing countries.

Since the traditional and modern medical practitioners are the representatives *par excellence* of their medical systems, the assessment of the extent of their professional collaboration is setting the tone for the overall state of integration among medical systems, and will as such form the focal point of the study in the research area of Tanzania.

For health care professionals to achieve higher quality in the long term, conflicts in collaboration are inevitable, and therefore, such challenges need to be addressed accordingly with appropriate strategies. Such a proposition also stands as the basis to continue advocating the collaboration between traditional and modern health care workers despite their differences and sometimes-conflicting worldviews. Although in theory it seems that collaboration between traditional and modern medical practitioners is now gradually being accepted by many African countries, the reality of past experiences of mistreatment of traditional healers in the colonial period of time has continued to cause some reservations (Kayombo *et al.* 2007). The major contentious problem, however, is how to initiate and strengthen such collaboration between the representatives of the two medical systems, characterised by several differences in theory of disease causation and management. Studies by Murray (1989) and Amason (1996) show that such differences can provide the potential for a greater ability to make complex positive decisions, where varied interests have to be taken evenly into account.

The experience of interprofessional collaboration between the two medical systems in different parts of Africa has been studied and frequently commended in learning lessons, not only in developing countries but also in developed countries (*cf.* Bodeker & Chaudhury 2001). The understanding of the rationale for collaboration attracts much attention to health researchers, policymakers and managers as a prerequisite (*sine qua non*) for developing effective policies which enhance integrated health care in relation to various management, economic and development theories, such as strategic choice theory, resource dependence theory, stakeholder theory and institutional theory (Raak 2005).

In order to make informed decisions under the on-going Tanzanian Health Sector Reform (HSR 1993), to integrate both the traditional and modern medical system, it is therefore of paramount importance to examine the levels of interprofessional collaboration and the factors which correlate with such collaborative behaviours between practitioners of the two systems in order to be able to recommend pragmatic policy strategies on how to maintain effective interprofessional collaboration in order to reach a fully integrated medical system. According to the *Centre for Advancement of Collaborative Strategies in Health* (2003), interprofessional collaboration as part of synergy formation has two components which form the point of embarkation for the analytical model of this study using as 'dependent factors':

- *the behavioural patterns of sharing resources;* and
- *the behavioural patterns of working jointly for clients.*

In this way, interprofessional collaboration is defined as an interactive behavioural action of human beings influenced by factors playing a role at both the individual and the system levels. Therefore, this study is based on the theoretical framework of the study of patterns of interprofessional collaboration behaviour within the transcultural configuration of plural medical systems in Tanzania, in which interprofessional collaboration is a key factor in initiatives designed to improve the health services currently offered. While the increasingly complex health problems faced by health professionals are creating more respect and understanding among traditional and modern medical practitioners and the larger part of the population continues to demand and use Traditional Medicine (TM) as their first form of care, there still exists limited knowledge and understanding of the complexity of the interprofessional interactions among these two different types of health functionaries. In this context, interprofessional collaboration between traditional healers and modern doctors is conceptualised as specific patterns of behaviour between two types of professionals who may not share a common professional education, values, socialisation, identity, and experience, but who share the common goal of providing the population with appropriate health care.

The related methodology of the study and analysis of these patterns of interaction behaviour embarks on the health care utilisation behaviour model as introduced for developed countries by Kohn & White (1976) and Cox & Claus (1984), later on further developed and adapted to the complicated analysis of use of various medical systems in developing countries, introduced as the model of transcultural health care utilisation by Slikkerveer (1990). This analytical model of Slikkerveer (1990) has further successfully been operationalised for the comparative analysis of different forms of behaviour, such as bio-cultural diversity conservation behaviour in Bali, Indonesia by Anak Agung Gde Agung (2005); wild medicinal plant utilisation behaviour in Meru, Kenya by Ibui (2007); medicinal, aromatic and cosmetic plant utilisation behaviour in Bali, Indonesia by Leurs (2010); communication systems utilisation behaviour in Lembang, Indonesia by Djen Amar (2010); and partnership cooperation behaviour among traditional and modern birth attendants in Rancaekek, Indonesia by Ambaretnani (2011).

The present study in Tanzania on the patterns of collaboration behaviour among traditional and modern medical practitioners will link-up with such analytical tradition in special research methods and techniques, extended with the concept of *trustworthiness* as an important independent factor in the analytical model (Doucette *et al*. 2005).

The adapted analytical model and its components encompassing the various blocks of independent, intervening and dependent factors will further be elaborated in Chapter III.

1.1.2 The Link between Health and Culture

The knowledge and understanding of health and disease in the socio-cultural context of medical practitioners, their availability and provision of their services to the community are essential to the health levels of any country. Although health is basically an individual experience, the way in which people interpret health and illness and seek to improve their well-being or combat their illnesses is imbedded in the cultural settings of the society or community. People tend to consult others who are either medical practitioners both in traditional and modern systems or those who have experience in the same situation in efforts to prevent or treat illness.

The famous anthropologist, Alfred Louis Kroeber (1876-1960) noted that individuals are born into and are shaped by the pre-existing culture which continues to exist after they die. The link between health and culture is not only evident in contemporary medical practices, but has also been observed during ancient times. Peoples' cultural definitions, be it of their belief, ethnicity, politics, sexual orientation, gender role, or socio-demographic background, affect the way in which they think as well as act, and as such also provides a framework for their health and healing. Culture, and in particular the local cosmovision guides humans in their view and experience of the universe, how they behave in relation to other people, to the supernatural forces, and to the natural environment.

In the same context, Slikkerveer (1990) shows in his above-mentioned research in the Horn of Africa, that efforts to solve complex problems of health care delivery in Africa, as well as in Asia and Latin America, underscore that the related social and cultural factors are crucial determinants in the entire process of health care development. Back in 1871, Edward B. Tylor launched his classical definition of culture as: *'that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by human as a member of society',* which is still useful today. Indeed, culture can be regarded as an inherited 'lens', through which people can perceive the world in which they live and survive. In a process of enculturation, an individual learns and acquires the prevailing culture. Such a process is influenced by the family and other members of the society. However, in the process of acculturation, people also need to understand, accept and adapt to the other culture if they want to live in it. Within the process of acculturation in health and healing, both the *endogenous* determinants of health such as perceived illness, and the *exogenous* determinants such as health institutions and organisations, people relate to each other, and interact with their environment.

The relationship between health and culture has further been documented, analysed and explained in different disciplines such as Medical Anthropology, Ethnomedicine, Medical Sociology, Health Psychology and Health Management. Medical Anthropology combines both Social and Cultural Anthropological approaches underscoring that issues of health and disease are also linked to other cultural aspects such as technology, politics, gender, artefacts, religion and social stratification. As humans are basically both social and cultural beings, the study of social and cultural anthropology is important for the understanding of peoples' knowledge, belief and practices in maintaining their health and treating their illness.

Medical anthropologists tend to accentuate the importance of integrating technological advancement, policy formulation, material design and use, gender, religious teachings and local organisation in the all-inclusive study of human behaviour and interaction towards health improvement. In addition to psycho-social factors; such as knowledge, beliefs and values, socio-demographic factors such as gender, age, education and marital status are among the strongest variables which interact with the patients' utilisation of health services (Slikkerveer 1990). Despite increased globalisation and internationalisation among states, differences in cultures remain as people continue to live in different socio-cultural and ecological settings. As will be further elaborated, several theories and models have been developed in order to further understand the relationship between health and culture as noted by authors such as Landy (1977), Foster & Anderson (1978), Ajzen & Fishbein (1980), Helman (2001). Initially, most of these theories had a restricted focus on rather isolated cognitive and psychological aspects of the relationships between health and behaviour, such as the theory of planned behaviour of Ajzen & Fishbein (1980) which seeks to predict deliberate behaviours from human intention to perform behaviour. However, later studies of transcultural health and illness behaviour in plural medical settings of Slikkerveer (1990), Leurs (2010) and Ambaretnani (2012) have extended the theories of human health and illness behaviour to include a more realistic view on the socio-demographic, psycho-social, economic, organisational and environmental determinants of health and healing through complementary qualitative and quantitative research methods. It is along the line of this comprehensive approach towards the socio-cultural context of health and illness behaviour that this study seeks to document, analyse, and explain the process of interprofessional collaboration between traditional and modern medical practitioners in Mara Region of Tanzania.

In sum, health and illness cannot be studied or understood adequately if they are treated in isolation from their cultural context, rendering this applied–oriented study among traditional and modern medical practitioners in Tanzania from a transcultural perspective on their collaborative behaviour. The focal point of this study on significant factors in the interplay among different categories of variables in the model will be further elaborated in Chapter II.

1.1.3 The Contemporary World of Health and Healing

While the roots of cosmopolitan medicine can be traced back to the Greek naturalistic philosophers such as Hippocrates, Galen and Aristotle, during the sixteenth century, it came under the influence of the philosophy of rationalism of the French Philosopher René Descartes (1596–1650) who defined reason as the source of all knowledge. Thus, for a long time, his dualistic view has led to the separation of 'mind' and 'body', a view which is in contrast with the contemporary philosophies of many ethno- and biomedical systems highlighting the inextricable link between body and mind.

Later onwards, the 'germ theory' of disease as advocated by Louis Pasteur (1822–1895) led to the beginning of Modern Medicine (MM), which put much weight on the infectious causes of diseases rather than on creation and maintenance of physiological and psychological harmony and balance. In turn, it resulted in the emphasis of the treatment of illness aided by robust discoveries of microscopy, X-ray diagnostics and the development of antibiotics. Indisputably, during the last century, the world has witnessed major transformations in human health, such as the development of new vaccines, medicines, technical equipment, and other high-tech applications. At the same time, medical research endeavours, eradication of major diseases such as *Rinderpest* and *Smallpox* and the notable general trend of increase in life expectancy.

Notwithstanding, the recent *Health Report* of the World Health Organization (WHO 2011) shows that these developments have not been able to close the gap in health care where about 20-30% of the world population, especially in the developing countries, have virtually no access to Modern Medicine (MM). Most of the modern medicines and high-tech services are unaffordable to the majority, who live on less than one dollar per day. At the same time, however, 70-80% of the local people use readily available and affordable traditional medicines. It is from this premise that the traditional medical system with its relatively lower prices and appropriate cultural values has to be appreciated and fully integrated into the mainstream medical system in order to contribute substantially to the improvement of local peoples' health and well-being. This important premise is also clearly confirmed in the same *Health Report* of the World Health Organization (WHO 2011). However, clients and patients today tend to demand more holistic approaches in the way they seek to treat their illnesses and diseases, in which Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) are playing an increasingly important role, both in developed and developing nations.

Lalonde (1974) published one of the first documents to show that apart from the utilisation of health science, health can be improved by the way in which people manage their lifestyle as an individual in the society. The report underscores that determinants of health also include factors of human biology, environment, lifestyle and health care organisations (traditional, alternative and modern) (3). Kayser (2010) supports this view of the individuals' role in his own healthy living by narrating crucial health tips, such as frequent exercise, a balanced diet, healthy eating patterns, and adequate rest. In addition, he notes the importance of socialisation and maintaining a good relationship with others.

While Modern Medicine (MM) certainly deserves credit in combating diseases as the 'invaded enemy' by the use of vaccines, medicines, radiotherapy, chemotherapy, surgical interventions, it has not paid much attention to the restoration of the imbalances in the holism of patients. The challenge today is presented by a metaphor as explained by Trivery & Anderson (2002) who considers health services as: *'repair'* rather than *'war'*: the problem of rats making their way inside the house could be managed well by repairing all the gaps rather than concentrating on using poison and traps.

The World Health Organization (2012) indicates that Africa is seriously affected by infectious diseases which are responsible for more than half of its *Disability-Adjusted Life Years* (DALYs), with more than six million deaths per year. In most cases, there are inadequate and non-affordable therapies of modern health services and therapies. The WHO Report adds that the negative impact of the burden of disease to the Gross Domestic Product (GDP) is approximately ten billion US $ each year. In such a situation, a need for a fully integrated medical system becomes inevitable. As Pearce (1982) explains, since the 1970s, a radical change towards the integration between Traditional Medicine (TM) and Modern Medicine (MM) has been gradually implemented by many practitioners and health policy makers. Through the Africa region of the World Health Organization, the African Union Heads of State declared the period of time of 2000-2010 as the *African Decade on African Traditional Medicine* (Kofi-Tsekpo 2004). This important declaration signifies the acknowledgement by the African national governments and international organisations of the need to integrate Traditional Medicine (TM) as well as Complementary and Alternative Medicine (CAM) into the national health care system.

Indeed, more planners and policy makers today are giving increasing attention to the prevention and treatment of diseases of the population through the use of all possible resources ranging from the traditional, transitional and modern medical systems, while at the same time improving the other components which affect the general health of the population. In Tanzania,

the occasionally negative attitudes towards traditional healers, their medicines and services are resulting from the long colonial suffering and religious hermeneutics, resuscitated by the *'groupthink'* machinery which continues to impose an irrational consensus at the expense of consumer rights, efficiency in health care services and the overall reality of medical pluralism. Following the new approach and freedom of medicine, Trivieri & Anderson (2002) quote Thomas Edison saying: *'The doctor of the future will give no medicine, but will interest his patients in the care of human frame, in diet and in the cause and prevention of diseases'.*

1.2 Tanzania and Development in Health Service Delivery

1.2.1 Tanzania: A Country of Diverse Natural Resources

The Republic of Tanzania formed on 26/04/1964 as a Union between Tanganyika and Zanzibar. It is located in Eastern Africa, and covers an area of approximately 974,446 square kilometres. Based on the Tanzania National Bureau of Statistics (2012) data, it has a growth rate of 2.6 % with a total population of 44,929,002, based on the 2012 national census (4). Tanzania is a coastal country with abundant fishery resources from marine waters which include the Indian Ocean and the fresh waters of the Great Lakes such as Lake Victoria, Lake Tanganyika, and Lake Nyasa. The country also has small lakes, rivers and many swamplands. It is covered by about 33.5 million hectares of forests and woodlands which bring earnings from exports as well as provision for employment.

The country has numerous properties with outstanding universal values, which are inscribed in the *World Heritage List* of the UNESCO. These properties include places with diverse historical, cultural and natural interest ranging from the Central Slave and Ivory Trade Route and Market of the stone towns of Zanzibar and Bagamoyo, the ruins of Kilwa Kisiwani, and the Kondoa rock art sites to places with unique species of fauna and flora substantiating the magnificent biodiversity of the major National Parks and Game Reserves. These natural enclaves attract much tourism, such as Serengeti, Ruaha, Ngorongoro, Mikumi, Tarangire, Kilimanjaro, Lake Manyara, Selous, and Mount Meru. The famous palaeo-anthropologists Dr. Louis and Mary Leakey discovered many fossils in the Olduvai Gorge, including the *Zinjanthropus/Australopithecus Boisei,* dating back to 1.75 million years ago. Also they discovered the *Laetoli foot prints* of the *Australopithecus afarensis*, showing that Tanzania is a major country of East Africa's 'Cradle of Humankind' where many of the earliest human ancestors lived.

The economy of Tanzania, however, is among the poorest in the world. According to the UN Statistical Report (2009), about 36% of the total population lives below the international poverty line, where the *GDP per capita* is about US $1,400. According to the Tanzania Economic Review (2010), the real GDP grew by 6% in 2009 as compared to 7.4% in 2008. However, the achievements have not been translated into improved equitable household incomes. In fact, the slowdown has been largely the result of the global financial crisis of 2008-2009 and the concurrent drought in the country, which affected negatively the agricultural production, as well as the supply of hydroelectric power, crucial to industrial and commercial activities. The country's economy depends predominantly on small-scale agriculture, which is a slow-reforming sector with non-traditional exports.

In addition, the country is faced with problems of lack of effective strategic plans, poor resource databases, a certain level of inefficient management and control of resources, some archaic statutes, a poor infrastructure, and an ongoing process of deforestation.

Since the introduction of a multiparty democracy, the political climate is characterised by good governance, assurance of peace and social stability. Similarly, there is greater freedom of expression, and continuous appraisals of policies and systems by the population. This situation sets the stage for envisaged improvement in health care service delivery and the related health status of the entire population. Tanzanians today live in a pluralistic medical system, where different categories of medical practitioners from various medical systems are providing services ranging from Traditional Medicine (TM), to transitional medicine to Modern Medicine (MM), despite the current government's primary focus on Modern Medicine (MM), as is the case in many other developing countries.

1.2.2 Traditional Medicine (TM) in Tanzania

The World Health Organization (2002) defines Traditional Medicine (TM) as: *'the sum total of the knowledge, skills, and practices based on the theories, beliefs, approaches and experiences indigenous to different cultures, whether explicable or not, incorporating plant, animal, mineral based medicines, spiritual therapies, manual techniques and exercises applied singularly or in combination to maintain well-being, as well as to treat, diagnose or prevent illness'.* Historically, it is commonly agreed that Traditional Medicine (TM) in Tanzania is an outcome of a long-standing struggle of indigenous people towards managing their environment and health status. Apart from the modern health services based on Western-oriented cosmopolitan health care, Tanzanians have used their own indigenous *Bantu medicine* as a sub-system of the traditional medical system of East Africa for more than a century in the pre-colonial era, and evidence shows that about 70-80% of the patients use Traditional Medicine (TM) for their primary medical needs. Traditional Medicine (TM) has been provided by different categories of medical practitioners, identified as *Waganga wa Jadi* (Traditional Healers) - as shown in Figure 1.1 - *Wakunga wa Jadi* (Traditional Birth Attendants), *Ngariba* (Circumcisers)*, Waganga wa Jadi wa Mifupa* (Bonesetters), and *Wabashiri* (Soothsayers).

In pre-colonial Tanzania, traditional medical practitioners were highly respected and often acted as famous advisors to the tribal Chiefs on issues of illnesses, environments, socialisation and behaviours. They were allowed to practice their knowledge and skills freely. Both the German and the British colonialists, however, made efforts to suppress the work and role of the traditional healers, while their foreign religious teachings were also against the practice of Traditional Medicine (TM).

In the post-independent era, Tanzania initially started to recognise Traditional Medicine (TM) again under the Ministry of Culture, until 1989, when it has been placed under the Ministry of Health. The *Traditional Medicine (TM) Research Unit* in Dar es Salaam has been established in 1974, with the objective to promote Traditional Medicine (TM) in the country. Soon thereafter, both the *Medical Practitioners and Dentists Ordinance* and the *Pharmaceuticals and Poisons Act* (1978*)* provided further legal recognition of traditional healers to allow them to practice in their communities. In 1985, a sub-section under the preventive services has been formed to cater to the training and upgrading of the Traditional Birth Attendants (TBA) for improved Maternal and Child Health (MCH). These positive developments occurred soon after the *Declaration on Primary Health Care* of Alma Ata (1978). Although to date, Traditional Medicine (TM) is recognised under the new Act of 2002, most of the traditional healers still continue to practice in secrecy under the ambiguous formal recognition. As such, Traditional Medicine (TM) still has not yet been fully integrated into the health sector of Tanzania.

Apart from the continued utilisation of the Bantu-oriented Traditional Medicine (TM), practiced over many generations in all regions of Tanzania, the country has recently experienced the influx of Complementary and Alternative Medicine (CAM), which has been introduced from North America. While Complementary and Alternative Medicine (CAM) is sometimes confused with Traditional Medicine (TM), the difference between the two is underscored by the World Health Organization: Complementary and Alternative Medicine (CAM) refers to a broad set of health care practices and services, which are not part of that country's own tradition and are not integrated into the dominant health care system.

In addition to Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM), there exist in Tanzania other alternative medical systems, such as and Traditional Chinese Medicine (TCM), including herbal medicine and acupuncture, Indian Ayurveda, Graeco-Arabic Unani Medicine and Korean Medicine.

According to the *Tanzanian Traditional and Birth Attendants Implementation Policy Guidelines* (2000), much of Complementary and Alternative Medicine (CAM) began to emerge in Tanzania in the early 1990s. These practices include acupressure, acupuncture, aromatherapy, astrology, homeopathy, massage therapy, meditation, naturopathy, osteopathy, Qi Gong, shamanic healing, spiritual counselling and Yoga. The practitioners concerned generally use some modern scientific approaches and medical instruments, have prescription forms, and document their records in a rather organised manner.

Moreover, these practitioners have gone through some formal training in schools and colleges. According to some clients and patients, interviewed during the 2008 fieldwork on the subject of Complementary and Alternative Medicine (CAM), the practitioners in general enjoy a higher socio-economic status than their counterparts in Traditional Medicine (TM), due to their income from charging higher patient fees.

1.2.3 Modern Medicine in Tanzania

In line with the *Tanzanian 2025 Vision* and the *United Nations Millennium Development Goals* (2005), the Tanzanian Ministry of Health and Social Welfare (MoHSW) collaborates with the Prime Minister's Office-Regional Administration and Local Government (PMORALG), and with the Development Partners (DPs) through the adopted *Joint Assistance Strategy for Tanzania* in order to mobilise resources and implement health activities, projects and programmes. As in other parts of Africa, hitherto, the structure of the Tanzanian health services in the modern or allopathic health sector assumes a pyramidal pattern of a referral system as recommended by the health planners. This pattern is built up from the Village Health Service to the Consultant Hospital as follows:

- *Village Health Services:*
  The lowest level of health facility which deals with preventive measures and kind of First Aid services during emergencies in the communities. At least two shortly-trained Village Health Workers offer services from village health posts.

- *Dispensary Services:*
  The facility positioned above the health post, where Clinicians and Nurses typically serve only between 6,000 to 10,000 outpatients per year.

- *Health Centre Services:*

  Organised to serve one administrative ward with a minimum of approximately 50,000 people per year, Health Centres give both in- and outpatient services. Apart from Clinicians, here one finds, Assistant Medical Officers, Nurses, Laboratory Assistants, Pharmaceutical Assistants and other allied health personnel. It is at this level where more elaborate reproductive health services start to be offered in collaboration with the Districts Maternal and Child Health Clinic.

Figure 1.1: A traditional healer of the Serengeti, Tanzania with his professional attributes inside his practice in Mugumu.
Source: Fieldwork (2009)

- *District Hospital Services:*
This level takes care of the entire district, thus receiving referrals from dispensaries and health centres. Wherever there is no government District Hospital, a memorandum of understanding with a religious-owned hospital is in effect, normally known as Designated District Hospitals (DDH) as Nyerere DDH is shown in Figure 1.2. More services including major surgeries and availability of more trained medical personnel are found in District Hospitals than Health Centres and Dispensaries.

- *Regional Hospital Services:*
Its target area is an administrative region. Regional Hospitals give similar services to those found at the District Hospital but with some additional specialities and to a greater extent in terms of patient intake. The Regional Medical Officer is the head of health matters in the whole Administrative Region and therefore a member of the respective Region Secretariat and the Regional Development Committee.

Figure 1.2: Nyerere Designated District Hospital where the population of Serengeti District receives (in- and outpatient) modern health services.
Source: Fieldwork (2005)

- *Referral / Consultant Hospitals:*
being the highest level of hospital services of the nation, they receive referred patients from regional or district hospitals for those highly specialized health problems. Ideally, these are organised in zones to cater to people in their respective zones. They include the Muhimbili National Hospital in the Eastern Zone; Kilimanjaro Christian Medical Centre (KCMC) in the Northern Zone, Mbeya Hospital in the Southern Highlands, and Bugando Hospital in the Western Zone.

Over the last 50 years since having independence under the policy of health sector reforms, there has been an increase of modern health facilities as the Government of Tanzania has been encouraging the private sector, which includes religion-based organisations to take an active role in the delivery of modern health services. The actual number of health facilities and ownership in 2011 is indicated in Table 1.1.

Apart from the health facilities, the Tanzanian Ministry of Health and Social Welfare (MOHS) and the Minister's Office-Regional Administration and Local Government (PMORALG) are implementing different health-related projects and programmes, such as:

- *Reproductive and Child Health Services* (RCH) such as Immunisation, Antenatal Care, Family Planning, etc.;

- *Communicable Disease Control* such as Malaria, HIV/AIDS/STI, TB/Leprosy, Cholera, and Meningitis, etc.;

- *Non-Communicable Disease Control* such as: Diabetes, Mental Health, Neoplasm's, Diabetes, etc.;

- *Community Health Promotion/Disease Prevention* such as Advocacy and Communication, Water, Hygiene, Nutrition and Sanitation, Health Sector Reforms and Health Management Information Systems;

- *Health Professional Training.* There are several Universities and Colleges involved in medical training for various medical cadres. The aim of the Government of Tanzania is to train adequate, qualified and motivated medical personnel at all levels of the modern medical system. Medical Sociology, Medical Anthropology and Community Health are subjects covered briefly in the curricula of the medical, nursing and allied health training courses. So far, there are no schools of formal training in Traditional Medicine (TM) in Tanzania.

Table: 1.1 The Number and Ownership of Health Facilities of Tanzania

	Ownership		
	Government	Private	National Total
National Referral Hospital	5	0	5
Zonal Referral Hospitals	2	2	4
Regional Referral Hospitals	23	10	33
Regional Designated Hospitals	1	1	2
Council Hospitals	56	0	56
Designated Council Hospital	0	38	38
Health Centre	484	213	697
Dispensary	4160	2340	6500
Total	4731	2604	7335

Source: Ministry of Health and Social Welfare (2011)

1.3   Medical Pluralism and Integrated Medical System

1.3.1 The Notion of Medical Pluralism

'We cannot ignore the potential of Traditional Medicine (TM) in the race to achieve the Millennium Development Goals and renew primary health care for those who lacked access to it'. These were the challenging remarks of Sylvie Lucas (2009), President of the *United Nations Economic and Social Council*, while launching the first panel discussion of the 54-Member Body, prior to the 2009 *Annual Ministerial Review Theme* (UN 2009). In this context, the concept of medical pluralism is relevant as it refers to the existence of more than one medical system, or the simultaneous integration of traditional and modern medical systems in a country or region. Medical pluralism is not a new concept, as almost all societies are characterised by more than one type of medical system. Introduced by Leslie (1976), Dunn (1976) who extend – as mentioned above - the theoretical orientation of the plural medical configuration has a more dynamic interpretation of medical systems in relation to patterns of health behaviour of clients and patients. Later, Slikkerveer (1982) operationalised the concept of medical pluralism in his study of local, regional and national medical systems co-existing in the Horn of Africa.

In the contemporary world, people of all social strata are utilising either Traditional Medicine (TM) or Modern Medicine (MM) or both for maintaining their health and treating their illnesses, and as such are living and thriving in a pluralistic medical configuration. In 1977, the World Health Organisation Assembly focused its attention on the potential of vast human resources of Traditional Medicine (TM), as it passed the Resolution WHA 30.49, which urges the Member States to use these resources in their formal health services. In 1978, more emphasis has been put on the importance of the utilisation of medicinal plants in health care in developing countries (Resolution WHA 31.33). In the same year, the World Health Organization (WHO 1978) held its historical *International Conference on Primary Health Care* in Alma-Ata, U.S.S.R (5). In the Declaration, governments were urged to not only utilise traditional medical practitioners and incorporate proven traditional remedies into their national health care policies and regulations, but also encourage related research.

Because of the easy accessibility and affordability of Traditional Medicine (TM) in developing countries, the World Health Organization (2005), introduced the Traditional Medicine (TM) strategy whereby the goal for all countries is to reach full integration of Traditional Medicine (TM) into the mainstream medical system. During the presentation of the updated *Millennium Development Goals* at the United Nations Social Council Panel in New York in 2009, Rama Rao, Director of the World Intellectual Property Organization (WIPO) also underscored the importance of legal protection of Traditional Medicine (TM) through digital database libraries such as the Digital Data Library of India, which has about 30 million pages of scientific formulas derived from the substances of Traditional Medicine (TM). It has been shown that access to the information from the digital library is contributing to lower the cost of the production of Traditional Medicine (TM), *e.g.* medicines to treat Psoriasis *(Psoriasis Vulgaris)* which could now be produced at a cost of US $50 per patient per year, as compared to US $ 20,000 per patient through conventional medicines. As a consequence, several countries such Malaysia, Indonesia, Taiwan, Thailand, South Africa, Nigeria, Tanzania and countries of the Middle East are now considering establishing such digital libraries of indigenous knowledge in due course.

The recent call for full integration of Traditional Medicine (TM) by the World Health Organization (2009) aims its official recognition and incorporation into all areas of health care.

Specifically, Traditional Medicine (TM) should be included into the national health policies, and health care providers' products should be promoted and regulated accordingly. In this way, traditional medical services can become available at all types of private and public health facilities, where the costs can be reimbursed under formal health insurance. Moreover, education and training in Traditional Medicine (TM) should become readily available, while relevant research should be undertaken at colleges and universities.

However, before reaching the state of full integration, it is crucial to start with the collaboration between practitioners of the two traditional and modern medical systems as they are all approached and consulted by clients and patients. The present study focuses on various types of medical practitioners and investigates how different independent and intervening factors interact with the dependent factors of collaborative behaviours among the two types of traditional and modern medical practitioners in the Mara Region of Tanzania.

The World Health Organization (2010) has defined three types of medical systems to describe the degree in which Traditional Medicine (TM) is officially recognized either in (i) Integrated Systems; (ii) Inclusive Systems and (iii) Tolerant Systems as follows:

i.   An *Integrated system* is one in which Traditional Medicine (TM) is officially recognized and incorporated into all areas of health care provision. This means that Traditional Medicine (TM) is included in the relevant national health care policy of the country; that providers and products are registered and regulated; that traditional medical therapies are available at hospitals and clinics (both public and private); that treatment with Traditional Medicine (TM) is reimbursed under health insurance; that relevant research is undertaken; and that education in Traditional Medicine (TM) is available. Worldwide, only China, the Democratic People's Republic of Korea, the Republic of Korea and Vietnam can presently be considered to have attained such an integrative medical system;

ii. An *Inclusive system* recognises Traditional Medicine (TM), but has not yet fully integrated it into all aspects of health care, be it in health care delivery, education and training, or regulation. Traditional Medicine (TM) might not be available at all health care levels, health insurance might not cover treatment with Traditional Medicine (TM), official education in Traditional Medicine (TM) might not be available at the university level, and regulation of providers and products of Traditional Medicine (TM) might be lacking or only be partial. Thus, work on policy, regulation, practice, health insurance coverage, research and education will be underway. Countries operating an inclusive system include developing countries such as Equatorial Guinea, Nigeria and Mali which have a national traditional medical policy, but little or no regulation of traditional medical products, as well as developed countries, such as Canada and the United Kingdom which do not offer significant university-level education in Traditional Medicine (TM), but which are making concerted efforts to ensure the quality and safety of Traditional Medicine (TM). Ultimately, countries operating an inclusive health sector can be expected to attain an integrative medical system. Tanzania therefore falls into this category, albeit with much work still to do;

iii. A *Tolerant system* is one in which the national health care system is entirely based on Modern Medicine (MM), but where some traditional medical practices are just tolerated by law and no effort is made to integrate Traditional Medicine (TM) into the mainstream medical system.

1.3.2 The Concept of Interprofessional Collaboration

In the contemporary world, health planners and policy makers, supported by the World Health Organization (2011) are beginning to take an interest in the relationship between both medical systems and some of them are advocating full integration of traditional and modern medicine into an innovative 'main stream' medical system. Although Pillsbury (1982) alludes to significant cooperation between practitioners of ethnomedicine and biomedicine, Hardon *et al.* (2001) claim that in most societies the relationship between traditional and modern medical practitioners has been hostile. Nonetheless, the interesting discussion on the desirability and feasibility of such cooperation continues. As Pillsbury (1982) concludes, a more common view of the majority is that practitioners of both systems need to have mutual understanding and respect for each other for the benefit of improved health care.

The Government of Tanzania has steadily tried to facilitate cooperation between practitioners, especially by developing a policy of traditional and alternative medicine, offering for instance tailor-made training to Traditional Midwives. The establishment of the Muhimbili College of Traditional Medicine (TM), the special desk to coordinate and control traditional and alternative medicine practitioners and their products at the Ministry of Health and Social Welfare, are noteworthy examples of the movement towards a synthesis of both worlds due to the mutual benefits from each system for the improvement of the health and well-being of the Tanzanians. Furthermore, the Tanzanian Parliament enacted a Law which governs practitioners, services and products of traditional and alternative health services in the *Tanzanian Traditional and Alternative Medicine Act* No. 23 (2002). The major question which most medical practitioners, researchers, planners, policy makers and managers ask is why the interprofessional collaboration between traditional and modern medical practitioners is so important. It is paramount to realize that entitlement of all citizens to freedom of association and heterogeneous beliefs are among the fundamental universal human rights, which include all Tanzanians. Thus, ethnomedical and biomedical practitioners will continue to be free to collaborate peacefully as heterodoxy and social heterogeneity are compatible as noted by Metertens (2000) in a compiled pharmaceutical report, entitled '*From Quackery to Credibility*'. The subject of why people or organizations collaborate is of great interest as it can also reveal the benefits of collaborative behaviours. Wood & Gray (1991) examine nine related research articles and arrive at six explanations for collaboration as follows:

1- *Resource dependence:* Resources are not sufficient, so people depend on each other (interdependence) by working together to get what is needed;

2 *Corporate social performance / Institutional economics:* All people have needs, so they have to work with each other in order to balance their needs;

3 *Strategic management / Social ecology:* People live in a world of opportunities where they need to capitalise on them together and in a world of threats which need to be reduced by pooling their resources together;

4 *Microeconomics:* People need to achieve efficiency by interacting with others in their area of competency;

5   *Institutional/Negotiated Order:* People live in the world with others and with existing different forces too, so they need to structure the way in which they relate in order to uphold the legitimacy of their existence;

6   *Political: I*n order to stand for acceptable distribution of power and resources, people keep working with others in order to maintain their political structures.

Contrary to the claim by Hardon & Streefland (1993) that there exists a rather hostile relationship between traditional and modern medical practitioners in some societies, during the past decade, many observers have witnessed a growing respect and understanding among these representatives of the two medical systems. In fact, there is an on-going interest and discussion whether collaboration between the systems is desirable and possible. While some who are in favour of such collaboration agree on the mutual benefits of working together, others believe the differences in theoretical concepts of both systems render cooperation rare if not impossible. Furthermore, others hold the view that a closer relationship between the two may endanger the existence of Traditional Medicine (TM) as the modern system tends to dominate (Pillsbury 1982). Before focusing on the position of the practitioners concerned, collaboration has become inevitable, whether the practitioners are ready to collaborate or not. Such cooperation is due to the fact that clients and patients are increasingly continuing to combine the use of both the medicines and services from either traditional or modern medical practitioners or from both. Eventually, the decision to use the plural medical system is taken by the clients and patients.

This phenomenon is observed not only on the African Continent, but worldwide (Austin 1998). An integrated medical system further substantiates the credibility; legitimacy and appropriate practice in health care, specifically since all categories of practitioners have to be credentialed and licensed in order to offer their quality services to the population (Cohen *et al*. 2007).

The general situation analysis shows that traditional medical practitioners as well as modern medical practitioners work independently, and tend to ignore other possible services which their patients previously received from other health care providers. However, out of five studies found from *Cochrane Effective Practice and Organisation of Care Group Specialised Register* (2000-2007), *MEDLINE* (1950-2007), *CINAHL* (1982-2007) and the *Journal of Interprofessional Care* (1999-2007) a systematic review shows that interprofessional collaboration in health care can improve the health care processes and outcomes. In other words, effective working together of different health care professionals can improve the quality of the care they provide to the population (*cf.* Zwarenstein *et al*. 2009).

Nations around the world are using Traditional Medicine (TM), be it on the basis of medicinal plants, animal-product derivatives or other kinds of remedie,s and the indigenous knowledge and practice of Traditional Medicine (TM) has been handed down through many generations for millennia. Today, about 80% of the population in Africa and Asia continue to use Traditional Medicine (TM), especially in Primary Health Care. In general, people in developing countries are increasing their utilisation of Traditional Medicine (TM). Also, recent research by Abbott (2010) shows that up to 80% of the population in developing countries is using some form of Complementary and Alternative Medicine (CAM), including acupuncture and homeopathy. A recently conducted recent survey by Abbott *et al*. (2010) found that 74% of medical students in North America believe that Western medicine would benefit by integrating traditional or alternative therapies and practices.

The industry of Traditional Medicine (TM) forms a large business worldwide. In 2005, traditional medicines worth US $14 billion were sold in China, while Brazil gained an income of US $160 million from traditional therapies in 2007, and the global market registered more than US $60 billion (*cf.* Shetty 2010).

1.3.3 Towards Integration of *Both Worlds* for Health Care Improvement

The initiative to develop integrated medicine emanates from a strong conviction that both systems share a common goal; the improvement of health of humankind. The combined efforts of representatives of the two systems will improve the overall strength of outputs and outcomes, well known in the Swahili proverb as: '*Umoja ni nguvu na Utengano ni udhaifu*' meaning: '*Where there is unity, there is strength and vice versa*'. Such an approach, in turn, will undoubtedly benefit the general population, offering clients and patients better access to comprehensive quality health care for a variety of complaints.

The positive returns from an integrative relationship between traditional and modern medicine in terms of human capital outweighs the possible negative attitudes between the two systems. By working in collaboration instead of in parallel, resources can be pooled together in order to achieve improved care for clients and patients. This form of improved health care is also reported by McNamara *et al.* (2011) in their study; '*Bridging the Gap: Interprofessional Collaboration Between Nurse Practitioner and Clinical Nurse Specialist*'. According to Reitan (1998) and Weiss (1981), the emphasis on collaboration also has value as a symbol of efficiency, social responsibility and rationality. Collaboration in social services reflects a history of reform efforts to bring about service integration (Hassett & Austin 1997; Neugeboren 1990).

A study by Rappaport (1977) in East Africa concurred with the growing consensus that African Traditional Medicine (TM) is significant enough to be incorporated into the respective national health care systems of the countries concerned. The study underscores the untapped supply of skilled traditional healers and their remedies vis-à-vis the limited supply of modern medical practitioners, especially in areas of psychiatry and psychology. In addition, Modern Medicine (MM) has not been able to provide an answer to all the health problems of the local population, rendering the use of Traditional Medicine (TM) necessary to complement, and in some cases, to substitute the utilisation of Modern Medicine (MM). London (1964) rightly states that: '*Values are the heart of the therapeutic process*'.

London (1964) also found that some of the matters in therapy are influenced by religion, politics, social and economic behaviour of individuals and society. Such interrelationships form an important reason why people continue to consult traditional practitioners in all aspects of health and healing amidst the highly promoted and heavily funded modern medical system. Biomedical professionals should bridge the cultural gap with their clients and patients in order to be able to offer their services with approaches and practices which are culturally appropriate. The fact that health or illnesses can be attributed to the peoples' cultural norms and values and to their worldviews, which affect the way in which they respond to illness, renders it necessary for modern medical practitioners to collaborate with traditional medical practitioners as they are both considered to be vital transmitters and caretakers of the African culture (*cf.* Swantz 1972; Lambo 1974; Rappaport 1977). Swantz (1972) who studied the Zaramo of Tanzania, concludes that traditional medical practitioners are the value keepers of their particular ethnic group; therefore people visit these practitioners more than for just being in search of how to manage their health problems, but also to revisit their traditional values and material cultures.

Furthermore, there is a general agreement that some health problems are medical system specific. In this respect, researchers such as Maclean (1971), Frank (1973), and Rappaport (1977) point to the need to refer patients with specific problems cases to the other medical system where the practitioners can provide services which are especially effective and efficient. Such referral among traditional and modern medical practitioners has also been documented by Warren (1974) on the previously mentioned the *Primary Health Training for Indigenous Healers Programme* (PRHETI) among the Techiman Bono in Ghana.

Integration of biomedicine with ethnomedicine implies more than a peaceful co-existence of the two systems. Interprofessional collaboration between these two systems can also be encouraged as there are already a number of practical examples of successful stories of collaboration between the two medical systems in different places around the globe, such as:

- The on-going informal integration especially in urban areas as Frank (1973) indicates were people visit modern medical practitioners to treat diseases (*what is wrong*) and then visit modern medical practitioners in order to determine the cause of the problem (*why one is afflicted*);

- The Nigerian Project at Aro where the blend of 'Medicine Men' and Modern Clinicians in the village context is documented by Lambo (1978);

- The Ugandan Program on *Traditional and Modern Medical practitioners Together Against AIDS* (THETA) with projects in over 20 Districts of Uganda. As a Non-Governmental Organization (NGO) with the motto *'African Solutions for African Challenges'*, it fosters collaboration between Modern Medicine (MM) and Traditional Medicine (TM), especially on the control and care of HIV/AIDS patients. It focuses on building and supporting long-term, in-depth relationships between traditional and modern medical systems by working closely with the district leaderships, other civil society organisations, the Ministry of Health, the Uganda AIDS Commission, the Regional AIDS Training Network and universities, as described by Engle (1998). In this case, the traditional healer has been placed next to the modern doctor to provide consultation for patients with HIV or AIDS;

- The full integration of the Traditional Chinese Medicine (TCM), anchored in its *National Health Policy* and backed by strong public support alongside Modern Medicine (MM) where traditional practitioners also have the opportunity to be formally trained. Documented evidence of the efficacy of the use of Traditional Chinese Medicine (TCM) in different conditions such as renal failure, cardiovascular diseases, allergies, liver and kidney diseases, anaemia etc. is provided by Jingfeng (1988);

- The Tanga AIDS Working Group (TAWG) of Tanzania has also been successful in collaborating with traditional healers in HIV/AIDS care and treatment of related opportunistic diseases. A compiled report by Nyasigo (2009) documents that Dr. Mtullu, Project Manager of TAWG, reported that by 2009, a total of 4,500 patients with AIDS-related complications and opportunistic diseases had been treated by traditional healers and their herbal remedies. In addition, there are six treatment centres while the group continues with capacity building for traditional healers to be able to assess the patients' progress. The same report also shows that a substantial amount of public health experts who have been involved in this on-going debate, have concluded that despite the existing challenges which Traditional Medicine (TM) is facing, it is worthwhile to collaborate with them. Traditional

healers outnumber modern doctors by 100:1 or more, and they provide the most accessible and affordable services which complements the modern medical system. According to Dr. Mtullu (2009), *'Patients begin to improve between 1-4 weeks and the survival rate is 2-5 years, and some patients have 12 years now'*. Anderson & Kaleeba (2002) underscore on the same Tanga AIDS Working Group (TAWG) that more comparative research should be undertaken on this and similar collaborative projects between the two medical systems;

- The Australian case study described by Cohen (2004), collaboration is well cemented by the *Australian Integrative Medicine Association*, the *Australian Medical Association*, and the *MedicarePlus Package*, a government organisation known also as the *Royal Australian College of General Practitioners.* Such collaboration is the result of the realisation that the dangers of non-integrated health care include delaying or depriving patients of safe and effective health management.

It is generally recognised that in the present era, Modern Medicine (MM) has neither given all the answers nor solutions to human suffering, diseases and health. Evidence shows that there are still a number of diseases for which no cure or vaccines are available, despite continued scientific research and development. Effective treatment for these diseases may be found eventually, but at the sane time, 'new' diseases are emerging which are not known by Modern Medicine (MM).

It is also worthwhile to mention the increasing criticism of the careless use of modern medicines, surgical procedures and health facilities, which account for an enormous amount of *Iatrogenesis* and *Nosocomial* infections, the so-called 'hospital-acquired infections'. According to Weingart *et al*. (2000), it is estimated that as many as 98,000 deaths per year in the United States are due to *Iatrogenesis*. Thus the incorporation of Traditional Medicine (TM) is now regarded by many professionals as complementary, alternative and in some cases substitutional to the existing mainstream system of Modern Medicine (MM).

1.4   Aim, Objectives and Structure of the Study

1.4.1   Significance of the Study

The undertaking of the present study is not only worthwhile in its theoretical and methodological approaches, but also in its applied-oriented strategies both in Tanzania and in other developing countries with similar challenges in a pluralistic medical configuration, as substantiated by the following considerations:

- The study is consistent with the *Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property* (GSPOA) to foster innovation and improve access to health services and products for people in developing countries through multiple strategies including the building of collaborative networks in health care (WHA 2008);

- The research encompasses multiple related subjects such as Health Policy, Medical Systems, Human Resources for Health, Private-Public Mix, Traditional Medicine (TM), and Modern Medicine (MM). All these subjects are also regarded as priority research areas in the Ministry of Health and Social Welfare of Tanzanian (MoHSW), *Health Sector Strategic Plan III (July 2009 – June 2015),* which aims at developing policies on human resources for health as well as to maximise effective utilisation of human resources for health (Strategy 4)

and ensuring conducive policy and legal environment for operationalisation of the Public – Private Partnership (Strategy 6);

- The study is also in line with the National Institute for Medical Research of Tanzania (NIMR) *Strategic plan III (2008 – 2013)* whose objective is to carry '*research for better heath'. Its s*trategic objectives include: enhancing collaboration with existing private and public health providers (Strategy 1.3); research on traditional and alternative medicine (Strategy 2.7); research on socio-cultural and determinants of health (Strategy 2.9).

- The study establishes a new path towards a true equitable response, both formal and informal, to the urgent *Call for Health Sector Reforms* to use the available human resources which can complement the modern medical system in an efficient way;

- The research considers the indisputable positive and negative effects and impacts of the continued existence of Traditional Birth Attendants, Herbalists and Circumcisers in the Tanzanian communities for both people's health status and its complementarities to the delivery of modern health care services;

- The study provides an exploration on the role of traditional circumcisers, especially for females within the context of the current discussion of female genital mutilation, which cannot be simply and exclusively embraced under the cultural relativist view in anthropology. Their services are carefully scrutinised and analysed under powerful lenses of universalism of fundamental human rights, gender analysis and medical legal standards;

- The study's findings, analyses, recommendations and their implementation are expected to serve as a stepping-stone and provocation to government health planners, policy makers and health institutions towards new insights, constructive discussions, and plans to incorporate the often forgotten and neglected, but essential traditional medical system and its functionaries in the prevailing Health Sector Reform strategies.

- The study adds important fieldwork-based data to the few literature resources available on the subject. The research constitutes a *de novo* project within the context of the present Tanzanian Health Sector Reform. Unlike other studies, the research focuses not primarily on the popular employment creation and income generating policies, but more on the overall health policy planning and implementation of the country (6);

- The study cuts across other multidisciplinary issues such as gender analysis, labour participation in the informal sector, the primacy of ethical perspectives, religious virtues in health care choices, environmental care and changes in social structures taking into consideration that any social intervention in the health sector will have secondary effects of marginal increments or decrements of allocated resources. By consequence, a response to the need for a sector-wide approach will also address the related problems of resource redistribution.

1.4.2 General Aim and Specific Objectives

As in many other African countries, people in Tanzania are living in a configuration of medical pluralism, in which both traditional and modern medical practitioners continue to offer a variety of health services to the population.

The *general aim* of this study is to document, describe, and analyse the major factors which interact with the patterns of collaboration behaviour among traditional and modern medical practitioners in the Mara Region of Tanzania. Both qualitative and quantitative research methodologies are implemented in order to analyse the different categories of factors both at the individual and system levels which interact in such interprofessional collaboration between practitioners of the two medical systems.

Some insight into the challenges and realities of Traditional Medicine (TM) in practice are also studied and highlighted with a view to underscore the promising prospects of Tanzania on the road to the development of a fully integrated health care system. In order to realise this general aim, seven specific objectives have been formulated as follows:

Firstly, to discuss the theoretical orientation on interprofessional collaboration among traditional and modern medical practitioners as a prerequisite towards achieving integrated health care delivery in a medical pluralistic configuration as a major component of the health sector reforms;

Secondary, to provide a description of the Mara Region of Tanzania as the research setting in terms of its sociography, livelihood patterns and cultural attributes to health of the inhabitants;

Thirdly, to describe the Tanzanian health sector reforms and challenges facing the contemporary Tanzanian traditional medical system;

Fourthly, to describe the selected analytical model of interprofessional collaboration behaviour and its components encompassing predisposing, enabling and intervening variables in relation to the dependent variables of patterns of interprofessional collaboration behaviour among traditional and modern medical practitioners in the research area;

Fifthly, to provide an indigenous classification of medicinal plants and herbs commonly used by the local population in the Mara Region of Tanzania;

Sixthly, to analyse collected data and present the results of the stepwise analysis, with an indication of the quantitative strengths of the significant correlations between the blocks of factors interacting with each other in relation to the patterns of interprofessional collaborative behaviours between modern and traditional medical practitioners of Mara Region; and

Seventhly, to present the study's theoretical, methodological and policy implications, and formulate recommendations for the integration of traditional and modern medicine into a integrated medical system in Tanzania for improved accessible, affordable and humane health care services for the entire population.

1.4.3 Structure and Organisation of the Study

The overall study and its results are presented in eight chapters, the contents of which can be summarised as follows:

Chapter I, as on the Introduction, encompasses the introductory remarks on culture, health, and medical pluralism, followed by highlighting the concept of interprofessional collaboration within the context of the envisaged integration of ethno- and biomedical systems. It indicates the general aim and specific objectives of the study; and the structure of the dissertation. The Introduction heralds the *leitmotif* of all chapters to contribute to the achievement of *afya jumuishi-* the Swahili concept of *fully integrated health care* in Tanzania.

Chapter II presents the theoretical orientation of this study, and begins with the description of concepts encompassing the recognition of components of culture which affect human health. Thereafter, the current shift of the paradigm in health policy and management in indicated, in which the importance of Ethnobotanical Knowledge Systems (EKS) is shown for effective health promotion and disease treatment. Furthermore, the existing theories about successful interprofessional collaboration are detailed. In addition, the conceptualisation of interprofessional collaboration is presented and elaborated. This Chapter also provides an overview of the way in which indigenous African societies have determined the role and management of Traditional Medicine (TM).

Chapter III outlines in detail the research methodology and selected analytical model which includes the applied-oriented research approach, the relevant research questions, and the methods and techniques of the stepwise analysis, implemented in Chapter VII. The chapter underscores the importance of the use of the *Leiden Ethnosystems Approach* with its basic concepts of *Participant's View (PV), Field of Ethnological Study (FES)* and *the Historical Dimension (HD)*. The operationalisation of the concept of *interprofessional collaboration*, used in the analytical model is shown to follow the definition by the Centre for Advancement of Collaborative Strategies in Health (2003). The operationalisation of relevant *factors* through the deduction of *concepts* through *variables* and *indicators* to *categories* is also explained, leading up to the design of the questionnaires. Finally, the chapter introduces the complicated statistical analyses including the bivariate, multivariate (OVERALS) and multiple regression analysis.

Chapter IV describes the research setting of the Mara Region in Tanzania as a country of diverse natural resources. The chapter presents the geography, history, economy, socio-cultural and political structure. Also, the sample population and the profiles of both the traditional and modern medical practitioners are also described.

Chapter V prescribes the general livelihood patterns in Tanzania as well as the specific community life of the inhabitants of the Mara Region. It presents the existing socio-cultural background of the people in the Mara Region. The chapter also elaborates on the major challenges facing Traditional Medicine (TM) in the region.

Chapter VI seeks to explain health and healing in the Mara Region. It shows the health indicators in the country, as well as the general health status and health services in both Tanzania and the Mara Region. The development and changes in the Tanzanian medical systems is indicated over time, covering the pre-colonial, colonial and post–colonial eras. The major challenges in health care development are also presented as the focal point in the Tanzanian long-term plan and as part of the health sector reforms. The chapter further explains the pluralistic medical configuration in the Mara Region, including traditional beliefs on illness causation and remedies; the use of both Traditional Medicine (TM) and Modern Medicine (MM) and the first activities towards integration of both medical systems.

Chapter VII shows the major qualitative and quantitative research findings resulting from the statistical analyses. Similarly, an interpretation is presented of the significant correlations and interactions among variables in relation to interprofessional collaboration behaviour of traditional and modern medical practitioners, emerging from the Bivariate, Multivariate and Multiple Regression analyses.

Chapter VIII concludes with the description of the theoretical and methodological implications as well as the practical policy-based recommendations towards effective and efficient health sector reforms. The practical recommendations are strategised towards health policy makers, medical practitioners, trainers, researchers in health care, religious leaders, non-governmental organisations, local and central government agencies with a view to enhance interprofessional collaboration among different medical practitioners to achieve *afya jumuishi* in Tanzania.

Notes

1. This is one of the qualitative observed results through a *participant view* during fieldwork by the researcher who has also worked in the modern medical system in Tanzania.
2. A lecture presented by Prof. Dr. L.J. Slikkerveer at Leiden University, The Netherlands in March 2001 on the topic: *The Socio-Cultural Context of Health and Disease* and sub-topic: *Integrated Medical Systems.*
3. A report presented in 1974 by Hon. Marc Lalonde – the then Minister of National Health & Welfare for Canada.
4. The census results were officially announced by the President of the United Republic of Tanzania, H.E J. M. Kikwete during the 2012 Census preliminary output inaugural ceremony in Dar es salaam on December 31st, 2012. His speech is also found at the Tanzania National Bureau of Statistics: http://www.nbs.go.tz/sensa2012/index.php?option=com_content&view=article&id=29:hotuba-ya-mheshimiwa-jakaya-mrisho-kikwete-rais-wa-jamhuri-ya-muungano-wa-tanzania-kwenye-uzinduzi-wa-matokeo-ya-awali-ya-sensa-ya-watu-na-makazi-ya-mwaka-2012-viwanja-vya-mnazi-mmoja-dar-es-salaam-tarehe-31-desemba-2012&catid=1:news&Itemid=3 Surfed on March 31st, 2013.
5. The International Conference, which introduced Primary Health Care worldwide. Documented by World Health Organization (1978) *Primary Health Care*. *Report of the International Conference on Primary Health Care,* Alma Ata, USSR, 6-12 September 1978, *'Health for All'* Series, No. 1. World Health Organization, Geneva 1988.
6. Most studies have been conducted since the early 1970s on formalising the informal sector as marginalised small industries for business ventures as advocated by the International Labour Organisation (ILO), mainly focusing on employment opportunities creation.

CHAPTER II   THEORETICAL ORIENTATION

The goal of this chapter is to indicate and discuss specific concepts, definitions and related theories used as a point of embarkation of this study of interprofessional collaboration among different practitioners in both traditional and modern medical systems of Tanzania.

The chapter begins by exploring the components of culture and their linkages to human health (Herman 2001; White 2002; Taylor 2003), the determinants affecting people's choice in health services utilisation (Slikkerveer 1990), the *mandala* of health, showing the way culture relates to people's health and medical systems (Hankock & Perkins 1985), the concepts of indigenous *aetiology* (Helman 1994), and the indigenous knowledge and practice of Medicinal, Aromatic and Cosmetic (MAC) plants from the largest source of raw materials and products of indigenous medicaments (*cf.* Slikkerveer 2006).

Thereafter, the chapter draws attention to the concept of health sector reforms. The Paragraph focuses on the need for a paradigm shift as propagated by World Health Organisation (WHO 1978) to de-medicalize, culturally redefine and integrate health care. The pertinent ideological and operational issues to be addressed in the Tanzanian health sector reforms are highlighted. The first refers to the study of interaction between local and global knowledge systems concerning MAC plants, also known as the *Ethnobotanical Knowledge System* (EKS) (*cf.* Slikkerveer 2006). The second refers to the *community-based approach* as opposed to the *clinic-oriented approach* for the promotion and development of traditional medical practitioners, products and services.

Then, the chapter draws attention to the concept of health sector reforms. The Paragraph focuses on the need for a paradigm shift as propagated by the World Health Organization (WHO 1978) in the way the medical system has to be de-medicalized and culturally redefined and integrated. The pertinent ideological and operational issues are to be addressed in the Tanzanian health sector reforms are highlighted. A study of interaction between local and global knowledge systems of plants well known as Ethnobotanical Knowledge System (EKS) and *community based approach* as opposed to *clinical oriented approach* for promotion and development of traditional medical practitioners, products and services are presented.

Acknowledging that collaboration is a step towards integration, the chapter also discusses the difference between Traditional and Modern Medicine, the concept of integrating modern and traditional medical systems, the existing problems and required institutional support for Traditional Medicine (TM) in Tanzania.

The last Paragraph of the chapter traces the introduction of the term *collaboration* as well as its definitions in various disciplines. Different theories of collaboration are observed, and notable gaps in recent research are mentioned. Following the Theory of Reasoned Action (TRA) developed by Ajzen & Fishbein (1980; 2010), collaboration is described as a step on a continuum of strategies towards integration (Dotterich 2006) and eventually as a behavioural act under the *knowledge-belief-practices* paradigm (Slikkerveer 1990), which accentuates the utilisation behaviour model widely supported by researchers in different disciplines such as Kohn & White (1976), Cox & Claus (1984), Slikkerveer (1990 1995), Agung (2005), Ibui (2007), Leurs (2010), Djen Amar (2010), Ambaretnani (2012). The different stages and management of collaborative behaviours in organisations are further explored.

Finally, the concept of interprofessional collaboration is operationalised as a pattern of behaviour of practitioners under study, exchanging resources and working jointly towards their clients, and where a working definition operationalises the adaptation of the selected conceptual model with various categories or blocks of variable, further described in Chapter III.

2.1 Culture and Health

2.1.1 Components of Culture and their Linkage to Human Health

Anthropologists perceive, that: *"culture is for a human being what water is for a fish"* (Hardon *et al.* 2001). Although the word originates from the Latin word 'cultura', meaning 'to cultivate', there exist a historical number of definitions for the term 'culture' going back to Kroeber & Kluckhohn (1952).

With different definitions, researchers and academics in general reflect on different theoretical orientations or criteria to refer to the universal human capacity to interpret, classify, codify and communicate life experience in different circles. Allen (1992) outlines seven different uses of culture as *generic* (learned behaviour); *expressive* (artistic expression); *hierarchical* (show of superiority in social structures); *superorganic* (interpretation of everyday behaviours); *holistic* (connection of different parameters of life such as; gender, politics, religion, technology, etc.); *pluralistic* (existence of different forms in one setting) and *hegemonic* (relationship between social groups and power distribution).

The United Nations Educational, Scientific and Cultural Organization (UNESCO 2000) has labelled 'culture' as the set of distinctive spiritual, material, intellectual, and emotional features of a society or a social group, and it encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs. It is imperative to note that any society may have numerous heterogeneous cultures and cultures are not static. From the Twentieth Century, anthropologists and sociologists generally use the term 'culture' to refer to the set of shared and learned attitudes, values, beliefs, principles, goals, knowledge, practices (behaviours), symbolisms and artefacts identifying an institution or a social group as well as the human capacity to classify and interpret experiences.

In the same way, the Center for Advanced Research on Language Acquisition (CARLA- US has characterised culture as the shared patterns of behaviours and interactions, cognitive constructs, and affective understanding which are learned through a process of socialization. Members of a certain society are either identified or distinguished from others, based on those shared patterns. Culture serves as a road map for both perceiving and interacting with the world. Culture influences or determines the way a person thinks, believes, behaves, eats, sleeps, puts on clothes, relates to others and to the environment, works, perceives, consults in case of pain, and interprets diseases and ill health in general. Thus, there is a close link between culture and health or illness: cultures shape people's health as much as their genes do.

Gathering from various definitions such as in Medical Anthropology (Herman 2001), Medical Sociology (White 2002), Health Psychology (Taylor 2003) as well as from the UNESCO (2000) and all other related research institutes and centres, five major common themes concerning components of culture can be deduced, either as they shape people's health or as they affect interprofessional collaboration between traditional and modern medical practitioners, underscoring the *raison d'être* of this study:

Communication Components: consisting of languages, symbols etc.
Both in the traditional and modern medical system, there exist diverse communication patterns and symbolisms, which attributes to different meanings in services. The different naming (classification) of diseases and ill health by use of different languages can be one of the major hindrances towards behavioural patterns of mutual collaboration between two groups with the same customer.

Cognitive Components: consisting of ideas, assumptions, knowledge, technology, accounts etc. When the type and levels of education are much different between the two groups of modern and traditional medical practitioners, their interventional approach is varied. For example, just the different level of knowledge of human anatomy and physiology has been used by some modern medical practitioners to despise the indigenous knowledge acquired by traditional medical practitioners. "*How do you work together with someone to treat a patient with Asthma when he or she doesn't know the ABCs of the human respiratory system*?" interrogates Doctor A, during an interview.

Behavioural Components: consisting of mores, norms, values, laws, rituals, beliefs, folkways, religion, intimacy and economics. People's religious belief, values, norms etc. have affected the way they behave. Organisational culture and 'groupthink' factors either motivate or demotivate the process of resource exchange and joint working between the two systems.

Material Components (Material Culture): Consisting of created objects, artwork, fashions, designs, clothes, housing, means of transport, infrastructures, foodstuffs, tools etc. When the trend has been to focus on acquiring sophisticated advanced technological medical equipment and big structures of modern health facilities, traditional healers and traditional midwives feel isolated from the national health care system.

Organisational Components: Consisting of social structures, political organs, family and organisational ties and relations, membership identity, gender, politics, institutional support etc. The traditional medical system has a different organisational setting with a simple organogram, has fewer hierarchical levels and a kind of cobweb communication network. In contrast, the tall structured network of the Modern Medicine system has several hierarchical levels. In order to integrate them, one needs to take into consideration their present situation, other related institutional support and policy framework.

All five components of culture have a twofold direct or indirect link to this study. Firstly, when culture is seen as the base which prompts re-evaluation of the importance of Traditional Medicine (TM) and its practitioners in the overall contribution of people's health levels and secondly, when practitioners' collaborative research topic is understood to be a behavioural act of either exchange of resources and or working together within their cultural context.

The classical definition of the World Health Organization (WHO 1945) of the concept of health as *"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"* clearly shows that health has a social component. From a wider socio-cultural context, ill health can be perceived of as a process, which brings a person into a *sick role*, and evaluates his or her ability or failure to meet the obligation of the society (Mechanic 1995). However, the *sick role* model has been criticized as fitting more in short-term than long-term illnesses and some sick people may not necessarily give up their social roles, and may resist dependency and avoid to be known publicly, especially when the disease is stigmatized in the society. Furthermore, the *sick role* can be blamed as well in cases such as alcoholism (Chalfont & Kurtz 1971). In summary, several studies have shown that ill conditions are not only dependent on biological or cognitive factors, but also on ecological, social and cultural determinants (Koos 1954; Marmot 2005; WHO 2010). In addition, as has been shown by Slikkerveer (1990), these determinants affect people's choice in their patterns of health care utilisation.

Figure 2.1 shows the *Mandala of Health*, which provides a holistic guide towards the understanding of health and the way culture and environment are shaping peoples' health. It shows that the culture of a community's affects family livelihood, spiritual life, psychological experiences, work patterns, the political and legal framework, social organisation and medical systems, and as is the case in biological factors, it affects individual health.
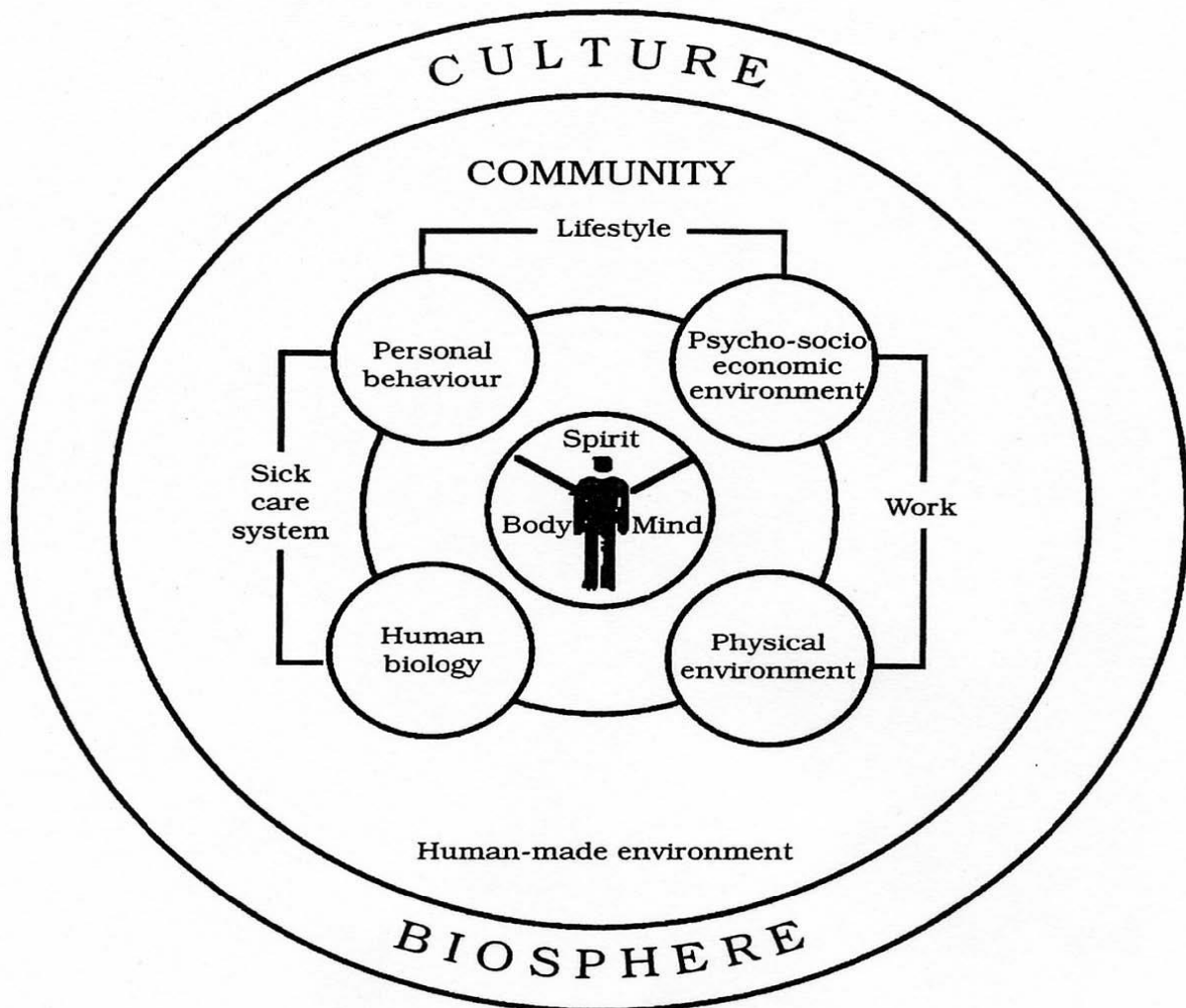
Figure 2.1 The *Mandala of Health:* How culture relates to people's health
         Source: Hankock & Perkins (1985)

Consequently, all these factors are interdependent, generating the cause-and-effect impact to the overall levels of health. The following study begins by accepting that the ultimate aim of any health policy and strategy is to improve and maintain the health of the population at a high level From a behavioural science point of view, as argued by Monroe (1977), this concept provides the analytical framework of non-mutually exclusive factors other than the (formal) medical system which determines the health levels of the population. These factors include both *endogenous* and *exogenous* factors, which can be elaborated more in detail as follows:

Endogenous Factors include genetic, biological, temperament and personality, cognitive and behavioural factors. Certainly, the way people are raised and socialized in a multi-ethnic and religious pluralistic country with 120 tribal groups like Tanzania contributes or moulds their personality and understanding of 'health' and health care systems. This includes the ability to withstand, react and adjust to morbidity, the propensity to take risks and other ill-health related factors. Though individuals have some degree of autonomy in their behaviour, to a large extent, the choice one makes reflects the norms and mores of the larger society or a subgroup culture exposed to him or her. In short, behavioural factors encompass a major social role, both familial and occupational; preferences and level of food consumption; and housing and personal hygiene.

Exogenous Factors explain the way social groups and relationships (formal and informal) affect one's health status. These include the degree of strain and conflicts, provision of security and other forms of subsistence against internal or external threat, maintenance of moral values and public health activities for example disposal of wastes and sanitation, pollution control, immunization and isolation measures. Both the physical and ecological environments play a substantial part in people's health. Not just the catastrophic disasters, topography and the distance from a health facility matter, but also the microbial, parasitic and their respective vector lives in a particular environment. This being the case, it is paramount that health planners and policy makers recognize the relative impact of each factor and, even more challenging, get the optimal distribution of scarce resources amidst demands from these factors.

2.1.2. Indigenous Aetiology and Health Care Utilisation

In his work *'Culture, Health and Illness,'* Helman (1994) presents traditional 'lay' theories of illness causation *(aetiology)* in different sites of the individual, the natural world, the social world and the supernatural world; factors which are usually linked together. Any medical system is a result of the socio-cultural context. In the contemporary, complex Tanzanian society, one can identify four mainly overlapping and interconnected medical systems as follows.

Firstly, the Western, *modern medical system* which comprises the legally sanctioned professions encompassing therapies, which are based on principles of conventional allopathic and biomedicine. Practitioners are physicians of different specialities and *para*-medical professions.

Secondly, the indigenous or *traditional medical system* which includes heterogeneous groups of folk health service providers such as herbalists, spiritual healers, soothsayers, fortune tellers, bonesetters, traditional midwives, astrologists, acupuncturists, witch doctors, traditional circumcisers, teeth mutilators, and traditional cosmeticians.

Thirdly, the *transitional medicine system* which includes commercial pharmaceuticals, forming a syncretism between traditional and modern medicine, mostly practiced by traditional healers who prescribe both herbs and modern medicines such as analgesics, admit people in modern wards and use thermometers and blood pressure instruments. Finally yet importantly, there is the *popular medical system* where self-medication and health maintenance, advice from non-professional friends or relatives, and spiritual healing is being used. Here the main actors are mothers, evangelists from Christian charismatic movements, Muslim Sheikhs and people with personal experience with specific illnesses and disorders.

In Medical Anthropology where 'disease' is defined as the objective morbid condition of the human body, 'illness' refers to the subjective psycho-social experience of a perceived unhealthy condition (Kleinman 1980; Twaddle 1981). Bank *et al.* (1973: 24) further elaborate that illness is not simply an individual condition but a social process whereby after observing symptoms of illness, the individual accepts the *sick role* due to limitations of his or her social role, before accepting the dependent 'patient role'. The progress from *sick role* to 'patient role' has already been described by Suchman (1965) in his classic study on *Stages of Illness and Medical Care*.

Therefore, illness in Tanzania, as in other countries, can be regarded as both a personal and a social concept, embedded within the lives of individuals and communities, and interpreted and responded to in the context of medical pluralism with all the related complexities of different theories, practices, medicaments, institutions and functionaries.

Apparently, although there is so much emphasis and practical support for the modern formal medical system even in the current *Health Sector Reform Action Plan* discussed later in this chapter, there are reasons why the traditional medical system should be incorporated and integrated. Some of the pertinent issues, which can no longer be denied, include the following considerations:

- Western medicine sometimes fails to deliver. Untreatable diseases and illness remain; therefore, biomedicine is not sufficient in providing a universal account of the human body, illness and health.

- Due to the increased production costs of modern medicines, the previous effects of the International Monetary Fund (IMF) structural adjustment programmes and the world economic recession, many Tanzanians are unable to buy drugs according to doctors' prescriptions, and instead buy according to their purchasing powers. However, the side effects of under-dosing are apparent (Chirangi 2000) (1).

Referring to the available Tanzania country health indicators (later shown in Paragraph 2.2.1 and 6.1), the modern health services are neither satisfactory nor accessible for all people. Indigenous medicinal plants usually provide relatively low-cost remedies, especially in the rural areas. This phenomenon became the theme of the National Summit of the *Herb Research Foundation on U.S.-African Relationships*, held on February 16-20, 2000 in Washington. The Summit has been attended by 11 Heads of African Nations, U.S. Administration and Cabinet Officials, Congressional Representatives and Mayors, and has been reported by *Agribusiness in Sustainable Natural African Plant Product* (ASNAPP 2000). Furthermore, a study conducted by the *Wildlife Trade Monitoring Network* (TRAFFIC) working with the *World Wildlife Fund* (WWF) and the *International Union for the Conservation of Nature* (IUCN) also confirmed that the use of Traditional Medicine (TM) in East and Southern Africa is widespread, and that it is not only affordable but also accessible and culturally acceptable (*cf.* Marshall 1998).

The concept of health care utilisation is more complex than just a focus on *illness* as a determinant of the search for treatment and the use of services. Slikkerveer (1990) embarks on the above mentioned study of Suchman (1965) concerning the stages of illness and medical care, and explains how Bank (1973: 24) deduces the processes through which a person goes before seeking help from a medical practitioner. In this process, an individual experiences symptoms of illness and then accepts the *sick role*, and as the social roles become limited, the dependent *patient role* is assumed, followed either, by treatment and recovery, or death.

The shift from *sick role* to *patient role* for individuals who experience such disorders is also relevant for the situation in Tanzania, whereby there is a difference between 'having an illness' or being categorized as a 'patient. Such differentiation is found among the members of the Jita ethno-cultural group in the Mara Region, referred to as *Omwasibwa no omurwaye* respectively.

2.1.3 Indigenous Knowledge and Practice of MAC Plants

Medicinal, Aromatic and Cosmetic (MAC) plants form the largest source of raw materials and products of the *material medica* of Traditional Medicine (TM). In the traditional African societies, the way in which medicinal plants have been utilised, illustrates the 'holistic' approach of placing humankind between the visible and invisible surrounding environments. Such cosmovision shows how humans relate to the social world, the natural world and the supra-natural world, found in many countries around the globe. Indeed, throughout the greater parts of the developing societies, people perceive the universe as made up by the three worlds: the spiritual world, the human world and the natural world (*cf.* Millar 1999; Agung 2005).

Traditional African communities are characterised by certain customary values, which serve as guidelines for the proper utilisation of MAC plants. These values are still playing a role today in community life, and as such continue to influence the patterns of utilisation of these plants, which, in turn, are the major components of Traditional Medicine (TM). The specific customary values which determine proper utilisation of MAC plants can be considered as the socio-cultural obligations of the communities, and include the following notions: trust, being human-centred, encouraging community development, being environmentally friendly, and finally, having a special 'calling' (Hedberg 1982; Cunningham 1993; Gessler 1995; Mhame 2005), as indicated below:

Trust
It is perceived that in every activity in health, there must be total trust and good will between the healer and the individual(s) in need. Traditionally, this has been underscored by upholding close and more friendly communication to clients. Today, the situation has changed because of the widening in social distance in communication between the medical practitioners and patients, while less time is spent in the interaction process.

Human-centred
The way to restore the human harmony and quality of life is embedded in the individual's relational life to the world in its totality. The shift towards this understanding of disease and the dependence of the status of the organs has been the beginning of the acceptance that euthanasia in case of an incurable disease is or when the organs are less normal functioning, such as in the case of old age.

Community development
The ultimate aim to prescribe or use medicine has been focused on the welfare and development of the community. During the fieldwork (2010), however, it has also been noticed that today a number of individuals tend to visit traditional healers for merely personal reasons without considering the welfare of others.

Environmentally friendly and contextual
Harvesting of medicinal plants has been done with a view to ensure sustainable use and conservation. Therefore, the local communities took special care with harvesting. Healers

would only collect those plants, which were needed for a particular patient. The current situation of a growing number of plants under threat of extinction leaves the question; what the effect will be of continuing commercial collection of MAC plants for sale in the market? It is not uncommon to meet an herbs vendor who ignores the conservational and socio-values of the people in the areas.

Special 'calling'
Only those who were 'called' among community members became traditional medical practitioners in specialities, which have been handed down to them by their mentors or parents. In the contemporary time, there are also traditional healers who claim that they are specialists in the treatment of all illnesses. During the fieldwork in Musoma and Bunda, some of these 'self-sworn' practitioners were observed with long lists of diseases, which they claimed that they could treat them. Such unfounded claim fosters the public criticism of these healers' capabilities. The traditional use and management of MAC plants in Tanzania, as in many other African countries, is based on the dedication of the members of local communities, who feel responsible for the sustainable utilisation and management of their resources *(cf.* Cooper 1985; Davis 1986; Good 1987; Kingdom 1990; Cunningham 1993), Such attitudes include planning, organising, staffing, leading, controlling and evaluating, as explained below.

Planning
Angina (1987), Gordon (1988) and other medical anthropologists contrast different aspects of modern medicine with traditional African medicine. For one, modern medicine focuses on the individual patient or even an individual organ, while the traditional orientation is committed to the whole person and one's physical, social and spiritual environment. Therefore, the major vision and community assignment in any planning activity has been to regard humans living in harmony with their fellows, the physical environment and the spiritual beings through ancestral linkages. This cosmological orientation links up with the above mentioned cosmovision;

Organising
It has been the society, which determines and recognises the roles of the traditional healers in the patterns of social stratification. The practices of traditional healers have mainly been performed at one specific place or residence, with the exception of a few services, which need to be executed in certain locations aside the environment. For example at sanctuaries, or during initiation ceremonies or attending births, and, of course, when the patient could not move from his or her site. At present, however, an increasing number of signposts have been erected, inscribed with texts such as *"Mganga Bingwa wa Tiba Asilia yuko hapa"* (A Specialist Traditional Healer is available). These signposts appear at guesthouses, market places, streets, open areas, kiosks, and residential places, particularly in urban areas. The healers are mobile and tend to keep on shifting and doing a lot of self-advertisement. This phenomenon can easily give the impression of unreliability, professional arrogance or even incompetence.

Staffing
The traditional medical practitioners are driven by a 'calling' and not by material gain. The community, however, provides them with security and a sense of belonging and support. In most ethno-cultural groups, this 'calling' has been among the sacred activities, typically passed on only through traditional ceremonial rites. Such 'calling' assures the preservation and continuity of the indigenous medical knowledge within the community. The misappropriation of the common intellectual rights in the communities has not been possible.

Figure 2.2   Service notice of a traditional healer for clients in Musoma.
          Source: Fieldwork (2009)

Leading

While in the past, only traditional healers, traditional birth attendants and midwives, and circumcisers could make use of traditional medicines, nowadays, ordinary people have access to both traditional and modern medicine. Junior health personnel can now give instructions, even if they lack experience and understanding of the surrounding community life concerning the use of the medicines.

Controlling

Every society has honoured the enforcement of the communal ethical standards and justice. For example, the control of the utilisation of medicinal plants has been subject to a number of norms, such as strict observance of the harvesting times and the season, never uprooting the Medicinal, Aromatic and Cosmetic (MAC) plants, and adherence to the age restrictions of people who are participate in such indigenous activities. In addition, local taboos and beliefs – often grounded in rational considerations - have substantially contributed to preservation of several rare species of plants and animals often under threat of extinction. At the same time, the relatively low level of technology has so far limited the mass exploitation of these important local resources. The sustainable use of resources further developed, following the way in which people assumed their responsibilities. To the present day, the Traditional Birth Attendants (TBAs) in the Mara Region of Tanzania are presented with a small token after they provide their service. In the region, the knowledge of Traditional Medicine (TM) has largely been passed on through the oral tradition and the transfer and exchange of experience, further enlightened by artifactual representations in drawings and carvings.

Evaluation

The evaluation of the usefulness and efficacy of Traditional Medicine (TM) has been a major component of community life, executed by the whole society, not just by health personnel. The evaluation is sanctioned by an often informal reward system. Corrective measures are often promptly taken, while quality control is mandatory and observed at every stage. The responsibility of the local community continues to ensure that all its members can obtain acceptable health care. In essence, this principle also forms the base behind the philosophy of 'acces to basic health care for all' of the Primary Health Care (PHC) strategy (WHO 1978).

2.2 Health Sector Reform

2.2.1 The Paradigm Shift in Health Care

With the introduction of the concept of Primary Health Care (PHC) by the World Health Organization (1978), the beginning of a clear paradigm shift emerged in the thinking about the way in which *"Health for All"* could best be achieved worldwide. For a long time, health care had been controlled and dealt with in a *triad*, known as the *3-Ds*: *Doctors, Drugs and Dispensaries*. The triad represents the dominant focus on modern health, medicines, health facilities and medical personnel. In practice, such focus is manifest in the allocation of resources, especially regarding the procurement of drugs and vaccines, professional control, molecular biological research and technical innovation.

Gradually, there emerged a general feeling in the late 1970s, that health care had to be de-medicalized, culturally redefined and integrated. In the following *Declaration of Alma Mata* (1978) Primary Health Care (PHC) has been defined as: *"essential* health care *based on practical, scientifically sound and socially acceptable methods and technology made* universally accessible *to individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination"*.

While the previously mentioned triad of the 3-Ds, are important, the following considerations are similarly essential:

- To consider people as participants and not just as beneficiaries of health planning, implementation and evaluation;

- To study the traditional medical system, as well as the socio-cultural determinants of health and health care utilisation;

- To empower local communities and traditional medical practitioners to complement and co-operate with modern medical practitioners of the formal medical system;

- To carry out research, guided by a participatory methodology with the indigenous people in different health-related fields, such as medical anthropology, medical ethnobotany and ethnomedicine.

According to the early work of Claridge (1970), in addition to the pharmacological properties of medicines – for the larger part derived from the knowledge and practice of traditional healers over many ages since the Sixteenth Century - the preferences and effects of any medication made available to an individual also depends on other factors, such as:

- The recipient's characteristics, *e.g.* socio-cultural background, education, experience, personality, age, etc.;

- The prescriber's or dispenser's characteristics, *e.g.* sense of authority, trustworthiness, attitude, professional status, age, etc.;

- The setting, *e.g.* the environment and context in which the medicine is administered;

- The characteristics of the medicines, *e.g.* taste, shape, colour, name, etc.

As regards the study of use of medicines, advanced research on health care utilisation has recently focused on the differentiation between traditional and modern medicines, and operationalised analytical models of interactions among and between various predisposing, enabling and dependent factors in order to identify significant relationships as a basis for future health care policy planning and implementation (Slikkerveer 1990; 2011). Similarly, an international study on the provision and consumption behaviour of clients and patients with regard to non-prescribed and prescribed medicines in a number in several South-European countries has in this complementary qualitative and quantitative way documented various determinants of the use of both types of medicines on the basis of such advanced multivariate analytical model (*cf.* Slikkerveer, La Grange & Lionis 2012). As is further described in Chapter III, this interesting analytical model is also used and adapted for the present study in the Mara Region of Tanzania.

Figure 2.3: A Modern pharmaceutical shop in Musoma
             Source: Fieldwork (2009)

Public/private partnership and equity of access to quality primary health services are key policy themes under sector reforms in decentralized management, as is people's participation in financing and governance of health services. An essential health intervention package provides the main frame for prioritization, with such diseases as HIV/AIDS, Tuberculosis, Malaria and MCH at the apex.

National resources such as human, financial and material including essential medical equipment and medicines are still insufficient to ensure the availability of and access to essential health services of adequate quality. While health resources management and retention in work are at the centre of current debate, the search for sustainable financing to be able to pay workers decently and making payment exemption mechanisms to work to the benefit of the poor is now a priority in the health care delivery system. Also, the ability to produce and use health information as a means to strengthen the skills for evidence-based health planning and management is another priority.

In addition, unequal access to social services, largely the result of unequal income distribution and high levels of income is non-functional for the social protection of the poor. The low income of the majority of the population at the community level hinders their accessibility to health services and medicines. At the national level, low financial capacity limits adequate resource allocations in the medical system, leading to inadequate provision of health care services.

Figure 2.4: The Theoretical Pyramid of the General Needs of People.
Source: Adapted from Greenhalgh (2007).

Contemporary medical practitioners both of the traditional and modern medical systems suffer from a growing moral degradation of the profession. Borgtein & Mulongo (2011) question if entrepreneurship in health care is a truly moral issue. Increased costs of health care services and less emphasis on the preventive care of patients than on treatment indicate that there is a

growing need for medical practitioners to change their attitude from a business-s to a service-orientation in health care, as well as from curative to preventive care.

Health indicators recently presented in the *Tanzanian Annual Health Statistical Abstract* (2008), and in the *General Tanzanian Nation Economic Review* (2000) indicate several challenges, such as the increase in the national average number of individuals per nurse of 5,000, and the increase in the national average number of individuals per doctor of 138,000. The number further increases for specialist doctors such as oral and dental practitioners, while the records of the Ministry of Health and Social Welfare (MoHSW) show an average of 356,000 individuals per dental assistant.

These numbers imply a huge workload for modern health personnel, resulting in less time spent per patient and even some patients left unattended. In short, the profile of human resources and the distribution in the health sector shows a deficit of about 65% of the required health professionals in all health facilities of Tanzania (*cf.* Ministry of Health and Social Welfare, 2008).

Recently, morbidity patterns have changed from acute to chronic diseases. There is a great need to change the focus from the few patients who need specialized, hospital-based services to a larger number of patients who need basic health services, preventive care, and health promotion. The pyramid below represented in Figure 2.4 shows the general needs of health care by the population (Greenhalgh 2007).

2.2.2 Pertinent Issues in the Tanzanian Health Sector Reforms

The present Tanzanian Health Sector Reform (HSR) started with a strategy note (Ministry of Health (1993) which emanated from the country's need to re-examine the present health services delivery system. After conducting a number of meetings and workshops for appraisals, analyses and plans for actions by multisectoral health stakeholders, the *Tanzanian Ministry of Health HSR Programme of Work (July 1999 – June 2002)* has been finally formulated.

Currently, the Health Sector Reform (1993) is implemented through the comprehensive *Health Sector Strategic Plan (HSSP) II* of 2007 is in line with the *Local Government Reform and Decentralization* by *Devolution* of 1994; *the National Strategy for Growth and Reduction of Poverty (MKUKUTA)* of 2005, *The Millennium Development Goals (MDGs)* up to 2015 and the *Primary Health Care Services Development Programme, (PHCSDP)* of 2007–2017 well known as *Mpango wa Maendeleo wa Afya ya Msingi (MMAM).*

The main issues outlined in Table 2.1, call for a paradigm shift in the Tanzanian health perspective as a prerequisite to understanding and addressing the *problem statement* pertaining to integrated health development in Tanzania as presented in Paragraph 2.2.3 The nation has to learn from the experience of the Indian forum of around 20 networks, associations, federation and movements of the civic societies of 7 April 2000 in Hyderabad to bring about positive changes in the medical system.

2.2.3 Ethnobotanical Knowledge Systems and Health Promotion

It becomes almost impossible to discuss health sector reform strategies in a traditional medical system without considering the *Ethnobotanical Knowledge System* (EKS) of the specific population. While Ethnobotany refers to the study of the relationship between local people and their indigenous MAC plants in terms of their knowledge, practice and behaviour, the concept of *Ethnobotanical Knowledge System* (EKS) focuses on the interaction between local and global knowledge systems of these MAC plants (*cf.* Slikkerveer 2000).

Table: 2.1 Issues Addressed in the Recent Tanzanian Health Sector Reforms

Issues	Explanations
Ideological	Community participation in health planning, financing and management. Community taking an active role in disease prevention and health promotion. Government adopting a policy of being complementary rather than confrontational with the private health system.
Organisational	Government becoming more of a facilitator, monitor and regulator than the sole health provider. Decentralisation and devolution of the authority to District level. Refinement of the referral medical system.
Managerial	Effective supervision, quality assurance and co-ordination of health services within the Primary Health Care, Management Committees and Programmes. Capacity building and motivation of human resources.
Financial	Diversification and adoption of more sustainable sources of health financing. Efficient budget allocation to services with greater impact on the health status of the community.
Public/Private Mix	Amendment of legislation and development of institutions promote active private system participation in health service delivery including that of traditional medical practitioners.
Population and Nutritional	Regulating population growth through intersectoral family planning strategies and improvement of the health and welfare (especially) of the mothers and children. Reduction of malnutrition and elimination of micronutrient deficiencies.
Research	To strengthen the national research institutes/centres and encourage appropriate research both operational and bio-medical related to the needs of the medical system.

Source: Tanzania Health Proposal for Health Reforms 1994, and Health Sector Strategic Plan III, July 2009-June 2015, MoHSW.

The concept is operational in various dimensions, including the utilitarian aspects of local plant use, the cognitive aspects of perception and belief about these plants, the ecological aspects of the conservation of plants, and the scientific validation aspects of MAC plants used in Traditional Medicine (TM).

The role of plants in different cultures carries a substantial weight of human welfare and life. As an interdisciplinary field, Ethnobotany brings together contributions from a variety of disciplines such as botany, ecology, anthropology, ethno-pharmacology, history, linguistics and economics. In general, Ethnobotanists study indigenous knowledge and practice of MAC plants for medicine, food, decoration, shelter, clothing, fuel and religious ceremonies.

Humankind has used plants for medicine since the prehistoric times, and the role of today's herbalists in Tanzania is deeply rooted in the early human history in this significant part of the world, known as the *'Cradle of Humankind'*.

Although the modern synthesized medicines have had much attention in developed countries, particularly since the 1990s, the field of pharmacognosy as the study of bio-chemical components of MAC plants has further increased for the development of new medicines.

The knowledge of the use of MAC plants has created a new booming business for the informal sector through the provision of self-employment for medicinal plant collectors and street vendors, especially in urban areas.

From a historical perspective, Warren (1989) and Slikkerveer (1996) note that traditional knowledge in the former colonies was ridiculed, ignored and marginalized, while modern systems of knowledge and technology developed in the Western world, often using indigenous knowledge and practice as a fruitful resource without any compensation for the local people.

By the middle of the Nineteenth Century, European missionaries established churches in many regions of Africa and started to propagate Christianity offering new belief systems and practices, distinct from the traditional religions. The communication of the faith and doctrines of Christian churches introduced the cultural aspects of the mother church, often declaring most of the indigenous knowledge and belief 'ungodly'. Not all such actions, however, can be backed by biblical absolutes. The challenge therefore in today's dynamic Tanzanian society, is to contextualize African Christianity and all other religions, but without losing virtues, because faith and religious orders are still part and parcel of the total life of many Africans. Additionally, religious bodies have also shown to be powerful agents for social change in many societies.

A good example of this initiative is provided by the preliminary explorations of the gospel and the culture by the *Research Institute on Christianity in South Africa* (RICA), sponsored by the *World Council of Churches* (WCC) (4). Chavunduka (1999) in his article *'Christianity, African Religion and African Medicine'* concludes: *"The way forward for the Christian Church is to examine carefully African religion and medicine and other cultural aspects, with a view to identifying clearly those practices are not against Christian faith and morals and incorporate them into modern medicine and Christian worship; if possible, they should also try to find a way out of what are considered non-Christian rites and other cultural practices. A few Christian churches are already doing this"*. A failure to address this challenge of communicating religion in the people's culture is to lay unnecessary yolk to believers and perpetuate hypocrisy with a dualistic identity of being an African (in hidden forms) and a Christian (openly) instead of being with one identity, an African Christian or Christian African.

Evidence of a re-orientation can be observed in the *Declaration on Primary Health Care* (WHO 1978), in which not only the role of traditional healers and village health workers, but also the potential of traditional medical systems is appreciated and recognised. A growing awareness and a 're-invention of the wheel' of indigenous knowledge have also continued in the agricultural and environmental sectors in developing countries during the 1980s (*cf.* Chambers 1987, Warren, Slikkerveer & Brokensha 1995). The key concept in the study of *Ethnobotanical Knowledge Systems* (EKS) is *sustainable development*: a process which is environmentally friendly, humane, in line with social justice, economically viable, and adaptive. In the context of this study in Tanzania, the major challenging question therefore is: *"What is the appropriate approach to the promotion and implementation of indigenous medical knowledge and practice for the integration of traditional and modern medical systems?"*

In a comparative study of Ghana and Thailand, Le Grand & Peter (1990) narrate two major approaches to promotion activities. Firstly, the *Clinic-Oriented Approach* (COA) which focuses on laboratory research on MAC plants and their industrial production. As Tenambergen (1988) notes, this approach aims at the introduction of all scientifically validated Traditional Medicine (TM) property into modern health care.

Secondly, the *Community-Based Approach* (CBA)*,* which involves research directed at the identification of commonly used traditional remedies and their use in relation to local perceptions of health and healing. It aims at enhancing and promoting positive traditional practices within the context of the community. While the earlier approach centres mainly around laboratories, research centres and pharmaceutical companies from different disciplines such as toxicology, pharmacology, phytochemistry, the latter deals with the study of traditional

medical practitioners, self-care and community health organisations. The *Community-Based Approach* (CBA) allows for more flexibility, bringing motivation to the traditional medical practitioners.

Table 2.2: Community Based Approach (CBA) versus Clinical Oriented Approach (COA) in Promotion of Traditional Medicines

CBA (Advantages)	COA (Disadvantages)
Has fewer ethical problems, as the local medicine being investigated has already been used by people	Tedious difficulties in laboratory coordination and poor Information dissemination on specific approved medicinal plants
Influences attitudes and behaviours of the community, therefore aiding the understanding of practices and organisation of indigenous health service provision	Interest in more scientific publication than relevance to health provision
More beneficial to the local population's health stakeholders than pharmaceutical industries	Scientific validation contributes very little to acceptance of Traditional Medicine (TM) and practices as a whole

Source: Le Grand & Peter (1990)

The present study in the Mara Region further operationalises the *Community-Based Approach* (CBA), well established for the 'bottom-up' perspective of health care development (*cf.* Pousset 1989; Farnsworth *et al. 1*985; Tan 1981; Labadie 1985; Slikkerveer 2000). Table 2.2 shows the major advantages of *Community-Based Approach* (CBA).

Health Education (HE), a social concept of health promotion, is a process through which people become aware of their health situation and work towards improved health status. The common objective of HE as developed by the World Health Organization (WHO 1953) is still valid:*"To help individuals to become competent in and to carry on those activities they must undertake for themselves as individuals or in small groups in order to realize fully the state of health"*. However, in a socio-anthropological perspective, the approach takes a notable shift from conventional elements to integrated health promotion (Green & Richard 1993).

In fact the issue of concern today is not just a quantitative argument of adding 'years to life', but more to add 'life to years,' meaning to improve the quality of life (*cf.* Van der Velden 1995). Nevertheless, the life of the people is very much shaped by their culture. Therefore the strategy will not only focus on patient and pathology, but to all factors which determine health behaviours and status, including individual and community livelihood, social structures, economic status, contribution of health planners and health service delivery, both traditional and modern. The dichotomy of the health promotion approaches is presented in Table 2.3, in which the new approach to health education is being recommended.

Table 2.3 Health Education Approaches

Conventional, 'old' HE approach	'New' HE approach
Most teachers were medical and Para-medical personnel	Acceptance of other professionals in social sciences, indigenous knowledge, etc.
Mainly targeted the sick and relatives of sick people at hospitals and villagers on a specific health campaign duration	Looks at a wider target (including traditional healers and health policy makers) with varying demography, in different contexts as an on-going lifelong health promotion commitment

Top down approach from Government ministries (health and education)	Involving communities in their own health diagnosis planning and execution of agreed strategies
It has been 'victim blaming' to individual behaviours like smoking, drinking, prostitution, health service malpractices etc.	Tries to look at all possible causes in the society as a whole, with awareness of and sensitivity to reasons behind certain behaviours.
Focused mainly on population and epidemiological medical research	Includes baseline study of prevailing beliefs and socio-cultural practices related to people's health and any other crucial issues such as gender equality and poverty alleviation
Teachers were considered 'all knowing' with subject- object relationship with the community	Facilitators are ready and willing to learn from the community's indigenous knowledge and practices

Source: Van der Velden (1995)

The JUA Project, established by the researcher and further explained in Paragraph 3.2.3, has laid the foundation for this study, where traditional medical practitioners participate in human resource capacity-building workshops with a *participatory learning methodology,* an approach aligned with the new health education approach, as represented in Figure 2.3.

Figure 2.5   Traditional medical practitioners in *JUA* Capacity-Building Workshop
           Source: Fieldwork (2005)

2.3 Integration of Medical Systems

2.3.1 Differences between Traditional and Modern Medicine

Meticulous differentiation in terms of the taxonomy and nomenclature has been used in naming and/or identifying these two medical systems. These include *Allopathic Medicine* versus *Biomedicine* (Hahnemann 1810); *Professional* versus *Folk* (Kleinman 1978) and *Professional*

versus *Lay* (Herman 2001). Other current terms are *Western* versus *non-Western*; *Conventional* versus *Unconventional*, *Orthodox* versus *Unorthodox and Mainstream Medicine* versus *Complementary and Alternative Medicine* (CAM) and *Modern Medicine* (MM) versus *Traditional Medicine* (TM). This last term is preferred, as it highlights transformations with time, whereas some other names tend toward derogatory, despairing, abstraction, amusing and misleading, and/or Eurocentric euphemism.

Modern and traditional medical systems can be differentiated through various aspects, such as the *worldview* the care is based on (Leininger 1978, Barner & Wrubel 1989, Holland 1999, Helman 2001), the *focus of care* (Brink 1999, Kennedy 1999), *care orientations* (Illich 1976, Serkkola 1994, Miller 2000) and the *components of care* (Bevan 1998, Greenhalgh *et al.* 1998). Whilst modern therapies put emphasis on an individual sick person, traditional therapies instead encompass a broader spectrum, where an individual is only part of the entire cosmological wholeness and ancestral influence plays as integral part (Buhrman 1984: 94).

2.3.2 The Concept of Integrating Modern and Traditional Medicine

According to Lionis *et al.* (2009), the basic understanding of integration can be deduced as the focus on different systems rather than just one. This means all systems involved are recognised and valued, and all involved health providers must have trust among themselves. For example, in Greece and other countries, particularly the developing countries, there is severe scarcity of human resources in health care. In Tanzania, once TM practitioners are appropriately integrated in the medical system, timely provisions of needed health services can be ensured. All these can be achieved in the presence of an enabling environment. Akerele (1987) echoes this thought, saying, *"Traditional Medical Practitioners are important and influential members of the communities who should be associated with any move to develop health services"*.

The Concise Oxford School Dictionary (1997) defines the term *incorporate* as, "include as part" and *integrate* as "join together harmoniously to make parts into a whole". The title of this work suggests collaboration is a process towards integration. These are two relevant, connected steps. Firstly, including Traditional Medicine (TM) as part of the national medical system (incorporate) and secondly, letting all medical systems collaborate harmoniously (integrate) to make parts into a whole.

Furthermore, Frank (1973) notes that Modern Medicine (MM) has continued its emphasis on 'what' is wrong, therefore attempting to treat the symptoms, while downplaying the 'why' being in an ill situation a problem is also important to be addressed. The enabling environment for incorporating and integrating TM practitioners therefore can be elaborated well by looking at the institutional support to the systems as explained in Subparagraph 2.3.4

Integration in health care is inevitable due to increased differentiation and specialization in various existing systems and professions. Organizational theory shows that integrating different activities in different organisations is more difficult than integrating different departments within the same organisation (Weick 1979). Integration is even more challenging for different activities within different organisations in the different systems of traditional and modern health. For integration to happen, the coordination of the existing traditional hierarchy must be substituted by voluntary collaboration between organisations in the different systems. Although regarded as reality, as in all other organisations, different health facilities are abstract phenomena which can be regarded as cultural artefacts created by human interactions, institutionalised while their roles and authorities are legitimized in society (Poll 1991; Scott 1992).

In order to achieve a common goal of health improvement of humanity, it is important to accept the many differentiations in roles and tasks ranging from prevention, curative care, health promotion, education, rehabilitation, and so on in different health organisations. Therefore, there is a need to integrate their functions, structures and organisational cultures with their respective practitioners' attitude to attain unity of direction (Bate 2000).

Institutional economic theory, explains that inter organizational integration can be achieved through, management hierarchy (top – down), market competition (contractual relations) or networks of voluntary cooperation (Williamson 1975, Child and Faulkner 1998). Integration patterns of organisations can be categorized into two main dimensions; vertical and horizontal (Hvinden 1994, Axelsson 2002). While the vertical takes place within the organisations' departments or units at different levels of the hierarchy, the horizontal, integration takes place between organisations' departments or units on the same level of the hierarchy.

There are differences in emphasis on the different forms of integration as shown in the Axelsson & Axelsson (2006) scheme Figure 2.6.

		Horizontal Integration	
		-ve	+ve
Vertical Integration	+ve	*Coordination*	*Cooperation*
	-ve	*Contacting*	*Collaboration*

Figure 2.6: Scheme of different forms of integration
               Source: Axelsson & Axelsson (2006)

The Axelsson scheme of integration shows that for *contacting*, there is low level of both horizontal and vertical integration. It is a superficial form of integration where the organisations involved, with their different organisational structures, enter a contact of relational agreement (Saltman 1994). *Coordination* has a high degree of vertical integration but low degree of horizontal integration. This is the kind of integration where there is typically a common management hierarchy where decisions are made at the top for the lower levels to implement (Meyer 1985). *Cooperation* requires a high degree of both vertical and horizontal integration. Although decisions can be made at higher levels of the organisational structure, lower levels have the discretion to make adjustments, and there is viable communication among organisations involved (Mintzberg 1993). For *collaboration*, there is a high degree of horizontal integration, and low degree of vertical integration. Here most of the undertakings are carried out through voluntary agreement and mutual understanding among the organisations involved. This is the perfect scenario of intersectoral integration between modern and traditional medical systems, where there must be willingness for practitioners of the two systems to work together (Alter & Hage 1993).

2.3.3 Problem Statement on Tanzanian Traditional Medicine (TM)

Practical gaps of the Tanzanian health sector reform
Much has been researched, discussed and written in Tanzania and globally as a sign of commitment to sustained, purposeful change to improve efficiency, equity and effectiveness

through the Health Sector Reform (HSR 1993) with a special emphasis on increasing participation of the private system. This can be witnessed in a number of sources, including: World Bank (1993), Berman & Bossert (2000), Frenk (1994), Chabot *et al.* (1995), Gilshon *et al.* (1994), Gene (1987), McPake (1994), Kagodya & Mchomvu (1996), and WHO (1998). In Tanzania the same pledge is echoed in the *Tanzania Development Vision 2025* (United Republic of Tanzania 1998: 10-11), as well as in the *Health Sector Strategic Plan (July 2009 - June 2015).* However, despite all the strategies and objectives objectives of health sector reform formulated in all policy levels as narrated by Berman (Ed.) (1995), be it *systemic* for equity; *programmatic* for allocative efficiency; *organisational* for technical efficiency or *instrumental* for institutional intelligence and performance enhancement, the implicit focus in the writings, discussions and activities have mainly been on the modern medical system (public and private).

To sum up, there is a discrepancy between the ideals enshrined in the Health Sector Reform (1993) proclamation and the realities for the promotion of active participation of and collaboration with traditional medical practitioners in the Tanzanian medical system, despite the existence of the Tanzanian Act no. 23 of 2002 which governs traditional and alternative medicine practices (United Republic of Tanzania 2011). The programmes, institutions, actors and policies of Health Sector Reform (1993) have neglected to enforce of this law, and collaboration within the medical system includes the visible but disserted indigenous or traditional medical system. This system encompasses those medicines, therapies and other health services which are not based on the same principles as conventional (allopathic) modern medicine, but have significant effects (both positive and negative) to people's health as they are utilised openly or secretly by people of all demographic profiles, and beliefs both in the rural and urban settings.

Traditional Medical system Identification and Common Characteristics
Although neither terminology nor concept has ever stood without criticism, in this study, the names, *traditional medicine practitioners* and *traditional medical practitioners* have been used frequently. However, some writers contend that the term *traditional medicine* may be misleading as it polarizes the system into a narrow corner of pharmacology, leaving health workers such as spiritualists and fortune-tellers, who hardly employ medicine but have substantial impact on the well-being of their clients spiritually, psychologically and even physically physically (*cf.* Van der Velden *et al*. 1995: 360).. Furthermore, there is not such a simple homogenous body of medical theory and practice, which can be put together under such name, second, it is naive to suggest 'Western medicine' is not traditional for now biomedicine cannot be considered outside the realm of the traditional culture in time.

Although Complementary and Alternative Medicine (CAM) is sometimes confused and used to denote Traditional Medicine (TM), the two are quite different. CAM defines other medicaments and health services and procedures originated outside a certain culture. *Alternative* is a prejudiced term, alluding to the role of a spare. The name *complementary medicine* harmonizes the two systems of medicine, but does not distinguish the one from the other. On the other hand, the term *informal medical system*, as accepted by the International Labour Organisation, (ILO) has also been used to denote unregistered people working as sanitary workers, funeral undertakers, herbalists, birth attendants, midwives, fortune tellers, drug vendors, circumcisers, 'spiritualist' healers, transcendental meditators, acupuncturists, homoeopathists, phytotherapists, iridologists and so on.

The following paraphrased ILO (2000), definition of informal sector, offers insight into to various elements and common characteristics of the informal medical system: "*They are small*

scale units and individuals producing and or distributing therapies and health related services which consist largely of independent, self-employment or community volunteering. In most cases the art of practicing is considered to be ascribed by God or family given and not achieved. Some of its practitioners employ family labour and rarely hired worker operating with little capital or none at all. They utilize low level of modern technology and skills; therefore operating at low levels of productivity. For those who consider it as the sole means of employment for income, they generally provide low and irregular income. They are generally, less supported by government but recognised and held high in their community and so much attached to the culture and lifestyle of the people in their vicinity. They are unregistered or unrecorded in official statistics; they tend to have no access to organised markets, to credit institutions, to formal education and training institutions and less regulated by the government". Following this definition, the term *informal medical system* is provocative and leads policy makers to think strategically and plan for appropriate actions to strengthen, change or get away with any practice which impedes traditional medicine in the overall health sector reform process towards a functioning efficient medical system.

Present status of traditional medicine (TM)
The major problem facing traditional medicine in Tanzania is its low status and assumed poor performance, in particular among government circles, characterized with less support and an enabling environment, as transpires through the following:

-   There is weak institutional support to formulate and institute a stable mechanism which promotes integration and synergic collaboration between traditional and modern medical practitioners. For example, signposts at hospital entrances with inscriptions, such as: *"No traditional medicines are allowed inside the wards"* are rather blind strategies to curb supposed health malpractices;

-   Although mentioned clearly in the *Public/Private Mix Strategy* of the Health Sector Reform (1993): *"There is a need to put a system will facilitate the promotion of traditional medicine at district, region and central level"* there are no specific activities and tangible indicators laid down for a comprehensive sectoral institutional support, nor capacity development for the providers of Traditional Medicine (TM);

-   Furthermore, the Tanzanian Act No. 23 (2002) governing traditional, alternative medicines and practices have not been enforced accordingly. For example, until today, no functional councils are in place at the regional and district levels;

-   Whilst it is spoken of as a crucial system, the present resource allocation for medical system, only takes care of the formal system, namely for modern drugs, rehabilitation of health facilities, Primary Health Care (PHC), modern medical research, administration and Health Information Systems (*cf. The Tanzanian Funds Requirements and Proposed Allocation for Health Sector of the Rolling Plan and Forward Budget for the years 1999/2000 – 2001/2002,* pp. 22);

-   Despite of their unique potential for both the public and private formal systems, such as being independent, being without much problems of inability to recover costs, commitment to the whole individual (physiologically, pharmacologically, psychologically, pathologically socially, and spiritually), spending more time with a patient, providing more sense of touch

and socialisation, some traditional medical practices continue to be faced with various challenges of quality and rationality.

Figure 2.7   A traditional medicine vendor displaying her products in Shirati, Mara.
            Source: Fieldwork (2009)

- Some of those evident practices are Female Genital Mutilation (FGM), children teeth mutilation, uvulectomy and other ill practices by opportunistic 'non ethical' practitioners found also in the formal health sector. There is still substantial documentation about Female Genital Mutilation (FGM) practices as part of the general most common reproductive health problem in the world today, excluding not Tanzania. Retzlaff (1999) explains that Female Genital Mutilation (FGM) in different forms is practiced today in at least 28 countries in Central and North Africa. Some communities in the Arab Peninsula, Malaysia and Indonesia also practice Female Genital Mutilation (FGM). Lefeber & Voorhoeve (1998) also show that Female Genital Mutilation (FGM)) as part of the initiation rite is practiced in a great area of East Africa and West Africa (Kenya, Somalia, Sudan, Togo, Ivory Coast, Mali, Central African Republic). The practice is observed among Muslims, Christians and believers of African traditional religions alike and is common to both uneducated and educated groups with differing socio-cultural significances.

    As most Female Genital Mutilation (FGM) has been left to be considered in the realms of criminology: *'bring the perpetrators to justice'.* While this kind of intervention cannot be overruled, the continuation of female circumcision today signifies failure of a blunt

prohibition of the practice through political propaganda and judicial threats. It is still imperative to consider Female Genital Mutilation (FGM) as a gender and socio-cultural issue. As Hardon (1998) notes, the implementation of reproductive health care today requires a revolution by health planners and providers to adapt integrated services shaped to specific needs of diverse clients in different settings. In the contemporary society, in addition to the physical and mental suffering of women undergoing this traumatic traditional operation, there is the psychological and spiritual burden of some 'uninitiated' women living in fear and the social exclusion of not to belong to the communities. It is also sensible to consider other positive aspects of the overall initiation ceremony, such as sexual and parenthood health education and the socio-recognition of the rites of passage. In order to understand the notion of reproductive health and the reasons for Female Genital Mutilation (FGM) in people's view is essential for any appropriate form of health education and planned intervention. For this reason, this study envisages to identify acceptable alternative 'initiations' and long-lasting solutions on sexual and reproductive rights of women, rather than just condemning the practice and search for female genital mutilators.

Unfortunately, still some of them have continued the practice in secrecy in cooperation with parents and in an even more risky manner, as in the following painful reported case in one of the Tanzanian local newspaper as reported by Susuma from Dodoma in a local Newspaper *Komesha,* on Suturday, 04 July, 2001. It was reported that, an innocent student girl of standard six Tatu Chibago (14), bled to death on June 22, 2001 in Uhelela village of Dodoma rural, when the operation has been forcefully and crudely conducted around midnight. The reporter explicitly explains the alluded circumciser in a person of Jemina Hoya Komite (imported) from Singida region, had to be paid extra money (about € 1.36 on top of the operation fee of about € 2.4) as a compensation penalty for not finishing with the normal initiation ceremony. All this has been done this way for fear of punishment under the rule of law. Thanks to the neighbours who reported their suspicion to the village authorities as the body was been about to be buried secretly in a tomb dug in the night by the bereaved unit family, uncommon practice in most of the communities in Tanzania.

- Notwithstanding, quackery found in both medical systems (modern and traditional), it is notable mentioning, any system in place ought to be effective in identifying and dealing with quacks without delay. Presently, there is inadequacy of standard references to the definitions of quackery is wrongly focusing only on pretence leaving the promotion for profit all those medical schemes and related services known to be false.

- There is no strong unified national or regional Indigenous Information System for both medicinal plants and disease classification and Ethnobotanical Knowledge System networking**.** The present Tanzanian Health Management Information System (MTUHA) does not include data about traditional healers and their contribution to health care. As a result, lack of supporting data from this system has undermined efforts to show the public and interested partners its real role in health and health related issues.

- There is lack of proper representation, participation and appreciation of indigenous health providers in planning, decision - making and overall managing health services especially from the District to the National level. This is with exception of trained traditional birth attendants and village health workers in the Primary Health Care (PHC) strategy who too despite of their essential contribution, most communities are not able/ willing to pay them

as it has been noted in as a weakness of PHC in the Tanzanian 1994 for Health Sector Reform proposal.

- For many years traditional medicaments could be obtained relatively easily from specific spices of medicinal plants and animal products within the vicinity. A constant extraction (without preservation measures) of these resources has now categorized most of them as 'endangered rare species. These *'nature on the run'* are also results of environmental and habitat degradation and increasing use of natural land for agricultural and other human uses. According to Wildlife trade monitoring programme (TRAFFIC) of World Wide Fund (WWF) for nature conservation union-Eastern/Southern Africa news over 100 key species of plants and 29 species of animals have become scarce. An example of the most threatened type of vegetation in Tanzania is the coastal forests of Zanzibar Inhambane regional Mozaic. Some medicinal plants in East Africa are also reported under TRAFFIC network to be scarce due to excessive exploitation. Such traditional medicines include: *Ehretia amoena* root and leaf (treating viral infections, sores and intestinal parasites); *Acalypha fruticosa* root, stem and bark (treating sores, rashes toothache); *Acacia mellifera* barks (treating stomach ache, malaria, syphilis); *Cadaba farinose* roots (treating bilharzia) (Kahatano, 1997, Mbuya *et al*., 1994, Ross, 1979). In spite of all, the point of departure for this study and necessary actions to improve the status and services offered by traditional medical practitioners cannot be overemphasized because there is substantial weight of good and efficacious services beyond the mere assumptions of popular opinions and arrogance of orthodox medicine (Fugersons 1995). Their services continue to be offered to complement the inadequacy of both public and private modern medical system. This inadequacy could be in terms of resources or even failure of the orthodox medicine to deliver the goods. The Tanzanian Health Reform Proposal of 1994 has documented that about 40% of total deliveries in the country were attended by traditional birth attendants. This shows that out of the three systems it must be ranked either the 2nd or the 1st if Private and Public modern systems serve 30% each. Further, as documented by Mhame (2000), The National average ratio of traditional medical practitioners to population is 1: 400 while of medical doctors to population is 1: 23,454.

The opposite, however is also true, there are a number of people being maltreated, affected or whose deaths are total or partial the result of malpractices of some members of traditional medical system. For example the Adult Morbidity and Mortality Project of the Ministry of Health and Social Welfare (MoHSW) in three districts manifests health services used in the period of July 1997 – June 1998 leading to death, as represented in Table 2.4.

Table 2.4 Adult Morbidity and Mortality in Three Cities

Service/Place	Dar es salaam	Morogoro	Hai	Total	Average Total
Government	65	53	48	166	55.3
Private/ Voluntary	30	10	42	82	27.3
Traditional	10	42	2	54	18
Self	5	10	35	50	16.7

Key.   The values are % of deaths of those who used the service in question.

Source: Tanzania, *Health Statistics Abstract 2000. Vol. I,* Ministry of Health and Social Welfare (MoHSW).

Although no simple deductions on quality of service can be made from the above data, this however provides a clue of significant weight on traditional health service utilisation by the population. It is not a surprise to learn such services do also contribute to people's lives and deaths though no record is often provided in the Health Management Information System (HMIS), abbreviated in Swahili as *MTUHA*. At the *Nyerere Designated District Hospital,* where the researcher has worked, it is not uncommon to admit children who are severely anaemic and in coma, after a long health care by traditional healers. The parents will then be trying to consult the modern medical system, as the last resort. In this case the government and private hospitals death rates (highest rates seen in paediatric wards) are connected to the quality of services offered earlier by fellow indigenous healers found in The modern medical practitioners usually lack important information of earlier traditional medication history of their patients. Often, the parents will not reveal the type nor the details of preceded health care services obtained from the healers. Dubbing those parents as liars for concealing information is unjust for usually it is due to the fear of foreseeable experience of intimidation, mockery and sometimes denouncing remarks as a response from the health workers.

Notwithstanding, it should be marked rationalization of inappropriateness does not guarantee quality services for while on one end others will romanticize traditional health, the opposite camp takes a blanket opposition on anything is not biomedical. Incorporating traditional health services in the national health policy, plans and activities becomes a firm step to get away with extreme helpless attitudes.

2.3.4 Institutional Support for Traditional Medicine

Institutional support for Traditional Medicine (TM) refers to an organised system for support and assistance through a wide range of organisations, associations and agencies, as well as education institutions, the development of an indigenous database, and biodiversity networking. An overarching goal of institutional support is to improve the *status* of the marginalised Traditional Medicine (TM) system and ensure its active *participation* in health care. The two concepts are further elaborated below.

Status
Denoting development of an enhancing legal framework, registration and increased public recognition. Apparently, it does include a need for religious bodies (especially the Christian church as an agent of positive changes in the area) to seriously embark on contextualization of African Christianity or what Stott (1999) calls the *'naturalisation of the gospel'* and thence advocating '*cultural transposition'* to respect traditional medical practitioners and their positive contribution to health improvement to our nation.

Participation
Referring to Stiefel & Wolfe (1994) definition, participation is: *'the organisation of efforts to increase control over resources and the regulative institutions in a given social institutions, or the part of groups and movements of those hitherto excluded from such control'*. Participation therefore may entail encounters between the traditional medical system and those elements in the society, which maintain or reinforce exclusion. Levels of participation to be considered range from a sheer provision of information and viewpoints to health planers to fully involvement in planning, implementation, control and evaluation of health care policies, strategies and resources (finances, human, physical and information) for the community. It

should be noted that there are some (constructed) barriers hinders integration especially between biomedical health personnel and traditional healers.

Courtright *et al.* (2000) affirm that existing collaborative programmes in Malawi, Zimbabwe and Nepal suggest healers can be a positive force for community-based health. The writers point out a number of the barriers, including some with which this study concurs. One such barrier is biomedical personnel apprehension in working with traditional health practitioners, fearing this will legitimise improper health practices. The opposite is also true, and traditional health practitioners may fear that their knowledge will be discarded by Modern Medicine (MM) practitioners. Government and non-government officials usually have little or no knowledge of the actual practices (and impact) of traditional healers. However, the notion that a natural competition for patients can be sighted as a barrier towards collaboration is contentious. This may be more of a perception than a reality, however, as there is more competition among biomedical and even among the so-called para-medical practitioners themselves, which is not considered a problem. However, the notion that a natural competition for patients can be sighted as a barrier towards collaboration is contentious. This may be more of a perception than a reality, as there is more competition among biomedical and even among the so-called para-medical practitioners themselves and yet never considered as barriers.

In short, when two or more systems of health care provision are integrated, it does not necessary mean that all of them has got to operate in the same way and in the same venue, say parading all herbalists in a hospital and force them to be dispensing their herbs instantly from a medical store.

The World Health Organization (WHO 1978) call for cooperation between the two systems has been accepted by some policy makers and medical practitioners. However, Warren *et al.* (1982); Pritech (1991) and Van der Geest (1995) have expressed some general dissatisfaction with the way in which the traditional healers have been treated, as follows:

- there has been uneven co-operation (indigenous medical practitioners are considered inferior);

- projects were geared towards retraining traditional healers so they could find employment in biomedical services;

- those healers were only appreciated because they were respected in the communities and not because of any valuable contribution to people's health.

Therefore, effective integration requires some common shared grounds, such as mutual cooperation, trust, respect, recognition and active participation of traditional health service providers after they have been incorporated pragmatically in the existing reforms.

2.4 Collaboration of Medical Practitioners

2.4.1 Collaboration Defined

Historically, early collaborative network were seen on long distant barter trade business dealing between one Kingdom and the other. Later, the term *collaboration* has also been used in a pejorative sense to denote an act of being a 'traitor' since World War II. Collaboration has been known to be behaviour of some individuals and or groups who crossed the line to help a foreign occupier such as of those of the Nazi Germany against their European countries. In this view, a

new differentiated nomenclature of *collaborationism* as defined in the fourth edition of the American Heritage Dictionary of the English Language has been introduced later to differentiate it from the art of more or less equal partners working together towards a shared goal.

The Business Dictionary (WebFinance-Inc. 2010) defines collaboration as*: 'a cooperative arrangement in two or more parties (may or may not have any previous relationship) work jointly towards a common goal'* (13). Collaboration is a key tenet of knowledge management. As organizational and management specialists, Prahalad & Ramaswamy (2001) elaborate, opposing collaboration nowadays is against quality or maybe even profitability. Managers accept they need to collaborate with partners, suppliers, clients, competitors etc. Graham & Barters (1999) in their review of multidisciplinary literature in management and administration, sociology, social work, education, and psychology define collaboration in four dynamic relational properties: it is a relationship of two or more stakeholders, a relationship to link stakeholders, it forms synergies, and finally, the relationship exists in a bounded structure within the system.

Gray (1989) defines collaboration as: *'the process through parties who see different aspects of a problem can explore constructively their differences and search for solutions go beyond their own limited vision of what is possible'*. Referring to the area of negotiations, collaboration is a conflict resolution strategy uses both assertiveness and cooperation to seek solutions advantageous to all parties. It succeeds usually where the participants' goals are compatible.

Other authors, such as Kanter (1994); Rickkets (1995); Lasker *et al*. (1997) and Mayo (1997) describe collaboration as a process which enables different individuals and organisations to combine their human and material resources so that they can accomplish objectives which they are unable to do alone.

Within the subject of organizational and community change, Bruner (1991) defines collaboration as a process to reach goals which cannot be achieved by one single agent, and which includes the following components:

- jointly developing and agreeing on a set of common goals and directions;

- sharing responsibility for obtaining those goals; and

- working together to achieve goals by use of expertise and resources of each collaborator.

In order to attain the objectives of offering quality and accessible health services, collaboration between the tradition and modern medical systems is inevitable. In health care services, both functional and structural differentiation are outcomes of the environmental complexities which include among others, the needs of the patients, professional ethics, regulatory framework, type of health problem and so on. In general, these concepts link up with the contingency theory which seeks to provide principles of management within a specific situation (*cf.* Lawrence & Lorsch 1967).

As a result, as Ovretveit (1993) notes, that fragmentation of responsibility emerges to respond to the different structures and functions. A need for integration and involvement of different systems becomes evident to address problems of fragmentation, which include inconsistencies, duplication of work, undone work and work interruptions (*cf.* Glendinning 2003).

The willingness to integrate eventually gives rise to the extent of collaboration among the systems involved as shown in Figure 2.8 representing the causal relationships leading to the intersectoral collaboration diagram.
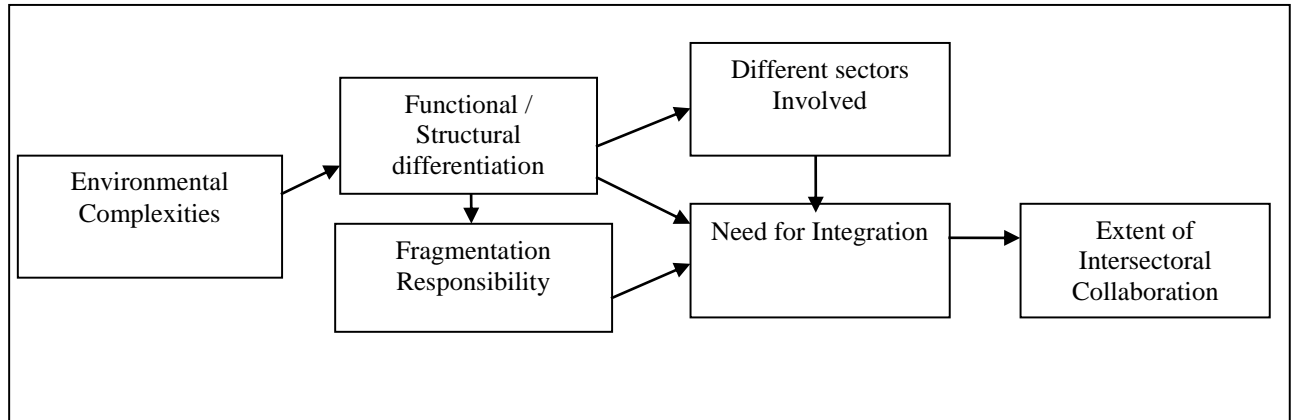
Figure 2.8   Causal Relationships Leading to Intersectoral Collaboration
            Source: Theoretical Framework Adopted From Axelsson & Exelsson (2006).

2.4.2 Collaboration as a Behavioural Influenced Action

Among the social psychological theories of voluntary behaviours is the Theory of Reasoned Action (TRA) developed by Ajzen & Fishbein (1980; 2010). The basic assumption in this theory is that most behaviours of social relevance are done on wilful control of the individual and the person has to have a positive attitude towards the behaviour to be undertaken. It explicates one's intention to certain behaviour due to one's attitude towards the behaviour and the general subjective norms of the society motivated by one's *significant others.* Placing it into perspective, this theory can be used to explain a health care practitioner would want to collaborate with another practitioner of the other system if he or she believes (has got attitude) interprofessional collaborative behaviour leads into positive or beneficial results (behavioural belief) and most of his/her reference group accepts or favours such kind of collaborative behaviour (normative belief).

In a different approach in a more detailed manner, Fogg (2003), in his Behaviour Model narrates for a target *Behaviour (B)* to take place, the person must have sufficient *Motivation (M),* sufficient *Ability/Simplicity (A)* and effective *Triggers (T),* expressed as**:** *B = MAT.* Following Fogg (2003), one can determine whether a modern medical practitioner will have more possibilities of collaborating or not collaborating with a traditional medical practitioner and vice versa if he/she is sufficiently *motivated*, perceives to have the ability to do so while there are effective *triggers* which reminds him/her to collaborate.

On *Motivation (M),* the practitioner should evaluate the pleasure and/or pains to be experienced upon collaboration or non collaboration, and assess hope and/or fear as the result of collaboration. Lastly but more important, the practitioner asks him/herself whether by collaboration with practitioners of the other system, he/she is more or less accepted or socially rejected in the society or in accordance with their organisational culture. On the *Ability (A),* the practitioner's scarce resources such as financial, material, time, workspace, skills etc. will be weighed in relation to the decision to collaborate. On *Triggers (T),* more possibilities to

collaborate by the practitioner, should be seen when there exists more available reminders and calls for actions towards collaboration, be it through the government notices, campaigns, policies and promotions by the ministry or through the society at large.

In a wider theoretical framework, collaboration refers to a behavioural act which can be investigated by measurement of the influence of people's knowledge, beliefs and practices of a particular type of collaborative behaviour. The *knowledge-belief-practice complex* has been used extensively as a framework for the interaction behaviour model by various researchers in different evidence-based scientific inquiries with the transcultural setting of developing countries, such as by Slikkerveer (1990; 1995), Agung (2005), Ibui (2007), Leurs (2010), Djen Amar (2010), and Ambaretnani (2012).

Since the consideration of the *knowledge-belief-practice complex* refers to all-inclusive factors in human behaviour, the analysis of this study is also based on this framework in order to adapt the analytical model by the authors mentioned above, and construct the research questionnaire for the collection of data of this study by investigating both the traditional and modern medical practitioners' knowledge, beliefs and their practices underlying their level of collaborative patterns of behaviours.

2.4.3 Studies of Interprofessional Collaboration and Notable Gaps

Gray & Wood (1991) present an insightful work entitled: *'Collaborative Alliances: Moving from Practice to Theory'*, and to date there is no single theoretical perspective which provides for an adequate foundation for the general theory of collaboration. Leading researchers have written on theories of collaboration and related concepts such as *network, coordination, cooperation* and *integration,* mostly in the following areas:

Technology e.g. in IT social networking;

Project Management e.g. in Military mission where different commands combined efforts for a common course;

Academia e.g. when interdisciplinary Colleges, Staff and Students with different expertise or area of specializations work together;

Art Work e.g. when a Musical Album has been produced by different Artists jointly;

Business Venture e.g. when a spare part manufacturing company is cooperating with a car assembly plant;

Health Service Delivery e.g. when two or more modern health cadres (*e.g.* Nurses) decide to work together with the others, *e.g.* surgeons.

There are some documented studies and results on the topic of interprofessional collaboration in health care, including Scanzoni (1979); Coluccio & Maguire. (1983); Baggs (1994); Bogden *et al.* (1997; 1998); Leape *et al*. (1999); McDonough & Doucette. (2001); Boudreau *et al*. (2002); Borenstein *et al*. (2003); Hammond *et al.* (2003); McDonough *et al*. (2004); Zillich *et al*. (2004); and Doucette *et al*. (2005).

However, such studies are still few and not spread over all health-related disciplines, and even more so is the literature on interprofessional collaboration between practitioners of traditional and modern medical systems rather limited. By use of the MESH Medline (PubMed) systematic search, 261 general hits have been found, out of which only 9 are specifically dealing with interprofessional collaboration between traditional and modern medical practitioners, and mainly regarding the care of HIV/AIDS. The majority falls into the area of education, training and research, followed by the incorporation of spiritual services in health facilities. Most studies on interprofessional collaboration, however, involve collaboration between physicians and nurses, and pharmacists and complementary and alternative medical practitioners.

A study with a *Hermeneutic Phenomenology* analysis, such as conducted by Grace & Higgs (2010) in Integrative Medicine Clinics in Austria is one of the very few examples of a study of interprofessional collaboration in a medical pluralistic configuration. However, However, while it provides insight into different styles of practice in terms of power sharing and roles between general practitioners and practitioners of Complementary and Alternative Medicine (CAM), the study does not show factors which contribute or interact in collaboration or non-collaboration among different practitioners. Therefore, with the existing research results and literature on interprofessional collaboration in health, mainly within the modern medical system, it is evident that there are certain gaps, such as the lack of unified conceptual frameworks and theories as well as the narrow inclusiveness of few professionals, mainly nurses, physicians, pharmacists and chaplains. The researcher observes that in some cases the operationalisation of factors of collaboration is weak. The observation is made in the work of Doucette *et al.* (2005), in which, *professional interaction (context characteristics)* and *relationship initiation (exchange characteristics)* are all taken as independent variables, while they are actually part of the dependent variable (*collaborative behaviour*) as they are output responses of questions which show how practitioners in two cadres - pharmacists and physicians - had worked together in a process of providing services to patients.

2.4.4 Interprofessional Collaboration Stages and Management

As differentiation is inevitable in organisations, the achievement of suitable optimal integration is necessary. Lawrence and Lorsch (1967) affirm that the most important assignment of any management is to achieve differentiation and integration to match all available external and internal environments surrounding the organisation in an open system. Collaboration as a process does not happen naturally all at once, but is rather purposefully achieved through four stages (Daft, 1999). The first stage is *forming* where practitioners ready to work together and exchange resources (collaborate) are identified and allowed to be in contact. Secondly, *storming* appears where conflicts arise due to differences in values and organisational structures among the practitioners. *Norming* is the third stage, in which the different groups build trust, settle disagreements and formulate common corporate goals and a team culture, and embed values and standards. In the last stage of *performing,* the groups start working jointly and exchange resources to achieve common goals.

When two or more professionals try to collaborate there seem to be some barriers which derail the process. These barriers can be due to differences in administration styles, structures and boundaries, differences in regulatory and procedural frameworks, and/or differences in cultural values and interests (*cf.* Van Raak *et al*. 1999; Glendinning 2003; Vangen & Huxham 2003). Different skills and actions are necessary for nurturing or managing interprofessional collaboration in relation to the four mentioned stages, as follows.

In the *forming* stage, great effort goes into facilitating contact through increased communication links, while in *storming* stage, multidisciplinary conflict management and resolution is needed. There must be high sensitivity of the different values, the building of social capital and carrying necessary negotiations across the isles to pass through the *storming* stage. In the *norming* stage, leaders must emphasise team work, while maintaining mutual trust among the practitioners of the different systems. A Memorandum of Understanding or regulations and joint plans may be drawn at this stage. It is evident that mutual trust is one of the most important factors in any type of collaboration (Ring 1997; Child & Faulkner 1998, Exelsson & Exelsson (2006).

Leaders have to ensure an equal distribution of power, a just reward system and open, effective communication among the actors. In the *performing* stage, the leaders continue to motivate practitioners to continue respecting and trusting each other while exploring their fullest potential to increase productivity and quality health service delivery. A working mechanism of feedback and continuous quality controlling is necessary to keep effective collaboration for achievement of goals.
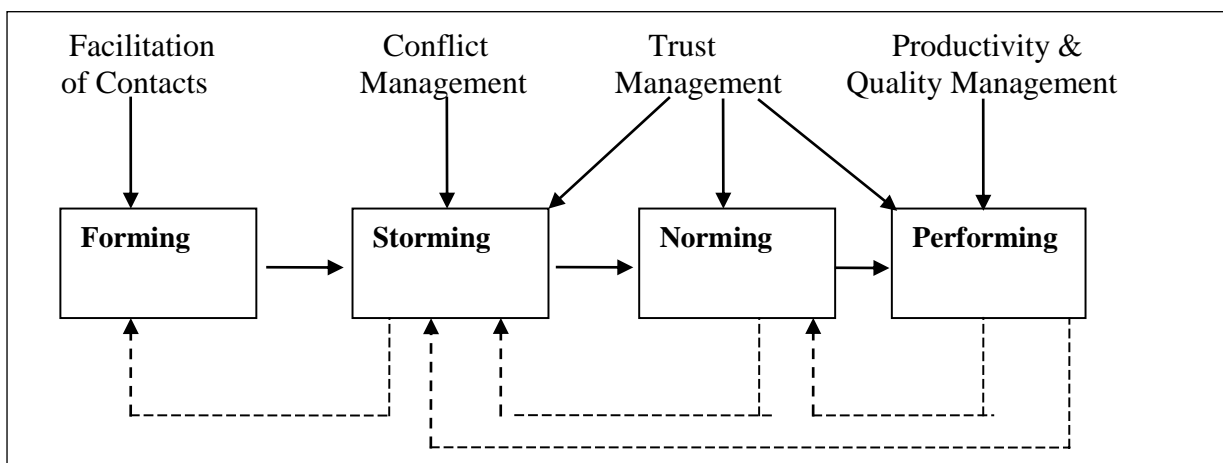
Figure 2.9   Stages and management focus on interprofessional collaboration
            Source: Adapted from Axelsson & Axelsson (2006).

 At times things do not go as planned, therefore a backward step may be necessary as shown with the dotted lines in Figure 2.9, depicting stages and management's focus in the process of interprofessional collaboration.

2.4.5 Conceptualisation of the Theoretical Model

Creating a good environment for successful collaboration has never been easy, as there are challenges associated with any collaborative strategies. Despite the best intentions, attempts to collaborate often fail or are blocked due to different barriers such as *time, trust and turf,* as further expounded by Dotterich (2006).

From a wider view, Dotterich (2006) regards collaboration as a step along a continuum of strategies towards integration with different components and situations. Collaborative efforts take *time* to develop, and *turf* issues surface when an imbalance of benefits occurs, perceived or real, for example, when partners do not see each other as equal in terms of decision making, when observing benefits of collaboration, when there is lack of *trust*.

Trust can be influenced by prior or current troubled working relationships, by lack of understanding on how agencies or disciplines operate, or by personal factors, such as personality or the temperament of an agency representative.

The explanation of strategies is represented in Figure 2.10, showing the collaboration continuum which highlights the following:

- *Networking*: Exchanging information for mutual benefit. This is easy to do; it requires low initial level of trust, limited time availability and no sharing of turf;
- *Coordinating*: Exchanging information and altering program activities for mutual benefit and to achieve a common purpose. It requires more organizational involvement than networking, a higher level of trust and some access to another's turf;

- *Cooperating:* Exchanging information, altering activities and sharing resources for mutual benefits and to achieve a common purpose. Increased organisational commitment, may involve written agreements, shared resources can involve human, financial and technical contributions. It needs a substantial amount of time, a high level of trust and significant sharing of turf.

- *Collaborating:* Exchanging information, altering activities, sharing resources and enhancing each other's capacity for mutual benefit and to achieve a common goal. The qualitative difference to cooperating is that organisations and individuals are willing to learn from each other to become better at what they do. Collaborating means organisations share risks, responsibilities and rewards. It requires a substantial time commitment, very high level of trust, and sharing turf;

- *Integrating*: Completely merging two organisations in regards to client operations as well as administrative structure.
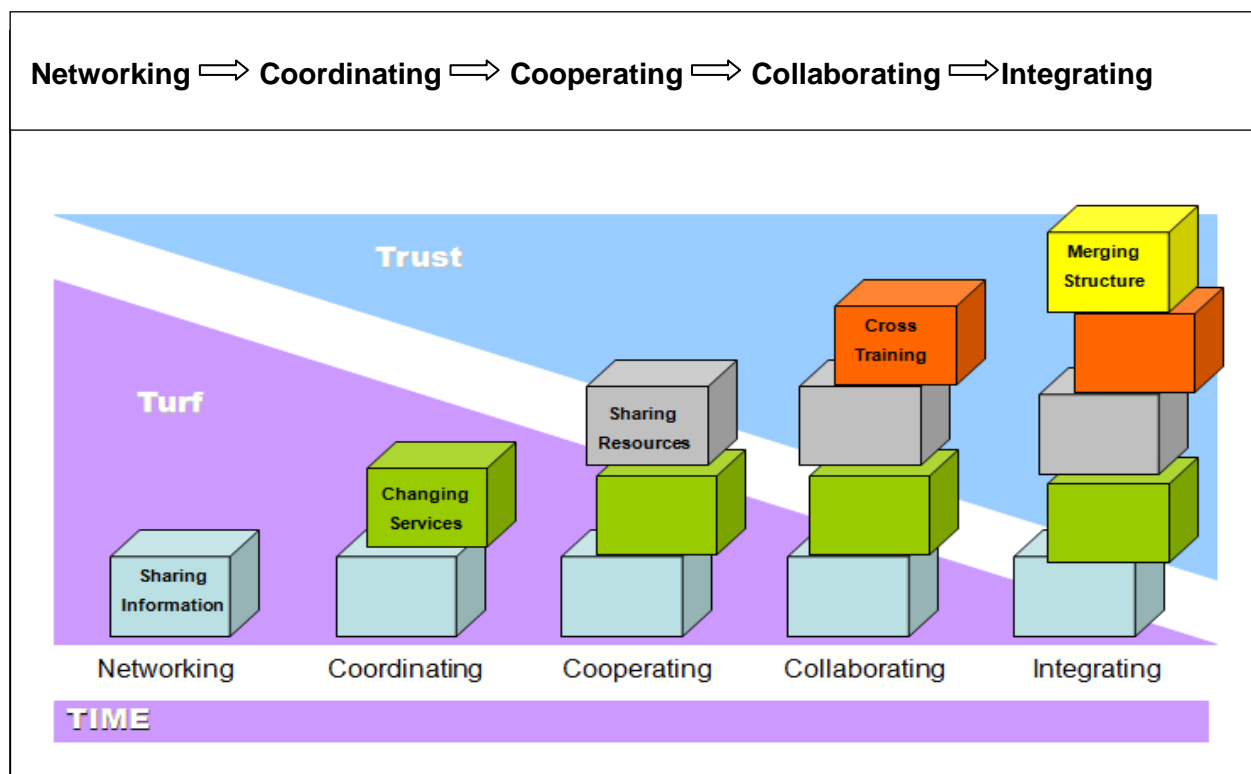
Figure 2.10   Illustration showing the stages of integration, their components and situation.
Source: Dotterich (2006).

It is important to understand that each of these strategies can be appropriate for particular circumstances. Support from all levels of an organisation and in all kinds of communication from the bottom up and vice versa must be available for collaborative efforts to be successful in facilitating change.

Similarly, according to the Centre for Advancement of Collaborative Strategies in Health (2003), interprofessional collaborations as part of synergy formation has two components as independent factors: a) the sharing of resources and b) working together under some sort of common management for a customer.

The theoretical point of embarkation for this research is that interprofessional collaboration is an interactive behavioural action of human beings influenced both at the individual and institutional level. The subsequent review of the theory of reasoned behaviour (Ajzen & Fishbein 1980); the conceptual scheme on stages of integration (Dotterich 2006); the causal relationship leading into interprofessional collaboration (Axelsson & Exelsson 2006); the Behavioural Model of Fog (2003) leads to the operationalisation of the interactive behavioural model based on the *knowledge-beliefs-practices* complex, as developed by Kohn & White (1976), Cox & Claus (1984), and further elaborated for the transcultural perspective in plural medical configurations by Slikkerveer (1990; 1996), later adapted by Agung (2005), Ibui (2007), Leurs (2010), Djen Amar (2010), and Ambaretnani (2012). By adding the concept of *trustworthiness* as a separate variable (Doucette *et al.* 2005), the selected conceptual framework of interprofessional collaboration between traditional and modern medical practitioners for this study is based on the relationship and interaction among various categories or blocks of factors. These factors include the independent factors such as the socio-demographic and psycho-social factors, enabling factors, factors of trustworthiness and organisational factors, the intervening factors and dependent factors of interprofessional collaboration between the traditional and modern medical practitioners in the Mara Region. The related analytical model and its components are further elaborated in Chapter III.

Notes

1. From a Master's course term paper presented at the Institute of Social Studies, entitled *The Social Effect of Structural Adjustment Programme*: *Gender Dimensions*. The Hague, January 2000.
2. The earliest records are found in Babylon circa 1770 BC in Hammurabi and in Egypt circa 1550 BC as stated by Connie Veilleux and Steven R. King in '*An introduction to Ethnobotany*' (1996) http://www.accessexcellence.org/RC/Ethnobotany/page2.php surfed on March 31st, 2013
3. As reported by Stephen Martin facilitator and editor at: http://web.uct.ac.za/depts/ricsa/commiss/goscult/gosplcul.htm surfed on February 2nd, 2013.

CHAPTER III RESEARCH METHODOLOGY AND ANALYTICAL MODEL

3.1 Research Methodological Approach

This chapter begins by explaining the basic concepts of the Leiden Ethnosystems Approach, which provides an interdisciplinary non-normative framework which allows for comparison and synthesis of different variables interacting in a particular setting of study. The three basic concepts underlying the Leiden Ethnosystems Approach include the *Participant's View* (PV), the *Field of Ethnological Study* (FES) and the *Historical Dimension* (HD), which are elaborated on in the context of interprofessional collaboration in health care between traditional and modern medical practitioners (*cf*. Slikkerveer 1995).

As an exploratory and explanatory study, it does not test a hypothesis. The major research questions under investigation are distinctly mentioned in this chapter. Moreover, the chapter explains the methodology and sources of data for analysis in this study, including the selection of the study sample, research planning and piloting, research design and the methodology employed.

The analytical model is operationalised into seven blocks of variables, adapter to analyse interprofessional collaborative patterns of behaviours of different medical practitioners. The independent variables are: *socio-demographic, psycho-social, enabling, trustworthiness, organisational* and *intervening variables*. Dependent variables are: *collaborative behavioural patterns of exchange of resources and of working jointly for clients*, as, reported by traditional and modern medical practitioners. Through a process of linking concepts into measurable phenomena, a structured questionnaire is formulated through a deduced process of steps from *concepts* to *variables* to *indicators* to *categories*, adapted from Kohn & White (1976) and Slikkerveer (1990).

Finally, the chapter highlights the selected stepwise statistical analyses performed in this study, including the bivariate analysis, the multivariate analysis (OVERALS) and the multiple regression analysis of data, leading up to the ultimate model presented in Chapter VII.

3.1.1 The Leiden Ethnosystems Approach

This scientific inquiry is carried out under the *Leiden Ethnosystems Approach*. This methodological approach is rooted in the classical school of ethnoscience as pioneered by Conklin (1957), Goodenough (1956), Garfinkel (1964), Cicourel (1967), and later, in the 1970s, adapted and refined to analyse and explain various complicated data of indigenous knowledge and practice by Slikkerveer (1982; 1990; 1999).

Since then, within the Leiden Ethnosystems and Development (LEAD) programme of Leiden University, this particular methodological approach has widely been employed throughout the world in policy-based research in numerous fields of Indigenous Knowledge Systems (IKS)-related studies, such as in health care utilisation, agriculture, wildlife management, bio-cultural diversity conservation, development economics, and integrated microfinance management. It has been used to document and analyse Indigenous Knowledge Systems (IKS) of local people as they interact with modern systems (*cf*. Leakey & Slikkerveer 1991b; Van den Breemer *et al*. 1991; Warren, Slikkerveer & Brokensha 1995; Adams & Slikkerveer 1996; Slikkerveer & Lionis 1996; Slikkerveer 1999; Agung 2005; Ibui 2007; Gheneti 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012).

The main goal of the *Ethnosystems Approach* is to contribute to the establishment of common grounds for comparison and synthesis of analytical principles by providing an interdisciplinary non-normative framework of *emic,* regional comparative and (pre)historical analysis (*cf.* Slikkerveer & Dechering 1995). While the *emic* model views behaviour as cultural-specific, to be understood within the context of a particular culture, the *etic* model views behaviours as universal with other cultures (Headland, Pike & Harris 1990).

In this research, the *Ethnosystems Approach* takes the *emic* point of view, as it recognises that complex systems of beliefs, perceptions, knowledge and collaborative behaviours of medical practitioners in the study area are distinct and therefore need the adoption of insiders' views, as opposed to the potentially biased view of outsiders. The approach facilitates the exploration and explanation of the Indigenous Knowledge System (IKS) in relation to health care practices on the basis of anthropological and geo-historical basic concepts of the *Participant's View* (PV), the *Field of Ethnological Study* (FES) and the *Historical Dimension* (HD), as mentioned above. In combination, these concepts enable the analysis of local medical practitioners' view (both traditional and modern) including variables contributing to the way in which they collaborate while delivering their services to patients and clients. The three basic concepts of the *Ethnosystems Approach* are further discussed in relation to the particular research methods and techniques used in this study.

Participant's View (PV)
This is a wide notion as underscored by Slikkerveer (1999: 173): *'The assessment of symbolic representations, worldviews (cosmologies or cosmovisions), culture bound philosophies of nature and the environment, perceptions, attitudes, opinions, etc. as part of the underlying structure of values, norms and belief systems characterizes specific cultures'.*

The concept of *Participant's View* (PV) is used to obtain the medical practitioners' own perceptions, attitudes, beliefs, knowledge and behaviours of the collaboration or non-collaboration as they offer services to clients and patients in the society. Structured questionnaires and, in some cases, follow-up interviews are completed with the traditional and modern medical practitioners, who are the primary participants in this research, in order to assess their knowledge, beliefs, attitudes and interprofessional collaboration. More information on the same topics is obtained during organised workshops of the *Jadi and Utamaduni katika Afya* (JUA) Project, which simultaneously incorporates both traditional and modern medical practitioners from the Mara Region. The acronym, JUA, is an abbreviation of *'Jadi na Utamaduni katika Afya'* which implies (in Swahili) *'a call to realise and be in control of one's indigenous knowledge and culture for one's health improvement'.*

Other participants include health stakeholders, whose views are also invaluable for the understanding of complex local behavioural patterns, and the way in which medical practitioners collaborate in the Mara Region and in Tanzania as a whole. Some of these participants include the elderly ethno-cultural group leaders, the medical leaders of respective districts authorities of the Mara Region and workers from the Ministry of Health and Social Welfare (MoHSW). The participant observation by the researcher, who happens to live and work in the socio-cultural setting of the Mara Region, is another method used to collect relevant information about the livelihood and work-related relationships among traditional and modern medical practitioners. The *Participant's View* (PV) is most useful to obtain first-hand explanations as opposed to outsiders' views, which may lack the intrinsic socio-cultural institutions and traditions of local medical systems as well as the way in which these systems affect the interactions of the practitioners in the delivery of health care services.

Participant's View (PV) focuses in particular on the people within their historical-geographical context (Slikkerveer 1990). This concept is further used in relation to the overall medical systems, as defined by Dunn (1976: 135): *'The patterns of social institutions and cultural traditions evolve from deliberate behaviours to enhance health, whether or not the outcome of particular items of behaviour is ill health'.*

Field of Ethnological Study (FES)

The second concept, *Field of Ethnological Study* (FES) emerged as the result of significant ethnological fieldwork by Leiden University researchers in Structural Anthropology. It has been observed that in different ethnic groups, certain sub-cultures within a larger culture are characterised by certain common cultural features, such as similar worldviews, values, beliefs, social organisations, languages, kinship, dietary habits, and clothing, as well as practices in medicine, agriculture and animal husbandry (*cf.* Van Wouden 1935; 1968; De Josselin de Jong 1984; Schefold 1988; Slikkerveer 1999). These are spread over a particular geographical region which has later been redefined as *a culture area* (*cf.* Hunter & Whitten 1975). This means that within a dynamic context of processes of development and change, the advantage of regional comparative studies of sub-cultures within a larger culture brings a more realistic evaluation of mutually comparable sub-cultures within the culture area. This research applies this concept by assessing the sub-cultures of each district of one larger culture area known as Mara and their contributions to the way in which the modern medical practitioners view the traditional medical practitioners as their counterparts and vice versa.

The Historical Dimension (HD)

The concept of the *Historical Dimension* (HD) refers to the (pre)historical analysis of both internal and external factors which have contributed to present complex situations in a specific socio-cultural setting. It has been proven in analytical research that strict contemporary-oriented approaches are unable to reveal the changes of developmental processes transforming the pre-contemporary ways into contemporary ways of complex configurations. It is manifest in various fields such as medicine, management, agriculture, religion and in many other disciplines (Ambaretnani 2012).

The *Ethnosystems Approach* documents the existing indigenous knowledge and helps to uncover the processes of societal change, as well as the ability to integrate the traditional values and ways into the modern systems. The analysis of historical changes of health services and indigenous practitioners in the respectively pre-colonial period of time during independence and in post-independent Tanzania reveals some reasons why people have different views on traditional medicine and practices. The mistreatment of traditional medical practitioners and the despise of African indigenous knowledge during the colonial period of time explain the present apathy and weak collaborative behaviours in medicine in Tanzania.

3.1.2 Major Research Questions

Based on qualitative findings from the researcher's personal experience in the field, results of the pilot study, workshop proceedings, group-focused discussions and literature content analysis, this research is undertaken on the hypothetical argument that variables such as *socio–demographic variables, psycho-social variables, enabling variables, trustworthiness variables* and *organisational variables* all correlate at different levels with *interprofessional collaborative behaviours* among traditional and modern medical practitioners. Therefore, the general research questions related to such understanding include the following:

- *At what level of correlation are independent and dependent variables of interprofessional collaborative behaviours between traditional and modern medical practitioners in the Mara Region of Tanzania?*

- *What are the general major challenges, for both the traditional and modern medical systems, towards a fully integrated medical system in Tanzania?*

In Tanzania, it is necessary to introduce some intervening strategies in order to improve the collaboration among medical practitioners of the two systems through the interaction of the above-mentioned variables.

3.2 Methodology and Sources of Data

3.2.1 Selection of the Study Sample

Getting a stratified sample with equal proportions of health workers both in Traditional Medicine (TM) and Modern Medicine (MM) with the same characteristics as those in the entire population of the Mara Region is not possible as the two medical systems involved in the study are not homogenous. Instead, multistage sampling is used as follows:

- four out of the five districts are represented: Bunda, Musoma (rural and urban combined), Serengeti and Tarime;

- *cluster sampling* is then used to obtain 50 practitioners (25 from each system) from each of the four districts;

- for Modern Medicine (MM), a random sampling method is used to choose three health facilities from every district; a health centre, a dispensary, a clinic, laboratory and a pharmaceutical shop. Additionally, each District Medical Office received four questionnaires. The District hospitals got five questionnaires due to their scope and high number of workers compared to other health facilities. A list of health facilities are found at the district Medical Officers office while the names of medical practitioners are found at their respective work stations;

- for Traditional Medicine (TM), cluster sampling is used. Questionnaires were given to workers in the following areas of expertise; traditional healers, circumcisers, traditional midwives, faith healers and fortune tellers. The individual respondents were picked from the list of traditional medical practitioners registered by their organisation, well known as *CHAWATIATA* leadership.

3.2.2 Planning and Research Piloting

The scope of this study is confined to Tanzania, although in the discussions examples from both developed and developing countries may be cited for comparison and for the clarification of concepts. The field of research encompasses the four administrative districts of the Mara Region of Tanzania, namely Musoma (rural and urban), Serengeti, Bunda, and Tarime.

As suggested by various researchers, adequate research depends on realistic planning, appropriate choice of research design and its subsequent effective execution (Bowling 1997; Peat 2001; Stangor 2006; Pallant 2007). Having fulfilled all the application procedures, a Research Permit No. 258-CC-2002-85 was granted by the Tanzanian Commission of Science and Technology with permission to undertake this study in the Mara Region of Tanzania. Furthermore, an introduction letter with reference number S.20/6/332 to the communities in the region from the Serengeti District Administrative Secretary has been also acquired in due course. These steps were necessary for clearance on ethical and legal grounds as per the law governing scientific research in Tanzania.

First, a pilot study was undertaken between August and September 2005 as a way to gather more general descriptive information and to test the questionnaire as the research instrument in Serengeti District. The necessary adjustments were applied to ensure the reliability and validity of data, including content, criterion and construct, as mentioned by Stangor (2005), DeVellis (2003), Siegel & Castellan (1998). This part of the research has been made possible through the financial support from the *Stichting Nederlandse Albert Schweitzer Fonds*. The Pilot study has also been beneficial for the training of less experienced research assistants who could work without fear of failing their assignment.

Effective communications with traditional medical practitioners were made possible after a rapport had been established with their organisation, known as *CHAWATIATA*, under the leadership of *Omufumu* Nyakiriga Nyakirang'ani as well as with their respective local community leaders. Throughout, the researcher and assistant researchers were sensitive to the culture of the respondents and stayed in regular contact with elderly authorities in the villages. The researcher and his assistants have shown due respect for the way of life of the villagers, and have paid allegiance to the prevailing rules of law, working together with credible people who are familiar with traditional medical knowledge and practice in the region.

3.2.3 Research Design and Methodology

The study in Mara Region is a descriptive and explanatory study, employing a randomised cross-sectional survey of a representative sample of both traditional and modern medical practitioners in the research area. The choice of the design is suitable for obtaining relevant data and performing adequate analyses to fulfil the general aim of the research and its specific objectives, as stated in Paragraph 1.4.2. The study has collected both qualitative and quantitative data through the use of different research instruments of data collection. The collection of primary data in the Mara administrative region both in the pilot study and later in the surveys has been completed by the researcher with the support of the following Research Assistants: Mr. T. Mukakaro, Dr. S. Keb MPH, Dr. B. Chirangi MPH, Mr. S. Karamba CLA and Mr. Baraka, M. DM.

A combination of different methods and research tools were used to gather both primary data well as secondary data as follows:

Structured Questionnaire
With help from the four previously mentioned research assistants, a structured questionnaire concerning the collaboration between the two categories of respondents has been administered to randomly selected traditional and modern medical practitioners in the four districts of the Mara Region of Tanzania at that time. While the names of modern medical practitioners were selected randomly from an official list of available health facilities, such as hospitals,

health centres, dispensaries, clinics, laboratories, pharmaceutical shops, in each district, the names of traditional medical practitioners were obtained from the headquarters of their Mara Regional Organisation (CHAWATIATA). Although not always possible, the gender balance has been included in the selection of respondents. Fifty questionnaires were administered in each district and collected between the period of April and May 2006. A total of 193 completed questionnaires with 57 questions each were collected from both traditional and modern medical practitioners combined. Unfortunately, five questionnaires were not completed, while two were discarded as they were too incomplete to secure a valuable representation of data.

The questionnaire was used to collect information about the respondents' general socio-demographic information, their beliefs, knowledge, and attitudes towards both medical systems, their level of trust, the perceived organisational support, and their actual interprofessional collaborative behaviours they experienced during the twelve months preceding the interviews.

For descriptive and exploratory purposes, the questionnaire also guided some open-ended questions about the respondent's ideas on the challenges facing each medical system and perceptions of the effective role of traditional medicine in the society. For the sake of controlling the quality of collected data, the questionnaires have been translated into Kiswahili, the national language in which all respondents are able to communicate fluently with the interviewer.

In cooperation with some employees of the *Jamii Imara* (Community Based Health Promotion Programme) based in Mugumu and the Serengeti District Medical Officer, all familiar with field work-based surveys, 50 draft questionnaires were tested for their viability before the incorporation into the final copy of questionnaire of some necessary changes, such as the replacement of appropriate, well-understood Swahili words and some clear introductory remarks and instructions for the interviewers.

Semi-Structured Interviews
Semi-structured interviews were conducted between April and June 2006 to key informants identified within both Traditional Medicine (TM) and Modern Medicine (MM) in order to obtain additional information on the study. The respondents included representatives or spokespersons from the following areas:

- the Tanzanian Ministry of Health and Social Welfare (MoHSW), from the directorate desk of both hospital services and traditional medicine;

- Muhimbili University College of Health Science & Institute of Traditional medicine district authorities and the Mara Regional health authorities;

- Mara Region leadership of *CHAWATIATA* district and village leaders;

- clients and/or relatives or guardians of those who have received health services in the Mara Region.

Workshop Summary of Proceedings
Eight different workshops following the *Participatory Learning Approach* were held between 2005 and 2007 in Serengeti (three), Musoma (three) and Shirati (two) under the *Jadi and Utamaduni katika Afya* (JUA) Project. These workshops, each entitled '*From Vision to Actions of Integrated Medical System*, were conducted for a minimum of three working days.

They were organised under the *Jadi and Utamaduni katika Afya* (JUA) Project, founded by the researcher and supported by the *Stichting de Doopsgezinde Zending*. The first three workshops were exploratory with health providers from both modern and traditional systems as participants. The next five workshops were dedicated to capacity building for professionals from Traditional Medicine (TM), including traditional birth attendants, traditional healers and circumcisers.

In line with the visions of the *Jamii Imara* Programme (Community Based Health Promotion) of the Mara Tanzania, the researcher established the *Jadi and Utamaduni katika Afya* (JUA) Project as an integrated health care initiative. The project's goal is to enhance the capacity for traditional health workers and other health stakeholders in the region to evaluate and address crucial questions related to integrated health policies and differential choice of service delivery in the context of the pluralistic medical configuration.

Apart from the focus on traditional medical practitioners, the *Jadi and Utamaduni katika Afya* (JUA) Project has been diversified, envisaging the provision of insight and facilitating community capacity building in general health matters, such as the treatment of malaria, anaemia, hygiene, HIV/AIDS, and to promote self-help initiatives. It has been created for improved health and livelihood of the underprivileged inhabitants of the Mara Region, including poor women and destitute children. To this end, the project, of which the logo depicts the *jua* (sun) shining on the call to realise, control and protect indigenous knowledge and culture, exists to fulfil the call for a holistic ministry, and as such identifying itself with the underprivileged people of Tanzania.

The *Jadi and Utamaduni katika Afya* (JUA) Project will continue in its second phase with follow-up workshops on strategic planning. Those workshops will bring together various actors in health services, including representatives from the Primary Health Care Committee, government district health authorities, trade union leaders, local authorities of the Social Services Committee, religious bodies, district hospitals, and nursing schools with the primary goal of developing a Memorandum of Understanding towards interprofessional collaboration between traditional and modern medical practitioners in order to improve the quality of the health services in the Mara Region. The results of this working workshop for future strategic planning, however, are beyond the scope of this study.

Personal Observations
Additional knowledge and insights have been acquired from personal observations and encounters with traditional health issues based on more than ten years of the researcher's experience working in a district hospital. Specific roles for observation included the following:

- members of the district health management team entrusted with policy-making, implementation and management of the overall district health plan and strategies;

- members of the daily morning clinical conference for discussions on reports about patients, diseases and their management;

- management advisors (1996–1998) to the *Community Based Health Promotion Programme* (CBHPP), of which the areas of service include Serengeti in the Mara Region;

- coordinators of the *Community Based Health Promotion Programme* (CBHPP) (1997-1998) where the researcher participated in workshops and meetings with traditional elders from the Kuryan community on ways to control and prevent HIV/AIDS;

- researcher's life experience as an individual born and working in the Mara Region, one of the poor regions of Tanzania in terms of health status, but rich with indigenous medical knowledge and medicines in almost every village;
- visitor and observer of the comparative Dutch and Indonesian systems of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) in Western Europe and South-East Asia.

Document Analysis

In order to collect secondary data, critical reading and analysis of various sources has been essential. The list includes the annual *Jamii Imara* (CBHPP) Mugumu Reports, available and accessible reports from the Tanzanian Ministry of Health and Social Welfare (MoHSW) desk in charge of Traditional Medicine (TM), health statistics abstracts from the Ministry of Health (1998-2011), MoHSW development report of 50 years of independence, annual district health reports (1998-2011), and Internet sites.

Literature on related topics has been consulted for theoretical framework and conceptual clarification, including traditional and alternative medicine, religion and traditional medicine, health, gender and traditional medicine, integration of modern and traditional medicine, etc. Additionally, SWOC analysis (which considers Strengths, Weaknesses Opportunities, and Challenges) has been employed for both national and international (macro) health policy and institutional support to Traditional Medicine (TM).

3.3   Operationalisation of the Analytical Model

3.3.1   Linking Concepts to Measurable Phenomenon

Different concepts key to particular scientific inquiries must be defined and translated into distinguishable empirical observations known as the *operationalisation* of concepts as coined by Bridgman (1882–1961), who wrote extensively on the scientific method and the philosophy of science. The process of operationalisation generally refers to the work of specifying the extension of a concept to the point of getting a measurable phenomenon from operational definitions. Those operational definitions contain implicit inductions and deductive consequences are part of the theoretical definition in use. Thus the process entails a translation from concept to variables to operation definition.

The measuring process is supported in the early work of Kohn and White (1976), as summarised in Figure 3.1, showing the conceptual, theoretical and analytical frameworks which were operationalised and linked to measurement of concepts in the research questionnaire. Relevant *concepts* from the theoretical orientation presented in Chapter II are related to interprofessional collaboration and transferred into *variables* in the analytical model which constitute certain blocks of factors which are translated into *indicators* showing operational definitions. Indicators are assigned with possible *categories* to enable them to be identified and/or measured. Questions are formulated at the *phenomenon* level to categories which can be chosen or completed by the respondent during the field survey.

3.3.2 Factors on Interprofessional Collaborative Behaviour
Within the selected multivariate analytical model mentioned in Chapter II, there are seven blocks of factors which are to be included as variables in the quantitative analysis, as shown in Figure 3.2.

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┌─────────────────────────────────────────────────────────────────────┐
│              ┌───────────────────────────┐                            │
│              │          Concept          │                            │
│              └───────────────────────────┘                            │
│                          ⇕      ╲                                     │
│              ┌───────────────────────────┐    RULES OF CORRESPONDENCE │
│              │          Variable         │                            │
│              └───────────────────────────┘                            │
│                          ⇕                                            │
│              ┌───────────────────────────┐                            │
│              │          Indicator        │                            │
│              └───────────────────────────┘                            │
│                          ⇕      ╲                                     │
│              ┌───────────────────────────┐    MEASUREMENT TECHNIQUE   │
│              │          Category         │                            │
│              └───────────────────────────┘                            │
│                          ⇕                                            │
│              ┌───────────────────────────┐                            │
│              │         Phenomenon        │                            │
│              └───────────────────────────┘                            │
└─────────────────────────────────────────────────────────────────────┘
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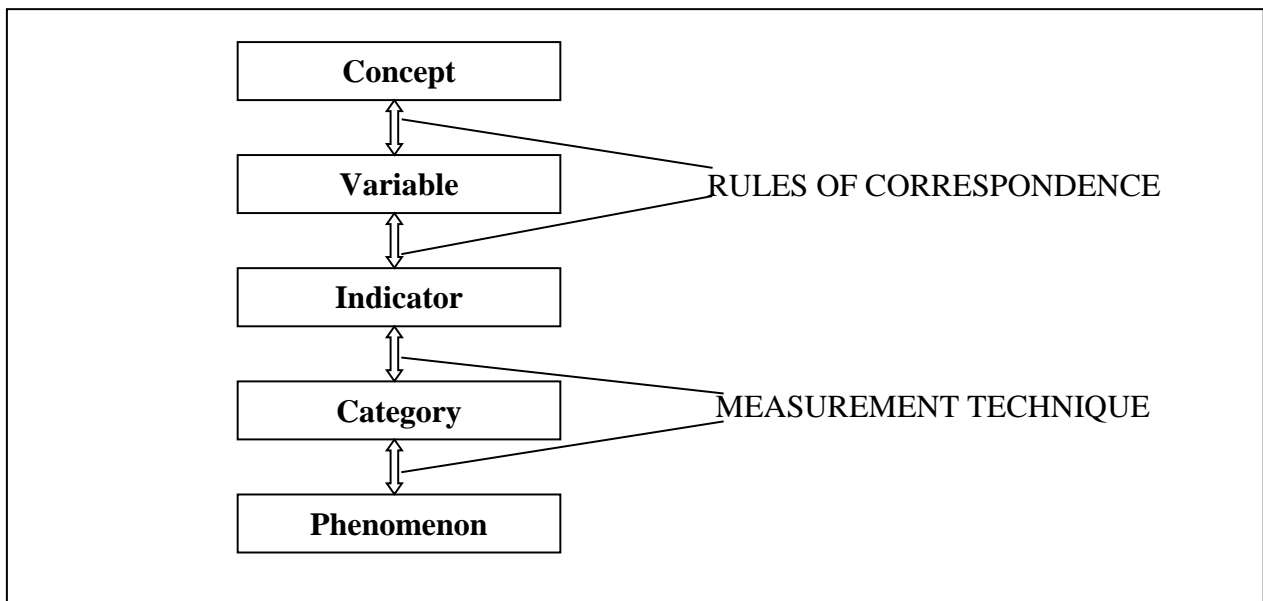
Figure 3.1   Links in the measurement process
            Source: Kohn & White (1976)

The components of the analytical model encompass the independent, intervening and dependent variables, elaborated as follows:

Independent variables
Firstly, the independent variables include the *predisposing variables* such as *socio-demographic variables* and *psycho-social variables.* They are factors which exert their effects prior to a behavioural occurring (collaboration) by motivating or de-motivating a Practitioner toward or away from collaborative behaviour. Socio- demographic variables include both the ascribed and achieved individual characteristics of the respondents (medical practitioners) of sociography and a demographic profile nature. It should be noted before a behavioural action is done, generally although not always, much of these socio-demographic characteristics are rather static, is to say, they are not as easily changed as the others to be seen later.

While in the area of interprofessional collaborative behaviour, socio-demographics may consist of factors such as sex, marital status, education background, age, place of nativity (urban or rural), religious affiliation, ethnicity, the size of the organisation and profession (cadre) and hierarchical status in the organisation; psycho-social attributes (the 'silent' factors) may include the person's beliefs, attitudes, perceptions, experience and knowledge on the practitioners, therapies, aetiology, perceived future impact, perceived mutuality (possibility to work with mutual understanding), perception on efficacy and safety, experience in intra-collaborative behaviour (within the same system), and awareness of successful interprofessional collaborative activities These factors cannot be recognised easily physically as they are strongly imbedded into one's heart, mind and brain. They seem to be 'silent' but affect loudly people's behaviour in different ways.

Secondly, they include *enabling variables* are factors such as individual socio-economic status, government and local authority efforts gearing towards collaboration, effectiveness of communication linkages all these either facilitate or triggers the practitioners or health facility towards a positive influence on the need to embark in interprofessional collaboration.
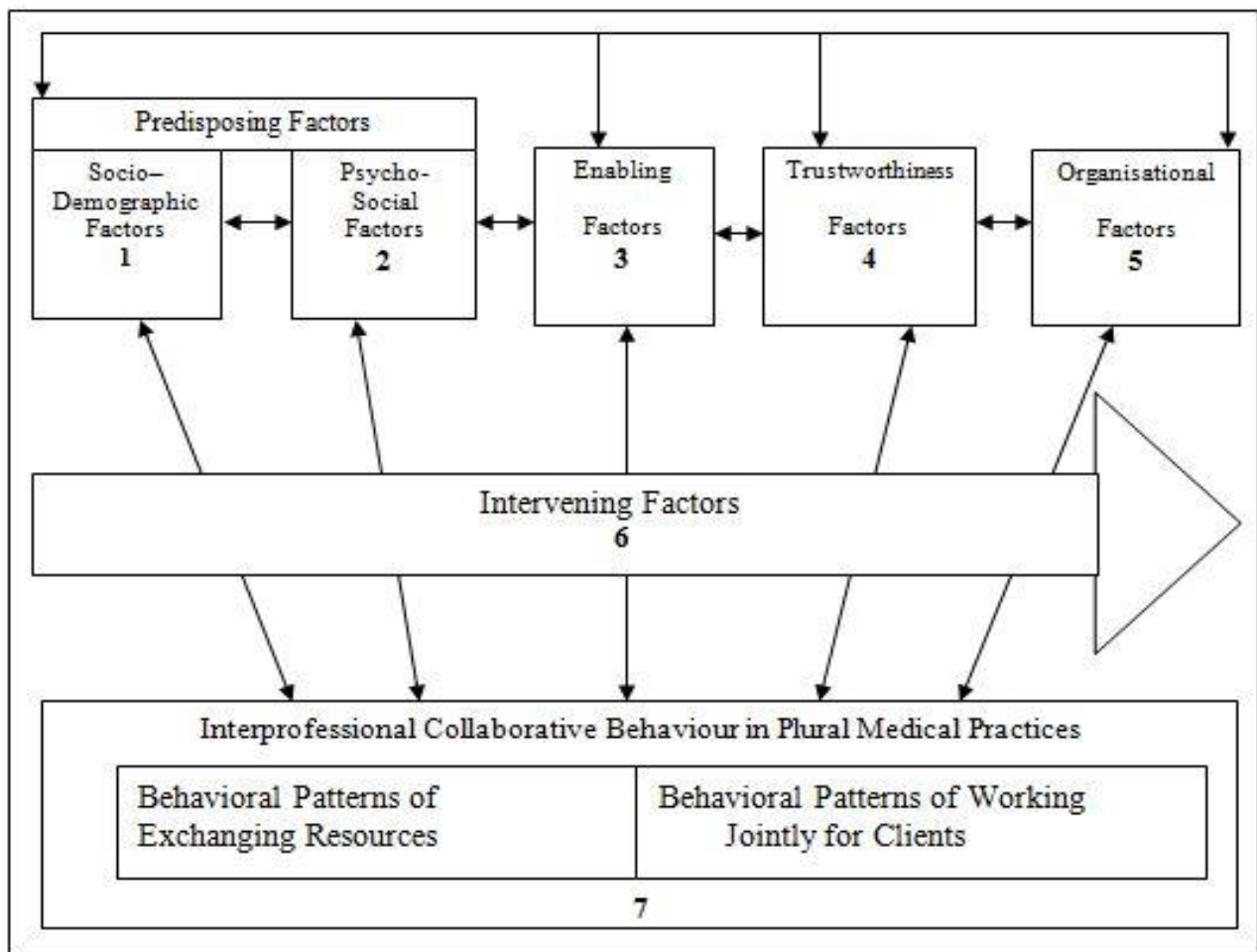
Figure 3.2   Analytical model of interprofessional collaboration between traditional and modern
                medical practitioners and its components.
                Source: Adapted from Slikkerveer (1990; 1996).

Legend: *Block no.   Variables*
                Block 1   Predisposing Variables (Socio-demographic Variables)
                Block 2   Predisposing Variables (Psychosocial Variables)
                Block 3   Enabling Variables (Socio-Economic Status)
                Block 4   Trustworthiness Variables (Interprofessional Confidence in each other)
                Block 5   Organisational Variables (Organisational Culture, Resources Capability)
                Block 6   Intervening Variables (Government and International projects on collaboration)
                Block 7   Interprofessional Collaborative Behavioural Variables (exchange of resources)
                            & Interprofessional Collaborative Behavioural Variables (working jointly).

Thirdly, they comprise *trustworthiness variables*. This is a long-term learned characteristic of
practitioners deserving trust and confidence from the other medical system. In short,
trustworthiness includes both the capability of being depended upon (being reliable and
responsible) as well as being worthy of credibility or authoritative in the subject matter. From
the researcher's perspective, based on life experience in health services in Tanzania, a number
of modern medical practitioners find it difficult to accept that traditional and alternative
medicine practitioners are also authoritative when it comes to speaking and dealing with

preventive, curative, and promotive health services to the public as compared to their counterparts from the modern system.

Thus, where there is no trustworthiness between the two systems, it is no surprise that a non-collaborative or rare collaboration prevails. Considering the system theory of organisations approach, the fourth variable encompasses *organisational variables* which include three main categories:

i. the organisational inputs and processes capabilities, which measure the health facility's ability to have the required level of resources such as finances, medicines and equipment, and working space;

ii. human resources and skills to correctly offer the anticipated health service to clients;

iii. the organisational culture which describes the shared collective patterns of norms, attitudes, and organisational structures, dictated in a way in which practitioners interact within and with the outside world.

Fifthly, the *Intervening factor* in this research is the level of one's involvement in national or international project or programmes supporting collaboration between the two medical systems in question such as the traditional birth attendants training programmes, etc.

In this study, 'the intervening factor represents an overriding situation which exerts a strong determining effect on the relationship of the independent and dependent variables with the time dimensional contribution during the interactions. Clarifying this in context, *ceteris paribus* it is hypothetically expected when a practitioner is already involved in a project which promotes integration between modern and traditional medicine nationally or internationally, there is a high probability of having a high level of interprofessional collaboration with a practitioner of the other system when compared to uninvolved practicioners.

Dependent variables:
Referring to Dotterich (2006), interprofessional collaboration is a stage which has already faced the turfs and sustained trust (see Figure 2.10) between the involved parties. Those in collaboration are networking, coordinating and cooperating to share patients' and health service information (of course without compromise of patient's confidentiality), exchanging services, sharing resources and cross training (sharing ideas and relevant knowledge) towards peoples health improvement.

Bearing in mind the definition from the Centre for Advancement of Collaborative Strategies in Health (2003), interprofessional collaboration as part of synergy formation has two components, a) sharing of resources and b) working jointly under unified management for a customer in need of health service. Therefore, talking of collaboration between medical practitioners of the two systems, it shall be inferred in their behavioural actions to exchange knowledge, skills and other material and financial resources as well as work together in giving health service to a customer(s) under some kind of a prearranged organised manner.

Thus, in completing an analytical model, these dependent variables (exchange of resources and working jointly) referred as interprofessional collaborative behaviour can be significantly affected by the alteration of independent variables such as *socio-demographic, psycho-social, enabling, trustworthiness* and *organisational* variables as shown in figure 3.2 with the variables which correlate with collaborative behavioural patterns between traditional and modern medical practitioners.

However, apart from establishing the significant correlation among the variables, it is beyond the scope of this study to discover the real causal-effect of the independent and dependent variables at play. Finally, the adapted multivariate analytical model from Slikkerveer (1990; 1996) shows the relationship between independent and dependent variables on the collaboration of modern and traditional medical practitioners. It contains seven blocks of operationalised variables, discussed in Paragraph 3.3.3, leading to the formation of the questionnaire's concepts, variables, indicators, and categories linking the measuring process.

3.3.3. Structuring of the Research Questionnaire

A questionnaire has been created, seeking responses on measurable, identified indicators to access the interactive processes of block variables concerning interprofessional collaborative behaviours between traditional and modern medical practitioners. All 57 questions were in line with the analytical model and the major research questions. The cover of the questionnaire provided the serial number and the relevant district name, along with a comprehensible set of instructions for the respondents. In addition, a statement explaining the reason for the survey and its benefit to the population. Respondents' anonymity and privacy were highly assured throughout this scientific inquiry.

In order to add up exploratory information for quantitative analysis, the questionnaire had three major sections, showing an independent block of variables, dependent block of variables and additional questions for qualitative analysis and as a complementary source of data related to the research. With regard to interprofessional collaboration (dependent variables) either by exchange of resources or by working jointly, traditional and modern practitioners were asked questions on specific variables relating to their frequency of engagement with the other medical system in the previous 24 months. There were five rating categories choices: none, once in two months' time, once in one months' time, once in two weeks' time, and more than once in two weeks' time. These were later recoded as: none, very low level, low level, average level, and high level.

The composition of those blocks of variables in the questionnaire adapts the same kind of flow deduced from *concept* to *variable* to *indictor* to *category* as shown in Table 3.1: the links in measurement processes later as adapted from Kohn & White (1976), Slikkerveer (1990), Agung (2005), Ibui (2007), Leurs (2010), and Djen Amar (2010), explicated below.

3.4 Types of Statistical Analysis

The dataset with 194 cases generated from the survey responses from both traditional and modern medical practitioners in the Mara Region of Tanzania is used in both qualitative and quantitative analyses. This dataset is *non-parametrical*, also referred to as *categorical data* (Van der Geer 1993). The *non-parametrical methods* of analyses are geared towards obtaining the resulting ultimate analytical model, with mathematical measures of the strengths of correlation between blocks of variables interacting in interprofessional collaborative behaviours between modern and traditional medical practitioners as stated in Chapter I of this study on objectives (1).The analyses involves a total of 27 variables, divided into 24 independent variables, one intervening variable and two dependent variables, shown as blocks in the analytical model presented in Chapter III, Figure 3.2: the analytical model of interprofessional collaboration between traditional and modern medical practitioners. By use of the Predictive Analytics Software (*PASW*) previously known as *SPSS* package of statistics version 20.0,

the following quantitative analyses as described in Paragraphs 3.4.1 to 3.4.3, are conducted and presented in this study.

Table 3.1 Socio-Demographic Factors: Concepts, Variables, Indicators and Categories

Concept	Variable	Indicator	Categories
Socio-Demographic Factors	Area	District	Musoma; Serengeti; Bunda; Tarime
	Gender	Sex	Male; Female
	Social Status	Status within the organisation	Owner; Top Leadership; Supervisor; Permanent Worker; Temporally / Under Probation Worker; Trainee / Apprentice
	Age	Number of years	Young Adult (20-39 years); Middle Adult (40-59 years); Elderly Adult (60-79 years)
	Formal Education	Highest level of schooling finished	Below Primary; Primary; Secondary; Tertiary; University
	Ethnicity	Ethic group	WaKuria; WaZanaki; WaJita; WaIkoma; Wajaluo; Others
	Religion	Religious affiliation	Non-Believer; Muslim; Christian; African Tradition Religion; Others
	Marital Status	Marriage	Unmarried; Divorced / Separated; Widow / Widower; Married
	System	Organisation type based on services	Modern Medicine; Modern Medicine Allied; Traditional Medicine; Traditional Medicine Allied
	Span of Relationship	Organisational size in terms of workers	Up to 10; 11 - 30; 31 – 60; 61 - 90; 91 & above (workers)
	Profession	Professional group	Doctor; Clinician; Nurse; Allied Health; Community Health Worker; Support Worker; Traditional Healer; Bonesetter; Traditional Birth Attendant; Male Circumciser; Faith Healer, Fortune Teller; Astrologer, Soothsayer; Traditional Medicine Vendor

Source: Adapted from Links in the measurement (Kohn & White, 1976; Slikkerveer 1990)

Table 3.2 Psycho-social Factors: Concepts, Variables, Indicators and Categories

Concept	Variable	Indicator	Categories
Psycho-Social Factors	Belief on future mutuality	Level of belief on future possibility of good work relationship	Unknown; None; Little; Average, Greater; (Possibilities)
	Knowledge of impact of collaboration	Level of perception on the general positive impact of collaboration	Unknown; None; Minor; Average; Major; (Positive Impact)
	Belief on illnesses/health problem system specificity	Level of belief that illnesses and other health problems are system-specific	Unknown; Strongly disagree; Disagree; Agree; Strongly disagree (On illness/system specificity)
	Knowledge about Traditional Medical practitioners	Level of knowledge about Traditional Medical practitioners	(1 – 5 points) Very low; Low; Average; High; Very high (Knowledge)
	Knowledge about Modern Medical practitioners	Level of knowledge about Modern Medical practitioners	(1 – 5 points) Very low; Low; Average; High; Very high (Knowledge)
	Knowledge about Traditional Health Therapies	Level of knowledge about Traditional Health therapies	(1 – 5 points) Very low; Low; Average; High; Very high (Knowledge)
	Knowledge about Modern Health Therapies	Level of knowledge about Modern Health therapies	(1 – 5 points) Very low; Low; Average; High; Very high (Knowledge)
	Knowledge of Collaboration	Awareness of successful Collaboration	No; Yes
	Knowledge (experience) on intra-professional Collaboration	General frequency of collaboration with other professionals in the same system (Modern or Traditional)	None; Low; Average; High; (Frequentcy of Collaboration)
	Belief on efficacy level of goods and services from Traditional Medicine (TM)	One's experience level of outcome of received goods and services from Traditional Medicine (TM)	Unknown; Poor; Average; High (Appropriate Effects)
	Belief on efficacy level of goods and services from Modern Medicine (MM)	One's experience level of outcome of received goods and services from Modern Medicine (MM)	Unknown; Poor; Average; High (Appropriate Effects)

Source: Adapted from Links in the measurement (Kohn & White, 1976; Slikkerveer 1990)

Table 3.3 Enabling Factors: Concepts, Variables, Indicators and Categories

Concept	Variable	Indicator	Categories
Enabling Factors	Socio-economic Status	One's average monthly income	Tshs. <40,000; Tshs. 40,000 – 100,000; Tshs. >100,000 – 300,000; Tshs. >300,000 – 500,000; Tshs. >500,000
	Socio-economic Status	Value of one's type of property and material ownership	Income; Type of housing building material; Roofing; Size of land ownership; Type of transportation means; Value of domesticated animals; (poor; average; rich)
	Community Support	Level of Local Government and Community efforts on collaboration	Unknown; None; Minimal; Some; A lot
	Infrastructural Capability	Level of quality of communication linkage (roads, communication media) with other places	Unknown; Poor; Fair; Good

Source: Adapted from Links in the measurement (Kohn & White, 1976; Slikkerveer 1990)

Table 3.4 Trustworthiness Factors: Concepts, Variables, Indicators and Categories

Concept	Variable	Indicator	Categories
Trustworthiness Factors	Trusting other medical practitioners	One's general level of trusting of other practitioners of Modern Medicine (MM) in their practice	Low; Average; High
		One's general level of trusting of other Practitioners of Traditional Medicine (TM) in their practice	Low; Average; High

Source: Adapted from Links in the measurement (Kohn & White, 1976; Slikkerveer 1990)

Table 3.5 Organisational Factors: Concepts, Variables, Indicators and Categories

Concept	Variable	Indicator	Category
Organizational Variables	Organisational Input Capability	Level of Organisational Inputs in terms of the required number of Human Resources; Data/Information; Expertise/Skills, Working tools and Materials; Work space	None; Almost none; Some; Most; All (of the required resources)
	Organisational Culture fostering Collaboration	The level of one's organisational cultural attributes rating information dissemination, motivation and cooperation with others in the opposite Medical system.	Unknown; Poor; Fair; Good; Excellent
	Organisational anti-*Group think*	The level of one's organization efforts in fostering open discussion, tolerance and respect to the opposite Medical system.	Unknown; Low; Average; High

Source: Adapted from Links in the measurement (Kohn & White, 1976; Slikkerveer 1990)

Table 3.6 Intervening Factors: Concepts, Variables, Indicators and Categories

Concept	Variable	Indicator	Categories
Intervening Factors	National and International Programmes on Collaboration	The level of one's involvement if any in a National or International Programme which fosters collaboration between Traditional and Modern Medical systems	None; Rare; Some; Often

Source: Adapted from Links in the measurement (Kohn & White, 1976; Slikkerveer 1990)

Table 3.7 Dependent Factors: Concepts, Variables, Indicators and Categories

Concept	Variable	Indicator	Categories
Dependent Factors: Interprofessional collaboration between Practitioners of Modern and Traditional Healthcare Systems.	Behavioural patterns of exchanging resources for health service delivery with a practitioner from the other medical system	Frequency of exchange of ideas; Giving out material resources; receiving material resources from any practitioner of the other medical system in the past 24 months.	none; once in 2 months; once in 1 month; once in 2 weeks; more than once in 2 weeks.
	Behavioural patterns of working jointly for a client with health-related problem with a practitioner of the other medical system	Frequency of referring out customers; receiving customers; receiving services, conducting meetings or workshops together, offering health services jointly to customers with any practitioner from the other medical system in the past 24 months.	none; once in 2 months; once in 1 month; once in 2 weeks; more than once in 2 weeks

Source: Adapted from Links in the measurement (Kohn & White, 1976; Slikkerveer 1990)

3.4.1 Bivariate Analysis

Cross tabulation and bivariate analysis bring both descriptive statistics showing frequencies and percentages of variables as well as inferential statistics showing relationships using coefficients which can be used for preliminary evaluating predictions by comparison of the analytical model to the expected outcome. Cross tabulation of pair-analyses among all 27 variables has been done and non-parametric tests results which were observed include *the Pearson's Chi-square* (χ^2)*, Cramer's V, and Kendall's tau b, Gamma* and the *Spearman Correlation.* Based on the nature of the obtained data, all these tests avoid the assumption of bivariate normality; correlations are therefore unduly influenced by outliers, unequal variances, non-normality, and nonlinearity. The *Pearson's Chi-square* shows a sign of association, while the other aforementioned tests disclose the strength of correlation (association), if any, among variables in interplay. The *Pearson's Chi-square* confidence level is set at 95%, and the significance is measured as *strongly significant* if the value is between .05 and .01; *very strongly significant* if the value is between .01 and .001, and has *the strongest significance* if the value is less than .001 (Pallant 2007). Three conditions are to be fulfilled for *Pearson's Chi-square* to be significant; firstly, each respondent can score only once in one cell of the cross tabulation; secondly; no expected frequencies can fall below 1.00; and lastly, no more than 20% of the expected frequencies can fall below 5.00 (Field 2005).

As a correlational study, the tests examine the possible existence of correlations among pair-variables with a caution of not jumping into causality conclusion that one variable causes something to happen to another variable. The caution of causality is due to two reasons, elaborated by Field (2005), as follows:

- The third variable problem: This is also known as the *tertium quid*. It infers causality cannot be concluded because there may be other unidentified or unmeasured variables affecting the outcome;
- Direction of causality: The resulting correlation coefficients do not show clearly that one variable causes the other. Despite the limitation of the third variable problem and the intuition to see that variable one causes variable two, there is no statistical reason why variable two cannot cause variable one.

3.4.2 Multivariate Analysis (OVERALS)

Because bivariate analysis does not take into consideration mutual interactions between variables, a multivariate analysis of all independent variables, intervening variables and dependent variables through Dimension Reduction – Optimal scaling for categorical data method has been completed. Optimal scaling is a general method to treat multivariate data. This method advances the standard analysis through two important advantages:

 i.   OVERALS (Non-linear Canonical Correlation Analysis) allows a more than two sets of variables as (Cicourel 1967; Siegel, & Castellan (1998) explain. (2);

 ii. Different variables which are nominal, ordinal or numerical can be accommodated and their relationships can be established.

Rather than maximising correlations among variables, different sets are compared to an alternative set defined by the object scores. The results of this analysis include frequencies, centroids, and object scores as outputs. Additional outputs, presented in Chapter VII, are component loading and their component-loading plot. The 1988 SPSS Inc. *White Paper,* which approves the principal of optimal scaling as part of the Gifi system (Gifi 1990) has increasingly appeared in the mainstream statistical literature focusing on the multivariate analysis of qualitative and categorical data.

   The Gifi system has been deliberated among the traditional statistical techniques in Krzanowski & Marriott (1994), and has now graduated into the *Data Theory Scaling System* (DTSS) to meet typical concerns from both substantive and technical points of view to deal with discrete multivariate data, nominal and ordinal data, incomplete data, non-linear relationships between pairs of variables, non-normal distributions, scaling of response patterns, social network data and other proximity correlational data (3).

3.4.3 Multiple Regression Analysis

The last statistical analysis to be carried out in this study is *multiple regression* (a term first used by Karl Pearson in 1908), which focuses on the relationship among variables. Explicitly, regression analysis can be used to understand how independent variables are related to the dependent variable, and for exploring the forms of the discovered relationships. In other words,

regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is altered, while the other independent variables are held fixed. The general purpose of multiple regressions is to learn more about the relationship between several independent (predictor) variables and dependent (criterion) variables. Since the regression analysis methods depend on the kind of data, in this study (with non-parametric data), methods such as linear regression and ordinary least squares regression cannot be used where the regression function is defined in terms of a definite number of unknown parameters estimated from the data. Instead a non-parametric technique allows the regression function to lie in a specified set of functions used. In this study individual OVERALS analyses and resulting *eigenvalues* (Ed) (Van der Burg 1983) between each block of variables and all other blocks of variables from the analytical model have been chosen as the preferred method as previously done in correlational research (Agung 2005; Ibui 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012). The formula to calculate the multiple correlation coefficients (ρd) of block of variables as functions of *eigenvalues* is given by:

$$\rho d = (2 \text{ X Ed}) - 1$$

Therefore, with this analysis, some predictions of the influence level of independent variables (psychosocial, socio-demographic, socio-economic status, organisational, trustworthiness and intervening variables) to the dependent variable, which is interprofessional collaboration between traditional and modern medical practitioners, can be construed. Through this kind of analysis and study, researchers and health policy makers may come to realise which of the multiple independent variables best predict whether or not practitioners of the two medical systems (traditional and modern) will collaborate, and thus, advance an appropriate policy intervention towards the most predictors in interprofessional collaboration.

Sample size and number of variables
Field (2005:173) explains the importance of collecting enough cases (N) of data for obtaining a reliable regression analysis. It is recommended that for testing predictors (independent variables), the minimum sample size is obtained by the formula; $N = 104 + k$, where k is the number of predictors. Therefore by selecting to use 25 variables (as used in this study), $N = 104 + 25 = 129$. This result (129) of minimum cases needed substantiates that the 193 cases, which represents the actual number of the sample size of this research, suffices the condition and is therefore accepted.

Notes

1. Non-parametric methods do not depend on any assumptions about the parameters of the parent population and they are generally assuming data which are only measured at the nominal or ordinal level.
2. Official explanation of *Nonlinear Canonical Correlation Analysis (OVERALS)* presented by IBM-SPSS Statistics (2011), available at:
http://publib.boulder.ibm.com/infocenter/spssstat/v20r0m0/index.jsp?topic=%2Fcom.ibm.spss.statistics.help%2Fidh_over.htm
3. The white paper entitled *Optimal scaling methods for multivariate categorical data analysis*, written by J.J. Meulman from the Data Theory Group, Faculty of Social and Behavioural Sciences of Leiden University. Recently this method, taken as part of the *Data Theory Scaling System*, has been widely utilised in multivariate analysis in policy-oriented research in different disciplines, including Ibui (2007), Leurs (2010), Djen Amar (2010), and Ambaretnani (2012).

CHAPTER IV RESEARCH SETTING: THE MARA REGION IN TANZANIA

4.1 Tanzania: A Developing Country at a Glance

In this chapter, an overview of Tanzania and the Mara Region as the research area is presented. The first part covers the country's geography, and the historical and political background, followed by the nation's general health status presented by the current health indicators. Further, the Tanzanian medical system is explored with historical health services charting from the pre-colonial, colonial and post-independent Tanzania. The Mara Region's sociography is described with emphasis on geo-ecological factors, socio-demographic and an economic profile of the region. Lastly, the chapter embarks on underscoring the sample population profile of this study, including the medical practitioners from both traditional and modern medical systems in Mara Region of Tanzania. The traditional medical systems, life style and cultural attributes of the research setting are given in the proceeding Chapter V.

4.1.1 Geography and Historical Background

Tanzania is located in East Africa with a total area of approximately 943,000 sq km of which 2,640 sq km is the Zanzibar archipelago (Map 4.1). The largest part consists of the central highland plateau lying between the eastern and western branches of the Great Lift Valley. The north-eastern part and the southern highlands have the main mountain ranges where Mount Kilimanjaro, the highest mountain in Africa (5,896m), can be found. In the western branch lies Lake Nyasa, and Lake Tanganyika, which marks the lowest point in Africa? The largest river is Rufiji, drains the southern highlands region. However, there are other major rivers flowing into the Indian Ocean, such as Ruvu, Wami, Pangani and Ruvuma. The largest lake in Africa (Lake Victoria) extends within the three East African countries, Uganda, Kenya and Tanzania, of which Tanzania has the largest area

These features form Tanzanian ecology with rich varied ecosystems. Among the most biodiverse areas of Africa, it includes tropical forests of the eastern arc mountain ranges with a variety of plant species like *celtis africana* and birds, the dry central plateau, covered with Savannah bush-land and the grassland in the Serengeti plain. Along the coast is an extensive mangrove growth, such as the one found at the Rufiji River delta. The coastal area and offshore Islands of Pemba and Unguja display pristine coral reefs with diverse marine life. The three lakes also host numerous marine species of fishes, molluscs and crustaceans.

The government has set aside about one fourth of the land as protected parks, game and forest reserves. The major ones include the Ngorongoro Conservation Area, Serengeti National Park, Mikumi National Park, Tarangire National Park, Gombe Stream National Park, Udzungwa Mountains National Park, Ruaha National Park, Katavi National Park, Lake Manyara National Park, Selous Game Reserve, Uwanda Game Reserve, Rungwa Game Reserves, Ugalla River Game Reserves, Moyowosi Game Reserves, Mkomazi Game Reserves, and Kigosi Game Reserves, among others.

In these areas, apart from different flora species, there are more than four million wild animals representing about 430 species and subspecies of mammals, 60,000 species of insects, 25 types of reptiles 100 species of snakes and numerous species of birds. Reserves and parks represent ways of reserving the national heritage, however, the Wildlife Conservation Society of

Tanzania (WCST) through its newsletter known as *Miombo* has frequently reported about the endangered species and environmental degradation issues due to factors discussed later.

Map 4.1   The United Republic of Tanzania Administrative Regions
Source: Tanzanian Ministry of Land, Housing and Human Settlement
(http://www.ardhi.go.tz/sites/default/files/TANZANIA.pdf)

Following their outstanding universal values, the following properties of Tanzania are inscribed on the UNESCO World Heritage either as cultural or natural:

- Cultural: Kondoa Rock-Art Sites (2006), Ruins of Kilwa Kisiwani and Ruins of Songo Mnara (1981), Stone Town of Zanzibar (2000);

- Natural: Kilimanjaro National Park (1987), Ngorongoro Conservation Area (1979), Selous Game Reserve (1982), Serengeti National Park (1981).

Other properties, tentatively submitted include, Oldonyo Murwak (1997), Gombe National Park (1997), Jozani-Chwaka Bay Conservation Area (1997), Kondoa Irangi Rock Paintings (2000),

Eastern Arc Mountains Forests of Tanzania (2006), The Central Slave and Ivory Trade Route (2006), Ngorongoro Conservation Area (nominated under cultural criteria 2009). The country also possesses a variety of soils ranging from the fertile, volcanic soils of the central plateau to less fertile, loamy soils of the central plateau.

At every place on earth, people's health, a decent livelihood and economy are heavily dependent on ecosystem resources. Many areas of high biodiversity also provide important ecosystem resources such as carbon storage, fuel wood, freshwater flow and fish stocks. However, human activities are affecting the continued provision of these services. On the environmental assessment, like many other nations, Tanzania faces some challenges of land degradation and deforestation. The *Global Footprint Network*[1] reveals that since the 1970s, humanity has been in ecological overshoot with annual demand on resources exceeding what the earth can regenerate each year. Tanzania is not an exception to the global situation.
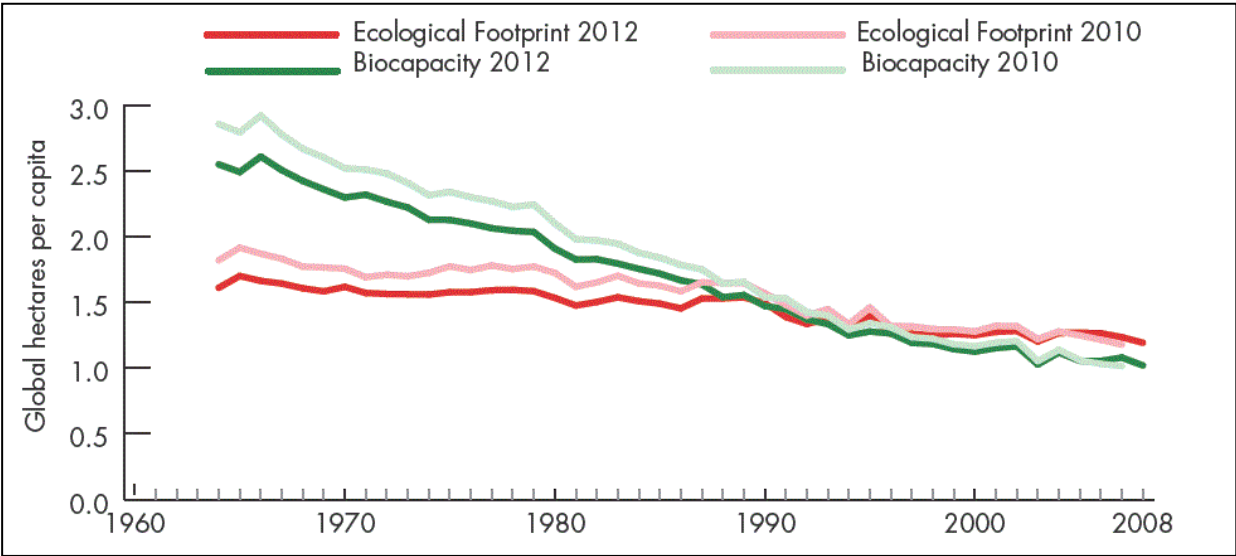
Figure 4.1 The Ecological Foot-Print and Biocapacity Trends of Tanzania
Source: Global Footprint Network (2012)

Based on the recent National Accounts for the year 2008, the total Earth's *biocapacity* is estimated at 12 billion global hectares (gha), or 1.8 gha per person. However, humanity's *ecological footprint* has reached 18.2 billion gha, or 2.7 gha per person. Correspondingly, the number of planets demanded by all humans has increased to 1.52 planets, which represents an increment of 2.5 times the demand for nature's renewable resources since 1961. It now takes the earth one year and six months to regenerate the resources humans use in one year. The adverse consequence of such an overshoot on our well-being and health cannot be underestimated as we continue depleting Earth's resources.

No wonder, humankind continues to speak of 'nature on the run'. Issues such as deforestation, increased carbon emission, land degradation and other unnecessary and irresponsible utilisation of our natural resources must be addressed. Figure 4.1 shows tracks of the per-person resource demand (ecological footprint) and resource supply (biocapacity) in Tanzania between 1961 to 2008 in a comparison of reports from 2010 and 2012.

Biocapacity varies each year with ecosystem management, agricultural practices (such as fertilizer use and irrigation), ecosystem degradation, and weather. The graph shows that while biocapacity of Tanzania has declined, the ecological footprint has steadily increased.

4.1.2 Socio-Cultural and Political Profile

Tanzania is running a multi-party system. The mainland has 24 political administrative regions, with 120 ethno-cultural groups of varying origins including Bantu, Cushitic, Nilotic and Khoisan speaking peoples. The population also includes the small but economically significant Asian and Arabic minorities. According to the 2002 census, the population estimate for 2010 is 43,188,000 people, with a young, broad based population structure; 46% are below 15 years of age, and the majority (about 89%) stay in rural settings with limited social services. Agriculture remains the main backbone of Tanzanian economy, employing about 88% of the workforce. Quite a number of societies practice mixed farming economy.
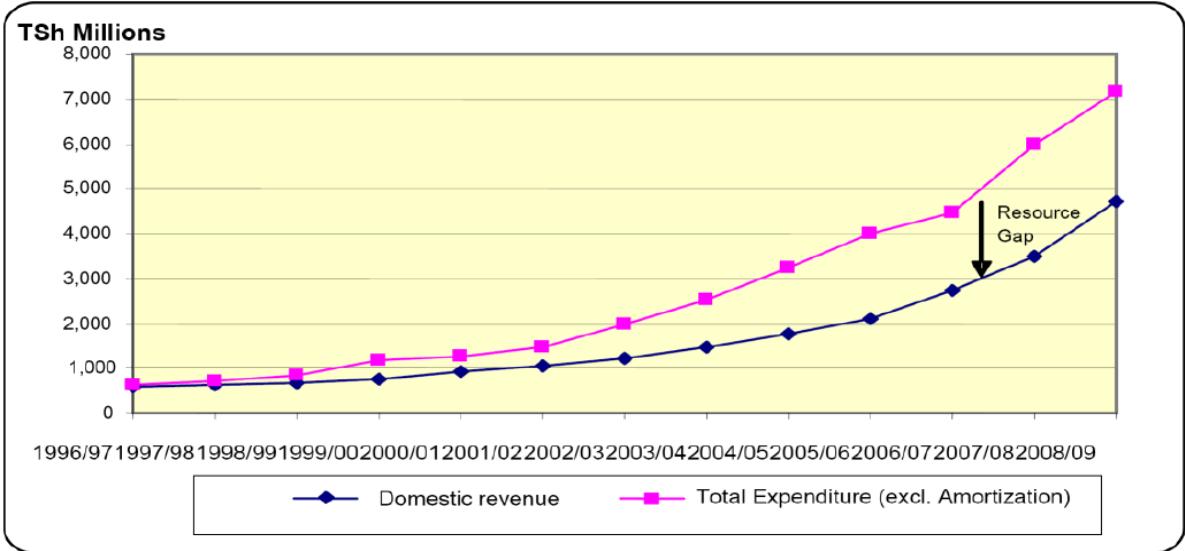
Figure 4.2   The National Financial Resource Gap (1996-97 to 2008-09)
                   Source: The Tanzanian Five Year Plan (2011/12 - 2015/16); an extract from the
                   Tanzanian Ministry of Finance Report of 2010

Although each tribe has its vernacular, Kiswahili is the national spoken and uniting language. Still with some elements of socialism, respect (especially to elders), communal socialisation, hospitality and politeness are highly valued in the society. Major religious groups are Christian and Muslim, and the rest will follow traditional religion, Hindu, along with few non-believers.
    The Tanzanian Five Year Plan of 2011-12 to 2015-16, shows that the government relies on two main sources of revenue to finance its recurrent and public investment expenditures: domestic tax revenue and foreign assistance, such as grants and bilateral and multilateral loans from both sources. However, the larger share of development expenditure is through foreign financing (over 80 percent of total capital) rather than domestic revenues. Despite the increase in the overall budget over the years, there is an alarming trend in the growing financial resource gap between revenue and expenditure, inferring growing expenditures as compared to available financial resources as shown in Figure 4.2.

Subsequently, mobilization of financial resources coupled with (unnecessary) cuts in government spending become a mandatory crosscutting agenda in the parliamentary budget resolutions from a session concluded on 17 August 2012. The actual total budget for health for the year 2012/13 is Tshs. 103,100,021,600 (Euro 57,277,790). Tshs. 52,003,350,600 (Euro 28,890,750) is for current expenditure while Ths. 51,096,671,000 (Euro 28,387,039) is set aside for health developmental projects. Tshs. 3,552,448,200 (6.9%) shall come from internal revenues while Tshs. 47,544,222,800 (93.1%) shall depend on other external sources (The Ministry of Health and Social Welfare budget speech 2012-13)

4.2 The Mara Region and its Sociography

4.2.1 Geography and Ecology

Administratively, Mara Region is one of the 30 administrative regions of the United Republic of Tanzania (mainland and Island of Zanzibar). Alphabetically arranged names of all regions with their headquarters in parentheses are:

Arusha (Arusha), Dar es Salaam (Dar es Salaam), Dodoma (Dodoma), Geita (Geita), Iringa (Iringa), Kagera (Bukoba), Katavi (Mpanda), Kigoma (Kigoma), Kilimanjaro (Moshi), Lindi (Lindi), Manyara (Babati), Mara (Musoma), Mbeya (Mbeya), Morogoro (Morogoro), Mtwara (Mtwara), Mwanza (Mwanza), Njombe (Njombe), Pemba North (Wete), Pemba South (Mkoani), Pwani (Kibaha), Rukwa (Sumbawanga), Ruvuma (Songea), Shinyanga (Shinyanga), Simiyu (Bariadi), Singida (Singida), Tabora (Tabora), Tanga(Tanga), Zanzibar Central/South (Koani), Zanzibar North (Mkokotoni), Zanzibar Urban/West (Zanzibar)

The Mara Region has six councils of local government namely, Musoma, Musoma Municipal, Tarime, Rorya, Bunda and Serengeti. This study covers the Mara Region administrative area which covered the then four districts (see Map 4.2), namely Musoma (rural and urban), Bunda, Tarime, Rorya and Serengeti. Most of the area is within the lowlands, with some in the midlands and a very small portion in highland. This area is in the northern part of Tanzania mainland and borders the Republic of Uganda and Kenya in the north, Arusha to the east, Shinyanga in the South, Mwanza in the South West and Kagera in the West over the waters of Lake Victoria. Geographically it lies between Latitudes 1° 0' and 2° 31' south of the equator and between longitudes 33° 10' and 35° 15' east of Greenwich. In the government's administrative year of 2010/11, the Mara Region has been divided into six councils, made up of 20 divisions, in turn subdivided into 154 wards and further down to 487 villages and 57 streets as shown in the Table 4.1.

Table 4.1 District Profiles of the Mara Region

District	Council	Division	Ward	Villages	Mitaa
Musoma	Musoma Municipality	1	13	-	57
	Musoma Rural	3	34	115	-
Serengeti	Serengeti	4	28	91	-
Bunda	Bunda	4	28	106	-
Tarime	Tarime	4	30	95	-
Rorya	Rorya	4	21	80	-
Total		20	154	487	57

Source: The Mara Regional Commissioner Office Regional Profile of 2011

Climate, Soil and Topography
Mara has an average annual temperature of 28˚C. The region can be categorized in climatic zones as follows. The Northern Zone includes Tarime district and part of Serengeti. This zone has an annual rainfall of 1250 – 200 mm.
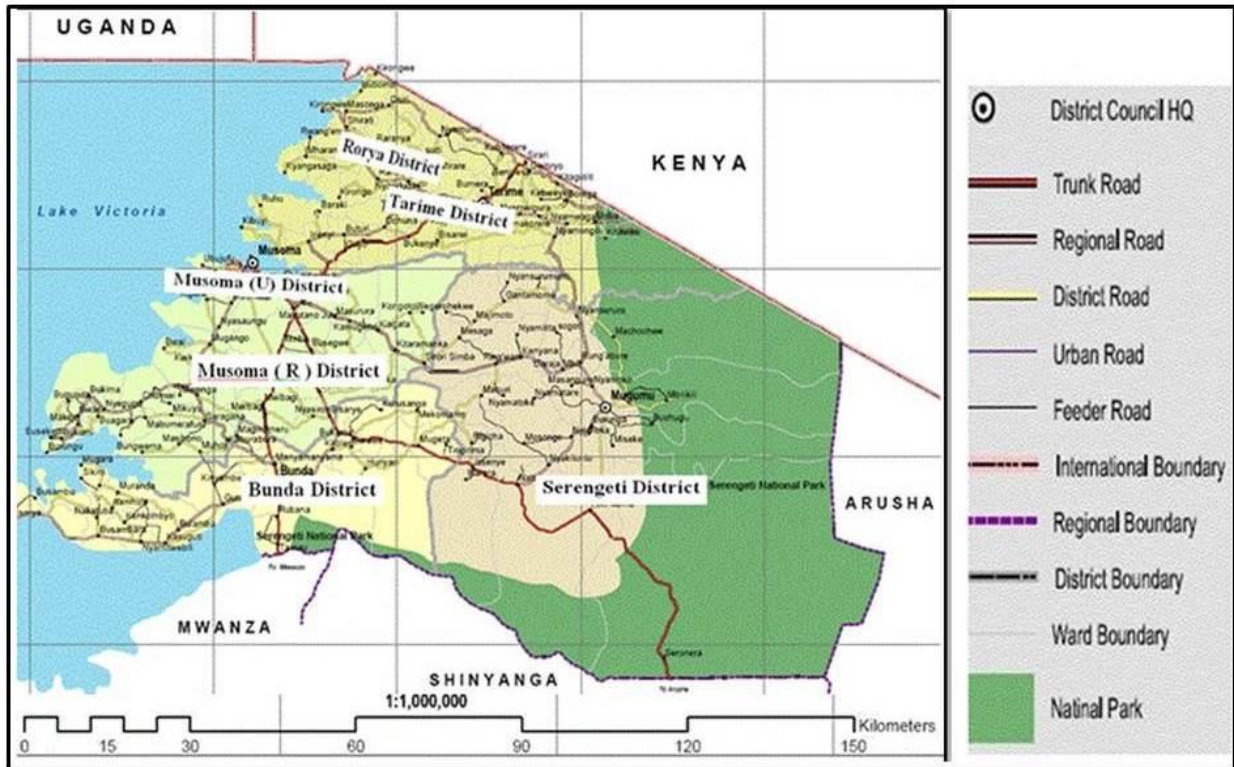
Map 4.2   The Mara Region and its Administrative Districts
Source: Regional Administration and Local Government Authority (2008)

The Central Zone, found in Musoma and the eastern part of Serengeti. The average annual rainfall ranges between 900 to 1300 mm. The Lowland Zone is Bunda and the places at the lake shores with an annual average rainfall of 700 – 900 mm. The rainy seasons are *Short Rainy Season*: September – November or December and *Long Rainy Season:* February – May.

Presently, the Mara Region has six councils of local government namely Musoma, Musoma Municipal, Tarime, Bunda, Serengeti and the recently added, Rorya and Butiama. The gathering of granite rocks forms the regional soil texture. The ground composition varies from gravel, to red sandy soil, light sandy loams, grey clay and black calcareous clay. The region falls in the Lake Victoria basin. With its perennial river Mara, the region also has seasonal steams like Suguti, Lyarano,Tigitai, Mori and Rubana. Of the 30,150 sq km of the Mara Region 10,942 sq km (36%) is water and 19,566 sq km (64%) is land. Among the highest hills are Ryamakongo (1259m), Kibayo (1254m) and Nyabisonga. The topography of the region manifests wide valleys and occasional steep-sided hills.

4.2.2 Socio-Demography and Economy

Population
The regional population has increased 2.5 times in the period between 1967 and 2002, with the projected growth rate for the period 2002-2012 expected to be 2.7%. The Mara Region has a

population density of 43.7 persons per square kilometre. In 2002, the regional average household size has been 5.5 persons.

Table 4.2 The Population and Square Area of the Mara Region Districts

District	Population	Area coverage (in sq km)		
		Total km	Land	Water
Bunda district	335,355	3,762	2,782	980
Musoma rural district	407,227			
Musoma urban district	170,411	4,309*	1,957*	2,352*
Rorya district	270,237	9,345	7,252	2,093
Serengeti district	220,344	10,942	10,942	-
Tarime district	352,855	1,792	1,792	-
Total	1,756,429	30,150	24,725	5,425

*includes Musoma Rural
Source: The Mara Regional Commissioner Office Regional Profile of 2010

Serengeti District is the largest of the six districts geographically, though its population is smaller than some districts. This is because more than half of the district area is what is known as Serengeti National Park. The regional population growth is estimated at 2.9 per annum. The last Census reports a substantial increase of the elderly group in the community. It has been noted that most of them are retired, and some have degenerative disorders due to various reasons. At the same time some are compelled to continue on as the household breadwinners because the most productive age groups are eroded by the complications of AIDS.

Ethnicity
The region is multi-ethnic with the following dominant ethnic groups:

- Wakuria – Wakuria, Wangoreme, and Wakiroba
- Waikoma – Waissenye, Wanatta and Ikoma
- Wajaruo – Wajaruo
- Wazanaki – Wazanaki, Waikizu, Wasizaki and Wakabwa
- Wajita – Wajita, Waruri and Wakwaya

Each ethnic group is identified by unique traditions and culture. However, they all share a common value; showing respect for and continuing to utilize traditional medicine. Furthermore, all traditional societies in the Mara Region are patriarchal, thus practising male domination over females.

Health:
Tanzania continues to be among the countries with a high burden of diseases, especially communicable diseases. According to Mara Regional Medical Office Report of 2010, the ten most common diseases of the Mara Region are Malaria, Acute Respiratory Infections, Pneumonia, Diarrhoea Diseases, Intestinal Worms, Schistosomiasis (caused by Schistoma Mansoni, found in Lake Victoria and other water bodies), Anaemia, Upper Tract Infections, Minor Surgical conditions and HIV/TB.

    With the exception of Musoma, each Council has a District Hospital. The Mara Regional Medical Office Report of 2012 shows there are a total of 259 health facilities in the Mara Region in the following categories shown in Table 4.3.

The region suffers from insufficient physical resources including infrastructure, medical equipment and drugs, as well as inadequate human resources.

Table 4.3 Available Health Facilities by Ownership in the Mara Region

Facility/Owner	Government	Religious	Private/ NGO	Total # of Beds	Total # of Facilities
Hospitals	3	3	2	1098	8
Health Centre	14	8	6	402	28
Dispensary	171	30	22	146	223

Source: The Mara Regional Medical Office Report (2012)

Unfortunately, without considering the medical practitioners from the traditional and alternative systems, it is estimated that the entire region has less than 50% of the required qualified manpower for health service delivery. The documented ratios of modern health care practitioners to the population are as follows: Doctor (Medical Officer) 1:58,000; Assistant Medical Officer 1:22,000; Clinician (Clinical Officer) 1:4,000; Dental Officer 1:1,500,000; Assistant Dental Officer: 1:56,000.

For quite some time, through an established memorandum of understanding, there have been few visiting specialized Chinese doctors who offer their services mainly at the regional headquarters in Musoma Regional Hospital.

Reproductive and Child Health (RCH) services are given throughout the region from 183 clinics. Vaccination coverage to pregnant women and children is quite promising. In 2006, about 95.5% of the target population completed their vaccination doses. However 14% of the children attended to at the clinics were malnourished. The leading causes of death to the under five children are, Malaria, Anaemia, Diarrhoea and AIDS-related diagnoses. Public health education continues to educate the masses especially on the use of treated mosquito nets and seeking out health services in a timely manner.

Contrary to the government's emphasis on deliver babies at the health facilities, some pregnant women have continued birthing at home. Though lack of physical and human resources are often cited as the reason, it is irrefutable that some like to be assisted by traditional birth attendants. In all District Councils of the Mara Region, there are reported cases of *uvulectomy* and *'plastic teeth'* extraction on children. A regional health survey conducted in 2004 and 2008 reveals HIV infections have increased from 1.8% to reach 5.3%.

Major reasons for the spread of HIV/AIDS, include female genital mutilation practices, wife 'inheritance' traditional customs, traditional death cleansing rituals, poverty and dislike of the use of condoms. The highest incidences are found in concentrated areas with mining and fishing activities. The establishment and running of Voluntary Counselling and Testing Centres (VCTCs) as well as Care and Treatment Centres (CTCs) for HIV/AIDS control and care is a challenge undertaken by the regional authorities.

Education
Primary education continues to be considered as a universal public good to all eligible kids without discrimination in line with the Tanzanian development vision up to the year 2025 (2025 (United Republic of Tanzania 1998).

In 2008, pupils in primary schools numbered 410,166 (208,342 boys and 200,526 girls) with a total of 6,921 teachers. By the year 2002, the average total enrolment went up to 214 per 1000 population at the start of the Primary Education Development Programme.

Table 4.4 Number of Primary School Facilities in the Mara Region

District Council	Number of Primary Schools		
	Government	Private	Total
Bunda	154	3	157
Musoma Rural	154	-	154
Musoma Municipality	35	6	41
Serengeti	96	2	98
Tarime	124	5	129
Rorya	113	-	113
Total	629	16	692

Source: Regional Commissioner – the Mara Region Profile (2011)

The total enrolment reached 292,707. Students are typically in the age groups of 10-14 or 25-29. In primary and secondary schools, students are typically between 7-25 years old, while students older than 25 years are attending institutions of higher learning.

A deficit in the number of teachers in the region exists, as the average teacher ratio for primary school has been projected to be 58:1. Also the region had a deficient of about 47% for available classrooms. (Table 4.5 shows the number of primary schools in the region). This meant the average class size has been 84 pupils per room. The same report from RC Office showed deterioration in the number of girls relative to boys in the population of primary school between 1978 and 2002. Despite the efforts of every local council, the average number of pupils' per desk in the region has been six, another facility shortfall in the system.

Serengeti and Tarime have had the poorest record in the enrolment of girls. The 2002 compiled data from Regional Commission Office shows a sex ratio of 106:100 for primary school, while in secondary school the 2002, the girls counted only for 28% of the total enrolment. A total of 161 secondary schools exist in the region, of which 15 belong to the private sector while 156 are public (see Table 4.7), all with a total of 32,300 students (12,754 girls and 19,546 boys). The Mara Region has three teaching colleges. Tarime has two certificate level colleges, and Bunda has one diploma level college. The Mara Institute of Adult Education and Open University continue to enrol students for the level of Diploma, Advanced Diploma and Degree programs.

Table 4.5 Number of Secondary Schools and Colleges in the Mara Region

District	Secondary Schools	Colleges
Bunda	27	2
Musoma Rural	37	-
Musoma Urban	22	7
Serengeti	25	1
Tarime	25	2
Total	161	13

Source: Regional commissioner- the Mara Region Profile 2011

Many primary and secondary graduates who cannot join universities and colleges join one of the seven Vocational Training Centres. (Musoma has three, Serengeti has two, Tarime has one, and Rorya has one). In Vocational Training Centres, skills acquired include those of mechanics, masonry, carpentry and joinery, fisheries, accounts, tailoring, secretarial studies, etc.

The Mara Region has few learning institutions for special needs students. These include *Mwisenge 'B'* (for the vision impaired); *Mwembeni 'B'* (for the mentally challenged as well as for the hearing and speech impaired).

As in other regions of Sub-Saharan Africa, the literacy rate and poverty lines are regarded as determinants to poor health status due vulnerability to communicable diseases, HIV and Sexual Transmitted Infections (STIs) in particular, poor utilisation of the available health services, etc. Education efforts in Mara Region tend to be aimed towards boys, putting girls at a disadvantage. Only when they are married are girls considered to benefit their newly linked families. Therefore, the tendency has been to support boys, as they are usually regarded as heirs of the family. However, in 2002, the Tanzanian government has waived off all enrolment setbacks to primary school, which includes the Universal Primary Education (UPE) annual fees. Once this is successfully implemented, it will help along the road towards equal education opportunities for both boys and girls in all regions. However, other remaining challenges include; procurement of uniforms, exercise books, textbooks, other necessary materials, and the changing attitudes of parents, and especially elders in the villages towards girls.

Patriarchal Social Life
Most of the economic resources in the Mara Region are planned, managed, administered and distributed by men. This is because the cultural and social thinking of all the ethnic groups in the Mara Region is male oriented. Female contributions are not welcomed justly, and unless there is enough critical mass to bring about changes, it is not likely all men will change in the near future. However, as more women get educated and have a stronger representation in decision-making bodies such as in the Local Government Authorities and the National Parliament, changes may occur as they will be in a better position to influence men and possibly fight for their own rights.

The culture in the Mara Region dictates that women work in very difficult environments and conditions labouring in the gold mines of Mara Region. It is the women who graze and look after herds of cattle (e.g. among the Kurya, Ngoreme, Ikoma, Issenye and other ethno-cultural groups) while village men live a relative live of leisure, which may include excessive drinking and sleeping idly. It is the women who sell fish (fish mongers), while men sleep after their fishing work. It is the women who do a lot of peasantry work for both food and cash crops. Generally speaking, women are the key actors of the communal economic activities, but unfortunately they do not enjoy equally the fruits of their labour. They do not have access to the revenue from their toil because of the existing patriarchal system of social life. Both males and females in the Mara Region are economically active from a very young age of approximately 10-14 years old, until 60-64 years of age (President's Office 1988).

Natural Resources
Abundant natural resources and biodiversity in the Mara Region contribute immensely to the region's economy and employment opportunities (see Figure 4.3). Lake Victoria, with an area of 68,880 sq km, the world's second largest fresh water lake, is shared by Kenya (6%), Uganda (43%) and Tanzania (51%).

Fishing activities from Lake Victoria provide for Tanzania's domestic fish consumption, for income generation (both domestic and abroad). Two main challenges in the fishing industry are irresponsible illegal fishing and black market exports to the neighbouring countries. However, the region has collaborated with the government's Fishery Management Department to ensure protection, conservation and sustainable use of natural resources.

In general, the governmental departments in charge of natural resources and the Tanzania National Parks authority both continue to encourage community-based approaches as well as local participative protection and conservation strategies of natural resources for the present and future generations.

Additional Economic Activities

The Mara Region recorded a gross domestic product (GDP) of Tshs. 245,495 million in 2002. The per capita GDP in 2000 has been US$190 while the average percentage of Mara Region contribution to the National GDP has been 3.45%, making the Mara Region the 13th position in the country. Mara Region industries include agriculture, fishing, hunting, tourism, mining, and bee keeping.
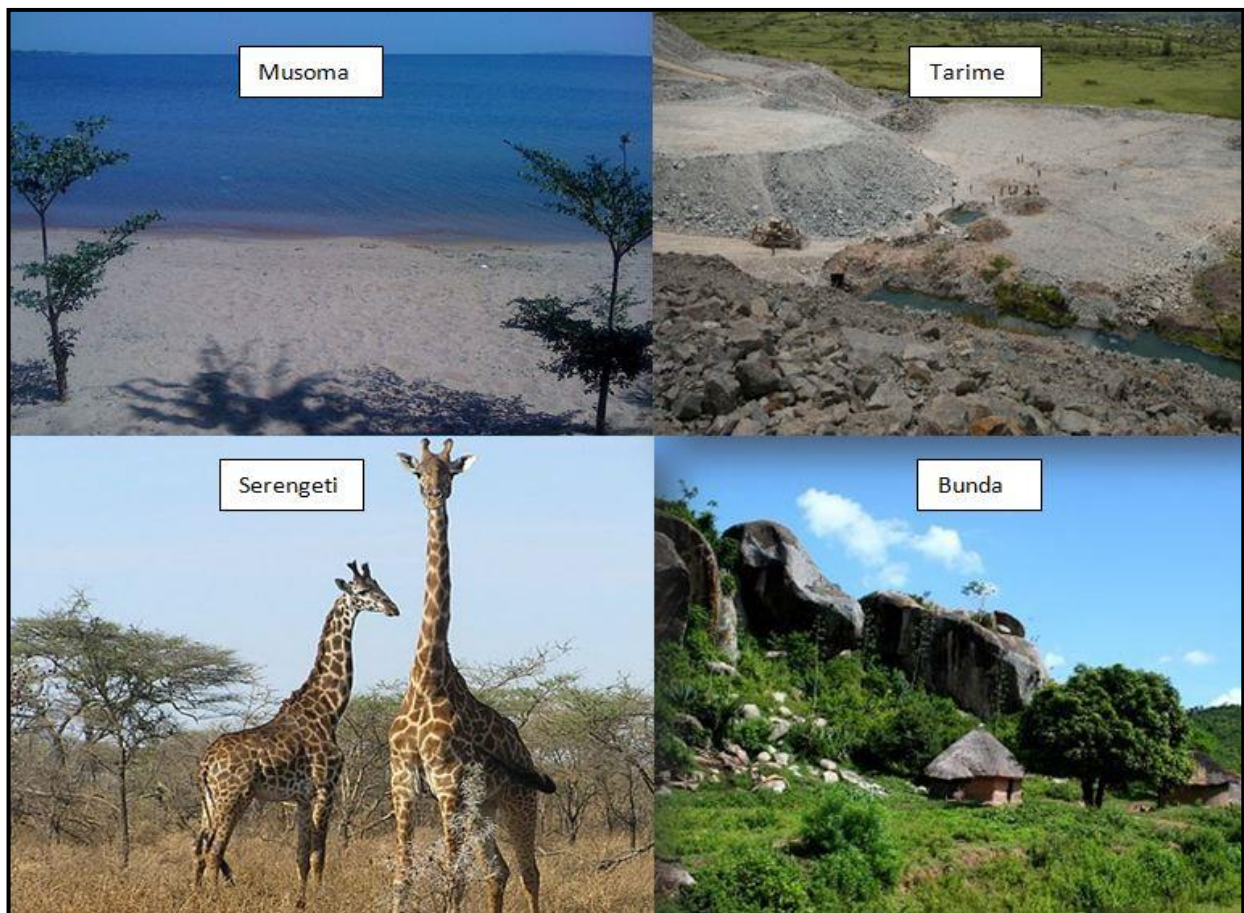
Figure 4.3   Diverse Natural Resources and Biodiversity of Mara Region.
              Source: Fieldwork (2009).

Cooperative and Economic Capacity Building

Until 2008, the Mara Region had 334 Cooperative Societies, including 193 *Saving and Credits Cooperative Societies* (SACCOS) and 141 *Agricultural and Marketing Cooperative Societies* (AMCOS). The increase in the number of societies and members is due to the 4th term government robust encouragement especially the establishment of SACCOS.

    The establishment of Cooperative Societies as financing sources is evidenced as a tool for poverty reduction in developing countries (Sizya 2001);

however there is a need to review governmental policies and find more efficient approaches on how to better establish and run these cooperatives.

Infrastructure: Transportation and Communication

Roads:

Most roads are gravel, making them vulnerable to harsh weather conditions especially torrential rains, rendering them seasonal. However there is a paved road which connects the area from Tarime, Musoma Township, Bunda and Mwanza.

Table 4.6 Road Network by Grade and District in Mara Region

District	Grade (km)				
	Trunk	Regional	District	Feeder	Total
Musoma	96	196	265	327	884
Tarime	139	273	215	270	897
Bunda	91	126	167	254	638
Serengeti	79	131	174	117	501
Total	405	726	821	968	2,920

Source: Regional Commissioner- the Mara Profile 2011

Water:

For passengers and goods, water is the second-most used means of transport, mainly used by lakeshore residents and islanders who travel by sailboats, motorboats and paddled boats. The condition of water borne transport is usually good with the exception of fierce wind and heavy rains. The situation is worse at points where the river and tributaries enter the lake. Safety measures are not widely applied, and the residents are less sensitised on proper use.

Airways:

Musoma Airport serves commercial and non-commercial chartered flights for passengers and cargo. Additionally, there are small airstrips for emergency medical care and evacuations as well as for Flying Doctors' Services.

Telephones, Telefax and E-mail:

All district headquarters are connected to an automatic phone system, thus able to use other electronic communication means like fax, e-mail. With the fast-growing Information Communication Technology (ICT) networks in the area, it is now possible to use electronic media, mainly in public service buildings and in fee-based Internet cafes, although the limited bandwidth is often overloaded and slow.

Electricity

All district headquarters are connected to the national electrical grid. Although, there is ample potential for renewable energy like photovoltaic, wind and thermal energy, these kinds of energy sources have not been substantially tapped.

Water Supply

Most areas in the Mara Region rely on natural water sources; Musoma and Bunda being endowed with Lake Victoria and the Mara River, while the Serengeti District has rivers such as the Mara, Grumeti and seasonal tributaries. Nonetheless, most people far from the lake and rivers use shallow wells, dams and springs for humans and livestock to drink. Unfortunately, due to sanitation problems the safety of water for human consumption is not guaranteed.

4.3 Study Population and Sample

4.3.1 Professional Groups in the Study Area

The sample size in this study includes medical practitioners from both Traditional and Modern Medical systems. The Modern Medicine (MM) system is comprised of professionals with various modern titles, while for Traditional Medicine (TM); professionals are identified by specific indigenous tribal names. Since the Mara Region of Tanzania is composed of different ethno-cultural groups, and for convenience as well as statistical relevance, professional grouping has been used to identify medical practitioners who perform related functions and services for clients. Table 4.7 summarizes the different professional groups differentiated in accordance with their medical systems.

Table 4.7 Professional Groups in the Study Sample Population

Modern Medical system	
Professional group	Cadres included from the sample population
Doctor	Surgeon, Medical Officer, Asst. Medical Officer,
Clinician	Clinical Officer, Asst. Clinical Officer, Dental Officer
Nurse	Nursing Officer, (Enrolled) Nurse, (Enrolled) Midwife
Allied Health	Practitioner in Pharmacy, Radiography, Laboratory, Orthopaedic
Community Health Worker	Health Officer, Community Health Volunteer, Village Health Worker, HIV/AIDS Counsellor
Support Worker	Chaplain, Medical Attendant, Nursing Student, Clinical Officer Student
Traditional Medical system	
Professional group	
Traditional Healer	Traditional Healer, Herbalist, Bonesetter
Traditional Birth Attendant	Traditional Midwife, Birth Attendant
Male Circumciser	Male Circumciser
Faith Healers	Spiritualist, Prayer warrior
Predictor	Predictor, Fortune Teller, Soothsayer
Traditional Medicine (TM) Vendor	Traditional Medicine (TM) Vendor

Source: Survey Fieldwork 2006

4.3.2 Socio-demographic Profiles

Sample Population with Age Distributions
The sample population of this study comprises both traditional and modern medical practitioners giving either Traditional Health (TH) services or Modern Health (MH) services. This study shows that those of Modern Medicine (MM) population are more with young and middle-aged adult practitioners while those from Traditional Medicine (TM), in contrast are mainly of middle-aged and older adults from, as shown in the population distribution in Figure 4.4. This means while the ages of modern medical practitioners range from 20 to 59; those of traditional health practitioners are 40 years old and above, as defined in the age grouping shown in Table 3.1. A major explanation for this is that most Modern Medicine (MM) workers retire at 55 years of age, while Traditional Medicine (TM) practitioners tend to continue giving services as long as they are physically able.
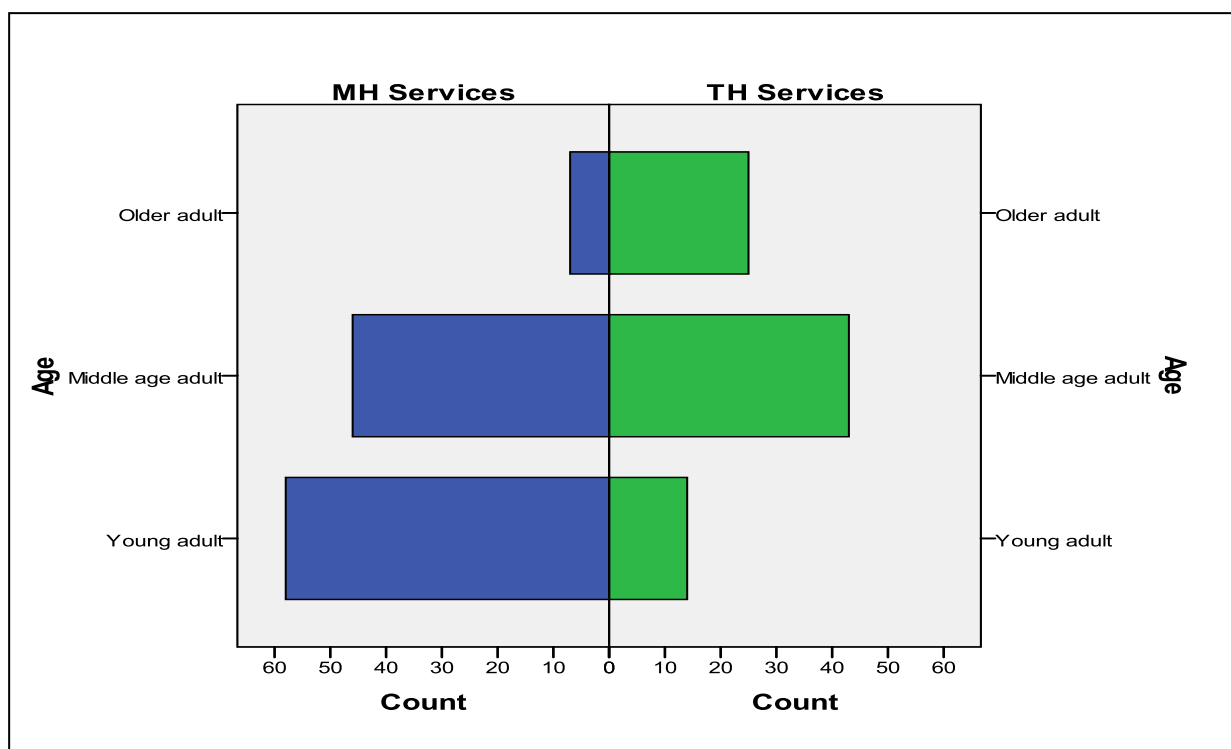
Figure 4.4   Medical Practitioners Age Population Distribution
              Source: Fieldwork (2006)

Sample Population with Their Religious Affiliation
The sample population of male and female medical practitioners from both Traditional and Modern Medicine displays their different professions and religious affiliations are shown in Table 4.8 and 4.9. Religion is one of the most fundamental and influential aspects in most African's lives. Religious beliefs and practices affect the way Africans and their social groups collaborate or refuse to collaborate with others (Mbiti 1993).

   The distribution of the sample population shows that only community health workers and traditional medical practitioners are affiliated with traditional African religion. Modern medical practitioners are affiliated with either Christianity or Islam. It is therefore not a coincidence that traditional medical practitioners are also considered as preservers of indigenous traditions, including the traditional African religion, which has been often mistaken and dubbed by early Missionaries as 'ancestral worshipping'.

Education Level of the Sample Population in each Medical System
It is observed that Modern Medicine (MM) system has more people with formal education on the tertiary (26.4%) and even university level (24.5%), while traditional medical practitioners have only less participants with secondary educations (15.7%) and very few with tertiary educations (3.6%). This supports the argument of the historical difference in the medical knowledge acquisition methods which differentiated the Traditional Medicine (TM) and Modern Medicine (MM) systems. While most of the traditional healers, birth attendants and circumcisers inherit such professions through oral and on-the-job training, modern medical practitioners spend several years in formal schooling in colleges and universities.

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Table 4.8 Male Sample Population with their Professional Group and Religion

Professional Group	Religion								Total Males	
	Non-Believer		Muslim		Christian		Traditional African religion			
	N	%	N	%	N	%	N	%	N	%
Doctor	0	.0	6	66.7	3	3.3	0	.0	9	100.0
Clinician	0	.0	4	25.0	12	75.0	0	.0	16	100.0
Nurse	0	.0	4	40.0	6	60.0	0	.0	10	100.0
AHW	1	8.3	5	41.7	6	50.0	0	.0	12	100.0
CHW	0	.0	3	30.0	6	60.0	1	10.0	10	100.0
Support Worker	1	11.1	3	33.3	5	55.6	0	.0	9	100.0
Traditional Healer	2	8.7	7	30.4	9	39.1	5	21.7	23	100.0
Circumciser	1	10.0	2	20.0	4	40.0	3	30.0	10	100.0
Faith Healer	1	20.0	2	40.0	2	40.0	0	.0	5	100.0
Predictors	2	100.0	0	.0	0	.0	0	.0	2	100.0
TM Vendor	0	.0	5	100.0	0	.0	0	.0	5	100.0
Total	8	7.2	41	36.9	53	47.7	9	8.1	111	100.0

Key: AHW- Allied Health Worker; CHW- Community Health Worker; TBA- Traditional Birth Attendant; TM- Traditional Medicine
Source: Survey Fieldwork 2006

This study sample population profile shows in Figure 4.5, that no one in the Traditional Medicine (TM) system had a university education. This is a vivid difference to be explored later as a challenge in the Ministry of Health and Social Welfare of Tanzania, should it follow the WHO strategy of 2002 towards achievement of a fully nationally integrated health care sector where formal training is also provided to traditional and alternative medicine practitioners.

Table 4.9 Female Sample Population with their Professional Group and Religion

Professional Group	Religion								Total Females	
	Non-Believer		Muslim		Christian		Traditional African religion			
	N	%	N	%	N	%	N	%	N	%
Doctor	0	.0	1	33.3	2	66.7	0	.0	3	100.0
Clinician	0	.0	2	40.0	3	60.0	0	.0	5	100.0
Nurse	0	.0	7	38.9	11	61.1	0	.0	18	100.0
AHW	0	.0	2	50.0	2	50.0	0	.0	4	100.0
CHW	1	6.7	2	33.3	3	50.0	0	.0	6	100.0
Support Worker	0	.0	2	25.5	5	62.5	1	12.5	8	100.0
Traditional Healer	0	.0	7	46.7	5	33.3	3	20.0	15	100.0
TBA	0	.0	3	27.3	5	45.5	3	27.3	11	100.0
Faith Healer	0	.0	1	50.0	1	50.0	0	.0	2	100.0
Predictors	0	.0	1	100.0	0	.0	0	.0	1	100.0
TM Vendor	0	.0	1	11.1	3	33.3	5	55.6	9	100.0
Total	1	1.2	29	35.4	40	48.8	12	14.6	82	100.0

Key: AHW- Allied Health Worker; CHW- Community Health Worker; TBA- Traditional Birth Attendant; TM- Traditional Medicine
Source: Survey Fieldwork 2006
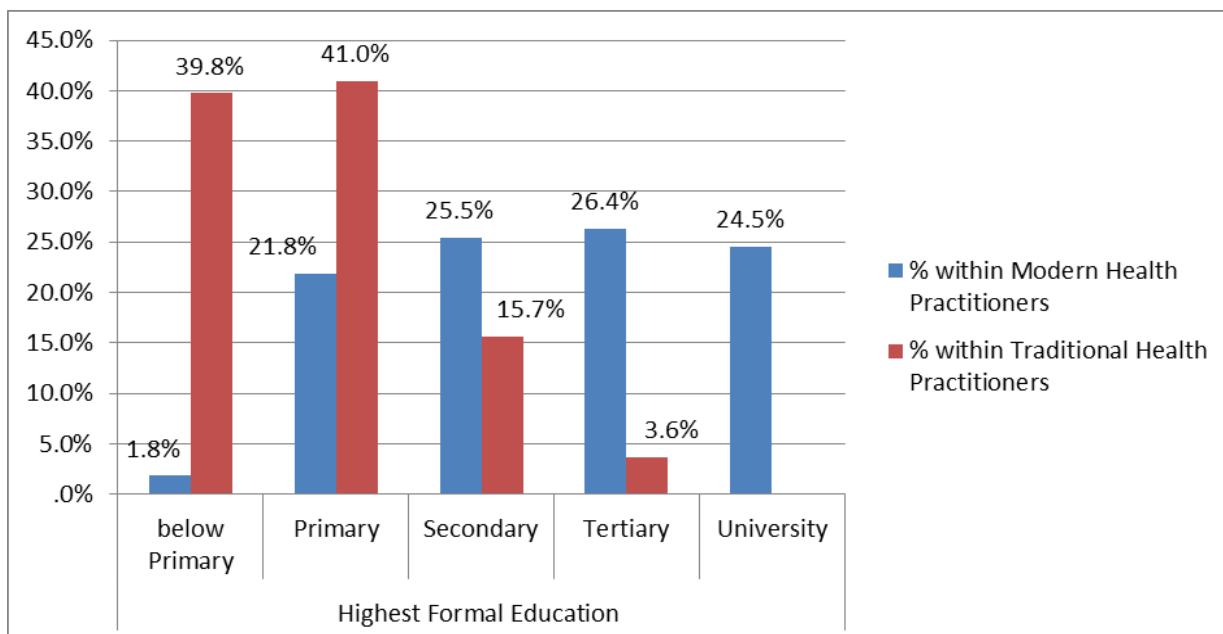
Figure 4.5   Highest Formal Education Reached Among Health Practitioners
Source: Survey Fieldwork 2006

4.3.3 Socio-Economic Status (SES)

Socio-Economic Status in Accordance to Professional Groups
The socio-economic status (SES) of individuals in the sample population is a computed average derived from six variables, all related to socially recognized personal and household wealth indicators accepted in the region. These variables are; income, building materials used for the house, type of roof, size of land, type of transportation, and total value of domesticated animals. The individual's average indication is translated into a *poor, average* or *rich* economic status. Table 4.10 shows the individual socio-economic status among the identified professional groups. Generally speaking, Traditional Medicine (TM) practitioners have a lower SES as compared to their counterparts in Modern Medicine (MM). The discrepancy is even wider when Traditional Medicine (TM) practitioners are compared to Complementary and Alternative Medicine (CAM). Such practitioners are ahead in terms of acquisition of organisational inputs such as medical package materials, decent workspaces and information resources when compared to traditional healers.

The major differences could be due to differentiations in terms of income, government intervention on resource allocations among the available medical systems and of course the overall national economic strength. While most of the modern medical practitioners are employed and always get their monthly salary, in Traditional Medicine (TM), the practitioner's income depends on how many clients one has. Few (4.7%) among the selected medical practitioners in this study have high socio-economic status. Those with low and middle socio-economic status are 62.7% and 32.6% respectively. The professional group of (modern health) doctors has the highest percentage (16.7%) of practitioners with high socio-economic status within the group, while 100% of the professional group of traditional predictors, namely soothsayers and fortune tellers, falls within the lowest socio-economic status.

Individual Socio-Economic Status (SES) in accordance to gender
Female practitioners have almost the same percentage of individual SES as males (4.9% & 4.5% respectively) in the high level of socio-economic status within the same groups. Females have lower percentage level in the middle level of SES as compared to males (22% and 40.5% respectively). Following the same trend, the females show a lower level of SES compared to the males (73.2% and 55.0%), as shown in Figure 4.6.

Table 4.10 Individual Socio-economic Status and % within the Professional Groups

| Professional Group | Individual Social-economic Status | | | | | | Total | |
| | Low | | Middle | | High | | | |
	N	%	N	%	N	%	N	%
Doctor	5	41.7	5	41.7	2	16.7	12	100.0
Clinician	15	71.4	5	23.8	1	4.8	21	100.0
Nurse	21	75.0	6	21.4	1	3.6	28	100.0
AHW	9	56.3	6	37.5	1	6.3	16	100.0
CHW	11	68.8	5	31.3	0	.0	16	100.0
Support Worker	12	70.6	5	29.4	0	.0	17	100.0
Traditional Healer	22	57.9	14	36.8	2	5.3	38	100.0
TBA	5	45.5	5	45.5	1	9.1	11	100.0
Circumciser	6	60.0	4	40.0	0	.0	10	100.0
Faith Healer	5	71.4	2	28,6	0	.0	7	100.0
Predictors	3	100.0	0	.0	0	.0	3	100.0
TM Vendor	7	50.0	6	42.9	1	7.1	14	100.0
Total	121	62.7	63	32.6	9	4.7	193	100.0

Key: AHW- Allied Health Worker; CHW- Community Health Worker; TBA- Traditional Birth
     Attendant; TM- Traditional Medicine
Source: Survey Fieldwork 2006
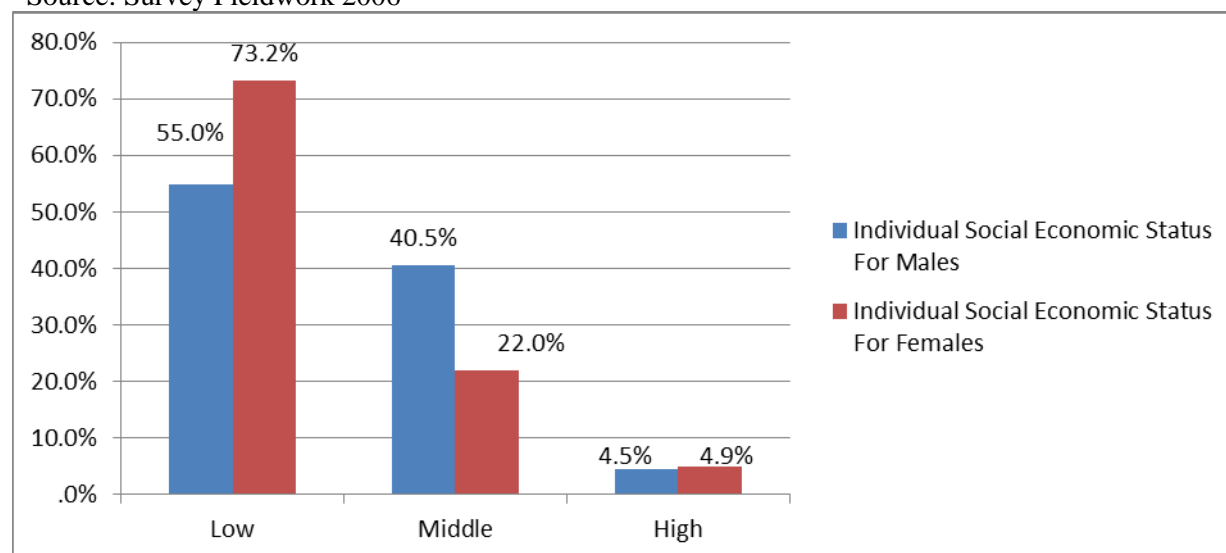
Figure 4.6   Socio-economic Statuses as % Level within the Same Sex Group

While income may not vary much, the socio-economic status of females becomes lower mainly because few women own land, domesticated animals and houses. This is true despite the judicial understanding on family property sharing ownership; the traditional patriarchal system of the Mara Region compels the masses to believe and consider those properties (land, domesticated animals and houses) to belong mainly to men. Gender equality is a crosscutting, continuous agenda to be addressed with affirmative actions in all the Tanzanian ministries and departments.

Notes:

1. The *Global Footprint Network* is an international non-profit organisation established in 2003, with the aim of advancing the use of science for sustainable livelihood where people will have satisfying health and livelihood within the means of one planet. This organisation measures human impact on earth, and displays it to the public to enable people to make informed choices. Reports are distributed worldwide. The *footprint* trends was surfed on August 18[th,] 2012. at:
http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/

CHAPTER V TANZANIAN CULTURE AND COMMUNITY LIFE

This chapter further explores the culture, traditional value systems and rituals in the Mara Region. The first Paragraph highlights the region's historical, administrative and organisational structure. It also shows the general Tanzanian livelihood patterns where norms, beliefs and leading philosophies dictate the way in which the Mara Region inhabitants think, behave and relate to each other. Lack of knowledge and understanding the culture can easily mislead external observers and researchers into bigotry or prejudice. This Paragraph seeks to elaborate some misconceptions about the locals' livelihood and the different factors interpreted traditionally as the cause illnesses.

The second Paragraph expounds on common socio-cultural values affecting people's health status. The third Paragraph is devoted to specific cultural attributes of health in Mara Region. The common social values affecting people's health status are discussed. The major challenges facing Traditional Medicine (TM) in the region are presented in detail. The chapter ends with presenting a summary of existing efforts on collaboration between Modern and Traditional Medical systems in Mara Region and Tanzania as a whole, including among others, meetings, conferences, working together towards safe male circumcision, positive development of related higher learning studies and the formulation of herbal products under the Muhimbili Institute of Traditional Medicines.

5.1 General Tanzanian Livelihood Patterns

5.1.1 General Values, Beliefs and Norms in the Society

In general, the ways Tanzanians think, behave and make decisions are shaped with indoctrinated societal traditional values and beliefs, which have been held since long before the arrival of colonialists. In contemporary Tanzania, the set of acceptable values and beliefs emanates from indigenous societal ethical standards, holy scriptures, the Tanzanian constitution of 1977, Tanzanian laws, the Universal Declaration of Human Rights adopted in 1948 by the United Nations General Assembly of which Tanzania is a member, the National Culture Policy (sera ya utamaduni) of 1997, and other international protocols ratified by Tanzania. The general values can be seen in people's leadership and governance, modes of production and ownership, attitudes and perceptions as well as in peoples' art and in the national symbols.

Tanzanians perceive basic rights as narrated in Part III of the Country Constitution of 1977 including: the right to live, the right of equality, the freedom of conscience, the right to work and the right to basic education. In the same clause, all Tanzanians are expected to carry such duties as active participation in working, abiding to the laws of the land and defending the nation.

The African philosophies on socialism (*ujamaa*) and self-reliant work support the sharing of properties together and taking communal responsibilities for the well-being of other members of the society. Kiswahili is the national language and a uniting force, while vernaculars are also allowed to be used among families and ethno-cultural group fellows. English is used as a commercial language and is also still used in secondary and tertiary learning institutions, amidst a fierce discussion whether it should be replaced by Swahili for more effective student outputs in the learning processes and translation of theories into practice which become easier in a language which a student is fluent in.

Some crucial national values are displayed through national symbols. Tanzanians are not only proud but respect their national symbols, such as the national anthem, the flag, the coat of arms and the *uhuru* (freedom) torch. The cross-cutting themes in the symbolism of all these symbols include freedom, unity, wisdom, peace, cooperation among men and women, and guarding the land, water and other natural resources for the common good of the nation.

5.1.2 Common Misconceptions on the Livelihood of Tanzanians

Evidence from tourists, some travel booklets and unscientific surveys by international mass-media papers have sometimes wrongly judged Tanzanians (or all Africans) as lazy, uncivilized and not open, or hypocrites with respect to livelihood and worldview (1). These sources do not understand well the intrinsic meanings of the Tanzanian culture, way of life and value systems. Below three common misconceptions are indicated:

i. Time Management
Tanzanians feel they are not slaves to the clock. Therefore, time and schedules are subjected to circumstances and context. For example, the death of one village member could mean cancelling or rescheduling a business meeting. Flexibility is always a value to be preserved. Notwithstanding, with a critical eye, the researcher believes that with a more proper management of time utilization especially when calling and having meetings, Tanzania could greatly improve its productions and in turn for its economic growth.

ii. Begging
As with every society in the world, sometimes begging is employed by the less privileged as a way of acquiring the necessary scarce resources for decent livelihood. Tanzanians are not just potential beggars as a matter of habit but poverty is the number one global deadly '*dis-ease*' situation which takes away all prides of humanity.

iii. Indirect way of Communicating
Whenever possible, Tanzanians would like not to hurt others when speaking or writing. Therefore a careful choice of polite words, answers or questions are meant to protect good relationships at the expense of being seen as open or direct. To some foreigners, this indirect way of speaking can be translated to signify hypocrisy or even untruths. Occasionally, this behaviour proves difficult for public health workers who are forced to think hard on how to deliver the message on prevention or health promotion but without being considered as so direct or very critical or even inhumane.

   Some of these norms and value systems can be traced from the pre-colonial history of the indigenous Chiefdom formation. Others are the combination of the strong adherence to the ideals and virtues enshrined in *Ujamaa* (kind of African socialism). *Ujamaa* was tenaciously advocated by the late Mwalimu Julius Kambarage Nyerere, the founding father of Tanzania, who happens to be a native of the Mara Region and whose body lies in peace (1999) in the Mausoleum at Butiama village of Musoma rural. The museum, with notable memorabilia, is also considered as part of the most important and visited national, historical and political museum (Figure 5.1). Tanzanians, remember Mwl. Nyerere as a role model portraying servant leadership, unity, Pan-African patriotism, disdain of wealth at the expense of others and contempt for unwarrantable discrimination.

The following are general observations to supplement the qualitative results of this research, based both on the researcher's personal life experience in the area and on open-ended interview responses.

i. Socializing

The indigenous Mara Region people and Tanzanians in general ironically say *'deny me your food but let me socialize'*. People like meeting informally to socialize during leisure time. The setting depends on demographics and interests, such as the age group, occupation, gender, marital status, religious affiliation, sporting interests, etc. Long greetings and chatting encompass much of people's socialization. Unannounced visits are common. People who are very strict with appointments and formalities are considered bureaucratic and independent, which are not values to be proud of. To most people dancing and singing can be a very natural and powerful tool of communication. No wonder traditional health practitioners as well as prayer warriors often include music, dancing and singing as part of the process of treating and caring for their clients or for invocation to the spiritual world.

Figure 5.1 The Researcher visiting the Mausoleum of Julius Kambarage Nyerere, *Father of the Nation* in Butiama.
Source: Chirangi Fieldwork - 2008

ii. Respect and Equity

Commonly, Tanzanians respect each other. But even more engrained, respect is considered a hierarchical social function, for example, during the following interactions:

- when speaking to elders, the young use the greeting 's*hikamoo- marhaba'* to show respect;

- capable siblings support their parents financially, or through any other form of assistance;

- community / organization members give leaders special seats and priority in some public services and meetings.

However, this does not mean respect is a one-way obligation, for the belief is *'respect others, to be respected'*. Neither does it emphasize inequality and subordination, but a vertical kind of equity, essentially summed up as 'give equal treatment to equals and unequal treatment to unequals'. For example, managers will get a higher salary but will also be more highly taxed than their subordinates. At times, this value is problematic, especially when a young, learned individual is brought to educate the more aged members of the society. The researcher had such experience while working with elders through the JUA Project for capacity building workshops on control of HIV/AIDS and care of People Living with HIV/ AIDS (PLWHA). Presentations to workshop participants included a facilitator who was a very young medical doctor speaking before elderly traditional healers, midwives and circumcisers.

iii. Generosity
Tanzanians are known to be generous despite their low economic status. This value is taken not as a choice or privilege to others, but as a moral obligation especially to visitors and guests. Therefore hospitality is held with high regards within the society, and therefore everybody continues to utter '*Karibu tena* (come again)' while bidding their guests farewell. On unannounced visits; there is no offence in being served meals that were not expected or being denied in paying for meals and drinks in a hotel when accompanied with a Tanzanian host who is capable of settling the bill.

iv. Communal and Interdependent Life
In contemporary market-driven economies, where socialism is not considered as the mode of production and living, communities still recognize the reality of helping others and sharing scarce resources such as food processing appliances, cars, bicycles, cameras, etc. with others. There is a strong belief that no one can be entirely independent: Humans need each other.

Getting community contributions towards weddings and funerals is very common in Tanzania, and recipients of such contributions are then expected to do the same to others. Such activities serve as an indigenous social welfare net, a system the researcher applauds, and takes a step further, advising all people to also extend the same benevolence to the increasing number of destitute 'street' kids, to fundraise to assist students without access to educational opportunities, and to give a lot of attention to the prevention and treatment of sick people rather than waiting to fund a big, elaborate funeral for a person whose life may have otherwise been saved.

v. Religion
As African writer, Mbiti, (1990) observes, Africans are notoriously religious. Tanzanians live in religious pluralism. There is freedom of worship and tolerance for others' religious beliefs. However, with few exceptions, anecdotal evidence shows that normally a person is expected to believe in God, whatever their religious affiliation. Even in governmental circles, any leader confessing not to believe in God will likely be unpopular.

By implication, religious virtues (be it Christianity, Islam, African Traditional Religion, Hindu, etc.) are used to completely reject practices like same-sex marriages, abortion, euthanasia and prostitution which are all considered by the majority as unethical. Furthermore, it is common for Tanzanians to pray before beginning certain activities, including taking an exam, travelling, eating, sleeping, and even before starting sports competitions.

A major challenge is to contextualize African Christianity and Islam to be able to appreciate African cultural heritages while lessening unnecessary yolk of imposed foreignness such as Christian names, Western hymnal melodies, Western church building plans, disregard of purely indigenous medicinal plants and curative skills and so on in the name of biblical or koranic absolutes. Generally, leaders from all religions are still held with high regard in the society as to most members of the population. Furthermore, because interprofessional collaboration is a behavioural act influenced by different factors including the views of *the significant others*, (such as religious leaders, teachers, elders), some modern medical practitioners (especially in religious health facilities feel uneasy even having medical discussions with traditional healers, let alone considering collaborating with them, as previously discussed in Paragraph 2.4.2 on the *Theory of Reasoned Action*.

vi. Meals and Table Manners
Staple foods are very much determined by tribal or ethnic origin and environment. Due to globalisation, Tanzanians have access to different foods and drinks. Traditional foods include potatoes, cassava, bananas, and *ugali* (a stiff porridge), rice, meat, fish, beans, vegetables porridge and milk. Foods and drinks introduced form outside (were not there traditionally) include homemade pancakes known as *chapati*, tea, coffee and sodas.

Before meals, Christians prefer that someone gives thanks and ask for blessings over the meal. A Muslim also will pray by confessing that he or she begins in the name of *Allah*. Hand washing is also normally done before and after meals with respect to a queue of seniority and other equity considerations (as explained in item *ii* above). Children are expected to be somewhat calm and show proper table manners while eating. Excessive cleaning of the plate as one finishes, may be taken to mean the person was not satisfied, and did not have enough to eat. People may eat seemingly significant amounts of food, but not necessarily have balanced diets with all the required nutrients and variety of foods. Therefore, malnutrition remains a problem for some children especially in rural areas.

vii. Clothing
Depending on the economic status of the family, people long to look smart. Youths strive for the prevailing fashion. Due to the warm weather, people mostly wear lightweight clothing. However, unquestionably, the society expects its people to dress decently. For example, very tight miniskirts could be seen as provoking sexual harassment, while an oversized, patched pair of trousers may indicate hooliganism. Though the masculine-feminine clothing gap is narrowing, with the exception of some artists, for example, a Tanzanian man is still not expected to wear earrings, unless he wants to be considered homosexual. The daily feeling of self-evaluation in relation to feeling under- or over-dressed is new to most Tanzanians.

viii. Gender Issues
The country is now very much engaged in gender inequality alleviation strategies. However, some Tanzanian women and girls still suffer under some practices of traditional patriarchal systems. In many families the husband is the 'head' of the family, the bread winner, the decision maker, the spokesperson and the resource allocation. Sometimes, misinterpretation of religious books has been used to confirm the supremacy of men over women.

ix. Privacy

Socially, Tanzanians are open to discussing nearly all aspects of their lives. They typically take no offence when asked their age, family size, work, beliefs, etc. One exception is anything related to sexuality. Perhaps somewhat in jest, they do not want people other than their partner to see or touch their underpants after being washed.

To withdraw from discussing issues such as sexuality with young people has long hampered efforts to fight against HIV/AIDS. The Tanzanian National Bureau of Statistics Report of June 2011(*Tanzania in Figures* pg. 35) shows the HIV prevalence rate for women 15-49 years is 6.7% while of men of same age is 3.5%. More vigorous campaigns on attitude change by the district health authorities, media and NGOs are slowly gaining ground in every district.

5.2 Traditional Leadership in the Mara Region

5.2.1 Chiefdom Divisions in the Mara Region

Until 1916, the Mara Region was known as a Musoma sub-district, part of what was named the Mwanza District. After the British administrative changes, the district was subdivided into North Mara and South Mara, with the Mara River as the border. All Musoma, Mwanza, Kagera and Shinyanga were part of one province named Lake Province. Not until 1 May 1963, were the regions recognised; Mara, Kigoma, Mwanza, Moshi and Ruvuma. On 7 July 1963, the Honourable Oswald Mang'ombe Marwa became the first Mara Region Commissioner, holding office until 1965.

In the Mara Region's pre-colonial period of time, groups had their own local leaders, known as Chiefs (*Watemi/Machifu*). Building on British administrative changes which took place between 1950 and 1958, chiefdom divisions were formed in North Mara and South Mara to help the smooth governance of the colonial masters through indirect rule. Tables 5.1 and 5.2 show the historical administrative and organisational structure of the Mara Region.

Table 5.1 North Chiefdom Divisions

	Chiefdom Division	Chief	Sub Division/Sub-Chiefdom	Division HQ
1	Girango	Philipo Misoke	Kyoro, Bukwe, Sang'ombe, Nyanduga, Mirare, Malongo, Kitembe, Roche, Goribe, Ikoma	Ryagoro
2	Inchage	Haruni Rhobi	Binagi, Genge, Nyarero, Kibasuka, Nyakonga, Kiamairi, Turwa, Tarime minor settlement	Nyamwigura
3	Inchugu	Marwa Bhoke	Mbogi, Mwema, Pemba, Nyamhunda, Nyamamaga	Sirari
4	Ingwe	Amani Chogo	Gorong'a, Kemambo, Kibununaria, Muriba, Nyamwaga, Nyanungu, Matongo	Nyamwaga
5	Inano	Martinus Waryuba	Kwigego, Manga, Mikoma, Nyandoto, Kwikerege	Mtana
6	Kiseru	Shem Ariri	Bukura, Kirogo, Shirati, Namagaro, Omoche, Nyamtinga, Mkoma, Kigunga, Nyahongo, Nyamburi	Shirati
7	Luo Imbo	Clement Odemba	Nyathorogo, Rorya, Rabuor, Surubu	Nyathorogo
8	Suba	Johannes Chacha	Kyangómbe, Tingirime, Komuge, Nyamunga, Baraki, Kisumwa	Kinesi

Source: The Mara Region Commissioner's Office Report of 2011

5.2.2 The Role of Traditional Chiefs

Among the mentioned chiefdom of the Mara Region, the family of Chifu Wanzagi Nyerere (Butiama), Chifu Makongoro (Ikizu) and Chifu Sarota (Issenye) are the only remaining, having strong, yet only symbolic and ceremonial powers. Through oral history accounts, it is known that the chiefs' role in traditional Tanzanian societies was much broader and stronger than during colonial period of time. At the time time, chiefs were not only the leaders from the royal family, but also served as the *magico-spiritual* intermediaries between the local people and their ancestors. Ancestors, according to the Bantu religious cosmology, were buried elderly members of the community who had lived a pious lives as good citizens.

Table 5.2 South Mara Chiefdom Divisions

	Chiefdom Division	Chief	Sub Division / Sub - Chiefdom	Division HQ
1	Bukwaya	Wakili Cleophas Musira	Busamba, Bukiroba, Munguru(Nyakatende)	Mukirira
2	Mugango	Mutwenge Sondobhi	Mugango, Bwai	Mugango
3	Zanaki	Edward W. Nyerere	Busegwe, Buhemba, Buruma, Butuguri, Bumangi, Magana, Muganza	Nyamuswa
4	Ikizu	Matutu Matutu	Ikizu	Muriaza
5	Ushashi	Masanja Kitereja	Ushashi	Bunda
6	Majita	Daudi Majinge	Majita, Bwasi	Bwasi
7	Nguruimi	Simeon Clement	Ikorongo, Ringwani, Chawatema, Iramba, Kisaka	Majimoto
8	Ikoma	Nyihoraha	Nata, Issenye, Ikoma,	Nata
9	Kiagata	Isangura Matiku	Bukenye II, Bwiregi II	Kiagata
10	Musoma Mjini		Musoma Mjini, Iringo minor settlement	Musoma Mjini

Source: The Mara Region Commissioner's Office Report of 2011
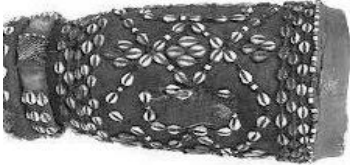
These chiefs could communicate to the Supreme Being for sufficient rainfalls, good fortune, victory, health and livelihood on behalf of society. Chiefs were also custodians of the cultural materials and symbols of every society. Some of the vivid examples were the chiefdom loyal regalia, which would be passed down from one chief to another in the succession line. Table 5.3 shows some of the most common loyal artefacts and their symbolism to the indigenous people of the Mara Region. Such symbolic materials could be seen at the chief's homestead, chief's attire, displays during festivities and ceremonies in the society.

5.3 Community Life in the Mara Region

5.3.1 Social Institutions and Values

The family is a unique social institution, formed by a marriage, either monogamous or polygamous in the Mara Region. Polygamous marriages are always polygyny, not polyandry. Traditionally, all ethnic groups in the Mara Region value the extended family ties, credited for assisting each other and socialising the young. Marriage ties are very much respected in the society with regard to social obligation, legality, and in relation to major religious teachings (Christian or Islam).

Table 5.3 Common Chiefdom Regalia and the Underlying Symbolism

Artefacts	Name (Indigenous and English)	Cultural symbolism
	Insimbo yo Omukama (Jita/ Ruri/ Kwaya)* *Fimbo ya Mtemi(Swahili)* (Royal Cane)	Leadership, Unity and Judgment
	Obwose (Jita/Ruri/Kwaya) *Mguisho (Swahili)* (Fly Whisk)	Leadership, Blessings and Peace
	Echitebhe cho Omukama (Jita/Ruri/Kwaya) *Kiti cha Mtemi (Swahili)* (Royal Stool)	Authority
	Olwayi lwa Intare (Jita/Ruri/Kwaya) *Ngozi ya Simba (Swahili)* (Lion's skin)	Strength and power
	Obhukoma no Omusimu (Jita/Ruri/Kwaya) *Upinde na Mshale (Swahili)* (Bow and Arrow)	Military power
	Ingofila yo Omukama (Jita/Ruri/Kwaya) *Kofia ya Mtemi (Swahili)* (Royal Crown)	Royal Family
	Ingóma yo Omukama (Jita/Ruri/Kwaya) *Ngoma ya Mtemi(Swahili)* (Royal Drum)	Ceremonial

Source: Fieldwork 2009 Collections from J.K. Nyerere Museum, Butiama and Bujora
             Cultural Centre – Kisesa

The Mara people, as with all Tanzanians, observe an aspect of exogamy known as incest taboo, which is a prohibition of mating with or marrying a close blood-linked person. Apart from the early anthropological thinking of incest as a universal phenomenon of preventing genetic deterioration due to inbreeding (Morgan 1877; Westermarck 1896), or religious guidelines such as Leviticus 18:6-16, there are other historical view of incest taboo as a mechanism to promote alliances between groups. This view proposes that, by marrying outside of bloodlines, the family becomes larger, thus gaining more support (White 1949). In some ethno-cultural groups in the Mara Region, whenever a woman's husband dies and leaves her childless; the woman remarries one of her husband's brothers as a continuation of the patriarchal family.

Similarly, ethno-cultural groups such as the Luo which traditionally observed a kind of sororate marriage. In such a traditional system, when a man's wife is not able to bear children or dies without bearing a child, the husband was allowed to marry her sister to protect the family lineage.

Apart from the legality of marriage ties, traditionally, people in the Mara Region, consider bride prices and the availability of siblings born into a particular marriage as social mechanisms for maintaining families. When the wife wants to leave her husband, it shall be expected that the value of bride price once paid during the wedding is returned to the husband's family. Therefore, some women have continued persevering matrimonial abuses in fear of such restitution should they decide to leave. On the other hand, following local customs, few childless marriages have survived in the society as the will end up in divorce.

Cultural Individual Identity
Identity leads to the distinguishing and differentiating aspects of reality as compared to other realities. This view considers the etymological analysis of the term 'identity', consisting of two words; firstly, *'id'* (derived from Latin *psyche* and Greek *idios*) to mean one's own, and secondly 'entity' from *'ens'*, the present participle of *'esse'* which means 'to be'. 'Identity' therefore refers to the individuality of the thing or person; of what the thing or person is. Identity also indicates the belongingness and similarity (sameness) to a social group and sub-groups in contrast to others.

Locke (1689) contemplated personal identity (the self) to originate from consciousness and not on the substance of either the soul or the body (2). Human are unique in their consciousness of their past and future thoughts and actions in the same way as they are conscious of their present thoughts and actions. In the same way, the inhabitants of the Mara Region continue to be conscious of their traditional tribal and cultural identities, despite the scorn of the colonial times under the umbrella of (Western) civilization as well as the prominence of national unity in the post-colonial period of time when Swahili and national leaders were given priority at the expense of local vernaculars and tribal chiefs.

Normally, the Mara Region follows paternal lineage. The current typical young person's identity in the region starts with nationality, followed by his or her full name, which includes a given name (the majority have Christian or Muslim names), the name of the father and lastly the grandfathers name. Some consider it important to mention in an introduction that they are devoted Christians (saved) or Muslims first. On the contrary, the traditional way of identifying oneself was more elaborate. One would start by giving his or her full traditional given name followed by the names of the father, grandfather, great grandfather and at least as far back as the great great-grandfather. This would be followed by the tribe and clan name, and finally, the chiefdom.

Family identity has a much wider meaning in Tanzania and Africa as a whole than in most Western countries. The family includes grandparents, parents, uncles, aunts, children, nephews, nieces, and grandchildren who may have their own siblings and other relatives in the homestead. The Mara Region people value the extended family ties (Van Pelt 1982; Mbiti 1994).

Verbal and Nonverbal Communication Signals
Based on fieldwork interviews in 2006 and 2007 with key informants in the different districts of the Mara Region as well as the researcher's life experience, it is apparent that in addition to the verbal tribal vernaculars, people of the Mara Region use a variety of non-verbal communication signals to convey messages to the intended receiver(s). These non-verbal signals include different body movements such as; eyebrow movements, head movements, handshakes, and arms akimbo. Various audio messages are also shared through songs, drumming (Swahili: *ngoma*), playing harps (Swahili: *zeze),* flutes (Swahili: *zomari),* xylophone (Swahili: *marimba*), percussion packs (Swahili: *manyanga*), traditional galato (Swahili*: gitaa*), etc. Other non-verbal signals include the sense of different smells and tastes, the use of pictures the symbolism of colours, the use of space and different styles of arrangements, the variety of writings, the use of different cultural artefacts, and use of time. These communication signals are ethnic and sometimes clan-determined. For example, the Luo would lament the death of a beloved by singing and dancing vigorously, the Jita would be silent or crying in sorrow. While a Kuryan woman may whistle, the Ruri would not expect to hear a whistle from their women. While the Ikoma youth could wear black during an initiation ceremony, the Wakwaya would put on different colours but not black. While a Zanaki woman is decorated in reddish rocky colour and dairy oil, this is a taboo for the Waruri.

Generally, Tanzanians communicate freely, but in a responsible polite manner. At times speaking or writing indirectly by use of proverbs and 'sayings of wisdom' is preferable as a way to maintain and or restore harmony and one's dignity. (See Appendix II on the impacts of irresponsible communication.) Swahili has many different proverbs and special sayings frequently used as a way of giving a warning, encouraging, comforting, rebuking or showing affection. Examples of collected proverbs and sayings and their intended role are shown in Table 5.4.

Public Rituals
Public rituals are periodic actions, statements and thoughts which express and renew certain basic values in the society regarding the relationship of human-to-human, human-to-nature and human-to-supernatural powers (3). In all districts of the Mara Region there are various public rituals which use certain valued symbols, including particular styles, materials, attire, songs, scent, gestures, and recitals. These societies are not only tribal in nature, but also include social organisations such as age groups, women's societies, self-help groups, health facilities, professional groups, religious groups, training schools, cooperative societies, political parties, business organisations and government agencies. Based on the anthropological theories of rituals narrated in *The International Encyclopaedia of the Social Sciences* (2008: 520-526), below are three common public rituals in the Mara Region. In general, all three of these types of rituals are performed to help the society or individuals psychologically and socially to redress misfortunes and/or restore human health status.

1. *Cosmic cycle or calendric rituals:* A cerebration of changes, for example, in the weather (e.g. rainy versus dry), agricultural seasons (e.g. planting, weeding, harvesting),

appearance of the moon (which determines most Islamic festivals), national public holidays, or a general election following vigorous campaigning. In calendric rituals, different activities are normally performed, such as specified prayers, singing, dancing and being off duty.

2. *Rituals of misfortune:* These are performed for unexpected happenings in the society, such as natural calamities, including windstorms. During a prolonged drought, rain makers may perform special rituals to appeal before the Supreme Being and through ancestors for the land to receive enough rains. Customarily it has been common in the Mara Region to observe married women (and sometimes men) who have not been able to bear children, consulting traditional healers and or prayer warriors (spiritual healers) as a way to conduct appropriate rituals as a way to restore their reproductive ability.

Table 5.4 Traditional Proverbs and Sayings and their Role

Local Proverbs / Sayings	Literal English Translation	Implied / Role
Mficha maradhi kifo kitamfichua (Swahili)	Death reveals the one who hides illnesses	Timely health intervention
Nyuki hakumbatiwi (Swahili)	A bee can't be held in a palm	Warning of a threat
Unachokiona hakifai sasa kianike kitakufaa wakati wa njaa (Swahili)	Isn't useful now, but dry it to help during famine	Importance of preservation
Dobi wa kweli utamjua siku akipewa nguo nyeupe (Swahili)	A competent launderer is known when given white linen	Performance appraisal
Hata saa mbovu (ya mishale) huwa sahii mara mbili kwa siku (Swahili)	Even a defected analogue clock is right twice in 24 hours	Accepting humanity
Umaridadi huficha ufukara (Swahili)	Decent appearance hides poverty	Decent clothing
Omulimu ogukomela gutakolelwe (Jita/Ruri/Kwaya)	By not starting, work may seem difficult	Encouragement
Akasyo okwitokoma nkusya karaseye (Jita/Ruri/Kwaya)	The curvature depth of a grinding stone shows how it has been used	Experience matters
Tangata unyake obhukama bhuli imbele (Jita/Ruri/Kwaya)	You have got to toil before you become a king	The benefit of perseverance
Olubhata-lubhata wakuru ailiye mubhui (Jita/Ruri/Kwaya)	The loitering of the tortoise cost its life in a burnt grass	Risks of idling and aimless living

Source: Fieldwork 2006-2007 (Collection from oral history and life experience)

3 *Rituals of Social Transition:*
Here, a society takes a bold step to accept a new member who has fulfilled certain criterions such as the rituals of the rite of passage from boyhood to manhood and girlhood to womanhood during an initiation ceremony. While the Kuryan-related ethno-cultural groups continue to observe strong male circumcision and female genital mutilation (which is publicly prohibited, but done secretly by some traditional birth attendants), traditionally the Jita, Ruri, and Kwaya ethno-cultural groups accept only male circumcision.

Other transition rituals include colourful pre-wedding and wedding ceremonies. Furthermore, when a beloved member of a society dies, funeral activities and lamentations are observed in accordance with tribal and religious customs, as also occurs with illness, then attaining the *sick role*, and hospitalisation.

When hospitalized, people leave their normal life and are transformed into a new 'health facility society', where clothing may be different (use of hospital pyjamas), patients' identities are changed into cases, and their society roles are changed into 'sick persons' characterised with a sense with vulnerability and considered incapable to carry on normal societal roles.

4 Social Security

The people of the Mara Region like other Tanzanians live a communal life. Although globalisation and a more cosmopolitan lifestyle is encroaching on most African countries, including Tanzania, the community life of Mara residents has, to a greater extent, still shaped with ingrained African socialistic values. Such values guide people to have a spirit of helping each other and share their lives, which includes their wealth and whereabouts to a greater degree than is typical in Western societies. Whereas the Mara people, like others in Tanzania, understand the liberalisation of their main economic functions where market forces and privatisation is the order of the day, quite a number of them do not subscribe to this idea as they feel that such policies benefit investors and affluent businessmen more than the common middle and low income citizens.

From the colonial times to the present era of globalisation, some of the traditional social institutions such as the chiefdom leaderships and close extended family ties have been dismantled. There is a gradual change of values, which shifted priority from a the wider extended families, to now having closer ties remain within the realms of the nuclear family However, people have used both their customary and newly-adopted modern values to redesign social institutions such as the microfinance organisations with principles of cooperative societies well known as *Saving and Credit Cooperative Societies* (SACCOS). These *Saving and Credit Cooperative Societies* (SACCOS) in villages, towns and workplaces, are now used to provide kind of 'soft' loan facility. With the failure to implement the old communal village farms (*mashamba ya vijiji vya ujamaa),* propagated under the *Arusha Declaration*, currently most people do individual family farming, fishing, mining and retail business activities.

Through the social security reforms in Tanzania, people now have access different *Social Security Institutions* (SSIs) such as the *National Social Security Fund* (NSSF), the *Local Authority Pension Fund* (LAPF), the *Government Employees Provident Fund* (GEPF), the *Parastatal Pension Fund* (PPF), the Public Service Pension Fund, National Health Insurance, and the *Community Health Fund* (CHF). For years, these *Social Security Institutions* (SSIs) have been offering conventional benefits such as retirement benefits, disability benefits and withdraw benefits only to employees, leaving many with unmet social and economic insecurities. The *Social Security (Regulatory Authority) Act* of 2008 helped in regulating and supervising performances as well as giving advice to the minister in charge of policy changes to address the challenges of limited benefits, uneven benefit packages and sometimes-unregulated investment activities. More important are the recent training campaigns to educate people about the goals and benefits of *Social Security Institutions* (SSIs). Such training is also been given to leaders in the workers union umbrella organisation namely the *Tanzania Union Congress of Trade Associations* (TUCTA).

Although many criminal and civil cases are brought before the judiciary courts to resolve disputes between opposing parties, parents, elders in the village, employers, school teachers/tutors and religious leaders have continued to act as arbitrators in conflict resolution

and management. Among the ethno-cultural groups of the Mara Region, the Kuryan still have a strong elderly judicial system (*baraza la wazee wa kimila*) which also acts as a tribal decision making body. Major religions in the area are Christianity, Islam and, with the fewest followers of the three, African Traditional Religion. Within each religion, there are different institutions and rules dictating entrance and the rules of remaining an accepted member. Consequently, religious beliefs largely affect people's worldviews and behaviours.

As explained in the beginning of this chapter, politically, the Mara Region was originally built under the chiefdom leadership, and the community would pay high respect and listen to their chief. Currently, the Mara Region people are members of different political parties. Every five years, the National Electoral Commission calls for the national general election where leaders are democratically elected to represent them in the local government council and in the Parliament of the United Republic of Tanzania. Elections also determine the president, who serves as the head of state and chief of defence forces and forms the cabinet of ministers to run the government.

5.3.2 Patterns of Life in the Region

Inhabitants of the Mara Region learn their traditions and patterns of life by socialization in the families, peer groups, schools and to a lesser extent through both governmental and traditional meetings. The family is considered as the most important institution where members of the society learn to respect societal ethics, traditions, knowledge of family ties, and various skills.

The way people plan and conduct their daily business follows the regional administrative and local government authority structure and bylaws. The Mara Region, as with all other Tanzanian regions, is divided into urban authorities who include municipal and town councils, and rural authorities who include district councils with township councils and village councils. Both urban and rural authorities have autonomy in their geographical boundaries. The main functions and duties of local government include:

- formulating, coordinating and supervising all economic, industrial and social development plans;

- monitoring and controlling staff performances;

- ensuring collection and proper utilization of the council's collection;

- developing and reviewing bylaws;

- regulating and coordinating development plans, projects and programmes under the village and township authorities;

- regulating and monitoring the collection and utilization of revenues in villages and townships;

- performing other required governmental acts subject to the existing laws.

In rural areas, the lowest authority is called *Kitongoji* which is the smallest unit of a village, composed of an elected chairperson and a an advisory committee;

while in urban areas have a *Mtaa*, which is part of the ward consisting of elected chairperson, six members and an executive office.

Local government election is done democratically every five years, with universal adult suffrage at 18 years of age. The district council chairperson and mayors are elected by elected members (Councillors) of the respective authority while the village councils members are elected by the village assembly. At least one elected member of the parliament serves in every district council to represent the interests of the people from that particular constituency. There is a direct linkage between the central government and the lowest authority in every area due to the linkages in the organisational structures.

The Mara profile from the regional commissioner's office reports a notable immigration of people from other regions such as Shinyanga, Kisii (Kenya) due to land and food shortages mostly in the Tarime and Serengeti district. Other minor migration within the Mara Region occurs when the Kurya people move from the densely populated area of the Tarime highlands to the sporadically populated eastern and central midlands of Serengeti, displacing the indigenous Ikoma people.

CENTRAL GOVERNANCE MAINLAND TANZANIA: President Government Parliament: National Assembly			
REGIONAL GOVERNANCE Regional Commissioners (RC) & Regional Administrative Secretaries (RAS) District Commissioners (DC) & District Administrative Secretaries (DAS)			
LOCAL GOVERNANCE			
Urban Authorities			Rural Authorities
CITIES City Councils	TOWNS Town Councils	MUNICIPALITIES Municipal Councils	DISTRICTS District Councils
WARDS Ward Development Committees			
MTAA		Village Councils	Township Authorities
		VITONGOJI	

Figure 5.2   The Local Government System in Tanzania
Source: The Local Government System in Tanzania, 2009

In the past, there was a high population density around Lake Victoria as compared to the hinterland due to access to sufficient water, the soft soil easy to till by hand hoes, abundant fish and easy transportation by use of canoes (Mara Region Farmer Initiative Project, Vol. I, FAO/IFAD of July 1995). Subsequently, people in Mara Region engage in different agro-economic activities at a differing rate depending on the available ecological zones, which displays different socio-economic parameter as it shows in Table 5.5.

Table 5.5 Mara Region Agro-economic Zones

Parameter	Lake shore	Lowland inland and Midlands	Highlands
Population density	High	Low	High
Cattle ownership (No)	Low	High	Low
Ozonization	Low (10%)	High (60%)	Intermediate
Intensivity of agriculture	Intensive	Extensive	Intensive
Off-farm income earning opportunities	High	Low	High

Source: Mara Region Farmer Initiative Project, FAO/IFAD, 1995

Humans share similar basic needs of food, shelter, protection and health for maintenance of life. Every society develops social patterns and organisations to tap resources from its environment to meet these basic needs. Ethnic groups in Mara Region, such as the Ikoma and Ikizu, engage in *hunting*, while the Jita, Luo, the Ruri and the Kwaya do more *gathering*, which includes activities such as fishing. Others engage in animal husbandry, in keeping cows, goats, chicken, and sheep for food and their skins; dogs and cats for protection (against burglars and animal attacks and damages), while donkeys are for transportation. Almost every ethnic group does work in *horticulture*, using mainly hand tools to grow food such as corn, sweet potatoes, cassava, beans, rice, vegetables, etc. as well as cash crops such as coffee, cotton and sisal. Some food crops can also be produced in large quantities for business.

Figure 5.3   Women and Children Fetching Water from Lake Victoria
Source: Fieldwork (2012).

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The other similar but more advanced technology is *farming*, where the people use a plough pulled by oxen. Few have tractors, which are being facilitated by the government through local district councils under the *Kilimo Kwanza (Agriculture First)* national resolution of 3 June 2009, which has a strategy of transforming agriculture into a modern, green and commercial sector to combat poverty. In Mara Region, the majority own small farms, and use both manure and chemicals as fertilizers.

Nevertheless, productivity has decreased due to unreliable rainfall, pests, land infertility, unaffordable pesticides, and farm implements as well as fishing gadgets. This has brought tremendous challenges to the agricultural sector, which the *Kilimo Kwanza* strategy must to address for economic growth and as part of response to the escalating unemployment problem in the region.

Although the Mara Region has adequate water sources, which include Lake Victoria and Mara River, access to clean and safe water at homesteads is one of the biggest challenges in the region. Inhabitants, especially women and children, usually have to walk to the sources several times in a day to fetch enough water for their families as shown in Figure 5.3.

Few industries are in operation in The Mara Region. These include the fish processing industries in Musoma, a coffee factory in Tarime, cotton ginneries in Musoma rural and Bunda and the Musoma textile industry, which is already running under capacity. Tarime, Serengeti, and Musoma rural districts have a mining industry, where people work either as employees or are.

The Tanzanian Ministry of Energy and Minerals has advised them to formulate social groups, for the ease of giving them substantial technical and financial assistance.

Notes

1. One example is Stephen Moyes' article, *Life of O'Reilly* from the Mirror (UK), September 2005, ranking Tanzania the worst place to live after Zimbabwe and Haiti.
2. John Locke writes about consciousness as the repeated self-identification of oneself through moral responsibility, which could be attributed to the subject. This discussion is in his book entitled *On Identity and Diversity* in *An Essay Concerning Human Understanding*. Book II, Chapter XXVII (1689).
3. London, J. B. (1966). *Private stress and public ritual*. Journal of Psychosomatic Research 10, pg. 101-108 defined public rituals as '*those aspects of prescribed and repetitive formal behaviour is those aspects of certain aspects of certain customs has no direct technological consequences and are symbolic*'.

Chapter VI HEALTH AND HEALING IN MARA

This chapter presents the health and healing agenda in the Mara Region. Paragraph 6.1 begins by presenting the general health status of the population and the health services in Tanzania, including the Mara Region. A few selected national indicators are compared with those from one other developing country in Africa, as well as a developed European country, The Netherlands. Major challenges in Tanzanian health care are also presented with a focus on health care system reforms. The general vision of health service delivery as well as its organisation is also explained. The Paragraph also highlights some noticeable development and changes which have taken place in the Tanzanian medical systems in a timeline from the pre-colonial, colonial and post-colonial periods.

Paragraph 6.2 explains the Mara Region as a pluralistic medical configuration. The fundamental differences between Traditional Medicine (TM) and Modern Medicine (MM) are summarised in terms of worldview, focus, approach, diagnostic tools, organisations, methods and efficacy. The plural configuration in the Mara Region is presented by showing the type of practitioners, practices, methods and people's differential use of Traditional Medicine (TM), Modern Medicine (MM) or Complementary and Alternative Medicine (CAM). The major challenges to address Traditional Medicine (TM) in Tanzania are further elaborated.

The last Paragraph 6.3 presents a discussion on inter-professional collaboration efforts in health care. It starts by presenting beliefs on causes of illnesses and remedies followed by the use of medicinal plants in the region and lastly on the existing efforts on collaboration between traditional and modern medical systems. Such efforts in the Mara Region and Tanzania as a whole include, among others; referrals, meetings, conferences, working together towards safe male circumcision, and safe delivery. Further efforts include the positive development of related colleges of higher learning, formulated herbal products from the Muhimbili Institute of Traditional Medicine (TM), and the classification of common medicinal plants and their useful parts.

6.1 General Health Status and Health Services

Today, despite several health plans, policies and reforms adopted since its independence in 1961, Tanzania, as many other developing countries is characterised by a poor health status, which is also related to the overall situation of poverty. Table 6.1 presents key health indicators from the World Health Organization (2012), along with figures comparing Tanzania to other selected countries in Africa, East Asia and Europe. Such figures provide a glimpse of the relatively poor delivery of health services and health status, which Tanzania is still facing. These indicators are similarly reflected for the situation in the Mara Region, which shares the same burden of disease and faces the same health-related challenges as all regions of Tanzania.

The Report on *Health Care Systems Improving Performance* (WHO 2000a) indicates that overall ranking of the United Republic of Tanzania's in 2000 is 156 out of 191 member state countries. The ranking is based on measures of goal attainment; disability-adjusted life expectancy; health equality in terms of child survival; responsiveness level; responsiveness distribution; fairness of financial contribution; and performance on level of health. Notwithstanding, such low records do not imply that the Government of the United Republic of Tanzania is doing nothing to alleviate the situation. The *Country Health Data Comparison* (WHO 2012) over the past five years shows general positive steps in the improvement in the health care system and health status of Tanzania. Positive steps are:- steady increasing

vaccination coverage to the under five year children, reduced both Infant and Maternal Mortality Rate (IMR & MMR), increased life expectancy, and increased capital expenditure on health and training of health workers.

6.1.1 Health Indicators in Tanzania

According to the *Health Statistics Abstracts of 2010 Report* from the Ministry of Health and Social Welfare (MoHSW 2010), the health management indicators reveal, on average, that access to health services is still a problem. For example, about 40% of women still deliver babies at home without even the help of a Traditional birth Attendant (TBA). The referral system is ineffective as it only favours those people living near the health facility, while the authorities of the district hospital do not visit about 31% of all villages because they are far away. Some people still live more than five kilometres away from the nearest health centre. More than 50% of all health facilities reported that they received their drug kits late. Only 43% of non-functional equipment in health facilities was fixed or replaced within three months of reporting, signalling either resource constraint or a culture of poor maintenance.

   The health facilities response rate in Health Management Information Systems is still very low and with incomplete information; such reports reflect challenges in how to collect, manage and make informed decisions based on this kind of incomplete and mostly unreliable data. The *Mara Region Health Report* (2011) shows a continuation of high rates of communicable (preventable) diseases.

Table 6.1 Comparison on some Health Indicators between Tanzania and other Selected
            Countries

Health Indicator	Countries in Comparison				
	TZ*	KE	ID	TN	NL
Life expectance at birth (average)	55	60	68	75	81
Adult Mortality Rate per 1000 people	311	282	143	70	56
Infant Mortality Rate per 1000 live births	50	69	38	14	5
Maternal Mortality rate per 100,000	460	360	220	56	6
Physician Density per 10,000 People	0.1	1.4	2.9	11.9	28.6
Nursing & Midwifery Density per 10,000 people	2.4	11.5	20.4	32.8	1.5
Hospital beds per 10,000 people	7	14	6	21	47
Population growth rate (%)	2.8%	2.6%	1.2%	1.0%	.5%
Children under 5 years underweight	16.2%	16.4%	9%	6%	*N/A*
People with improved sanitation (%)	10%	32%	54%	81%	100%
People with improved drinking water sources (%)	53%	59%	82%	90%	100%
Total Expenditure on health as % of GDP	3.4%	4.8%	2.5%	6.0%	8%
People living on < US$1 (PPP Int.$) a day (%)	67.9%	19.7%	18.7%	5.87%	*N/A*

*Key: N/A- Not Applicable *TZ=Tanzania, KN=Kenya, ID=Indonesia, TN=Tunisia, NL=Netherlands*
Source: WHO (2012a) *World Health Statistics: Indicators*

According to the Ministry of Health and Social Welfare (MoHSW 2010**)** among the top ten frequently reported diagnoses and or causes of death among Tanzanians are malaria, anaemia, protein energy malnutrition, pneumonia, upper respiratory tract infection, diarrhoeal diseases, intestinal worms as well as (for females aged five years and above) pulmonary disorders, and obstetric and gynaecological problems

The main causes of morbidity and mortality are malaria, tuberculosis (TB) and HIV/AIDS. Malaria accounts for 30 percent of the national disease burden. In 2010, about 32 million people (76.4% of the population) were living in areas with stable malaria transmission. Incidence is estimated to be between 14 and 18 million cases per year. In addition, malaria causes between 100,000 and 125,000 deaths per year, with between 70,000 and 80,000 of the deaths occurring amongst children younger than five years. Tuberculosis and active tuberculosis infection has rapidly increased, mainly due to the HIV/AIDS pandemic. The incidence of tuberculosis has been increasing at a rate of 5-10% annually, and most cases occur in the 15-49 year age group (MoHSW 2011).

According to the *Long-term Prospective Plan* (2010) from 2011-12 through 2025-26 of the Office of the Planning Commission the major challenges facing the health care system are inadequate human resources and insufficient financing. Improved financing for the health care system is vital, especially in capital investment in order to expand health service networks while ensuring quality preventive and curative health services. Concerning the human resources in the system, the ratio of professional medical staff per inhabitant in 2010 was 1:10,000, which is below the average indicator for low-income countries with a ratio of 1.1 medical staffs for 10,000 inhabitants. In general, the *Long-term Prospective Plan* (2010) indicates the following challenges for the Government:

- governmental financial constraints;

- low capacity at local Government level in terms of the required resources;

- insufficient medicines, medical supplies, modern equipment and specialised medical staff (especially dentists, cardiologists, orthopaedists and neurologists);

- low public education regarding healthy habits;

- low health insurance coverage;

- low health service available to the poor.

It is clear that health sector system reform is inevitable, and the formation of an appropriate health policy must be made a priority in order to improve the quality of Tanzania's livelihood.

6.1.2 General Vision and Roles of the Health Care System

The Tanzanian health care system is pluralistic as it encompasses the traditional Bantu medical system, the traditional Arabic medical system, the modern medical system and the Complementary and Alternative Medical (CAM) system. While discussing the life of the people in the Mara Region, however, it is worthwhile to mention that the modern medical system has been misrepresented with unnecessary prejudice to overshadow the existing and abundant forms of Traditional Medicine (TM) which has been serving the needs of the population over many generations. In some cases, traditional healers have been despised and even been arrested (1) Even today, when discussing the medical system, the bias continued to favour modern medical practitioners and their practices at the expense of traditional medical practitioners and their services, as well as practitioners of Complementary and Alternative Medicine (CAM).

Most of Tanzania's health indicators match those of other developing countries in Sub-Saharan Africa. The first strategic health plan was developed three years after independence, in 1961. It was later updated after the *Arusha Declaration* in 1967, which had the following vision: *'The objective of socialism in the United Republic of Tanzania is to build a society in which all members have equal rights and equal opportunities; in which all can live in peace with their neighbours without suffering or imposing injustice, being exploited, or exploiting; and in which all have a gradually increasing basic level of material welfare before any individual lives in luxury' (*Nyerere 1968: 340). For health care, this meant that the emphasis was placed on spreading the health facilities to rural areas and expanding the number of health workers. Tanzania is one of the countries where the concept of community-based health care has strongly been promoted, in which village health workers and traditional birth attendants have been employed.

In the beginning, the Government discouraged private health services, except for those provided by the church, and sought to achieve free health services for all Tanzanians. As the result of economic decline and growing debt, this goal, however, has not been realised.

The health referral system of the Government reflects the pyramidal shape of a referral system*, i.e.* from dispensary to 'consultant hospital'. Through the present time, the Ministry of Health and Social Welfare (MoHSW) has formulated health policies and regulations as well as provided health services through health facilities health, programmes, projects and agencies. Apart from health services, the Ministry of Health and Social Welfare (MoHSW) spearheads training courses normally for modern medical practitioners. There are several medical training schools (government and private) for various medical personnel, such as Muhimbili, Tumaini, Machame, Mbeya, Musoma, Bugando, and Kairuki. The aim of the Government is to train qualified and motivated medical personnel at all levels within the health care system. There is a large gap in Tanzania's health care system where there is insufficient qualified staff, especially in the rural areas. Most of the medical doctors are situated in the urban areas. Further investigation is needed to ascertain what kind of initiatives, in addition to worker incentive packages, are being taken to address this problem.

Another important issue is reproductive health. The *National Family Planning Programme* encompasses all family planning activities provided by the various agencies and is coordinated by the *Reproductive and Child Health Unit* of the Ministry of Health and Social Welfare (MoHSW) The Government had started to provide family planning services in the mid-1970s. The *Family Planning Unit* became operational in 1986, and has been gradually strengthened to its present capacity. The *Family Planning Unit* is responsible for initiating and developing family planning standards and guidelines on service provision, training and other aspects of quality care.

The Government of Tanzania coordinates the following programmes through the Ministry of Health and Social Welfare (MoHSW): *National Malaria Control Programme, National Child Survival Programme, International Trachoma Initiative, National Safe Motherhood Programme, National* Tuberculosis and Leprosy Programme, and the *National AIDS Control Programme*. The *Tanzanian Commission on AIDS* (TACAIDS) has taken a coordinating role to streamline the national HIV/AIDS programme, so the Ministry of Health and Social Welfare (MoHSW) can focus on the people's response to the health care system. *The Public Health Education Department* (PHED) is concerned mainly with identifying the prevailing health problems and disseminating to the public methods of preventing and controlling these problems. This is an integral part of community involvement in Primary Health Care. This Department of the Ministry of Health and Social Welfare (MoHSW) is often the first entry point for third parties (donors/NGOs).

The public health education system also provides in-depth training for health officers on such subjects such as *sanitation, HIV/AIDS, malaria, cholera, tuberculosis,* etc. In practice, most of the public health activities are so far implemented largely by NGOs.

Coordination between the preventative and curative Departments of Ministry of Health and Social Welfare (MoHSW) could be improved. In some districts the staff in both Departments discuss the level of activities and divide curative and preventative tasks according to the national health policy, while in other districts, a clear division in organisational structures can be observed.

6.1.3 Historical Major Changes and Impacts in Health Care

Table 6.2 shows traces of major changes which have taken place in the health sector and their impact to the people during pre-colonial, colonial and postcolonial times.

Table 6.2 Historical Health Sector Changes and their Impacts in Tanzania

Period	Dates	Situation and Changes	Notable Effects / Impacts
Pre-Colonial	100	Bantu medicine	Traditional Medical practitioners (TMPS) highly respected and included in overall community governance. Sacred and secretive health knowledge; service- (rather than business) oriented
	1100	Arabic and Islamic medicine introduced	Introduction of new health approaches, services and products
	1500	Portuguese Surgeons introduced	
	1860	French Mission doctors in Zanzibar	
	1874	British Mission doctors in Mpwapwa	
Colonial under Germany	1885	TMPs seen as witches, agents of satan and thought to clash with civilization. People were discouraged, TMPs were despised and some were arrested. Beginning of Biomedicine, Modern Medical practitioners (MMPs) and first modern facilities during the arrival of German Medical Corps at Bagamoyo in 1889.	TMPs were forced out of public community planning. Some health indigenous knowledge is lost. The Traditional Medicine system is dismantled
	1909	Issuing of certificates to TMPs on specifying illnesses they could treat and locality.	Birth of hypocritical 'double identity' brought confusion, a *Satanophobia* orientation and adaptation to new approaches to health services delivery, aetiology, diseases and illnesses. MMPs are more protected than TMPs
Colonial under British	1919-1961	More missionary medical facilities and mobile services	
	1929	The Witchcraft Ordinance and the Medical Practitioners and Dentist Ordinance	

Table 6.2 Historical Health Sector Changes and their Impacts in Tanzania (Continue..)

Post-Colonial	1961	Tanganyika becomes independent	Establish Ministry of Health (MoH) and Departments
	1963	Zanzibar becomes independent, then establishes its Ministry of Health (MoH)	Later Establishment of (MoH) and Departments for Zanzibar
	1964	Union (United Rep. of Tanzania) formation with separate MoH)	Research is one of the 22 items the state of Union share
	1968	The medical practitioners' and dentists' ordinance is enacted (Section 37) mentioning the native (indigenous) therapeutics	TMPs recognised but restricted in their own community and not for business
	1974	The Institute of Traditional Medicine established for research in the traditional healing system	Over 2500 medicinal plant species documented with preliminary chemical and pharmacological work
	1978	Pharmaceuticals and Poisonous Act passed	Controls and regulates possession, supply and use of pharmaceuticals and poisons
	1978	Alma Ata Declaration	International call on primary health care and promotion of healthy living
	1990	Development of health policy	Gives vision and Tanzanian MoHSW goals
	1992	Christian Social Services Commission (CSSC) established	Preparation to church-run health facilities towards health care system reforms and cooperation from the government
	1993	Introduction of cost sharing scheme to health services	Health facilities generate more revenues but the poor suffer more
	1993-2001	Health care system Reform (HSR) and Strategic Plan and System Wide Approach	Government to be a facilitator and a 'watchdog' to allow public/private mix of services
	1994-1996	Local Government Reforms Programmes (LGRP)	Comprehensive health planning and beginning of a *health basket fund*
	1998	The Tanzanian Development Vision 2025 formulated	Implementers and providers focus on objectives and target results
	1999	Shift from Health Information System to Health Management Information system	Proper use of health statistics

Table 6.2 Historical Health Sector Changes and their Impacts in Tanzania (Continue..)

Post-Colonial	1999	The National Health Insurance Fund established by Parliamentary Act No.8 of 1999	Increased access to health services by members and their dependants
	2001	Establishment of Tanzanian National AIDS Commission (TanAIDS)	Open and focused strategic plan to fight HIV infections and care for People Living with HIV/ AIDS (PLWHA)
	2001	The use of Sulphadoxine – Pyrimethamine (SP) as the first line of treatment for malaria in place of Chloroquine	Reports of persistent side effects of SP to some users
	2002	Enactment of Act No. 23 of 2002 governing Traditional and Alternative Medicine Practices and products	The Association of Traditional Healers and Traditional Birth Attendants (CHAWATIATA) strengthened
	2003	Established by the Tanzania Food, Drugs and Cosmetics Act of 2003 and the Government Chemist Laboratory agency implementation of the Industrial and Consumer Services Policy	Legal enforcement (management and control) of assuring safe and quality food, drugs, cosmetics and industrial and consumer products
	2004	Beginning of the African Traditional Medicine (TM) Day celebration, now held annually on August 31	MoHSW develops a guide to train traditional healers
	2007	Enactment of different acts such as for the registration of Laboratory, Radiology, Ophthalmic, and Environment Health workers	Increased professionalism in allied health
	2007	Primary Health Care Service Development Programme (*Mpango wa Maendeleo wa Afya ya Msingi*) 2007 – 2017 and review of the Health Policy	Availability of the base (indicators) for appraisal
	2008	Enactment of the Mental Health Act as well as the Public Health Act	Much focus and many protocols concerning mental health and public health

Source: *The History of Health Care in Tanzania, (GTZ) and National Museum of* Tanzania (2001), Tanzania Ministry of Health and Social Welfare (2011)

Important to note here is that following the introduction of the cost-sharing scheme in 1993, although it increases income to the respective health facilities to be able to meet some of the running expenditure, the poor suffered even more as they could not afford the costs (2).

Moreover, the shift from the *Health Information System* (HIS), which was aimed at collecting and reporting data for sponsors and health office headquarters, to *Health Management Information System* (HMIS) in 1999, has been to focus on collecting accurate information to assist in the informed decisions and for planning purposes. This very robust strategy can help health service providers meet their clients' expectations, with improved health as the overall goal.

However, the procedures of collecting and analysing data remain a challenge to the modern medical practitioners amidst long and huge workloads. Another weakness in the system is that it does not incorporate data from Traditional Medicine (TM) or *from* Complementary and Alternative Medicine (CAM).

6.2   The Pluralistic Medical System in the Mara Region

6.2.1   Medical Pluralism in the Region

While the ultimate goal for both Traditional Medicine (TM) and Modern Medicine (MM) is to reach good health, there exist some differences between the two systems as shown in Table 6.3. The differences noted here constitute a collection of various definitions and analyses from different writers and researchers related to Traditional Medicine (TM) studies. While Modern Medicine (MM) focuses on human systems and organs, Traditional Medicine (TM) observes at humans holistically, with regard to one's relationship with others and the community's natural and supernatural powers, which therefore calls for different care approaches.

Table 6.3 Differences between Modern Medicine (MM) and Traditional Medicine (TM)

Modern Medicine (MM)	Aspect of Care	Traditional Medicine (TM)
Scientific, biomedical, rational, technical	Worldview	Holistic, mystical, spiritual, traditional
Disease, patient's body system and organ as an object of care	Focus of care	Illness and its causes (vertical or horizontal), relationships between people and family / community, natural and supernatural powers
Specialist-orientation application of general principles to individual situations. Control of diseases, micro-organisms and risk factors	Care orientations and approaches	Arises from the context: life way, values, beliefs, life experiences, worldviews Depends on an individual. Reconciliation between people and with ancestors / supreme being
Looking at patient history, physical examinations, radiographic pictures, ultrasound pictures, laboratory investigations, etc.	Diagnostic tools and methods	Story telling, ritual sacrifices, prayers, evoking the *jinn*, reading animal entrails, palms, balls, mirror and water, stones on a wooden board, bones, gourd rattling, seeds and sticks
Wider span of organisational structure; small, medium and big organisation; formal education	Organisation and practitioners' education	Narrow span of organisational structure; small organisation; informal education
Use of formulated industrial manufactured medicines, surgical and physiotherapeutic interventions, counselling, provision of *pseudo* organs	Cure and rehabilitative means and methods	Use of *material medica* from herbs, animals and marine products, incisions, wearing charms, prayers, exorcizing, ritual sacrifices, surgical
In relation to pharmacological property tests	Medical efficacy	In relation to perception and spiritual context

Source: Extracted from definitions and analysis by Mshiu & Chhabra (1982), Akerele (1987), Chi (1994), Scheinman (1998), Anderson (2002), Helman (2001), Juntunen (2001), Snyderman & Weil (2002), WHO (2002a), Slikkerveer (2006)

However, today in the Mara Region and in Tanzania as a whole, residents are continuously seeking to use different medical services not only from modern medical practitioners, but also from other traditional or complementary and alternative practitioners, and spiritualists, as well from self-medication.

People's consultations for health care are often taking place in a complex pluralistic configuration with the goal of reducing pain, preventing illness and promoting health, improving treatment, casting away misfortunes, using midwifery services, undergoing circumcision, finding rehabilitation, practicing family planning, seeking special dietary advice, diagnosing health problems, or embalming corpses. The culmination of meeting these goals in the Mara Region is provided by the pluralistic health care services to the people living in the situation of medical pluralism, who depend on the interaction of different personal and institutional factors relating to the patient or client.

Table 6.4 The First Preferential Choice of A Medical System where A Practitioner will Consult when in Need of Medical Service

First medical system / intervention preferred	N	%
Modern Medicine (MM)	94	48.70
Mixed approach (TM, CAM & MM)	38	19.69
Self-care / Consult experienced clients	29	15.03
Traditional and alternative medicine	19	9.84
Wherever possible	13	6.74
Total	193	100.0

Source: Fieldwork Survey (2006)

One health care option is self-medication, which is sometimes known as the popular sector (Helman 1994). Sick people or clients in need of health services in the Mara Region have been making their own decisions or having their guardians ask fellow experienced sick people about a specific health problem. In this self-care system, no payment is done apart from goodwill.

As Angelina Biseko of Nyerere Designated District Hospital (DDH) who is an experienced midwife says on interview with the researcher in 2006: '*A primi-gravida (pregnant) woman would tend to inquire about the experiences of para-gravida friends or from traditional birth attendants in the neighbourhood as a way of preparation and dealing with common obstetric issues such as constipation, mobility problems, nausea, exhaustion, frequent urination, back and lower abdominal pain'.* In the Mara Region, self-care also includes the advice which people obtain from self-help groups, especially people living with HIV/AIDS (PLWHA). Few, mostly educated people and those with access to the Internet in the region, tend to receive much medical advice about health problems from the Internet, both before or after visiting medical practitioners.

6.2.2 Traditional Medicine (TM) in the Mara Region

Over the past few decades, there has been an escalating rediscovery of the important role of Traditional Medicine (TM) in the provision of integrated health care in communities, particularly in developing countries where modern medical practitioners and their material resources are inadequate, resulting in an unequal distribution of quality health services over the country. Societies have therefore come to rely also on locally available and less costly forms of indigenous medical knowledge and practice.
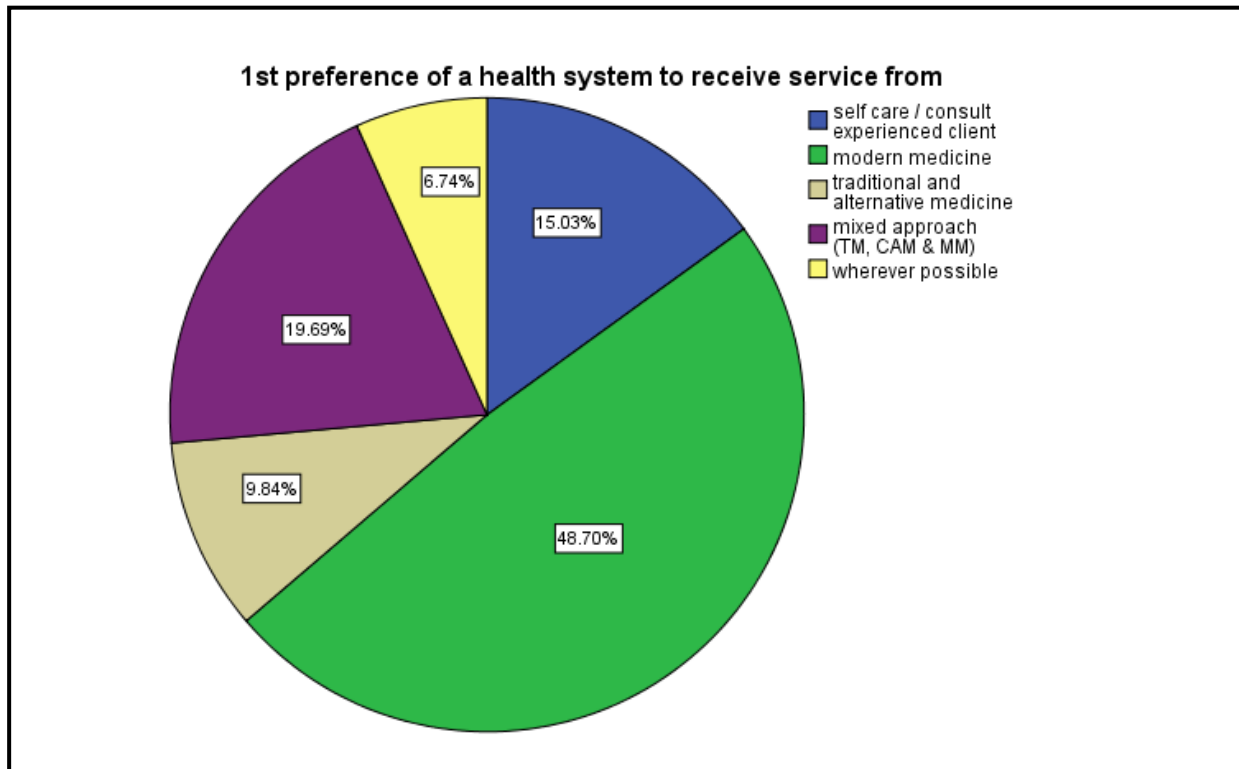
Figure 6.1 The First Preferential Choice of a Medical System where A Practitioner will consult when in Need of Medical Service. Source: Fieldwork Survey (2006)

Such rediscovery of Traditional Medicine (TM) has not only recently been initiated by scientists in medical anthropology and ethnoscience, such as Leslie (1976), Foster & Anderson (1978), MacLean (1985); Warren, Slikkerveer & Brokensha (1995), and Slikkerveer (2005, 2006), but has also been supported in the field of primary health care and community health by international organizations such as the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) which promote Traditional Medicine (TM) to be integrated into primary health care and community-based health services, such as by Bannerman, Burton and Ch'en Wen-Chieh (1983); Hargono (1989) and WHO/UNFPA/UNICEF (1992).

Within the Traditional Medicine (TM) system, people have the opportunity to consult traditional medical practitioners, including traditional healers (*waganga wa jadi)*, herbalists *(waganga wa miti shamba)*, traditional birth attendants and midwives *(wakunga wa jadi),* circumcisers *(ngariba),* bone setters *(waganga wa jadi wa mifupa)*, fortune tellers and predictors *(wabashiri & watabiri),* and soothsayers *(wapiga ramli).* These practitioners form abundant human health resources which are still respected, especially in rural areas. The services of Traditional Birth Attendants (TBA) are the most accepted services by all practitioners as there has been a long-term collaboration between modern midwives (nurses) and Traditional Birth Attendants (TBA) through the government implementation of training strategies such as the traditional health policy guidelines of the *Tanzanian National Health Policy* (1992) and its later review.

Customarily, the costs of receiving traditional health services were often post-payments where the client would pay in goods such as cows, goats, chicken and tins or sacks of grains.

However, during the discussion and group presentations at the researcher's *Jadi na Utamaduni katika Afya* (JUA) workshops in Shirati in 2005 on their status, the healers, circumcisers and Traditional Birth Attendants (TBA) indicated that recently with increased mobility of healers and clients and moral degradation in the society, they would generally prefer a down-payment if not a pre-payment before they would provide their services.

A medical system which is not yet as fully developed in the Mara Region as compared to the Tanzanian big cities or the Western countries is Complementary and Alternative Medicine (CAM). The most prominent examples of such services in Mara include *Yoga*, a physical, mental and spiritual exercise done as a therapeutic routine, and the mushrooming of medical shops selling alternative natural products. The natural products are mixed compounds or substances derived from parts of plants, marine organisms and micro-organisms, which possess biological and pharmacological activities. While most of the herbal products are from the domestic natural resources in the country, some are imported from foreign countries, such as the *Swiss Natural Products, the Ebenezer Natural Products* etc. They are normally sold at a higher price than other medicines and only a few are produced by Tanzanian companies such as the *Kilimanjaro Natural Products Company Ltd.* and *Moringa Natural Products.* In order to sell these products at a lower price, some companies have introduced a system in which membership is mandatory. Such services are based on more commercial and marketing strategies such as benefits to the members for recruiting additional members, or by offering discounts for bulk purchases.

Both major religions in the region - Christianity and Islam - also continue to offer services through faith healing to people with different health problems. Both life experience and interviews with religious leaders in the Mara Region have provided the information that most clients who consult Christian leaders and evangelists are those who are suffering from chronic diseases. Christian faith healers use the Bible as their book of authority, and perform persistent prayers to Jesus, known as the 'Great Physician', to heal the sick and demon-possessed, while in the Catholic churches, sprinkling of the 'water of life' and burning of frankincense (*uvumba*) are used for the observation of the Sacrament and prayers to heaven. Muslim leaders (*Sheiks*) and teachers of Islamic schools (*Madrasa*) are also known for their healing services and the casting away of *majini* (jinn possessions) through prayers and recitings of either Koranic verses or teachings of Prophet Mohammad (*Hadith*). They also burn frankincense or olibanum (*ubani*) from a scrubby tree of species *B. papyrifera* and *B. thurifera*, often used as part of a religious purification ritual and a reminder to believers of the rewards in Paradise.

Frankincense therapies appear in the classic *Syriac Book of Medicine*, in ancient Muslim texts, and in Ayurveda and Chinese medical writings for the treatment of a variety of diseases. In general, Greek and Roman physicians, practitioners of alternative medicine and faith healers worldwide have also been using essential oils and fragrances for promoting physical, emotional and spiritual nourishment in what is known as *aromatherapy*.

The way in which people in the Mara Region prefer and select their health services is a complex function of the interaction among multiple factors of medicine consumer behaviour as Slikkerveer (1990: 60) clarifies as: '*a specific form of consumer behaviour in interactions between the individual's psychobiological system and the social system.*'

This conceptualisation links up with the 'stages of illness and medical care' introduced by Suchman (1965), while Kohn and White (1976) emphasize *perceived morbidity* as the strongest determinant in their model of health care utilisation (3). Expounding the concept of 'perceived morbidity', the perception of need of clients or patients does not lead to the use of a certain health service or product, unless the need itself is sufficient enough to warrant action and unless the services are perceived to be appropriate, adequate, available, accessible and affordable.

Likewise, people in the Mara Region would chose to obtain health services from different systems and practitioners depending on those perceived needs. Results from an exploratory question in this study about medical practitioners' first preference on where to obtain health services shows that apart from Modern Medicine (MM) (48.70%), the second largest group (19.69%) would prefer to obtain services from a combination of different medical practitioners from practitioners of all systems including Traditional Medicine (TM), Modern Medicine (MM) and Complementary and Alternative Medicine (CAM) as shown in Table 6.4 and Figure 6.1.

In the Mara Region, as elsewhere in Tanzania, most people have appreciated a variety of significant roles of Traditional Medicine (TM). Not surprisingly, in this study only 7.3% of the practitioners from the modern medical system tend to think that Traditional Medicine (TM) has no significant role whatsoever, while the rest (92.7%) believe the opposite to be true. One hundred percent of the traditional medical practitioners acknowledge the significance of Traditional Medicine (TM) as shown in Table 6.5.

Long before the trade contracts developed between Arabia in conjunction with India and the East African Coast in the Eighteenth Century, and even before the advent of Portuguese traders in the Seventeenth Century and the German missionaries arrived in the then-Tanganyika during the mid-1800s, indigenous people in Tanzania utilised Traditional Medicine (TM) for protection, cure, rehabilitation and health promotion of human health, their land and its resources.

Concurring with this historical fact, Mshingeni (1991) notes: '*Long before Buddha, long before the advent of Jesus Christ, long before Mohammed, Marco Polo, Christopher Columbus, Vasco da Gama and Captain Cook ... the aboriginal people in Africa, Asia, North America and Central Pacific Islands, used concoctions prepared from a wide range of medicinal plants for treating their sick'* (4)

Furthermore, the information on indigenous therapeutic materials, preparation processes, applications and types of illnesses were passed on from fathers to sons and mothers to daughters. This has been done by word of mouth and by practical fieldwork. Apart from other numerous uses of plants such as for food, food additives, flavours, timber, aromatic, cosmetic and other industrial purposes, the traditional Tanzanian societies, like most non-Western countries, have used medicinal plants, be it alone or in concoctions with other plants, animal or mineral products, in powder, tincture, ashes, soot, fumes, conserves, syrups, charms or raw forms for different purposes which are beneficial to the community and to individual members in different ways.

Table 6.5 The Perceptions of Medical Practitioners on the Role of Traditional Medicine

		No Significant Role				Total	
		No	%	Yes	%	N	%
Organisation Type Based on Services	Participants of MM Services	102	92.7	8	7.3	110	100.0
	Participants of TM Services	83	100	0	0	83	100.0
Total Participants		185	95.9	8	4.1	193	100.0

Source: Fieldwork (2006)

The Muhimbili Institute of Traditional Medicine estimates over 80,000 traditional practitioners are in Tanzania with various specialties, the majority of whom are herbalists. It also states that Tanzania has over 12,000 higher plant species, a quarter of which have medicinal properties. The Institute has documented over 2500 species, some of which are still under pharmacological analysis (5). Some of the proven medicinal plants are highly marketable worldwide including,

Cinchona ledgeriana, Artemisia afra, Rauvolfia caffra, Rauvolfia serpetina, Atropa belladonna, Catharanthus rosea, Pischiera fuchsiaefolia, Moringa oleifera, Vuacanga Africana, Prunus Africana, and *Waltheria indica.*

It is therefore commonly accepted that Traditional Medicine (TM), mainly the Bantu system of medicine in the Mara Region, as in the entire country of Tanzania, is a result of the long standing work and life of indigenous people towards managing their environment and health statuses. There is no exact count of traditional medical practitioners in Mara Region or Tanzania as a whole. However, in the 1990s estimates show that Tanzania had almost 60,000 traditional healers, compared to 600 modern trained doctors (Weenen *et al. 1*990). In pre-colonial Tanzania, Traditional Medicine (TM) practitioners were highly respected and famous advisors to tribal chiefs on illnesses, environments, socialization and behaviours. They were allowed to practice their knowledge and skills freely.

The arrival of Arab traders and Islamic religion starting in the coastal region of East Africa brought Arabic (Islamic) medicine which has been influenced by Graeco-Arabic medicine (Unani) reflecting partial syncretism between prophetic medicine and the Galenic medicine of Greece. The philosophy behind this medical system stresses illness prevention by urging people to consume healthy diets, live in hygienic conditions and have a virtuous livelihood requiring an observance of strict moral codes. Similar to the Judeo-Christians, Muslims believed Allah provided a healing to every illness since the early Islamic and Umayyad period (661-750 AD). They later developed and utilised Islamic medicine based on scientific analysis in the 9th century (Shanks & Al-Kalai 1984). In Islamic medicine, prophetic doctrines constitute the basis for interpreting illnesses, assimilated with local beliefs and conceptions. Islamic medicine had a developed an institute for training professional medical practitioners, unlike the existing African medical system (Swantz 1990; Feierman & Janzen 1992).

Both the German and British colonialists suppressed the work and role of Traditional Medicine (TM) practitioners. Section 37 of the 1968 Tanganyika Medical and Dental Ordinance restricted Traditional Medicine (TM) practitioners to work only in the communities in which they belonged. Later, Christian religious teachings were distributed against Traditional Medicine (TM) and its practitioners as a whole.

In the post-independent Tanzania, Traditional Medicine (TM) was again recognized by the Ministry of Culture until 1989 when it was placed under the Ministry of Health. In 2002, a specific separate act was enacted to govern Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) practices and products.

The recent Tanzanian case study by Stangeland, Dhillion & Reksten (2008) to trace developments in Traditional Medicine (TM) and the legislation concerning conservation and use of biodiversity reveals that since the last decade the Tanzanian government sought to recognise and legislate indigenous knowledge and resource bases abundant in Traditional Medicine (TM) and biodiversity. The research substantiates that Traditional Medicine (TM) is the most common form of health care available and utilised by all demographics in Tanzania. Further, the WHO endorsement on the integration of Traditional Medicine (TM), Complementary and Alternative Medicine (CAM) worldwide and the HIV pandemic has underscored the need to work with both Traditional Medicine (TM) and Modern Medicine (MM). Despite reservations from some practitioners mainly from the Modern Medicine (MM) system, the majority (87.0% of N=193) of medical practitioners (traditional and modern combined) perceive that Traditional Medicine has some positive contribution (major and minor) to human health. This has brought about the renaissance of Traditional Medicine to be recognised, be incorporated in the mainstream health care system, have a formal establishment of practitioners and recognise the urgent need for the sustainable use of biodiversity.

Although the study notes some challenges with regard to integration, it also concludes in addition to the significant contribution of Traditional Medicine (TM) to health care, it also provides income opportunities.
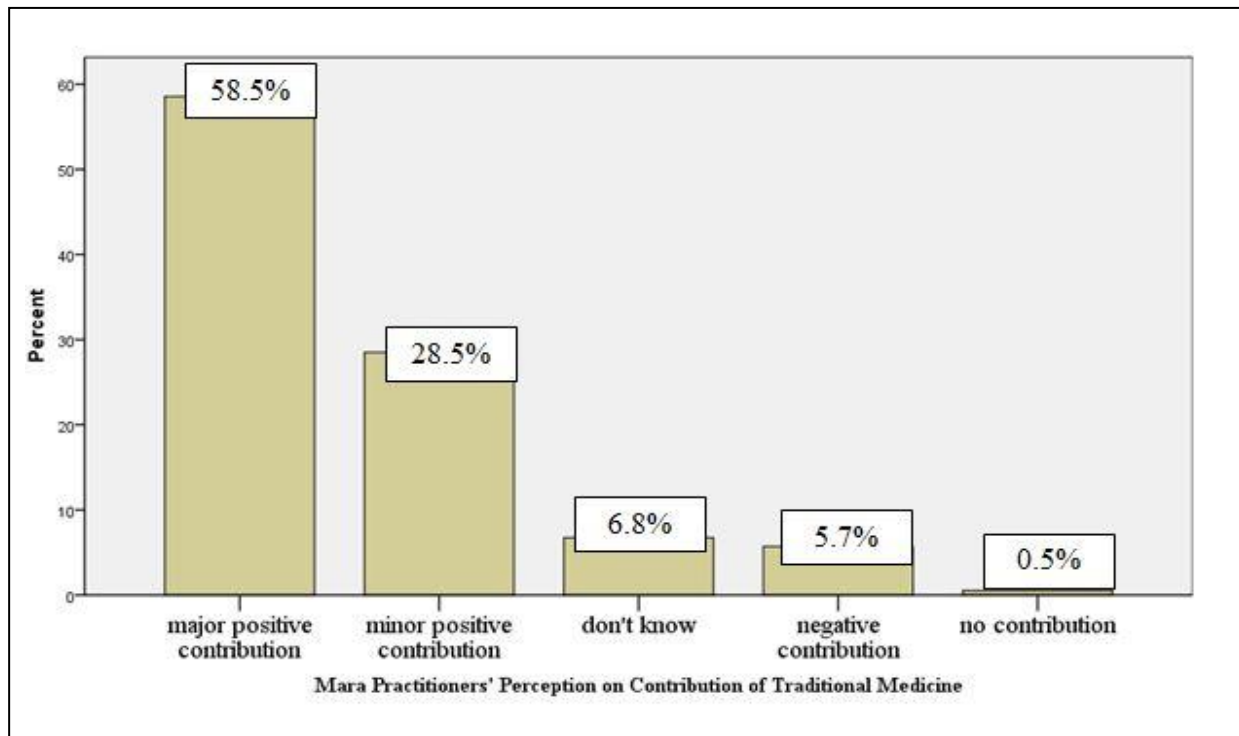
Figure 6.2   The Perception of Medical Practitioners on the Contribution of Traditional Medicine
Source: Fieldwork Survey (2006)

6.2.2 Traditional Medicine (TM) in the Mara Region

Over the past few decades, there has been an escalating rediscovery of the important role of Traditional Medicine (TM) in the provision of integrated health care in communities, particularly in developing countries where modern medical practitioners and their material resources are inadequate, resulting in an unequal distribution of quality health services over the country. Societies have therefore come to rely also on locally available and less costly forms of indigenous medical knowledge and practice.

Traditional Medicine (TM) practitioners in the Mara Region are consulted on a wide range of services by use of *material medica* from herbs, animals and marine products. The method of medicating and of health practices can be one or a combination of the following:

- incision and rubbing medicine (*kuchanja na kupaka dawa*)
- medicinal bathing (*kuogea dawa*)
- medicinal sprikling (*kunyunyiziwa dawa*)
- sweating bath (*kufukiza kwa mvuke*)
- medicinal inhalation (*kuvuta harufu / moshi*)
- medicinal spittle (*kutemewa dawa*)
- massage (*kuchua*)

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- local application of medicines (*kupaa dawa*)
- wound dressing (*kuweka dawa kwenye vidonda*)
- oral (*kunywa, kutafuna, kumeza*)
- eye and ear drops (*kudondoshea dawa jichoni au sikioni*)
- mouth wash and gurgle (*kuosha kinywa na kusukutua*)
- wearing charms, amulets (*kuvaa hirizi*)
- wearing beads (*kuvaa shanga*)
- prayers (*maombi*)
- exorcise (*kupungiwa mashetani / majini*)
- ritual sacrifices (*kufanya matambiko*)
- bone setting (*kuunga mifupa*)
- hot iron burning (*kukandwa na kitu cha moto*)
- incision of abscess (*kupasua jipu*)
- uvulectomy (*kukata kilimi*)
- circumcise (*kutahiri*)
- assist pegnant women in safe delivery (*kuzalisha wajawazito*)

For diagnostic or prediction purpose, traditional healers also use different techniques and mediums in the way in which augurs and soothsayers have been discussed, such as using *jinn*; drawing lines, applying arithmetic, reading palms, horoscopy, gazing at crystal ball, gazing mirror and water, rattling bones, rattling gourds, throwing seeds, throwing sticks and moving stones on a wooden board, and reading the entrails of a chicken in divining the future. The practitioner's expertise is observed in the way in which he or she interprets different probable happenings in the medium used in relation to the health problem and future status of the client. In creating a conducive environment for appropriate prediction, healing, rehabilitation and protective activities, practitioners may burn incense, sing and dance, and use different colours around mainly black or red in order to symbolize the gravity of the health problems to humanity as well as the white to the unblemished chair of the healers. Despite the differences in personal methods, most traditional healers believe that the ultimate power of healing is dependent on the goodwill of their ancestors or the Supreme Being in their society.

Traditional Birth Attendants (TBAs), together with village health workers, perform different activities in the villages to assist in safe reproductive health. Such activities include family planning services, infertility management, antenatal examinations, delivery, management of health problems associated with pregnancy, management of neonatal health problems, and management of puerperal problems. Few Traditional Birth Attendants (TBAs), have also been involved in the now-banned female genital mutilation, which was previously accepted by some ethno-cultural groups in the Mara Region, including the female circumcision in Tarime, Serengeti and part of Musoma's rural district.

Male circumcision is one of the world's oldest known surgical procedures. It is the removal of all or part of the foreskin of the penis. Worldwide, circumcision is practiced for religious, cultural, social and medical reasons. The Mara Region, as in other parts of Tanzania and Africa, has male circumcisers as the traditional medical practitioners who perform the traditional minor surgery. Circumcision is believed to enhance penile hygiene, to reduce sexually transmitted infection including HIV (Kilima *et al.* 2012), as well as to enhance sexual pleasure (Myers *et al.* 1985). Male circumcision is almost universal in many African countries. While the prevalence rate of male circumcision is about 15% in Burundi and Rwanda, it is about 70-80% in Tanzania and Kenya (WHO/UNAID 2007).

In the sub-Saharan region, studies indicate that countries with only few or no circumcision practices have the highest HIV prevalence compared to those which subscribe to circumcision traditions (Moses *et al.* 1994; Halperin & Bailey 1999; Auvert *et al.* 2005; Westercamp & Bailey 2007, Gray *et al.* 2007)

In Tanzania, the observance of male circumcision varies across tribal cultures. Urbanisation, the spread of Islamic religion and globalisation have caused an increase of non- circumcising ethnic groups such as the Luo in the Mara Region to join the customary circumcising ones, such as Kurya, Jita, Ruri, Kwaya, Zanaki, Ikizu, and Ngoreme, as noted by Urassa *et al.* (1997).

From a socio-cultural point of view, male circumcision is seen as the climax of the whole process of the initiation ceremony as a passage of rite from boyhood to manhood. In the Mara Region, some ethno-cultural groups, such as the Kurya celebrate this initiation ceremony known as *saro* broadly by involving the entire village. It is accompanied by dancing, singing and having special meals of the day and fundamental teachings (*e.g.* good civility, bravery, gender relations, the role of a man in the family and society, security). When the *saro* is done with one unsterilized surgical knife to a row of paraded mass number of young men in their reproductive age, there is a high risk of HIV infection spread in the village and the society as a whole.

Other risks of unsafe traditional circumcision include severe bleeding and septic wounds to some of the young men. Provision of some necessary medical supplies such as sterilized gauzes, surgical blades, clean cotton, analgesics etc., clear guidelines and collaboration with modern medical practitioners, especially on the surgical operation itself, is much needed in the Mara Region, and has also been recommended by a team of counsellors of the Nyerere Designated District Hospital, supported by the Kuryan elders and the two traditional circumcisers *(ngariba)* who perform the *saro* among the Wakira of Mugumu within the framework of the Community Based Health Promotion Programme (CBHPP) and *Jadi na Utamaduni katika Afya* (JUA) Project in 2004.

Common Roles of Traditional Medicines   Table 6.6 shows some common roles of traditional medicines as identified by both traditional and modern medical practitioners in the research area. It shows that the top most five selected roles of Traditional Medicine (TM) include: cure of disease, poisoning, disease prevention, human protection against evil acts, disease diagnosis. The other category of 'additional roles' of Traditional Medicine (TM) includes: locating natural resources such as in mining and fishing *(Jita: obhudubhi bhwa jiswi)* and stopping alcoholism and drug addictions. Customarily, it are these roles which determine the speciality and therefore the title of a specific traditional medical practitioner.

Table 6.7 illustrates some collected common customary roles of Traditional Medicine (TM) in Tanzania. A close analysis shows that these roles were highly communally acceptable as they aimed at promoting human good health and societal welfare in search of harmony with fellow community members, the physical world as well as the spiritual world. On the contrary, in contemporary Tanzania, it is observed that the same roles and more other recently added ones are focusing more on individualistic motives and development

Table 6.6 Perceived Roles of Traditional Medicines by Medical Practitioners in Mara Region

Traditional Medicine's (TM) Role	Responses	
	N	%
Cure diseases	172	89.1
Poisoning	133	68.9
Prevention of diseases	131	67.9
Human protection against evil acts	104	53.9
Diagnosis of diseases	102	52.8
Identifying witches	98	50.8
Human rehabilitation	95	49.2
Property protection	92	47.7
Business flourishing	91	47.2
Love stimulant and affection enhancer	89	46.1
Witch fixing	89	46.1
Perpetuating conflicts and disharmony	89	46.1
Restoration of peace	87	45.1
Intelligence booster	86	44.6
Good competitive environment in games and or sports	83	43.0
Job acquisition and or promotion	82	42.5
Fortune casting	80	41.5
Caution signalling	73	37.8
Other (additional) roles	17	8.8

Source: Fieldwork Survey (2006)

On the contrary, in contemporary Tanzania, it is observed that the same roles and more other recently added ones are focusing more on individualistic motives and development. Based on the experience of the researcher and a literature review of authors in the field of social and cultural anthropology, Table 6.8 presents the recently emerged roles of medicinal plants and some possible explanation for their emergence and or popularity.

Although some people have also been identified as 'witches' in traditional societies by the use of the *community identifying deviant role*, witching other individuals has been never considered a role. Instead, it has been considered up until today as unacceptable use of medicine. Cases of human poisoning are more reported nowadays by the use of manufactured chemical products than by herbs in 'commercialised' feeding, in increased criminality and due to vulnerability to incalculable external causes of stress to humans in the contemporary societies.

Apart from considering medicinal plants as a business commodity, less research has been carried out on other recent emerging roles presented in Table 6.8 The practices are known to be for individual or for small groups in confidentiality, and therefore performed in high secrecy. Debates exist concerning their efficacy versus other factors such as conditions, ability and behaviours of the parties involved.

Table 6.7 Examples of the Common Customary Roles and Examples of TM in Tanzania

No.	Role*	Examples
1	Alarming (*kuchezwa chale*) and human-protection (*zindiko la mtu*)	From ill incidences, 'bad eyes' and protection of (weak) children from evil spirits (*ukago*)
2	Confidence building	Chewing some leaves before public performances/ duties
3	Cleansing / Purification	Sprinkling medicinal liquids to the spiritually unclean surroundings; throwing a leaf on a dead cat/dog lying on the road casting the spirits of deaths
4	Curative	From cold, diarrhoea, headaches, wounds etc.
5	Detective (*Community Identifying Deviants*)	Identifying the witches in the village in a divinatory ritual; identifying the thief in a debatable mysterious incidence
6	Growth	Rubbing the feet of a baby with herbs to assist it in walking
7	Preventive and Maintenance	Chewing sticks to prevent tooth decay and bad breath; preventing further bleeding after circumcision; dropping viscid milk-like sap from *Euphorbia Tirucalli* on the cut-off umbilical cord of a newly born baby by use of a bamboo knife to prevent entrance of 'bad air'.
8	Property protection (*zindiko la mali*)	'Medicalised' farms and cows against thieves; protective inauguration of new residence.
9	Restoration (*zinduo*)	Restoring the woman's fertility ('closed wombs'); a person set free from a spell and disenchant.

*Note one type of medicine can have more than one role and vice versa. Italicized names in brackets are some of the generic descriptions given in the contemporary Swahili language or other Tanzanian vernacular.
Source: Fieldwork Survey (2006)

During the appraisal workshop for the work of traditional healers, traditional birth attendants, circumcisers and village health workers in April 2006 under the *Jadi na Utamaduni katika Afya* (JUA) Project and Community Based Health Promotion Programme, known as *Jamii Imara*, the following challenges were summarised as the urgent challenges faced in the region which hinder the delivery of quality health services: (6)

- inadequate knowledge on disease control and management, including surgery practices;
- insufficient and poor working tools and equipment;
- poor working environment, such as space and structures;
- poor communication for those living in remote areas;
- minimal involvement in district health management team deliberations;
- not connected to the health information system in the region to document work;
- village health workers' lack of motivation and low morale because of not being paid salary wages, and because services were not well-recognised by some village authorities.

The way in which Traditional Medicine (TM) is utilised and managed today can be traced through an objective audit on its role, its traditional health care practices, the emergency of commercial collection of herbs, the human interaction with natural environments and the application of indigenous knowledge in the society. In the next Paragraph, qualitative results from participant's point of view and response from medical practitioners during workshops enable an outline of some pertinent challenges which Tanzania is facing today concerning Traditional Medicine (TM).

Table 6.8 Examples of the Recently Emerged Roles of Traditional Medicine in Tanzania

#	Role	Examples	Suggested Reason for the Recent Increased Prominence
10	Business commodity	Collecting herbs to sell at market places as an income-generating activity; exporting a large quantity of *Jateoriza palmata* roots abroad.	Dwindling of agricultural sector; increased unemployment; growth of small-scale enterprises as a survival strategy; increased demand of medicinal plants by pharmaceutical industries in industrialized countries.
11	Career development	In helping a candidate in political election or in promotion prospects.	Escalating moral degradation where corruption has overshadowed leadership code of conduct.
12	Love stabilizers and initiators	To bar a husband from visiting his parents/friends frequently *(limbwete)*	Increased urbanisation and the breaking of community social security; redefining 'love' into a corner of only individual space; increasing awakening of marriage ties
13	Good/bad fortune enhancement	Attracting clients in business; to repel visitors from a certain household *(gundu)*	The fall of traditional communalism and the booming of capitalistic economic lifestyle and 'survival of the fittest', where people think one becomes poor because others are rich and vice versa
14	Sports and competition favouring	To create a 'game situation' which favours one side, such as opponents missing clear goal opportunities *(juju).* Also the power of team sorcerer to manipulate and alter the natural environment by use of magical knowledge and ritual performance.	A shift from seeing sporting activities as part of leisure, socializing and ingredients of traditional festivals, to professions or careers and in global organised associations.
15	Harm	Poisoning and 'fixing people' *(Kaluga)*	Moral degradation; lack of harmony; stressed life; widening the gap between rich and poor; envy; malice

Source: Field work Survey (2006)

These challenges are like time bombs which need to be addressed, not by the 'ineffective implementation syndrome', as it has been diagnosed by the team of experts in the *Tanzania Development Vision 2025* (Tanzania 1998: 9). This concept refers to a situation in which ambitions and plans are just pronounced, but not accompanied by effective implementation, monitoring and evaluation mechanisms. The major challenges of the Twenty-First Century which are facing Traditional Medicine (TM) in Tanzania include the following:

Lack of an enabling environment towards Traditional Medicine (TM)
A handful of practitioners of the orthodox or allopathic medical system and other citizens demonstrate a blanket disbelief, have prejudices or apathetic attitudes towards what is now referred to as traditional or alternative medicine (Dominic 1995). Qualitative collections of views on definition, efficacy and use of Traditional Medicine (TM) to 40 randomly selected people in the hospital, market places, sporting activities and church in Mugumu and Musoma, August and September 2005, shows that 24 (60%) perceive that Traditional Medicine (TM) can be categorized with (unsubstantiated) generalized views such as:

- it is witchcraft, sorcery, occult involved and just blackmailing;

- it depicts irrationality, non-efficacy and just has placebo effects if any;

- it is only for uneducated few people in rural areas, or its practitioners are the last alternative with minimal impacts to the general health of a nation;

- it is not for Christian communities as it is demonic, unethical and only visited by non-committed Christians.

However, records and comparative studies have proved that these statements are not correct, if not modified. For example, Cunningham (1993) in his article on *African Medicinal Plants* based a literature review, research and personal correspondence in Zimbabwe, Swaziland, Zambia, Malawi, Mozambique and Cote d'Ivoire shows that about 70-80% of Africa's population relies on Traditional Medicine (TM). Further, the researcher's experience in a rural district hospital, reveals that in the busiest paediatric ward, Modern Medicine (MM) at times becomes the last result, as the mothers would start consulting traditional healers in the village before they decide to come to the hospital as the last result. Table 6.9 substantiates the abundance of traditional healers as compared to modern doctors in Africa.

Traditional Medicine (TM) refers to a health resource for the majority of the population. Bodeker (2005) indicates that in the developing countries: *'The ratio of traditional medical practitioners to population is substantially higher than of trained medical personnel, representing an irreplaceable health care infrastructure. However, most traditional systems are outside the formal sector or have marginal status within it'*.

In Tanzania the same is true, mainly due to the lack of a good enabling environment. Whilst the Government is applauded for having established a Desk responsible for Traditional Medicine (TM) at the Ministry of Health and Social Welfare (MoHSW), the same cannot be said in terms of material support and clear institutional linkage at the regional, district and village level. The health care system reform ought to move from rhetoric to practice in order to bridge the present gap between vision and realisation of plans which seek to incorporate traditional medical practitioners in the national medical system.

Table 6.9   Ratio of Traditional Healers (TH) and Medical Doctors (MD) to
            Total Population (TP) in selected African Countries

Country	TH : TP	MD : TP	Reference
Nigeria (Benin City)	1 : 110	1 : 16,400	Oyenye & Orubuloye (1983)
Ghana (Kwahu district)	1 : 224	1 : 20,625	Anyinam (1984)
Kenya (Urban-Mathare) (Rural-Ilungu)	1 : 833 1 : 146 - 345	1 : 987 1 : 70,000	Good (1987) Family Health Institute (1987)
Tanzania (National average)	1 : 400	1 : 23,454	Mhame (2000)
Swaziland	1 : 110	1 : 10,000	Green (1985)
South Africa (Venda area)	1 : 700–1,200	1 : 17,400*	Savage (1985); Arnold & Gulumian (1987)

* For 'homeland areas' only
Source: Oyenye & Orubuloye (1983); Anyinam (1984); Good (1987); Green (1985)
         Savage (1985); Family Health Institute (1987); Mhame (2000); Arnold & Gulumian (1987).

It is not only rather precarious to despise any positive contribution made by traditional medical practitioners, but also treacherous to show indifference to the traditional medical system. It is indeed too deceitful today to create an artificial veil to withstand the present increase of the public awareness of the negative effects of some traditional health-related practices performed and sometimes legitimised under the concept of 'cultural relativism'. Some of such undisputed evidence includes female genital mutilation, mutilation of children's teeth, uvulectomy and other ill practices performed by opportunistic practitioners who are also found in the formal health care system.

Absence of a mechanism to promote integration between medical systems
As the result of the weak institutional support, no facilitation has been done to formulate and institutionalise a stable mechanism to promote the integration and synergistic collaboration between practitioners of Traditional Medicine (TM) and Modern Medicine (MM). Signposts at hospital entrances with inscriptions such as, *'No traditional medical practitioners are allowed inside the wards'* are inefficient efforts to curb so-called 'health malpractices'. At the same time, these signposts are examples of hypocritical attitude of Modern Medicine Practitioners of the double life of the hospital versus the community. It is analogous to the reduction of a hospital for its patients to nothing more than a police cell for protecting the culprit ('sick person') from mob justice ('unprofessional treatment') or an exclusive temple of saints not ready to be defiled by cosmology and pollutants of the (outside) society.

Weak protection of indigenous intellectual property rights and unsustainable harvesting
The resurgence of natural product-based research and increased bio-prospecting by pharmaceutical companies from the industrialized world creates a genuine fear to indigenous people of overexploitation of both their knowledge and their resources (*cf.* Wilson 1992; Myers 1989). Although the business may create some foreign income to the Government, there is still a weak protection of these traditional property rights, especially for the individual – often typically poor - with the special knowledge and the local community from which the resources are tapped. Furthermore, the prices or compensation paid for the Medicinal, Aromatic and Cosmetic (MAC) plants cannot cover the replacement of the resource management costs to ensure a sustainable harvesting. As indicated in Figure 5.6, the indigenous healers and vendors of traditional medicine in most developing countries have first-hand information as well as the 'know how' of many traditional medicines and different traditional practices of health care.

In the process of trying to share or to interact with these healers with valuable information on indigenous medical knowledge, several large pharmaceutical companies, mostly from developed countries, have developed most of their medicines on the basis of the knowledge and experience of the often poor traditional healers in developing countries, including Tanzania. Furthermore, in most cases, the modified or adapted scientific explanation and dosage is well packaged, and protected by patents of these companies, often leaving the primary owners of the indigenous knowledge without any compensation.

However, the agenda for the protection of traditional intellectual property rights are now presented to different forums such as the World Health Organization (WHO), the World Trade Organization (WTO) and many others with a view to address the issue of protection of indigenous knowledge in developing countries. Major challenges need to be addressed on this subject, including the following:

- identifying the appropriate mechanisms for the protection of indigenous knowledge and ensuring enforcement;

- the criteria and the base for identifying the real beneficiary and how the benefits should be equitably shared between the primary and the secondary owner of the developed product;

- how to amend the existing international laws, international conventions, such as the intellectual property standards established by the *Agreement on Trade-Related Aspects of Intellectual Property Rights.* National laws need to attend to the accommodation of properties of indigenous knowledge and practices regarding laws on crude materials, manual skills and spiritual talents, which, to a large extent, are neither novel nor sophisticated enough to qualify patentability and trade marking in the present scientific era;

- how to ensure care and protection of Tanzania's biodiversity from the increasing export of mass collection of natural resources, such as the unsustainable logging of tropical rain forests, which has already sent signals of endangering species on the African continent (*cf.* Elujoba *et al.* 2005).

Dwindling wild natural resources
For many years, Traditional Medicine (TM) supplies could be obtained relatively easily in Tanzania from specific species of Medicinal, Aromatic and Cosmetic (MAC) plants and animal products within the vicinity. A constant extraction without conservation measures of these resources has now caused most of them to be categorized as *'endangered rare species'*. This situation is the result of high degradation of the environment and habitat, the constant extraction without preservation measures of these resources with the increasing demand and use of natural land for agriculture and human settlement. According to the *Wildlife Trade Monitoring Network* (TRAFFIC), Eastern/Southern Africa news, over 100 key species of plants and 29 species of animals have become rare. An example of the most threatened type of vegetation in Tanzania is the coastal forest of Zanzibar in Lambane regional Mozaic.

Table 6.10 Tanzanian Export Earnings from Fauna and Flora for the Years 1997-1999

Item Exported	1997 (000)Kgs	1997 (000) TSHs	1998 (000) Kgs	1998 (000) TSHs	1999 (000) Kgs	1999 (000) TSHs
Plants and plants parts used in perfumery, pharmacy etc.	363.9	458,961.4	287.6	468,951.3	370.9	884,676.6
Natural gums, resins, gum resins, balsams	1,506.5	412,502.1	943.2	215,561.5	870	354,774.6
Garlic	1,007.4	64,896.7	1,071.2	119,178.5	537	68,132.6
Sea weeds, Algae	2,476.7	776,524	2,185.8	1,380,701.5	3,869.7	1,529,980.5
Sea fauna e.g. sea horse	1,047.2	2,858,123.1	1,283.2	3,470,017.3	1,357.6	4,004,748.0
Total	6401.70	4,571,007.3	5,771.0	5,654,410.1	7,005.2	6,844,311.3

Source: Mhane (2000) The National Institute for Medical Research Dar-es-Salaam

In view of the aim of reaching the sustainable use of Medicinal, Aromatic and Cosmetic (MAC) plants, the issue of their conservation needs also to be addressed. Both research and harvesting of medicinal plants must be done in a responsible way. Further, as Rukangira (2001) adds, *ex-situ* cultivation of certain species of Medicinal, Aromatic and Cosmetic (MAC) plants must be necessary in order to obtain raw materials which are grown under the same conditions of climate and ecology.

Lack of an indigenous information system and reliable data bank
Indigenous knowledge on medicinal plants and their preparations, together with the specific health problems for which they are used has typically been passed on in the community by the oral tradition, often in a secretive way from one healer to another, often his or her own sibling or partner). In order to rely on this kind of transfer of information and knowledge is problematic at times; when the tasks are generally handled over at the last minute such as before the death of the elder healer, rendering it difficult for the new healer to remember all knowledge and practice correctly. An extraordinarily good memory is often needed to achieve such memorisation (*cf.* Kokwaro 1976).

On the other hand, sudden deaths of healers may also deprive their community of an opportunity of handing the knowledge properly over to the next generation. Up to the present time, there are only a few well-documented information systems or systematic collections of local and botanical classification of Medicinal, Aromatic and Cosmetic (MAC) plants and their uses. Exceptions include the work of Greenway (1940), Sangai (1963) and Kokwaro (1979). Despite several studies of the *National Institute of Medical Research and of the Muhimbili Institute of Traditional Medicine*, there is still a lack of comprehensive and updated information of Medicinal, Aromatic and Cosmetic (MAC) plants in Tanzania. Further confusion of 'new discoveries' of medicines or 'miraculous healing practices' could paralyze a considerable group of the Tanzanian population in misplaced euphoria and cause other social welfare problems (7). One recent example refers to a massive, high-traffic migration of thousands of people to Samunge Village of Loliondo in pursuit of drinking a cup of boiled liquid of *Mugariga* (*Carissa spinarum),* formerly known as *Carissa edulis* from the *Apocynaceae* family. The medicinal plant solution, administered by the Rev. Ambilikile Mwasupile ('Babu')*,* was actually not a new discovery, and had been used not only in Tanzania but also in other countries including Kenya, Ethiopia, South Africa, Sudan, Botswana, Ghana, Nigeria, Namibia.

The solution had already long since been reported by researchers to have *anticonvulsant, antidiuretic, antidiabetic, hepatoprotective, antioxidant and analgesic* activities (*cf.* Chatterjee & Roy 1965; Kokwaro 1979; Ibrahim 1997; Lindsay *et al*. 2000; Ned *et al.* 2004; Yau *et al*. 2008). In order to ascertain claims of efficacy to cure diseases such as cancer, HIV/AIDS, diabetes, asthma and epilepsy, further research and clinical trials are needed.
Senzota (2012) presents a scientific account of an environmental assessment resulting from the sharp increase in visitors to Samunge Village in early 2011. Serious adverse impacts to the local environment include people trampling on plants and animals, unmanageable dumping of liquid and solid waste, haphazard sanitation and an overall change in the panorama by a long chain of various lights and heavy vehicles bringing sick people and their relatives from different parts of Tanzania and the neighbouring countries to the village. The present Health Management Information System of Tanzania (MTUHA) does not include data about patients, diseases and management from Traditional Medicine (TM) and their contribution to health care delivery. There is not a unified national or regional developed traditional disease classification system. As a result, lack of supporting data from this sector has undermined efforts to show its role in health and health-related matters to the public and the international agencies.

Figure 6.3   A Traditional Medicine (TM) Vendor in the Musoma Municipality
                      Source: Fieldwork (2007)

Although some information can be obtained about the available (registered) medicinal plants and related products from the Institute of Traditional Medicine's (ITM) *News Bulletin and Tanzania Health Research Bulletin* as well as from some significant networking through the *Natural Products Research for Eastern and Central Africa* (NAPRECA), there is no updated Ethnobotanical Knowledge System (EKS) and networking both abroad and in the country's discrete and non-coordinated data banks which are mainly situated at the national level. Apart from the acknowledgement of a few meetings, there exists a feeling among the leaders of traditional healers (CHAWATIATA) in the Mara Region of being left behind from important gatherings of stakeholders at the national level. As the Secretary of CHAWATIATA – Mara (Mr. Hassan) mentioned in 2010:'*often, we are not consulted or invited to different traditional medicine stakeholder meetings and workshops which take normally place in Dar-es-Salaam'.*

The need for education, research and development on Traditional Medicine (TM)
Any appropriate action by the civil society, government, non-governmental organisations, institutions and medical practitioners on the management and efficient utilisation of medicinal plants must be the result of public awareness on the factors affecting utilisation of medicinal plants. Decision-making and policy formulation need to be based on accurate, reliable, complete and relevant data. Data will be available through research and development in different areas, such as the identification of 'new' medicinal plants, rare priority species, biodiversity conservation, development of Ethnobotanical Knowledge Systems (EKS) and networking. In addition, there are traditional health care improvement, natural resource rights, and integration of medical systems in the country. Due to limited capacity, the relatively few national institutions and human resources in Tanzania need to be equipped or assisted to take care of any deficiencies. In other words, improvement of infrastructure and communication is an issue of great importance, especially on community capacity development and taking practical steps for re-orientation towards indigenous people, their knowledge, heritage and cosmology.

It is commendable that the *Institute of Traditional Medicine* (ITM) has a Journal, the *ITM News Bulletin*, which informs the public about various study opportunities, registered products of Traditional Medicine (TM) and about research carried out on Traditional Medicine (TM). However, more research and reports on Traditional Medicine (TM) are needed. The *Tanzanian Journal of Health Research,* a publication of the *Tanzania Health Research User's Trust Fund* of the *National Institute for Medical Research* (NIMR), has published only three articles related to Traditional Medicine in three years (2008-2010). Furthermore, online search within the site for the *East African Journal of Public Health* results in zero matches related to Traditional Medicine (TM) in the available issues from 2004-2008. This short review shows how minimally Tanzania and East Africa as a whole have engaged in scientific research on Traditional Medicine (TM) or local Medicinal, Aromatic and Cosmetic (MAC) plants. *Institute of Traditional Medicine* (ITM) started a postgraduate course for Master of Science Degree in Traditional Medicine Development., which began in the Academic Year 2009-2010. However, its target is limited to the few already learned practitioners instead of targeting the many informally trained traditional healers and past-secondary school apprentices of Traditional Medicine (TM). Furthermore, it is imperative to revisit the present curriculum of secondary schools and colleges of health and allied studies in order to incorporate such courses in traditional and alternative medicine, medical and social anthropology, ethno-botanical knowledge system, traditional medicine development etc.

The issue of safety of Traditional Medicine (TM) products
Uncontrolled and inappropriate use of traditional medicines and practices can have negative or even dangerous effects. For the purpose of regulating and controlling traditional and alternative medicines, the Tanzanian Parliament enacted Act No. 23 of 2002. Two provisions of this law in which enforcement agencies are mentioned, include the Registrar and the Council of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM). Quality assurance of traditional and alternative medicine practitioners, services and methods are to be achieved as a result of this Act. However, less has been done so far to design the mechanism of how to ensure quality. The World Health Organization Fact Sheet No. 134 (WHO 2000a) shows that due to counterfeits and adulterated herbal products in international markets, there exist also hazardous patient safety threats (8). The same can be observed in the Mara Region, where the people are led to incorrectly believe that Traditional Medicine (TM) in market places and at the practitioners' own clinics are natural, and do not carry any risk for their health.

Traditional medicines can also be harmful when they are prepared under poor conditions. Also, when they are taken inappropriately and sometimes together with other contra-indicated medicines from Modern Medicine or Complementary and Alternative Medicine. Furthermore, it can be difficult to assess the efficacy and quality of herbal and other natural products because some of the finished products are a mixture of several elements of which the individual safety and efficacy have not been documented. As is the case in Modern Medicine, safety is directly related to the way in which the elements are handled to achieve the final product.

The problem of contraindicated medicines from different medical systems also reinforces the need for interprofessional collaboration of providers in order to help their clients to take well-informed decisions in the appropriate use of medicines and other therapeutic practices. As Table 5.23 indicates, the respondents of the surveys report on the safety of Traditional Medicine (TM), that 58 (30%) of all practitioners feel that its safety is questionable, while 37 (19.2%) express their opinion that its safety level is poor. However, most respondents, 88 (45.6%) report that the safety level is good.

Table 6.11 The View of Medical Practitioners on the Safety of Traditional Medicine (TM) Services

Response	N	%
Don't know	10	5.2
Poor	37	19.2
Questionable	58	30.0
Good	88	45.6
Total	193	100.0

Source: Fieldwork Survey (2006)

Contextualization of the world's religions on teachings about Traditional Medicine (TM)
Communicating the faith and doctrines of dominant religions, especially Christianity and Islam, since the time of the early missionaries and Muslim traders has brought along cultural characteristics of the mother churches or mosques, while declaring most of the indigenous knowledge, values and cultural practices as 'animalistic'.

Not all such actions can be backed by Biblical or Quran absolutes. The challenge is today, to contextualise African Christianity and African Islam without losing its basic virtues, because faith and religious orders are still part of the life of many Africans. Additionally, religious institutions are powerful agents for social change in many societies. The contextualisation of world religions ought to help the believers also to change their negative attitude towards Traditional Medicine (TM).

Moral degradation and the breakdown of social structures
The emergence of urbanisation, 'modernity', a free market economy and globalisation with increased global communication networks as part of the socio-cultural and political changes have awakened the structure of the community which used to keep the social structures and values intact. Although people in Tanzania still have a strong sense of nationalism, activities and responsibilities of daily life are in general mainly taken on an individual or a family basis.

Encouraged individual competitions, problems of unemployment and an increased gap between the poor and the rich, along with other social factors have resulted in certain moral degradation, misuse of natural resources and the emergence of opportunistic, unethical medical practitioners, often operating just for current business profit and not necessarily for sustainable management and utilisation of natural resources, including Medicinal, Aromatic and Cosmetic (MAC) plants.

Shocking manifestations of poverty in the society
A large amount of government revenue is spent on repayment of public debt, leaving investment in social services such as health often to donor-funded projects, foreign aid and the private sector. Still, during the financial year 2011-2012, the Tanzanian national budget was heavily supported by outside borrowings and grants, comprising about 50% of the total budget. It is clear that a reciprocal relationship exists between poverty and ill health, rendering the implementation of the *National Poverty Eradication Strategy* (NPES) and the monitoring of both welfare and poverty indicators is the primary duty of every sector and of all stakeholders.

The United Nations system and the international financial institutions also have to play a supportive role in the mobilisation of energy of all development in order to achieve a continuous alleviation of poverty in developing countries.

6.2.3   Modern Medicine (MM) in the Mara Region

In colonial, and later in independent Tanganyika, later called Tanzania, there has been an emphasis on and spread of Modern Medicine (MM), and at the same time a decrease of Traditional Medicine (TM)), largely initiated by the early missionaries in the Mara Region. They include missionaries from the Eastern Mennonite Missions in Pennsylvania, U.S.A, who started their mobile clinics at Shirati in 1934. With the help of Chief Nyatega and the community, these missionaries from the Mennonite Church in Tanganyika (Tanzania), now known as the *Kanisa la Mennonite Tanzania* (KMT), were able to build the Shirati *Kanisa la Mennonite Tanzania* (KMT) hospital in 1953, which is now considered to be a designated hospital for the Rorya District Council. In 1960, they established the attached *Nursing Training School.* Prominent modern hospitals in the region established earlier by private and religious supported bodies include the Kibara Hospital, situated on the Mwibara Peninsula in Bunda and founded in 1962 by the *Sisters of the Society of Jesus Mary Joseph*; the Nyerere Designated District Hospital of the Serengeti District Council, established in Mugumu in 1980. Later, the Kisare Nursing School under the *Kanisa la Mennonite Tanzania* (KMT) was attached, while the Bunda Designated District Hospital of the Bunda District Council was established in 1992 by the then-Mbulu Synod of the Evangelical Lutheran Church, known as *Kanisa la Kiinjili la Kilutheri Tanzania* (KKKT).

Other health facilities by private and religious organisations include the Roman Catholic of Tanzania Hospital in Kowaki; the *Tarime Goodwill Foundation* (TGF) Hospital in Tarime; the *Rural Aid Organisation* (RAO) Hospital and the Safina Orphanage in Shirati; the Catholic Church of Tanzania Dispensaries at Makoko, Baraki, Komuge, Gamasara, Rosana, Kisangura, Rogoro and Nyarombo; the Catholic Church of Tanzania Care Homes and Communities of *Tupendande* at Musoma, *Tangacha* at Tarime and the *Mji wa Huruma* at Kigera (Musoma Rural); the AIDS ABC of the Tanzania Anglican Church; the Seventh Day Adventist Church dispensary at Kamunyonge, Buseg; the Anglican Church of Tanzania (*Kanisa la Anglikana Tanzania*), a community-based rehabilitation for disabled, Home Based Care, Mobile Clinics and the *Voluntary Counselling and Tests Centres* (VCTC), located in all districts of the Mara Region; the *Kanisa la Mennonite Tanzania* (KMT) Health Centre/Dispensary at Mugango, Kisaka, Nyabange, Bumangi, Nyamasanda, Nyangoto, Nyarero, Burere, Kitaramanka; the *Shirati Health, Education and Development Foundation* (SHED) the Health Centre at Sota; the Bethsaida Centre for Health and Development, the Health Centre at Kwangwa; the Coptic Church Health Centre at Nyasho; the *Christian Association for Development and Aid* (CADA) Dispensary in Musoma, Mugumu, Nyangoto, Nyangabo, Nayansicha; the African Inland Church Dispensary at Bweri;

the *Kanisa la Mennonite Tanzania* (KMT)- Jamii Imara Centre for Community Based Health and the *Voluntary Counselling and Tests Centres* (VCTC) and the *Serengeti Disabled Development Association* (SEDIDEA) for physiotherapy and rehabilitation health services.

Health facilities offer diverse preventive, curative, rehabilitative and counselling services, while community-based homes and orphanages provide help to people living in hardship, offering legal advice, shelter, food, aid for schooling, health insurance, other social needs and promotion of healthy behaviours. More modern medical health workers in the Mara Region from the government and from faith-based organisations such as the Roman Catholic Church, the Anglican Church, the African Inland Church, the Seventh Day Adventist Church, the Evangelical Lutheran Church, the *National Muslim Council of Tanzania* (BAKWATA), the Salvation Army and other private dispensaries, health clinics and hospitals have continued to offer different health services to people for maintenance or improvement of their health status.

The emphasis and full support of Modern Medicine (MM) by the Government as well as the perceived good results, which meet the peoples' expectations, especially in curing major communicable diseases such as malaria, measles, cholera, tuberculosis, etc. may have changed the preference of patients of the health services towards Modern Medicine (MM), more than other medical systems. The majority of people (94 = 48.7%) in the study sample, as shown in Table 6.4 and Figure 6.1, consult modern medical practitioners starting with the dispensary, health centres, and district hospitals. This includes the highest level hospitals, where people are referred to for serious and for specialized health problems, and also to referral zoned hospitals situated in Mwanza, Kilimanjaro, Dar es Salaam, Dodoma or Mbeya. Payment of health services in Modern Medicine (MM) is either mainly on cash basis or prepaid through the national health insurance and community health insurance. Ironically, despite all the emphasis and support on Modern Medicine (MM), there are still quite a number of people in every community who consult traditional and spiritual healers and utilise various traditional medicaments as well as alternative medicines.

Both traditional and modern medical practitioners believe that Modern Medicine (MM) has a major positive contribution to the maintenance of human health in the society. On the question about their perceptions of the level of the contribution of Modern Medicine's (MM) to human health, out of 193 medical practitioners in the Mara Region, 156 (80.8%) report a major contribution, while 3 (1.6%) report to perceive negative contribution and only 1(0.5%) report their perception of no contribution of Modern Medicine (MM), as shown in Figure 6.4. Such data reveal that almost all 187 (96.9%) practitioners (both traditional and modern) believe that Modern Medicine (MM) either has a major positive contribution or a minor positive contribution to human health. The question therefore remains whether the health services offered by Modern Medicine (MM) in the Mara Region are accessible and of high quality. It is necessity to obtain relevant information on the supply and quality of the health services for health planning, management, monitoring and evaluation. Efforts to increase appropriate reproductive health, maternal and child health, interventions for HIV/AIDS, malaria, and other major diseases in Tanzania require an appropriate assessment of how medical systems respond to increased inputs, improved processes over time as well as to the impact of such inputs and processes and their impact on improved health outcomes. In this Paragraph, the study presents some key health indicators in line with the *Service Availability and Readiness Assessment* (SARA) indicators of the World Health Organization (2012c) (9).

The *Mara Region Health Report* (2011) shows that the region has a total of eight hospitals, 28 health centres and 223 dispensaries with different ownership in district councils, as shown in Table 6.8. Based on the government policy guidelines, each ward is supposed to have at least one health centre where outpatients and a few inpatients can obtain services.

Much credit is given to religious organisations, which includes the *Christian Social Services Commission* (CSSC), which understand and accept the Tanzanian government's call to complement its efforts in developing, running or supporting health facilities in the country as it is noted that while there are only three hospitals owned by the government, religious organisations own five facilities in the Mara Region.
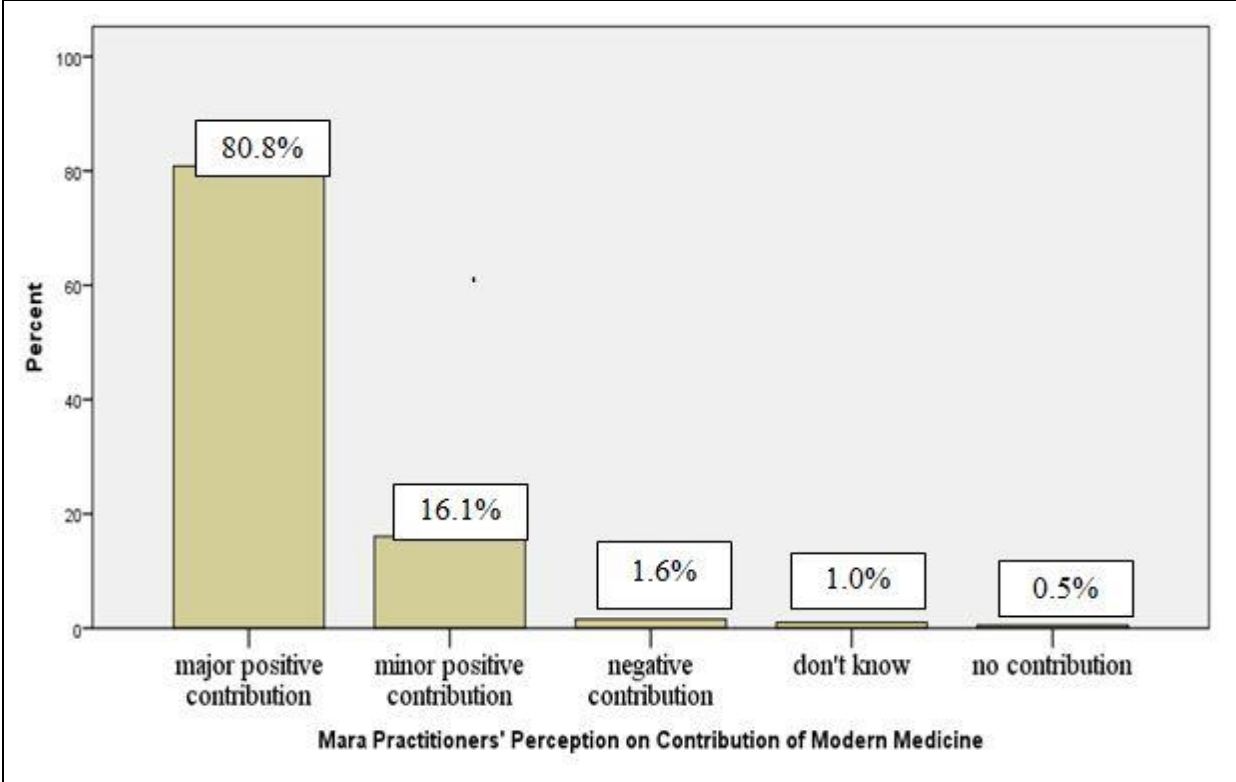
Figure 6.4   Practitioners' Perception on the Contribution of Modern Medicine (MM)
Source: Fieldwork Survey (2006).

The data of 2011 show 28 Health Centres only, with a total 154 Wards in the Mara Region. Accessibility of the health services in the Mara Region is therefore diminutive, as is true of quality of the health services due to the inadequate health facilities, the lack of sufficient health workers, the interrupted flow of drugs, the insufficiency in medical supply and working medical equipment as presented in Tables 6.8 through 6.13.

In the Mara Region, there is a notable deficiency of qualified modern health workers in the different health facilities as shown in Table 6.13. The overall available number of workers in the entire Mara Region is only 2394 or two-thirds (66%), indicating a shortfall of about 1228 or one-third (34%). Nevertheless, the deficiency is not uniform across the councils. Musoma rural district council has the highest deficiency with 368 (54%), followed by Rorya with 233 (44%), Serengeti with 217 (37%), Tarime with 86 (21%), Musoma municipality with 72 (26%) and Bunda with 190 (25%).

The overall data in Table 6.13 also show that while the private sector has a shortfall of employees amounting to about 391 (58%), the government shortfall is even more, reaching 887 (69%).

Table 6.12 Health Facilities in the District Councils of the Mara Region

		District Council						Total
		Musoma	Musoma Rural	Bunda	Serengeti	Tarime	Rorya	
Hospital	Gov't	1	1	0	0	1	0	3
	Religious	0	0	2	1	0	2	5
	Private	0	0	0	0	0	0	0
Health Center	Gov't	2	2	3	2	5	3	17
	Religious	1	0	0	0	2	4	7
	Private	1	0	0	0	2	1	4
Dispensary	Gov't	11	50	34	43	12	21	171
	Religious	4	10	3	2	5	6	30
	Private	8	0	3	4	5	2	22
Total		28	63	45	52	32	39	259

Source: Mara Regional Health Report (2011)

With such results, to support integration of traditional and modern medical practitioners is not only to complement what is done by modern health workers but also to fill the gaps, including some failures of Modern Medicine (MM) to comply with the patients' expectations, the inability to manage some illnesses and health problems, the sky-rocketing costs of modern medical services, and a failure to link up well with the socio-cultural values of different clients as is noted in Chapter I.

Table 6.13 Human Resource Establishment Status in the District Council Health Care System of the Mara Region

District/ Hospital	Government Employees		Private System Employees		Total		Total % available	Total % shortfalls
	Need	Have	Need	Have	Need	Have		
Musoma Municipality	187	153	85	47	272	200	74	26
Musoma Rural	510	290	168	20	678	310	46	54
Bunda	435	310	315	250	750	560	75	25
Serengeti	560	360	29	12	589	372	63	37
Tarime	332	282	84	48	416	330	79	21
Rorya	285	139	245	158	530	297	56	44
Regional Hospital	387	325	0	0	387	325	84	16
Regional Total	2,696	1,859	926	535	3,622	2,394	66	34

Source: Mara Regional Health Report (2011)

A low workforce density of modern health care in the region triggers some other common problems, such as the inaccessibility of the health services for some specialised services, the high costs of health care, the long patients' waiting time and the lower quality of service delivery. Therefore, measures which seek to increase the size of the health workforce through increased recruitment, higher retention of existing staff and better geographical balance are strategies which are being explored by the Ministry of Health and Social Welfare (MoHSW) together with the Ministry of Labour and Employment (MoLE).

The World Health Organization (2006a) recommends 2.3 health workers per 1,000 people as a benchmark requirement of workforce density for the adequate coverage of essential health interventions and core *Millennium Development Goals* (MDG) for 2015, which are related to health services. According to their current projections of a total number of population and available workers, the ratio is one health worker for 69,702 people. There are 1,243 hospital beds in total in the entire Mara Region, making the availability of an average of one bed for 1,000 people in the region. The national average is one bed for 1,000 people. The number of beds per hospital in each council is as shown in Table 6.10.

Table 6.14 Available Beds per Hospital in the District Councils of the Mara Region

District Council	Hospital	Available number of Beds
Musoma Municipality	Regional Hospital	300
Musoma Rural	Butiama	75
Rorya	Shirati DDH	167
	Kowak	115
Tarime	Tarime	180
Bunda	Bunda DDH	200
	Kibara	80
Serengeti	Nyerere DDH	126
Total Hospital Beds in the Mara Region		1,243

Source: Mara Regional Health Report – 2011

In as much as the government and private organisations work hard to ensure sufficient availability of material resources, it has been noted that most health facilities also have a notable amount of unreliable transportation means (Table 6.15) and medical equipment (Table 6.16 & 6.17) which are not repaired. Long-term, defective assets may end up being completely non-functional, in which case high costs of new procurement may befall the health facility, if not the accumulated, unnecessary high storage cost.

Table 6.15 The Available Motor Vehicles and Motorcycles in the Health Sector of District Councils of the Mara Region

	Motor vehicles		Motorcycles	
District Council	Functional	Defective	Functional	Defective
Musoma Municipality	12	2	5	0
Musoma Rural	7	1	3	0
Rorya	10	3	1	2
Tarime	4	0	6	0
Bunda	7	1	12	3
Serengeti	8	0	6	0
Total	48	7	33	5

Source: Mara Regional Health Report (2011)

Among the overall list of defective equipment, X-ray machines 3 (33.3%), autoclaves 14 (21%) and laboratory microscopes 34 (18.8%) male the top the list, as indicated.

Table 6.16 Available Medical Equipment (i) in the District Councils of the Mara Region

District Council	Lab Microscope		X- Ray	
	Functional	Defective	Functional	Defective
Musoma Municipality	33	13	2	1
Musoma Rural	24	0	0	0
Rorya	17	3	1	0
Tarime	31	11	0	1
Bunda	22	0	3	0
Serengeti	20	7	1	1
Total	147	34	7	3

Source: Mara Regional Health Report (2011)

The Mara Regional Health Report (2011) shows that of all the district councils, Musoma rural is the least equipped in terms of equipment as well as human capital. It is a district council with neither an autoclave nor X-ray machine. It has the highest deficit of competent required workers 368 (54%), and further, has only 75(6%) of the total reported hospital beds available in the region.

Table 6.17 Available Medical Equipment (ii) in the District Councils of the Mara Region

District Council	Ultrasound Machine		Autoclave	
	Functional	Defective	Functional	Defective
Musoma Municipality	2	0	10	3
Musoma Rural	0	0	6	4
Rorya	1	0	4	4
Tarime	0	0	11	0
Bunda	2	0	15	2
Serengeti	2	1	4	1
Total	7	1	50	14

Source: Mara Regional Health Report (2011)

Under the International Health Regulation of the World Health Organization (WHO 1995), and the National health management information system established in 1999 well abbreviated in Swahili as (MTUHA), certain diseases and conditions are under surveillance, referred to as 'notifiable diseases'. Consequently, these are expected to be reported to the health office authorities right from the grassroots up to allow for the earliest warning of possible outbreaks and appropriate management.

Table 6.18 provides an overview of diseases, which were reported by the end of 2011. More attention and efforts are particularly needed for health promotion in order to prevent dysentery and animal bites.

		District Council						
		Musoma Municipality	Musoma Rural	Rorya	Tarime	Bunda	Serengeti	Total
Notifiable Diseases	Acute Flaccid Paralysis	3	0	4	4	0	4	15
	Cholera	0	0	0	0	0	0	0
	Dysentry	0	0	868	939	1045	629	3481
	R/Fever	0	0	0	0	0	0	0
	Measles	0	0	7	5	4	3	19
	Meningitis	0	0	0	0	6	0	0
	N/Tetanus	0	0	0	0	0	0	0
	Plague	0	0	0	0	0	0	0
	Animal Bite	14	40	190	284	248	581	1357
	Yellow Fever	0	0	0	0	0	0	0
	Rabies	0	0	1	3	0	4	8
Total		17	40	1070	1235	1303	1271	4865

Source: Mara Regional Health Report (2011)

Although data reporting is incomplete, it can still be maintained that the Musoma municipality takes in the highest number of clients who undergo surgical operations, both major and minor, and receive blood transfusions *(cf.* Table 6.19). It is because the regional hospital is located in the Musoma municipality. It is also better equipped in terms of operating theatre facilities, equipment, and medical doctors who are allowed to perform surgery in Tanzania.

Table 6.19 Yearly Surgery and Blood Transfusions in District Councils of the Mara Region

District Council	Major Operation	Minor Operation	Blood Transfusions
Musoma Municipality	597	4,344	4,360
Bunda	545	483	3,444
Serengeti	436	267	778
Musoma Rural *	0	1	1
Rorya *	1	8	2
Tarime **			

* Incomplete data ** Not reported
Source: Mara Regional Health Report (2011)

Due to different health problems, the Mara Region still has a high maternal death rate, which can be reduced by addressing the root problems. Table 6.16 discloses the top most underlying causes of maternal death, which include *anaemia* (16 cases), *puerperal sepsis* (14 cases), *postpartum haemorrhage* (7 cases), *malaria* (5 cases) and *eclampsia* (5 cases) in patients showing symptoms of pregnancy induces *hypertension* and *proteinuria*. Other causes are ruptured uterus, *septicaemia,* obstructed labour, pulmonary oedema and HIV/AIDS. Some of the recommended interventions by the World Health Organization (c*f.* Dabydeen 2009) to tackle the basic problems of maternal death especially in the developing world include,

among others, ensuring balanced nutrition and vital nutrients intake, family planning, provision of effective *antenatal* care, safe delivery and *intrapartum* care, *post-natal* care and responding to obstetric emergency services.

Table 6.20 Causes of Maternal Deaths in the District Council of the Mara Region

		Musoma Municipality	Musoma Rural	Rorya	Tarime	Bunda	Serengeti	Total
		District Council						
	Septicaemia	0	0	0	1	1	1	3
	Anaemia	2	2	4	2	3	3	16
	Malaria	0	2	0	0	2	1	5
	PPH	3	0	1	0	2	1	7
Causes of Maternal Deaths	Puerperal Sepsis	9	3	1	0	0	1	14
	Obstructed Labor	0	1	0	0	1	0	2
	Pulmonary Oedema	0	1	1	0	0	0	2
	Meningitis	0	0	0	0	0	0	0
	HIV/AIDS	2	0	0	0	0	0	2
	Eclampsia	1	0	0	0	3	1	5
	Pneumonia	0	0	0	0	0	0	0
	Ruptured Uterus	0	2	0	0	1	1	4
	Others	4	1	2	2	0	1	10
Total		21	12	9	5	13	10	70

Source: Mara Regional Health Report (2011)

6.3   Interprofessional Collaboration in Health Care

6.3.1   Traditional Beliefs on Causes of Illnesses and Remedies

Traditionally in the Mara Region, as in most regions of Tanzania, beliefs of health and illnesses are seen in a wider context of individual well-being in the social and spiritual environments (Juntunen 2001). Following Foster & Anderson (1978), causes of illnesses can be conceptualized as either *naturalistic* or *personalistic*. *Naturalistic* causes are closely related to natural activity of disease agents – bacteria, viruses and parasites - and to continue being healthy, keeping a proper balance of body fluids and energy of body and mind which must be maintained and protected. *Personalistic* causes are believed to emerge from the actions of other people, either supernatural beings such as deities or deceased ancestors or living human beings with special powers such as witchcraft. When a society member either violates a norm, a taboo or does not respect the elderly and deceased ancestors, illness may occur as a retaliation of a moral punishment. *Personalistic* illnesses are therefore understood as to be spiritual or magical (Mbiti 1994). Healing and rehabilitation from *personalistic* illnesses are possible through traditional healers and spiritualists who have to perform certain rituals and use symbolism with the patient concerned. In the case of lack of respect to the elderly and the ancestors, the healing process may include some sort of restitution to spell away the curse. As one of the traditional healers in Serengeti district reported during an interview*:*

'To restore someone who has been cursed, he or she has to offer a cow, goat or a sheep without blemish for slaughter sometimes accompanied with grain flour'.

Furthermore, in the Bantu medical system, *personalistic* causes could also be due to bad relationships with one's relatives, friends and neighbours. In the traditional Bantu medical system in the Mara Region, just as in the ancient Greek medical system of Hippocrates, people support the *humoural* theory which explains that the body contains four types of liquid humours - blood, phlegm, yellow bile, and black bile - and that a person is healthy when the fluids are in optimal balance. In the *naturalistic* causes, illness can be caused by an excess or deficiency of one fluid compared to another. The balance of these fluids was caused by weather and diet (*cf.* Helman 2001). For example, inhabitants would be taking high caution with their children during the windy season in July and August in order to protect them from 'bad air' *(Jita/ Ruri/ Kwaya: Amayaga)* or during long rainy season (*Swahili: Masika)* from March to May and during the short rainy season *(Swahili: Vuli)* from October to December. The remedies for such imbalance include bloodletting, steaming, induced vomiting and diarrhoea or replacing the relevant shortage by food or traditional medicaments intake.

Blood is believed to be a vital liquid in the body. It symbolizes life to the extent that everlasting (long life) friendship (*Jita Ruri/Kwaya: Imuma*) would be contracted by friends sipping a droplet of each other's blood. On the other hand, menstrual blood is believed to cause contagious pollution, also believed by the Zulu ethno-cultural groups as described by Ngubane (1977).. During the menstrual period, the norms forbade women from participating in some society activities such as milking, harvesting or worshipping in order to avoid uncleanliness (*Swahili: unajisi*), as this would pollute the produce and may bring bad fortune to the family or the society at large.

All ethno-cultural groups in the Mara Region have certain taboos (*Swahili: Miiko*) which restrain its members of the society for example not to drink or eat something which are restricted by the traditional values. There are several taboos known as *Emisilo (Jita/Ruri/Kwaya)*. For example, the *Waruri-Wambogo* are not to eat hippo meat, not to smoke marijuana, not to kill a snake known as *Kifutu (Imiri)*, not to kill a tortoise, and women are neither to decorate in dairy oil nor red rocky paint (10).

Consequently, it was believed that in any case of breaking a taboo, illness or bad luck would befall the deviant and or his or her family. Despite the indisputable positive contribution of some traditional medical practitioners in the Mara Region, albeit with some exceptions within a few ethnic groups, people hold some beliefs and practices which have negative impacts on people's health. Unfortunately, some of these practices are either enforced or assisted by some traditional medical practitioners. These practices include the following:

- Children teeth mutilation (infant oral mutilation) based on the belief of the existence of 'nylon teeth' associated with fever, diarrhoea to children is a fatal social propaganda spread from the coastal regions of Tanzania since the 1980s. The Dental and Oral Health Department of Serengeti Report (2009) reports approximately 75 identified teeth extractors residing in the Mara Region. More alarming, about 755 children who were admitted to the Musoma Regional Hospital between January and September 1999 with this problem, have died.

- Uvulectomies are done by traditional healers and a few quacks. The Dental and Oral Health Department of Serengeti Report (2009) indicates a total of 64 known uvulectomy 'specialists' in the district. Their work is based on the belief that they relieve people from unsettling coughing.

The same report shows that about 25% of people admitted at Nyerere Designated District Hospital the majority being children from this kind of bloody operations have died.

- Health risk behaviours related to the spread of HIV infections are attributed to unsafe mass male circumcisions conducted by traditional circumcisers, unprotected sexual behaviours in traditional forced widow remarriage known as 'widow inheritance', death cleansing rituals, and polygamous marriages.

- Female Genital Mutilation is still practiced mainly in Serengeti, Tarime and a part of rural Musoma. It results in not only the physical and mental suffering of women undergoing this traumatic traditional operation, but also in the psychological burden to some other un-initiated women who have to live in imposed fear created by men, causing social exclusions and less sense of belonging to their own community;

- Reckless swimming and use of waters of Lake Victoria, which harbours vectors which spread the parasitic disease of *bilharzia*. The giant Lake Victoria, with a surface area of 68,800 sq km is the world's second largest fresh water lake. Before the introduction of the Nile Perch it was known for its enormous biodiversity of quite a number of different species of fish. Portions of Lake Victoria are presently contaminated, and yet without much caution, children and adults have continued swimming, bathing and using untreated water fetched directly from the area of Lake Victoria. The lake extends from urban Musoma, rural Musoma, to the Rorya district and part of the Bunda district and is proven to harbour vectors which are spreading *bilharzia*. Downs (2011) conducted a study on this topic, and Sezzy (2010) reported in *Mtanzania* on the research of Lwambo from the Medical Research Centre of Mwanza Branch, who discovered that *bilharzia* is not only affecting people who are swimming in Lake Victoria, but that it has caused a tremendous decrease of income from tourism as it has become a known problem to many tourists who do not want to risk their live by swimming in the lake.

- Barbaric life-threatening activities linked to some traditional healers and soothsayers. On grounds of psychosocial factors, such as superstition and myths over the perceived shortcut to increase the acquisition of wealth or success over a very short period of time without using entrepreneurial skill or effort, innocent human lives of people with albinism have been lost. This has happened in Tanzania and other places worldwide. As the Prime Minister of Tanzania, Hon. Mizengo Pinda once stated, that: '*These witch doctors are big liars; they are fanning Albino killings…*', announcing that the Government would immediately begin revoking all licenses of traditional medical practitioners (*cf*. McNeil 2009). Targeted for their body parts, about 40 people with albinism were murdered in Tanzania since 2007, mainly along Lake Victoria. The bizarre rumours in different parts of Africa about albinos, including the belief that they fade away instead of dying and that their body parts can bring about supra profit, are callous delusions. All well-wishers, both national and international, such as the local government leaders, social welfare officers, security officers, religious leaders, NGOs including *Under the Same SUN*, and leaders of the organisation of traditional healers called CHAWATIATA are already in full engagement, using their expertise to put an end to such killings and any kind of harassment to fellow human beings (*cf*. Figure 6.5). The business people need to be educated to report all such criminals who are using the name of fortune-tellers and healers. Such incidences can add to the challenges facing Traditional Medicine (TM), albeit such incidences, those

involved are only a minority of all available traditional medical practitioners, most of whom serve their clients responsibly and satisfactory.

- Poorly balanced dietary intake and general health is a common problem hindering good health livelihood. The majority of the Mara Region inhabitants are mindful of the quantity of food intake, but not necessarily the quality. Every year, there are reports of children suffering from malnutrition and lack of particular vitamins, *e.g.* Vitamin A, in the Mara Region and in Tanzania as a whole. An increase of *Type II Diabetic* cases has been noted in the Mara Region's Health Authority Report (2010), highlighting both an irresponsible intake of 'junk food' generally stocked with high percentage of carbohydrates and fats, as well as a lack sufficient exercise leading to obesity among the youth and adults.

- The patriarchal attitude subordinates and suppresses the position and the role of women in the society. Women in the Mara Region, especially in the villages, are mostly seen as hard workers, but are enjoying less distribution of resources and produce compared to men. Sometimes, in a legendary manipulation, they are denied some nutritional intake such as eggs or meat from animals or fish in the name of 'respecting taboos'. Unequal opportunities for the schooling of girls are sometimes due to early, coerced marriages leading to families with ignorant and immature motherhood, which adds to poor maternal and child health.

Figure 6.5 Representatives of the Association of Traditional Medical Practitioners in Tanzania (CHAWATIATA) - Mara Region, Tanzania Albino Society, Mara Region, Albino Peace Makers, Arusha, The Mennonite Central Committee (MCC) and Kanisa la Mennonite Tanzania (KMT) Strategic Meeting on Formulation of an Organisation on Peace and Reconciliation in Musoma Municipality in February 2013
Source: Picture by Magiri- (Omwiunjo) - Kanisa La Mennonite Tanzania.

- The lack of routine health information reporting for external consumption. Despite the long-available Health Management Information System (MTUHA) and a number of developed indicators, most practitioners and their leaders in the modern health facilities have failed to effectively utilise their collected health data for their own quality assurance and improvement (*cf*. Chirangi-Schoenmaker 2010). This may be the result of the growing habit of considering reports as a requirement from the funding source by the sponsor or donor IDs for external consumption, instead of being considered as a necessity for internal use for decision-making and planning for health care.

Before the arrival of the colonialists, such beliefs and aetiologies would dictate people with health-related problems to seek consultations either from traditional healers, fortune-tellers, bonesetters, birth attendants or circumcisers. Despite the emphasis of the Government on the use of Modern Medicine (MM), during the colonial time as well as the steadily growing of the Complementary and Alternative Medicine (CAM) in the country, people make their own decision about the type of health services they seek*, i.e.* Traditional Medicine (TM), Modern Medicine (MM) or Complementary and Alternative Medicine (CAM). Such decisions depend on various factors, including background, education, belief, trust, knowledge, perceived morbidity, the type of illness or health problem, accessibility, affordability and type of health facility. Without doubt, clients would like to consult practitioners from all medical systems to collaborate in order to allow for quick and optimal choices in the available health care services in order to ease their shopping behaviours.

6.3.2 The Use of Medicinal Plants in the Region

Medicinal plants form the largest source of traditional therapeutics used by healers, traditional birth attendants as well as some bonesetters. Table 6.21 shows a list of some common medicinal plants and their use in relation to the restoration or improvement of health in the Mara Region and Tanzania as a whole.

Table 6.21 Commonly Used Medicinal Plants and Their Uses in the Mara Region

Local name	Genus & Species name and part used	Uses / Treatment against
Likalekale (Jita/Ruri/Kwaya) Haruna (Swahili)	*Aloe secundiflora* (leaves)	Warm leaves are applied to wounds. Leaf sap is drunk as an anti-emetic against vomiting and nausea.
Ombulu (Luo)	*Abrus precatorius* (leaves)	Juice from leaves is chewed to treat a cough.
Otagalo (Luo)	*Acanthus pubescens* (roots)	Decoction of pounded roots used against stomach problems.
Mukilabhaigi (Jita/ Ruri/Kwaya)	*Blepharis panduriformis* (whole plant)	Boiled in water, and decoction drunk for treating dysentery.
Kitunguu Saumu (Swahili)	*Allium sativum (bulb)*	Bulbs pounded in food to treat a cough.
Isindura (Jita/Ruri/Kwaya)	*Zaleya pentandra* (whole plant)	Dried, powdered and applied directly on athlete's foot and septic wounds. Roots are chewed with *Voandzeia subterranea* (*njugu mawe*) to shorten labour pains during delivery.

Table 6.21 Commonly Used Medicinal Plants and Their Uses in the Mara Region (Continue..)

Nyamunogo (Jita/Ruri/Kwaya)	*Lannea humilis* (roots)	Boiled in water. Decoction is drunk for treating anaemia and stomach pains.
Lisalwa (Zanaki/Jita/Ruri/ Kwaya)	*Lannea schweinfurthii* (stem bark)	Boiled in water and drunk for treating syphilis, cellulitis, abscesses and oral candidiasis.
Liluguyu (Jita)	*Balanites aegyptiaca* (stem bark)	Soaked in warm water, the extract is drunk for treating asthma, dry
Mijohoro (Swahili) Masongoma (Ikizu, Kurya, (Jita /Ruri/Kwaya)	*Senna siamea* (roots)	Peeled, pounded and boiled, the decoction is drunk for treating gonorrhoea.
Lisingisi (Jita /Ruri/Kwaya)	*Boscia angustifolia* (stem bark)	The stem bark is boiled in water and drunk for treatment of mumps, dysentery and venereal diseases.
Manywera manji (Kurya)	*Maerua edulis* (roots)	Its infusion is taken orally for treating venereal diseases, especially gonorrhoea and syphilis. Roots are eaten during food shortages. The plant is poisonous; death occurs when eaten in excess.
Injaga-nyabekwabi (Jita /Ruri/Kwaya,Kurya, Zanaki, Ngoreme)	*Cannabis sativa* (shoots and leaves)	The shoot is ground, soaked in warm water, and the extract is gurgled for oral thrush, and drunk and retouched for vaginal ulcers. The powder is sprinkled on boils. Leaves are soaked and drunk to expel tapeworm.
Linyago (Zanaki, Ikoma, Jita)	*Terminalia mollis* (root bark)	Decoction drunk against urine-blockage, kidney problems, diarrhoea, and dysentery. Stem bark decoction is drunk for jaundice treatment, and infusion is applied as drops for eye infection.
Nyaseko-indume (Kwaya, Ruri, Jita)	*Felicia grantii* (plant sap and roots)	Sap is used against eye infection, while roots decoction is drunk for stomach pains
Imangwe (Ruri)	*Senecio discifolius* (whole plant)	Decoction of the whole plant is drunk for treatment of syphilis. It is more effective when combined with *Harrisonia abyssinica.*
Maua (Swahili) Mava madongo (Luo)	*Tithonia diversifolia* (leaves)	Soaked in water and bathed for skin infections. Concentrated macerate is drunk for stomach aches.
Nyamata (Jita /Ruri/Kwaya)	*Euphorbia heterophylla* (whole plant)	Whole plant is boiled in water, and decoction drunk for typhoid fever.
Minyaa (Swahili), Masongorwa (Jita /Ruri/Kwaya)	*Euphorbia tirucalli* (plant latex sap)	Drops in the eye treat ophthalmic infections. Root decoction is drunk to treat gonorrhoea and syphilis.
Buleba-busungu (Jita /Ruri/Kwaya)	*Crotalaria cf. Caudata* (leaves)	Decoction is drunk to treat threatened miscarriage. Powder mixed with oils is applied topically to treat skin diseases.

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Table 6.21 Commonly Used Medicinal Plants and Their Uses in the Mara Region (Continue..)

Gabunyunywa / Obhunyunywa (Jita /Ruri/Kwaya, Ikizu, Zanaki)	*Leonotis nepetifolia* (leaves)	Juice from fresh ground leaves or dry powder is applied fresh or septic wounds, leaves are boiled and the decoction is drunk for treatment of convulsions.
(Ga) nyabhundege (Zanaki, (Jita /Ruri/Kwaya)	*Crotalaria retusa* (leaves)	Juice used as drops against eye infection, while the leaf infusion is bathed for skin diseases.
Bigeye (Jita), Olugiligili (Ruri)	*Acacia brevispica* (leaves)	Pounded leaves are rubbed on the infected swollen part of the body or dressed on the abscess.
Bisanjawe (Jita/Ruri/Kwaya)	*Dichrostachys cinerea* (roots)	Boiled in water and drunk for treating venereal diseases. Leaves are chewed and swallowed as a snakebite antidote.
Likuyu (Jita/Ruli/Kwaya)	*Ficus sycomorus* (stem bark)	Boiled in water and drunk, treating fungal infection of the gut, abscess, boils, peptic ulcers and jaundice. The same is chewed for treating vaginal/anal infections
Likukubi (Jita/Ruri/Kwaya)	*Boerhavia coccinea* (leaves and roots)	Infusion is gargled for oral candidiasis and canker sores (aphthous ulcers). Root decoction is taken orally for the same ailments
Binyafwira (Jita/Ruri/Kwaya)	*Jasminum fluminense* (leaves)	Macerated in cold water then drunk to treat female infertility. Paste dressed on the affected area to treat cellulites and abscess.
Rikararungu (Kurya)	*Argemone mexicana* (shoots)	The juice (latex) from different parts of the shoot is applied directly on wounds and sores.
Mpingo (Swahili)	*Dalbergia melanoxylon* (leaves)	Pounded leaves are used to massage swollen body parts.
Liyebhete (Jita/Ruri/Kwaya)	*Erythrina abyssinica* (stem bark and roots)	Boiled decoction is drunk for curing diarrhoea, dysentery and jaundice.
Mutungutu (Zanaki) Lijare (Jita/Ruri/Kwaya)	*Lonchocarpus eriocalyx* (stem bark)	Boiled in water, decoction drunk to treat cough and stomach pain.
Mtemanjofu (Jita/Ruri/Kwaya)	*Ormocarpum kirkii* (roots and leaves)	Root decoction is drunk against fever. Leaves paste used for dressing a wounded area.
Nyakasorogo (Jita/Ruri/Kwaya)	*Rhynchosia sublobata* (roots)	Soaked in warm water, the infusion is drunk for treatment of bloody diarrhoea
Binyambe (Jita/Ruri/Kwaya)	*Rumex usambarensis* (shoots)	Pounded, soaked in hot water, the infusion drunk for treatment of haemorrhoids.
Nyamtumuka (Jita/Ruri/Kwaya)	*Cardiospermum halicacabum* (leaves and shoots)	Mixed with fats, the paste is used for dressing an abscess. Seeds are powdered for treatment of septic wounds.
Ifufya (Jita/Ruri/Kwaya) Kidua (Swahili)	*Buchnera speciosa* (roots)	Pounded and macerated in water, the extract is gargled for dental problems.
Lisawa (Jita/Ruri/Kwaya)	*Harrisonia abyssinica* (roots)	Boiled decoction is drunk for treatment of fever, malaria, diarrhoea and abscesses.
Lifubefube (Jita/Ruri/Kwaya)	*Withania somnifera* (roots)	Used for treating children convulsions. Root powder is sprinkled on the nipples to enable babies to breastfeed.

Table 6.21 Commonly Used Medicinal Plants and Their Uses in the Mara Region (Continue..)

Echumya (Jita/Ruri/Kwaya)	*Waltheria indica* (leaves)	Powdered leaves are sprinkled on fresh wounds.
Lufyambo	*Abrus precatorius* (fruit)	Mixed with salt, chewed and swallowed for treating male impotence.
Kerefu mzitu (Swahili)	*Acacia schinfurtii* (roots)	Pounded separately and use as treatment for asthmatic patients.
Kitunguu (Swahili)	*Allium cepa* (leaves)	Used as antiscorbutic, anti-diabetic and aphrodisiac substance.
Unkule (Swahili)	*Aristolochia densivenis* (stem barks, root)	Snake venom antidote.
Fivi (Swahili)	*Artemesia afra* (leaves)	Anti-malarial
Mwarobaini (Swahili)	*azadirachta indica* (leaves and stem bark)	Anthelmintic, antifungal, anti-diabetic, antibacterial, antiviral, anti-infertility and sedative and non-synthetic insecticide. Treats 40 diseases including malaria and scabies.
Kabichi (Swahili)	*Brassica oleracea* (leaves)	Decoction for treatment of liver cirrhosis, dysentery, tonsillitis and loss of voice.
Limao (Swahili)	*Citrus limon* (fruit)	Supply of vitamin A, B, B_2 & C; sedative, tonic, antispasmodic and diuretic substance.
Mbwakambwaka (Swahili)	*Deinbollia borbonica* (roots)	Boiled and used to treat hernias.
Mnanaa (Swahili)	*Emillia Sagittata* (pulp)	Antifungal treats *dermatomycosis* and ring worm.
Mvuti (Swahili)	*Lipia jaranica* (leaves)	Used as insect repellent.
Peasi (Swahili)	*Pyrus communis* (fruit)	Infusion and decoction of the barks; leaves used for treating diuretic and urinary complains
Epo (Swahili)	*Pyrus malus* (fruit)	Treats rheumatism, gout, liver, kidney diseases and digestive system.
Mswaki (Swahili)	*Salvadora persica* (stem, leaves and roots)	Used as toothbrushes. Relieve toothache and gum disease. Leaves are used as a mouthwash. Roots are prepared as ointment and rubbed on the face for headaches.
Mzambarau (Swahili)	*Vangueria infausta* (roots)	Decoction drunk to treat infertility.
Mlifu (Swahili) *Mshegeshe*	*Warburgia ugandensis* (stem barks) *Myrica saliciforia* (roots)	Mixture used to treat rheumatic and spasmodic conditions.
Mutungutu (Zanaki) *Lijare (Jita/Ruri/Kwaya)*	*Lonchocarpus eriocalyx* (stem bark)	Boiled in water, decoction drunk to treat cough and stomach pain.

Source: Johns *et al* (1996). Maregesi *et al* (2007) and Fieldwork Survey (2007)

6.3.3 Efforts on Collaboration between Medical Systems

In Tanzania, there are often two extreme attitudes regarding the traditional medical system. On the one side, people tend to romanticise the ethnomedical position of indigenous medical knowledge, beliefs, practices and products; while on the other side, people take a blanket opposition and denial on anything which is not based on the biomedical position. At the national level, some vigorous collaborative efforts can be observed which bring together proponents of the two sides in workshops and conferences either under the Desk of Traditional Medicine (TM) at the Ministry of Health and Social Welfare (MoHSW) or through the Muhimbili Institute of Traditional Medicine (MITM). Apart from publication of research on Traditional Medicine (TM), the Muhimbili Institute of Traditional Medicine also engages in manufacturing its own formulated herbal medicines in its GMP laboratory, as approved by the Tanzania Food and Drugs Authority as well as the Tanzania Bureau of Standards. The *ITM News Bulletin* (2011) reports that so far they have formulated 12 products, of which two are patented, as shown in Table 6.18, and four of their recent products and the corresponding diseases or health conditions which they treat are indicated. This commendable work of adding value to the indigenous medical knowledge through utilisation of modern medicine development knowledge and technologies avails an affordable quality of medicines to the public. Increased production and marketing can be achieved through active collaboration with other experienced and reputable pharmaceutical companies in the near future.

Table 6.22 Formulated Herbal Products by Muhimbili Institute of Traditional Medicine

Product	Disease / Condition	Product	Disease / Condition
Morizela juice: Patented (TZ/P/07/00150)	-Diabetes -Nutritional supplement	Ravo cream: Patented (TZ/P/07/00151)	-Skin fungal infections -Allergic conditions
Pumu syrup	-Asthmatic conditions	Prucan capsules	Benign Prostate Hypertrophy

Source: ITM News Bulletin (Vol. 3, Issue 1, December 2011)

The Ministry of Health and Social Welfare (MoHSW) declares that in Tanzania, there is no formalised system of collaboration between the conventional and traditional medical practitioners, as is noted under Section 2.1(c) in the *Tanzanian Traditional Health Practice*

Guidelines of the National Health Policy (July 1992). In the Mara Region, the common way of collaboration by a few practitioners has been experienced in referring outpatients across the systems. Another way refers to the incorporation and recognition of trained traditional birth attendants in assisting women in safe delivery and reproductive health by the district health authorities'.

Although collaboration between the traditional and modern medical systems is now generally accepted by a number of African countries such as Uganda, Zimbabwe, Tanzania, Mozambique, and Cameroon, the major question remains how to collaborate more effectively as the two systems at a certain level tend to differ in their theories of disease causation and management, while both underscore at the same time the shared objective of the improvement of human health. Furthermore, the reality of detestation as the result of the past ill treatment of traditional healers during the colonial era, followed by some missionaries, is still existing in the mind of some traditional medical practitioners as observed by Kayombo *et al.* (2007).

By choosing a moderate, realistic position, the researcher and fellow facilitators have realised the need to create an enabling environment for both the incorporation and collaboration between traditional and modern medical practitioners, which is paramount for the improvement of comprehensive health care delivery while discouraging any form of malpractice.

Figure 6.6 *Jadi na Utamaduni katika Afya* (JUA) *Project* Fellow Facilitators at the then
Community-Based Health Promotion Programme (JAMII- IMARA, Serengeti)
Source: *Jadi na Utamaduni katika Afya* (JUA) Project work in 2005)

Simultaneously, the other objective is to enhance the abilities of people as health stakeholders to be able to make optimal choices of the utilisation of available health services. The Mara *Association for Traditional Healers and Midwives* (CHAWATIATA-Mara), in liaison with the *Jadi na Utamaduni katika Afya* (JUA) Project, are working together to enhance the capacities of

traditional healers, traditional birth attendants and circumcisers to be able to identify their own challenges on issues of the efficacy and safety of their services and products', their moral obligation and efficiency through collaboration with modern medical practitioners in the region. Facilitators of the *Jadi na Utamaduni katika Afya* (JUA) project (*cf.* Figure 6.6) will continue to focus on the educating of the people about the impact of the use of indigenous knowledge and culture to their own health. The *Jadi na Utamaduni katika Afya* (JUA) orientation hinges on Section 39(d) of the objectives of the National Policy on Traditional Health Practices Guideline of 1992 of the Tanzanian Ministry of Health and Social Welfare (MoHSW*):'To create an environment and institutions which will enable traditional health practices and medicine to be accepted and developed'.*

It has been reported by the CHAWATIATA Mara Chairperson, Omufumu Nyakiriga Nyakirangáni, that the exercise of enlisting all traditional medical practitioners in all districts of the Mara Region has been carried out to facilitate their individual registrations, and that every district now has its leadership and respective CHAWATIATA office.

All these efforts shall in turn assist the Regional Medical Officer in giving them the necessary support while ensuring the continuous quality control as promoted by the *Tanzanian Traditional and Alternative Medicine Act* of 2002.

Figure 6.7   Facilitator and Traditional Medical Practitioners Attending *Jadi na Utamaduni katika Afya* (JUA) Workshop in Shirati.
Source: *Jadi na Utamaduni katika Afya* (JUA) Project work in 2006

As part of its programme, the *Jadi na Utamaduni katika Afya* (JUA) Project conducted workshops with traditional healers, birth attendants and circumcisers on different topics such as hygiene, HIV/AIDS, and the health policy and regulatory framework of the Ministry of Health and Social Welfare (MoHSW) related to Traditional Medicine (TM).

Figure 6.7 shows a picture of the participants and facilitators who participated in one of the *Jadi na Utamaduni katika Afya* (JUA) Project workshops.

Another major collaborative effort in the Mara Region especially in the Kuryan ethnic groups between the traditional and modern medical systems has been in the area of male circumcision seasons. Through the consent of the Kuryan elders' (*Wazee wa kimila)* and the inputs of the *Community Based Health Promotion Programme*, now known as *Jamii Imara,* the Nyerere Designated District Hospital and the *Jadi na Utamaduni katika Afya* (JUA) Project, the traditional circumcisers have been able to work hand-in-hand with the modern medical practitioners, such as the clinical officers, nurses and HIV/AIDS counsellors during the major Kuryan circumcision seasons in the Serengeti Districts since 2004. Because of this breakthrough undertaking, hundreds of Kuryan young men are now undergoing safe circumcision, where each operation by the traditional circumciser in sterile gloves is done by one, non-shared operating blade and in a hygienic environment. The modern practitioners involved help either in dressing the wound in clean gauzes, when needed, in stopping excessive bleeding, in applying pharmacological methods such as effective localised pain blocking and in topical analgesics to those circumcised men. They also provide appropriate health counselling advice to circumcisers as well as to the circumcised as the need arises. Again with the consent of *Wazee wa kimila,* some parents are free to bring their sons to the hospital for circumcision without being condemned at some minimal level of stigmatisation which still exists, especially in some rural ethno-cultural villages of the Mara Region.

Traditional male circumcision is still a challenge in some other villages of the Mara Region, especially when it is done traditionally in unsafe mass numbers, as it increases the susceptibility of HIV infection in the region. The Government of Tanzania, through the Ministry of Health and Social Welfare (MoHSW) has also continued to support and facilitate the training of Traditional Birth Attendants in various health topics in their districts.

It is, however, noted that the syncretic fusion of Traditional Medicine (TM) and African religion in the region still renders it difficult for the most committed religious people, especially of the Christian faith, to cooperate openly with traditional medical practitioners and their products (*cf.* Flessa 1997).

Notes

1. Harassment and efforts to silence the indigenous knowledge of traditional medical practitioners have been documented by different writers including Feierman (1985) in *Struggles for Control: The Social Roots of Health and Healing in Modern Africa*. *African Studies Review*, Vol. 28, p. 119. Even Traditional Birth Attendants were described as 'angels of death' as documented by Lefeber and Voorhoeve (1998) in *Indigenous customs in childbirth and childcare*. Assen: Van Gorcum.
2. A study by Newbrander and Sacca (1996) entitled *Cost Sharing and Access to Health Care for the Poor: Equity Experiences in Tanzania,* shows the adverse effects of cost sharing on people's health.
3. Perceived morbidity can be defined as the observation and interpretation of symptoms of illness which initiate the decision to seek and obtain medical help. This subjective picture may conform to the objective picture according to medical standards but need not necessarily do so (Slikkerveer 1990: 74).
4. Keto Mshingeni (University of Dar es Salaam) attests this as a preamble statement as the editor in chief for an international conference on the promotion of medicinal plants in 1991, in Arusha, Tanzania.
5. Muhimbili Institute of Traditional Medicine, part of the Muhimbili University of Health and Allied Sciences, presents an introduction on the extent of traditional healers and medicinal plants on its official website: http://www.muhas.ac.tz/ITM1/aboutus.htm.

6. A workshop conducted in April 2007, Mugumu was attended by 35 members of the traditional healers' association (which includes traditional birth attendants) known as CHAWATIATA. The workshop was moderated by the Community Based Health Promotion Programme, which was founded and coordinated by Jumanne Magiri and the researcher's *Jadi na Utamaduni katika Afya* (JUA) project in liaison with health workers from Nyerere Designated District Hospital as facilitators.

7. Congestion of a multitude of people traveling to one location, Samunge Village, which has poor infrastructure and unprepared area to accommodate such a flux in population in terms of food, water and shelter. There were reports of 8 deaths in the Daily News of 21/03/2011 by Marc Nkwame and social complains associated with the rush towards the 'miraculous cup'.

8. The World Health Organisation fact sheet number 134 issued on December 2008, retrieved on 25.09/2012 at http://www.who.int/mediacentre/factsheets/fs134/en/ provides an updated collection of facts about Traditional Medicine (TM) worldwide.

9. The Service Availability and Readiness Assessment (SARA) is a methodology which has been developed in a joint venture by the WHO and the United States Agency for International Development (USAID) to enable efficient measuring and tracking progress in medical systems. The tool is designed to assess and monitor the service availability and readiness of the health care system and to generate evidence to support the planning and managing of medical systems. It was built upon the previous methodologies for assessment such as the service availability mapping (SAM) tool developed by WHO and the service provision assessment (SPA) tool developed by ICF International under the USAID-funded MEASURE DHS project.

10. The Waruri Tribe, a clan of the Mara Region, has had their cultural and social records documented (not yet published) by Mzee Amos Mutaragara (2006) in his writings entitled *Historia ya Waruri*.

CHAPTER VII ANALYSES OF INTERPROFESSIONAL COLLABORATION IN HEALTH CARE

Since this study in the Mara Region also includes research aiming at analysing relations and correlations between independent, intervening and dependent variables, it seeks to explain related events, conditions and behaviours in order to make predictions of how one variable might predict another (Moore *et al.* 1986). This study examines how different variables such as predisposing, enabling, trustworthiness, organisational and intervening variables might predict interprofessional collaborative behaviour between traditional and modern medical practitioners.

By use of *SPSS* 20.0 statistical software, also now known as *Predictive Analytics Software* (PASW 20.0), statistical analyses are presented in this chapter showing behavioural patterns related to knowledge, beliefs and practices between traditional and modern medical practitioners in the way in which they collaborate in the delivery of health services.

The chapter first describes the way in which data as measurable phenomena have been organised and recoded into variables. With the exception of a few variables, most indicators have been measured by more than one question. The recoding of variables has been carried out either directly by using the responses or through calculations.

Paragraph 7.2 presents the quantitative analysis of all independent, intervening and dependent variables of the seven blocks of variables as shown in the analytical model in Paragraph 2.4.5. The general descriptive analysis which provides impressions of the correlation among variables is explored through cross tabulation while examining the *Chi-square*, *Cramer's V* and *Kendall's tau-b* values of significance and strength of the correlation. The general interpretation or possible inferences are given for each significant correlation in the bivariate analysis.

A multivariate analysis of variables is then computed by the use of an optimal scaling technique, which in turn provides results of the *Non-linear Canonical Correlation Analysis* (CCA) known as *OVERALS*. The *OVERALS* technique searches for what is common among sets of variables on the same concept (*cf.* Kettenring 1971; Van der Burg & De Leeuw 1983; Van der Burg 1994). *OVERALS* results reveal the structural interaction among the independent, intervening and dependent variables, which refer to the collaborative behavioural patterns among the two types of medical practitioners.

Lastly, the two step *OVERALS* analysis is presented; firstly as a total set of variables from all blocks as separate sets, and secondly as one-to-one blocks of variables showing the relative strength of the interactions between them in a multiple (categorical) regression analysis by use of *Eigenvalue* as a multivariate measure of interaction of all variables. This, in turn, shows a clear picture of the way in which independent and intervening variables interact with dependent variables. All variables with strong effects in their interaction are identified as to be able to develop and complete the ultimate analytical model. While the general assessment of the level of interprofessional collaboration in the region is given in Paragraph 7.2.1, the overall interactions and interpretation of results of the quantitative analysis are presented in Paragraph 7.2.4.

7. 1 Preparation of the Data Set

Data are collected as measurable phenomena explained in the operationalisation of the concepts from the survey carried out by administering structured questionnaires to both practitioners of the traditional and modern medical system, followed by organising the data into PASW 20.0

data editor, and then cleaning them accordingly. The cleaning is conducted by correcting misspelled words, unwanted marks or inconsistencies. Responses falling into the answer category 'other' have been incorporated into the intended category. Some renaming of the *type, values* and *measure* of the variables has been completed in accordance with the nature of the variable.

The coding of responses into the intended variables has been carried out in either one of the following three methods; a non-computed recoding of data which includes the direct transfer of responses from the original answers as in Table 7.1; a qualitative recoding of responses into a specific variables as presented in Table 7.2; or a computed recoding of data (recalculation) into specific variables as presented in Table 7.3.

7.1.1 Non-Computed Recoding of Variables

Three directly transferred variables – 'district name', 'religion' and 'highest formal education' are entered into a coded PASW editor without changes, as indicated in Table 7.1.

Table 7.1 Direct Transferred Variables (no recoding) into PASW 20.0 Data Editor

Concept	Variable	PASW name
Socio-demographic Variables	District name	District
Socio-demographic Variables	Religion	Religion
Socio-demographic Variables	Highest Formal Education	Formed

Source: Fieldwork survey (2006)

The variable 'district' shows the administrative area where the practitioner serves (service area). 'Religion' tells the practitioner's faith affiliation and 'formed' gives the maximum achieved level of the practitioner's formal education.

While peoples' culture and level of development in a particular district can have a notable effect in the way in which workers live in general, 'religion' would instil strong belief systems which link humanity to spirituality, and, in turn, such beliefs and religious teachings may also prescribe what is or is not acceptable in health care practices and products. The level of 'formal education' may differentiate practitioners' knowledge and skills, which influences their worldview and habits of promoting a healthy life and managing different illnesses. Most traditional medical practitioners reported their non-formal education through indigenous modes of learning.

Nineteen variables obtained from responses by the respondents did not fulfil the intended categories and required to be recoded quantitatively to achieve the respective concepts used. Table 7. 2 which follows presents the recoded variables quantitatively to match the respective concepts which are used. This recoding is necessary to turn the original raw data into new codes or names. Table 7.2 presents all such variables and their subsequent explanations in the way which they were recoded.

Status in Organisation ('*orgstat*')
Worker's organisational status ('orgstat') shows the hierarchical position of the employees which consideration to the organisation structure where they work. The different levels where they belong and their attached responsibilities, powers and authorities which can have an influence in the way an employee interact with others.

Table: 7.2 Variables Measured by a Single Question Recoded by Qualitative Methods

Concept	Variable	PASW name
Socio-demographic Variables	Status in the organisation	'orgstat'
Socio-demographic Variables	Age	'age'
Socio-demographic Variables	Organisation type based on service	'orgserv'
Socio-demographic Variables	Organisation size	'orgsize'
Socio-demographic Variables	Professional group	'profgrup'
Psycho-Social Variables	Perceived possibility of future work relationship	'percwrel'
Psycho-Social Variables	Belief on future positive impact of collaboration	'belimpac'
Psycho-Social Variables	Belief about disease system specificity	'belidses'
Psycho-Social Variables	Awareness of successful collaborative efforts	'awasucce'
Psycho-Social Variables	Intra-professional collaboration within the same system	'intracol'
Psycho-Social Variables	Experience with Traditional Medicine (TM) goods and services	'extmsev'
Psycho-Social Variables	Experience with Modern Medicine (MM) goods and services	'exmmsev'
Enabling Variables	Government and community efforts on collaboration	'gocoefot'
Enabling Variables	Communication linkages with other places	'comlink's
Trustworthiness Variables	Level of trusting MM practitioners	'mmtrust'
Trustworthiness Variables	Level of trusting TM practitioners	'tmtrust'
Organisational Variables	Organisational inputs in terms of available resources	'orginput'
Organisational Variables	Organisation efforts towards anti-groupthink	'orgthink'
Intervening Variables	National and international collaborative project involvement	'projeinv'

Source: Fieldwork survey (2006)

Based on the status of the respondent in the organisation, the 'owners' category is merged into 'top leadership', because owners, shareholders or governing board members, typically policy makers, are all regarded as part of the top management or top leadership of the organisation. In the case of Traditional Medicine (TM) where most businesses are sole proprietorships, the owners are also the leaders or managers. The new value is therefore renamed 'top leadership'.

Age ('age')
The individual age of the workers carries experience both in their practice and in their behaviour to others within and outside the profession. Since all respondents are adults, ages are grouped into three intervals of common social groupings. The group ranges are based on the actual data collected and labelled as indicated in Table 7.3.

Table 7.3 Age Grouping of Respondents

Value	Label	Age group included (years)
1	Young adult	20 - 39
2	Middle adult	40 - 59
3	Old adult	60 - 79

Source: Fieldwork survey (2006)

Type of organisation based on services ('orgserv')
Data on the variable of the type of organisation based on services ('orgserv') is grouped into four major categories: modern health services, modern allied health services, traditional health services, and traditional allied health services. Allied health services are differentiated from health services based on the definition of the World Health Organisation (2000), which differentiates between non-medical, and non-nursing health services as they are recognised in a particular national medical system. Therefore, the recoding has been done as indicated in Table 7.4.

Table 7.4 Categorisation of the Type of Health Services Offered by Medical Practitioners

Value	Label	Organisational services included
1	Modern health services	Hospital; health centre; dispensary; reproductive and child health centre
2	Modern health allied services	Laboratory of disease investigation; community-based health project; nursing school; clinical officer's Tr. School; pharmaceutical shop; HIV/ AIDS voluntary counselling and testing centre; district prevention health department; village health committee,
3	Traditional health services	Traditional Medicine (TM) health centre; clinic for bone setting; individual stationary and mobile Traditional Medicine (TM) healing services; traditional midwifery services; group and individual faith healing, individual stationary and mobile circumcision services,
4	Traditional allied health services	Individual and family Traditional Medicine (TM) vending; individual and clinic of fortune telling and predicting

Source: Fieldwork survey (2006)

In order to focus on a clear distinction between the two medical systems in this study, the variable has been further recoded by combining the values 1, 2, 3 and 4 separately. This recoding is required to achieve clear understanding of the type of organisations based on the services which they offer; either modern or traditional health services.

Organisational size ('orgsize')
The *International Standard Industrial Classification* (ILO 1993) of the size of enterprises is related to either the number of workers, the value of fixed assets and/or the turnover. Due to the difficulties to ascertain the latter two criterions, the number of workers is used in this study. Based on the Tanzanian classification of the size of organisations (enterprises) as defined in the *Small and Medium Enterprise Development Policy* (2002), and the business profile of the actual distribution of the health facilities in the Mara Region, the following standard is used for categorisation of responses, the renaming and recoding of the variable of the size of organisation ('orgsize') as indicated in Table 7.5

Table 7.5 Categorisation of the Size of Organisations were Medical Practitioners Work

Value	Label	Number of workers
1	Small Organisation	Up to 10
2	Medium Organisation	11 - 90
3	Large Organisation	91 and above

Source: Fieldwork survey (2006)

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Professional group ('profgrup')

The variable of the cadre of the respondent ('cadre') is renamed into the professional group ('profgrup') based on the common naming in Tanzania. A professional group, which combines all health cadres presented in this survey, is known to offer certain similar or closely related health services as its general aim. The professional grouping differentiated in accordance with the system are indicated in Table 7.6.

Table 7.6 Different Medical Related Cadres of Practitioners

Value	Label	Cadres included from the research population
	Modern Medical System	
1	Doctor	Surgeon, Medical Officer, Asst. Medical Officer, Clinical Officers Tutors
2	Clinician	Clinical Officer, Dental Officer, Asst. Clinical Officer
3	Nurse	Nurse Tutor, Nursing Officer, Nurse / Midwife,
4	Allied Health Worker	Practitioners in Pharmacy, Radiography, Laboratory, Orthopaedic, Technologist
5	Community Health Worker	Community Health Volunteer, Village Health Worker, Health Officers, HIV/ AIDS Counsellor
6	Support Workers	Medical Attendants, Nurse Students, Clinical Officers Students
	Traditional Medical System	
7	Healer	Traditional Healer, Herbalist, Bonesetter
8	Traditional Midwife	Traditional Midwife / Birth Attendant
9	Male Circumciser	Male Circumciser
10	Faith Healer	Spiritualist, Sheikh, Prayer Warrior
11	Fortune Teller and Predictors	Fortune Teller, Astrologer, Soothsayer
12	Medicine Vendor	Traditional Medicine (TM) Vendor

Source: Fieldwork survey (2006)

Perceived possibility of good future work relationship ('percwrel')

In his Model of Transcultural Health Care Utilisation, Slikkerveer (1990) substantiates that the psycho-social variables, which include beliefs, attitudes, perceptions, knowledge, and cultural values, are among the strongest variables interacting with the utilisation of health services by patients. This result is also confirmed by Fogg (2000) who underscores that these psycho-social variables act either as a *motivation* to evaluate future results of interprofessional collaboration, as an *ability* to engage in interprofessional collaboration, or as *triggers* reminding practitioners of the need to collaborate with practitioners of the other medical systems. Perceived possibility of future good work relationship ('percwrel') is one of the psycho-social variables. Responses on 'percwrel' related to the two medical system*s* are recoded from five into three categories, as indicated in Table 7.7.

Table 7.7 Categories of Responses on the Perceived Possibility of Good Future Work Relationship between Modern and Traditional Medical Practitioners

Value	Label	Included
1	None	Don't know, No possibility
2	Little	Little possibility
3	Substantial	Medium to Greater possibility

Source: Fieldwork survey (2006)

Belief on future positive impact of collaboration ('belimpac')
The belief on the future positive impact of collaboration ('belimpac') is recorded as indicated in Table 7.8.

Table 7.8 Categories of Responses on the Belief on Future Positive Impact of Collaboration between Tradition and Modern Medicine Practitioners

Value	Label	Included
1	Minor	Don't know, No impact
2	Medium	Medium impact
3	Major	Major impact

Source: Fieldwork survey (2006)

Belief about disease system specificity ('beldses')
The belief that diseases are medical system specific ('beldses') is recorded as indicated in Table 7.9.

Table 7.9 Categories of Responses on the Belief if Diseases are Medical System Specific

Value	Label	Included
1	Low	Don't know, Strongly disagree, Disagree
2	Medium	Agree
3	High	Strongly agree

Source: Fieldwork survey (2006)

Awareness of successful collaborative efforts ('awasucce') is a variable which investigates if practitioners are aware of successful collaborative endeavours between the two medical systems. Neither recoding nor recalculation has been necessary.

Intra-professional collaboration within the same system ('intracol')
The extent of intra-professional collaboration ('intracol') practitioners are involved within their medical system is recorded as indicated in Table 7.10.

Table 7.10 Categories of Responses on the Extent Practitioners are involved in Intracollaborative Endevours with other Cadres within their Medical System.

Value	Label	Included
1	Low	No collaboration, Low level of collaboration
2	Medium	Medium level of collaboration
3	High	High level of collaboration

Source: Fieldwork survey (2006)

Experience on effects of goods and services received ('extmsev' and 'exmmsev')
The experience on general, appropriate effects or efficacy of goods and services of Traditional Medicine (TM) and Modern Medicine (MM), (labelled 'extmsev' and 'exmmsev' respectively) have been recoded as indicated in Table 7.11.

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Table 7.11 Categories of Responses on the Experience on Efficacy of Goods and Services
             Received from either Traditional or Modern Medicine System

Value	Label	Included
1	Poor	No experience, Poor
2	Medium	Medium
3	High	High

Source: Fieldwork survey (2006)

Government and community efforts towards collaboration ('gocoeot')
The variable government and community efforts towards collaboration of the two systems
abbreviated as ('gocoeot') has been recoded on the basis of the regrouping pattern of responses,
as indicated in Table 7.12.

Table 7.12   Categories of Responses on the Level of Government and Community Efforts
             Towards Collaboration of the two Systems

Value	Label	Included
1	Little effort	Don't know, No effort, Minimal effort
2	Medium effort	Some effort
3	Much effort	A lot of effort

Source: Fieldwork survey (2006)

Communication linkages with other places ('comlinks')
The variable measuring the infrastructural capability of the respondents' vicinity is named into
communication linkages with other places ('comlinks') and has been recoded directly with the
responses of *poor, fair* or *good* communication linkages.

National or international collaborative project involvement ('projeinv')
Intervening variables concerning the level of practitioner's involvement in national or
international project on collaboration ('projeinv'), have been recoded directly from the
responses.

Level of trust for practitioners in Traditional Medicine (TM) and Modern Medicine (MM)
('tmtrust' and 'mmtrust')
Two variables concerning the level of trust for practitioners of Traditional Medicine (TM) and
Modern Medicine (MM) ('tmtrust' and 'mmtrust') have been recoded from the original
responses with categories of *low, medium* or *high*, as no calculations have been required. The
'don't know' responses have been by implication considered as a low level of trust.

7.1.2 Computed Recoding of Variables

Some of the concepts encompass more than one variable, as some variables also need more than
one measurable phenomenon to be defined. This renders it necessary that either some of the
variables or responses (answer categories) of more than one question from the questionnaire
have to be combined through computations to arrive at and recode an intended variable in a
certain operationalised concept. The recoding executed by the use of the *additive scaling
technique* as elaborated by De Heus *et al.* (1995) and Leurs (2010) through the following steps:

Table 7.13 Guidelines on the Way the 'don't know' response were treated

Variable	Treatment of the 'don't know' response
Perceived Possibility of Future Work Relationship (*percwrel*) Belief on Future Positive Impact of Collaboration (*belimpac*) Belief about Disease Medical System Specificity (*belidses*) Organisational Inputs in Terms of Available Resources (*orginput*) Experience on Traditional/ Alternative Medicine Goods and Services (*extmsev*)	Interpreted to denote either not having the experience to tell or predict, or not being interested in the question asked. Thus considered as a missing value. Therefore the PASW software option '*Exclude cases pair wise*' has been used as the default option in the analysis.
Experience on Modern Medicine (MM) Goods and Services (*exmmsev*) Knowledge about the Health Services (*knosect*)	Interpreted to denote not having the knowledge on the question asked. Thence assigned a zero score.
Government and Community Efforts on Collaboration (*gocoefot*) Communication Linkages with other Places (*comlinks*) Level of Trust of MM Practitioners (*mmtrust*) Level of Trust of TM Practitioners (*tmtrust*) Organisational Culture Towards Collaboration (*orgcutur*) Organisation Efforts Towards anti-Groupthink (*orgthink*)	Interpreted to denote not having witnessed any substantial level of efforts. Thence assigned a low level.

Source: Fieldwork survey (2006)

1. to check for data outliners and determine if some data can be treated as missing values. If there are no data which can be considered as missing values, Step 2 is skipped to follow Step 3;

2. to exclude any question which has a missing value, and therefore formulate new variable, which counts the number of questions per each respondents in a specific intended new variable;

3. to formulate a new variable through computation by adding together all scores of each set of questions. In case of missing values, the same computation is done but overall divided by the new variable formulated in Step 2;

4. to determine from the sample population (not a theoretical scale), the lowest and highest frequency of the new variable formulated in Step 3;

5. to recode values into the intended categories of variables. The computed values in Step 3 are recoded into 3 based on the score in interval obtained by subtracting the lost value from the highest value of frequency scores determined in Step 4.

It should be noted that any recoding of answers from different sets of questions measuring different aspects of one concept or variable is only possible if the answers in all concerned sets have been made with the same measurement level and if their contents are compatible.

Treatment of the 'don't know' answer category
Despite the researcher's objective to collect complete information from every respondent on the subject matter, it has not always been possible, and a response of '*don't know*' had to be recorded. Despite careful consideration to the prevailing concepts, every specific question and statistical implication in the final analysis below stands the base of treatment of any '*don't know*' response for every relevant variable, as indicated in Table 7.13.
Knowledge on the medical systems ('knowsect')
A re-calculation to combine four variables ('tmprac', 'mmprac', 'tmtech', 'mmtech') has been carried out to obtain one variable ('knowsect') to represent the level of knowledge of the medical systems through scores counted from each respondent. The ultimate recoding has the values and labels, as indicated in Table 7.14.

Table 7.14 Assigned Values, Labels and Respective Scores of Variable 'knowledge'

Value	Label	Included
1	Low Knowledge	0 - 6 scores
2	Medium knowledge	7 - 13 scores
3	High knowledge	14 – 20 scores

Source: Fieldwork survey (2006)

Computation on three variables ('knowsect', 'knowact', and 'knowhow') is carried out to obtain the new variable 'knowsect', which stands for knowledge on the medical systems.

Socio-Economic Status (*SES*)
Seven variables related to the indicators of the socio-economic status in the Mara Region have been adjusted to obtain the medium indications of the Socio-Economic Status (SES) of respondents. The consolidated original variables include: income ('income'), type of house building materials ('hsemat'), type of house roof ('hseroof'), size of farm ('land'), type of transportation means ('transport'), and total value of domesticated animals ('animals'). All variables first had to be recoded in a range of: *low level*, *middle level*, or *high level* of socio-economic position in common usage, and then translated into *poor, medium,* or *rich* status respectively.

Organisational input capability ('orginput')
Six variables had the same range of categories, namely organisational capability on amount of required staff ('orghr'); organisational capability on finance ('orgfin'); organisational capability on relevant data and information ('orgdata'); and organisational capability on skills ('orgskil'); organisational capability on required materials ('orgmat'); organisational capability on availability of space for work ('orgspac'). These categories have been computed to obtain one variable, renamed as the organisational input capability ('orginput'). The range and labels of the original categories have been translated into new categories, as indicated in Table 7.15.

Table 7.15 Level of Organisational Input Capability of Where Practitioners Work

Original Value	Original Label	New Value	New Label
1	None of what it needs	1	Low capability
2	Almost none of what it needs	2	Medium capability
3	Some of what it needs	3	High capability
4	Most of what it needs		
5	All of what it needs		

Source: Fieldwork survey (2006)

The organisational culture ('orgcutur')
Three variables, all related to the organisational value and norms towards collaboration, are combined to obtain a new variable, known as the organisational culture ('orgcutur'). It is achieved by the computation and recoding to the new variable of the three original variables names, as follows:

1. Organisational effectiveness in informing about the other system ('orginfo');
2. Organisational effectiveness in motivating workers in collaboration ('orgmotv');
3. Organisational tolerance to different opinions and worldviews ('orgtorel').

Anti-Groupthink ('orgthink')
The anti-groupthink syndrome is a variable ('orgthink') which evaluates the organisation's purposeful efforts to respect different opinions and views about the other medical system. Responses are recoded directly without any computations, indicating different categories such as *low, medium* and *high* levels of efforts to curb this syndrome.

Behavioural patterns of exchange of resources ('colexch')
This is the first dependent variable of the analytical model ('coloexch'). Originally, the level of interprofessional collaboration by exchange of resources has been measured through the inquiry of both the traditional and modern medical practitioners concerning their personal corresponding levels of engagement with the other medical system regarding the exchange of ideas and giving and receiving material resources, as recorded over the period of 24 months prior to the survey The five categories of choices are *none; once in 2 months' time; once in 1 months' time; once in 2 weeks' time*; and *more than once in 2 weeks' time.*

 Three variables, namely the frequency of collaboration by exchange of ideas ('ideaexch'), the frequency of collaboration by giving out material resources ('givemat'), and the frequency of collaboration by receiving material resources ('getmat'), have been computed into a new variable. The new variable has been changed and recoded from five to three categories, renamed as *low level, medium level*, and *high level.*

Behavioural patterns of working jointly ('colwork')
This is the second dependent variable of the analytical model ('colwork'). Originally, the level of interprofessional collaboration by working jointly has been measured through the inquiry of both the traditional and modern medical practitioners concerning their personal corresponding levels of engagement with the other medical system regarding the referring of clients and patients, receiving referred clients and patients, having meetings/workshops together, and giving health services together, as recorded over the period of 24 months prior to the survey.

The five categories of choices of the original rating have been: *none; once in 2 months' time; once in 1 months' time; once in 2 weeks' time;* and *more than 1 in 2 weeks' time.*

Five variables, namely, frequency of collaboration by referring out clients and patients ('refeout'); frequency of collaboration by receiving referred clients and patients ('refein'); frequency of collaboration by receiving health services from the other system ('getsevout'); frequency of collaboration by having meetings/workshops together (*meetogt*), and frequency of collaboration by giving health services together ('servtogt'), have been computed into a new variable of behavioural patterns of working jointly ('colwork'). The new variable has been changed and recoded from five to three categories, renamed as *low level, medium level*, and *high level.*

Preparation of other collected data for qualitative exploration
Some data have been not used in correlation analysis but have been referred to in the general exploratory and qualitative analysis of the sample population. This includes data on the various ethno-cultural groups which have been brought together into five major ethnic groups in the Mara Region, which can be identified through their unique traditions and cultures. The variable has been renamed *ethnic group.*

The ethnic groups have been recoded on the basis of the socio-demography of the Mara Region as follows:

- Kurias – Kuria, Ngoreme, Kiroba and Simbiti
- Zanaki – Zanaki, Ikizu, Sizaki and Kabwa
- Jitas – Jita, Ruri and Kwaya
- Ikomas – Ikoma, Issenye, Natta and Taturu
- Luos – Luo
- Others – Sukuma

7.1.3 Outlying Variables

Outlying variables are variables which deviate distinctly from other respondents in the sample in which they occur. By the use of the *univariate* analysis on every single variable to explore the level of measurement and the resulting distribution frequencies and central tendencies, two variables have been identified as outliers. These are: 'respondent's place of childhood' and 'marital status', both of which have been excluded from further analysis as they have been very much skewed. While the 'respondent's place of childhood' counted +1.173, which shows a positive skew (skewed to the left) where the mass of distribution is concentrated on the right, 'marital status' counted -1.649, showing a negative skew (skewed to the right) where the mass of distribution is concentrated to the left. The actual data shows that 65.3% of respondents spent their childhood in *village* areas as compared to all other four remaining options: 'place with less status than a village', 'town', 'municipality', or 'city'.

The actual data show about 72.5% of respondents has been 'married' as compared with the other three remaining options 'unmarried', 'divorced/separated', and 'widow/widower'. As 'sex' is much related to the sociological gender roles which are constructed and defined in a particular society, and by nature of professional cadres which exist especially in Traditional Medicine (TM), some categories of practitioner, such as the 26 traditional birth attendants, consisted of only females, while the 31 traditional circumcisers in the sample population were all males.

The inevitable over-representation in such cadres has necessitated an exclusion of the variable of 'sex' from the analysis. However, the explorative analysis shows the distribution between the 'respondent's cadre' and 'sex', as presented in Table 7.16.

Table 7.16 Distribution of Respondents based on their sex in Mara Region (N=193)

Cadre	Male		Female		Total	
	N	%	N	%	N	%
Community Health Volunteer	1	33.0	2	67.0	3	100.0
Village Health Worker	1	33.0	2	67.0	3	100.0
Medical Attendant	7	50.0	7	50.0	14	100.0
Nurse	5	50.0	5	50.0	10	100.0
Nurse Midwife	2	25.0	6	75.0	8	100.0
Nursing Officer	4	67.0	2	33.0	6	100.0
Nursing Student	1	50.0	1	50.0	2	100.0
Nurse Tutor	0	0.0	2	100.0	2	100.0
Assistant Clinical Officer	1	100.0	0	0.0	1	100.0
Clinical Officer's Student	1	100.0	0	0.0	1	100.0
Clinical Officer	14	74.0	5	26.0	19	100.0
Clinical Officer's Tutor	0	0.0	1	100.0	1	100.0
Assistant Medical Officer	9	90.0	1	10.0	10	100.0
Medical Officer	1	50.0	1	50.0	2	100.0
Laboratory Technician	3	100.0	0	0.0	3	100.0
Laboratory Assistant	4	57.0	3	43.0	7	100.0
Pharmacist	1	100.0	0	0.0	1	100.0
Pharmaceutical Technician	1	50.0	1	50.0	2	100.0
Pharmaceutical Assistant	2	100.0	0	0.0	2	100.0
Public Health Nurse	0	0.0	4	100.0	4	100.0
Health Officer	3	60.0	2	40.0	5	100.0
HIV/AIDS Counsellor	5	100.0	0	0.0	5	100.0
Orthopedic Technologist	1	100.0	0	0.0	1	100.0
Dental Officer	1	100.0	0	0.0	1	100.0
Traditional Midwife	0	0.0	9	100.0	9	100.0
Traditional Bonesetter	0	0.0	1	100.0	1	100.0
Traditional Medicine Apprentice	1	100.0	0	100.0	0	100.0
Herbalist	9	64.0	5	36.0	14	100.0
Traditional Healer	12	57.0	9	43.0	21	100.0
Traditional Male Circumciser	10	100.0	0	0.0	10	100.0
Sheikh	0	0.0	1	100.0	1	100.0
Chaplain	1	50.0	1	50.0	2	100.0
Soothsayer	1	100.0	0	0.0	1	100.0
Astrologer	1	50.0	1	50.0	2	100.0
Traditional Medicine (TM) Vendor	5	36.0	9	64.0	14	100.0
Faith Healer	4	100.0	0	0.0	4	100.0
Total	112	58.1	81	41.9	193	100.0

Source: Fieldwork Survey (2006)

7.2 Quantitative Analysis and Interpretations

7.2.1 The General Level of Interprofessional Collaboration

The general outcome of the level of interprofessional collaboration between practitioners of the two systems is still low. The bivariate analysis shows that the level (frequency) of collaborative behaviour of exchange of resources ('collexch') by both types of traditional and modern practitioners combined (N=193) is: 61.7% at a low level, 31.6% at a medium level and only 6.7% at a high level. The collaborative behaviour of working jointly ('collwork') is 64.8% at a low level, 32.1% at a medium level, and only 3.1% at a high level. This result confirms that there is a real problem of low interprofessional collaboration, while the majority of both types of medical practitioners continue to provide health services to their clients and patients in isolation. This practice need to be improved through the health system reform package.

Further scrutiny, (*cf.* Table 7.17, Table 7.18 and Figure 7.1, Figure 7.2 respectively) with regard to the level of collaboration in the two types of medical practitioners per the two ways of collaboration shows that traditional medical practitioners score a higher level, albeit only by a small margin, than the modern medical practitioners in taking the lead in the exchange of resources.

The frequent scores of the extent of exchange of resources by traditional to modern medical practitioners are respectively: 7.5% to 6.2% at a high level; 32.5% to 31.0% at a medium level, and 60.0% to 62.8% at a low level. The scores in the category of collaborative behaviour in working jointly again favour traditional medical practitioners in taking the lead as compared to modern medical practitioners. The frequent scores on the level of working jointly for the same client with health problems between traditional and modern medical practitioners is as follows: 3.8% to 3.1% at a high level; 37.5% to 32.1% at a medium level, and 58.8% to 64.8% at a low level, respectively.

Such results validate the qualitative findings, which also recognise a practical trend where in general, traditional medical practitioners seemingly would be willing to participate in collaborative endeavours such as referring their clients and patients to the modern medical practitioners more readily without much resistance than their counterparts the modern medical practitioners.

Table 7.17 Distribution of the Level of Interprofessional Collaboration in Exchange of Resources over the Two Medical Systems Separately

Level of interprofessional collaboration	Medical system of the practitioner					
	Traditional medical system		Modern medical system		Total	
	N	%	N	%	N	%
Low	48	60.0	71	62.8	119	61.7
Medium	26	32.5	35	31.0	61	31.6
High	6	7.5	7	6.2	13	6.7
Total	80	100	113	100	193	100.0

Source: Fieldwork Survey (2006)
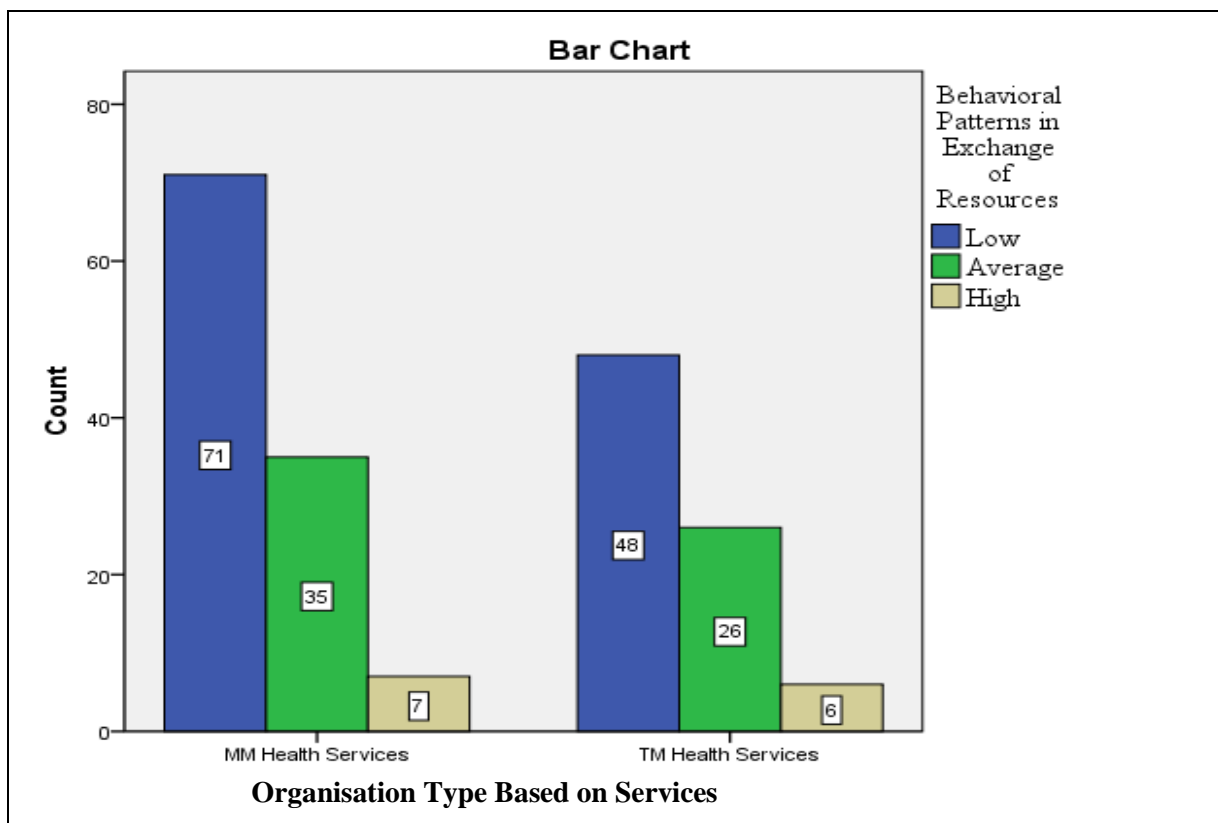
Figure 7.1 Distribution of interprofessional collaboration through exchange of resources over the practitioners of the traditional and modern medical system.
Source: Fieldwork Survey (2006)

With regard to the two modes of collaboration - exchange of resources and working jointly - it is shown that overall the modern medical practitioners are relatively more willing to exchange resources such as information, ideas and providing referrals to clients and patients (58.4%) than the traditional medical practitioners (41.6%), while both traditional and modern medical practitioners are equally willing to work together (50.0% versus 50.0%)).

The explanation may lie in the educational aspect of modern medical training, while traditional medical practitioners tend to protect their indigenous medical knowledge and practice as part of the specific cultural heritage of the healers. While the willingness to exchange resources among modern medical practitioners scores the highest percentage (59.7%) at the low level of interprofessional collaboration, in contrast, the willingness among the traditional medical practitioners in this respect scores the highest percentage (46.2%) at the high level of interprofessional collaboration.

A similar result is found with regard to interprofessional collaboration in working together: while the willingness to work together among modern medical practitioners scores the highest percentage (62.4%) at the low level of interprofessional collaboration, in contrast, the willingness among the traditional medical practitioners in this respect scores the highest percentage (50.0%) at the high level of interprofessional collaboration.

Thus, practitioners of both medical systems may feel at ease in allowing their clients and patients to visit other medical systems available in the region as they wish, since it is the right of their clients and patients to make their own choices in health care.

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Table 7.18   Distribution of the level of interprofessional collaboration in working together over the two Medical Systems Separately

Level of interprofessional collaboration	Medical system of the practitioner					
	Traditional medical system		Modern medical system		Total	
	N	%	N	%	N	%
Low	47	58.8	78	69.1	125	64.8
Medium	30	37.5	32	28.3	62	32.1
High	3	3.7	3	2.6	6	3.1
Total	80	100.0	113	100.0	193	100.0

Source: Fieldwork Survey 2006
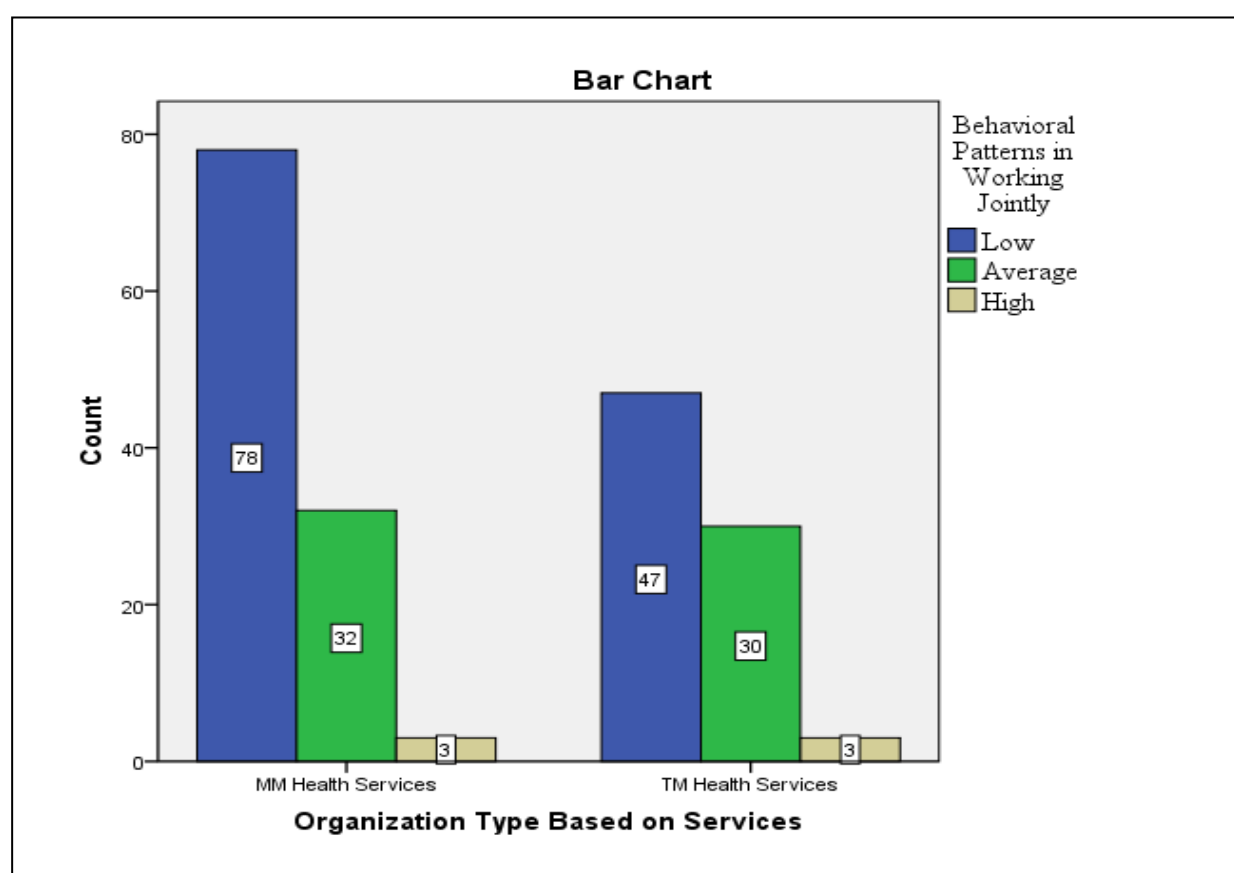
Figure 7.2   Distribution of interprofessional collaboration by working jointly over the practitioners of the traditional and modern medical system.
Source: Fieldwork Survey (2006).

7.2.2 Bivariate Analysis of Variables

As a preliminary statistical correlational exploration, a *bivariate* analysis among pairs of dependent and independent variables has been carried out before undertaking a more complex multivariate analysis. As Gibbons (1993) explains, correlational research examines the possible existence of a correlation with the caution of not jumping to conclusions.

Certainly, a particular variable could cause something to happen, but it might also cause something else to happen, too. *Predictor* variables, also known as *independent variables*, are variables which could predict the *criterion* variables, also known as the *dependent variables.*

The type of data of this research is mainly non-parametric, which does not necessarily meet all assumptions of parametric tests. The assumptions are; data being normally distributed, having homogeneous of variance, being interval data and being independent. With such data, which are also known as categorical data, the statistical options available for cross tabulations are the Pearson's Chi- square (χ^2), Phi, Cramer's V, Kendall's tau-b, Gamma and the Spearman Correlation. In this study, the Pearson's Correlation and Pearson's Rho could not be examined because the type of data obtained is not continuous, but discrete, and they are not categorised as scale interval and ratio values.

A continuous variable is one which can assume a variety of all possible values between each point, such as weight, height, etc. The Pearson's Correlation and Pearson's Rho tests are used in linear relationships of computations as explained by Filed (2005). With the *chi-square* test for independence, the expected frequency in any case should be five or more. Pallant (2007) recommends the expected frequency to be at least 10. The correlation is considered as *significant* when the computed significant value is 0.05 or smaller. However, the implementation of a classification of values of the chance of deviation can at times be differentiated in case that the relationships are assessed between the categories of values of the chance of deviation.

The range of χ^2- exact significance is defined to fall between the following values of the results:

.15 to .10 (indication of significance);
.10 - .05 (weakly significant);
.05 - .01 (strongly significant);
.01 - .0 (very strongly significant);
< .001 (most strongly significant).

The degree which has recently been introduced by Agung (2005); Djen Amar (2010) and Ambaretnani (2012) into the advanced statistical concept of significance extends beyond the rigid *yes* or *no* significance in order to allow better understanding of the correlations among various independent variables in relation to dependent variables as introduced into the analytical model of correlations (*cf.* Figure 2.11).

The *Phi* (*φ)* correlation is used when both the predictor and criterion are nominal variables with natural dichotomies (two categories), but *Cramer's V* can be used with all nominal categorical variables. *Kendall's tau (t)* correlation is used when both the predictor and criterion variables are rankings. *Gamma (γ)* is a symmetric measure which produces the same coefficient value, regardless of the independent (column) variable. In terms of its interpretation and computation, *Gamma* is more similar to *Kendall's Tau* than *Spearman's Rho*. The *Gamma* statistic is, however, preferable to *Spearman's Rho* and *Kendall's Tau,* when the data contain many tied observations. While the *Pearson's Chi-square* shows a sign of correlation, the other tests - *Phi, Cramer's V, Kendall's tau-b, Gamma* and *Spearman Correlation* - disclose the strength of correlation, if any, between the various interacting variables in the model.

Statisticians including Gibbons (1993),; Pallant (2007) and Norusis (2010) may have similar but slightly different scales for the interpretation of the observable strength of the correlations. However, the generally accepted value scale for the tests of the strength of the correlations quoted in this study*, i.e. Cramer's V* (for nominal) and *Kendall's tau-b* (for ordinal) are as

follows: less than + or - 0.10 (very weak); + or -0.10 to 0.19 (weak); + or - 0.20 to 0.29 (medium) and + or - 0.30 or above (strong).

The bivariate analysis is presented below with percentages, observed counts and relevant tests of statistical independence and measures of correlations for pairs of variables in the analytical model.

The multivariate model on variables interacting with the collaborative behaviour between tradition and modern medical practitioners is explained in Paragraph 2.5, which forms the base from which all variables are computed in order to establish their possible correlation. The presented tables concerning the distribution of the independent variables over the dependent variables show a bivariate analysis which can be interpreted either to show levels of significance of possible correlation between the two variables involved, or the trend of the level of interprofessional collaborative behaviours in view of different independent variables. The interpretation of the results of the bivariate analysis is presented in segments of cross-tabulation of blocks of independent variables to the dependent variables as follows:

1. socio-demographic variables
2. psycho-social variables
3. enabling variables
4. trustworthiness variables
5. organisational variables
6. intervening variables

These are all independent and intervening variables which could interact with the dependent variables of the collaborative behavioural patterns among the traditional and modern medical practitioners in terms of *exchanging resources* and c*ollaborative working jointly* in the Mara Region of Tanzania.

i. Socio-demographic Variables and Interprofessional Collaboration

The socio-demographic and psycho-social variables are collectively known as the *predisposing variables*, as explained in Paragraph 2.4.6, where the concepts are operationalised and the analytical model is presented. In the analysis, the socio-demographic variables include variables such as: district name ('district), work status in the organisation ('orgstat'), age ('age'), highest formal education ('formed'), religious affiliation ('religion'), organisation type based on services ('orgserv'), professional group ('profgrup') and organisational size ('orgsize'). However, only 'districts' and 'age' variables are statistically significant in determining the interprofessional collaboration.

District variable and interprofessional collaboration ('district')
It is indicated from the socio-demographic factors that in the case of 'districts' variable, a marked deviance of this general picture of distribution appears remarkably that district Serengeti has the highest relation (7.3%) to high exchanges of resources while district Bunda and Tarime were the lowest exchanges of resources (68.6% of Bunda district and 69.6% of Tarime district which are higher than the general picture of low exchange of resources of 61.7%). This picture also consistently shown in relation to working jointly where Serengeti tends to be the highest proportion (19.5%) on the working jointly whereas Bunda and Tarime districts are the lowest proportion to working jointly. Each of these districts has 66.7% of proportion and 65.6% of proportion which are higher than the general picture of low working jointly (64.8 %).

Table 7.19   Distribution of *Socio-Demographic* Variables over Interprofessional Collaboration Behavioural Patterns of Exchanging of Resources and Working Jointly among Traditional and Modern Medical Practitioners by Respondents in the Districts of Mara region (N=193)

Socio Demographic Variables	Behavioural Patterns in Exchange of Resources									Behavioural Patterns in Working Jointly								
	Low		Average		High		Total			Low		Average		High		Total		
	N	%	N	%	N	%	N	%		N	%	N	%	N	%	N	%	
District ('district')																		
Bunda	39	69.6	17	30.4	0	0.0	56	100.0		43	76.8	12	21.4	1	1.8	56	100.0	
Musoma	28	56.0	20	40.0	2	4.0	50	100.0		33	66.0	17	34.0	0	0.0	50	100.0	
Serengeti	20	43.9	13	48.8	8	7.3	41	100.0		18	48.8	20	31.7	3	19.5	41	100.0	
Tarime	32	69.6	11	28.3	3	4.3	46	100.0		31	67.4	13	23.9	2	6.5	46	100.0	
Total	119	61.7	61	31.6	13	6.7	193	100.0		125	64.8	62	32.1	6	3.1	193	100.0	
$\chi^2(6)= 18.678$, p=.004 Cramer's V= .220										$\chi^2(6) = 14.301$, p=.023 Cramer's V= .192								
Age ('age')																		
Young Adult	52	72.2	14	19.4	6	8.3	72	100.0		48	66.7	22	30.6	2	2.8	72	100.0	
Middle Adult	50	56.2	35	39.3	4	4.5	89	100.0		56	62.9	30	33.7	3	3.4	89	100.0	
Older Adult	17	53.1	12	37.5	3	9.4	32	100.0		21	65.6	10	31.3	1	3.1	32	100.0	
Total	119	61.7	61	31.6	13	6.7	193	100.0		125	64.8	62	32.1	6	3.1	193	100.0	
$\chi^2(3)= 8.781$, p=.066 Kendall's tau-b = . 136										$\chi^2(3) = .268$, p=.988 Kendall's tau-b =.019								

Source: Fieldwork Survey (2006)

Age variable and interprofessional collaboration ('age')
It is indicated from the socio-demographic factors that in the case of 'age' variable, a marked deviance of this general picture of distribution appears remarkably that 'young adult' respondents have relation low exchange of resources (72.2%) whereas the high exchange of resources are related to the 'older adult' group of respondents. was the higher in relation to the exchange of resources (9.4%). This figure consistently apply on the relation to the working jointly where 'young adult' group of respondents has low relation to the working jointly. However, this consistency did not apply with the older 'adult' group where 'middle adult' group was the one who has high relation to working jointly.

ii. Psycho-Social Variables and Interprofessional Collaboration

Psycho-social variables are other pre-disposing variables beside socio-demographic in determining its relation to the interprofessional collaboration among Traditional and Modern Medical Practitioners by looking at their behavioural patterns in exchange of resources and working jointly. Among all psycho-social variables involved in the analytical model, only two variables are omitted from the analysis as they are not statistically significant. The two omitted variables are 'believe in positive impact' and 'believe in disease'. Table 7.20 shows the results.

Perceived possibility of future good work relationship and interprofessional collaboration ('percwrel')

There is a very strongly significant correlation between the perceptions of future good relationships ('percwrel') of interprofessional collaborative behaviour in exchanging of resources (χ^2 = .009). It is indicated from the psycho-social factors that in the case of 'Future Good Relations' variable, a marked deviance of this general picture of distribution appears remarkably that a substantial perceived future good relations has high relation to the exchanges of resources (12.7%) in the interprofessional collaborations. The more the medical practitioner perceives substantial good future work relations between traditional and modern health workers, the more likely is the exchange of ideas, information, materials, and referrals of clients and patients with the counterparts in the other medical system. There is, however, a non-significant correlation between the perceptions of future good relationships ('percwrel') of interprofessional collaborative behaviour in working together (χ^2 = .235).

Awareness of successful collaborative efforts and interprofessional collaboration ('awasucce')

There is a most strongly significant correlation between the awareness of successful collaborative efforts ('awasucce') of interprofessional collaboration, both in the exchange of resources (χ^2 =.000) and in working together (χ^2 =.002). It is indicated that in the case of 'awareness of successful collaborative efforts' variable, a marked deviance of this general picture of distribution appears remarkably that the more people have awareness to the successful collaborative efforts, the higher the correlation is to the exchange of resources in the interprofessional collaboration.

It is shown that 76.9% of respondents who responded with no awareness of successful collaborative efforts, have a correlation to low exchange of resources. This is consistent that 10.8% of respondents who have awareness of successful collaborative efforts have a correlation to a high exchange of resources. This indication also consistent in the working jointly where 76.9% respondents who have no awareness of successful collaborative efforts, have a relation to low behavioural patterns in working jointly whereas 5.6% of respondents who have an awareness of successful collaborative efforts have a correlation to high behavioural patterns in working jointly.

Knowledge of medical systems and interprofessional collaboration ('knowsect')

There is a most strongly significant correlation between the level of knowledge ('knowsect') of both traditional and modern medical systems of interprofessional collaboration in exchange of resources (χ^2 = .000). Although the statistical measurement is not as strong as the behavioural patterns of exchange of resources, there is also an indication of significance of interprofessional collaboration in working jointly (χ^2 = .139). The data shows that knowledge level of medical systems has a correlation to the interprofessional collaboration of behavioural patterns, either in exchange of resources or working jointly.

It is indicated that a low level of knowledge of medical systems has a correlation to the low behavioural patterns of exchange resources (79.1%) whereas the high level of medical systems knowledge has a correlation to high behavioural patterns of exchange resources (28.0%) compared with average percentages, respectively. This indication is consistent with the behavioural patterns of working jointly where low level of medical systems knowledge has a correlation to low behavioural patterns of working jointly (73.1%) whereas high level of medical systems knowledge has a correlation to high behavioural patterns of working jointly in the interprofessional collaboration (4.0%) compared with average percentages, respectively.

Table 7.20 Distribution of Psycho-Social Variables over Interprofessional Collaboration Behavioural Patterns of Exchanging of Resources & Working Jointly among Traditional and Modern Medical Practitioners by Respondents in the Districts of Mara region (N=193)

Psycho Social Variables	Behavioural Patterns in Exchange of Resources								Behavioural Patterns in Working Jointly							
	Low		Average		High		Total		Low		Average		High		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Perceived Future Good Relations ('percwrel')																
None	38	79.2	10	20.8	0	0.0	48	100.0	36	75.0	11	22.9	1	2.1	48	100.0
Little	45	60.8	25	33.8	4	5.4	74	100.0	42	56.8	28	37.8	4	5.4	74	100.0
Substantial	36	50.7	26	36.6	9	12.7	71	100.0	47	66.2	23	32.4	1	1.4	71	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 13.362$, p= .009 Kendall's tau-b = .222 $\chi^2(4)= 5.630$, p=.235 Kendall's tau-b = .038

	Low		Average		High		Total		Low		Average		High		Total	
Awareness of Successful Collaboration ('awasucce')																
No	70	76.9	19	20.9	2	2.2	91	100.0	70	76.9	20	22.0	1	1.1	91	100.0
Yes	49	48.0	42	41.2	11	10.8	102	100.0	55	53.9	42	41.2	5	4.9	102	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 18.040$, p= .000 Kendall's tau-b = .297 $\chi^2(4)= 11.684$, p=.002 Kendall's tau-b = .242

	Low		Average		High		Total		Low		Average		High		Total	
Level of Knowledge ('knowsect')																
Low	53	79.1	14	20.9	0	0.0	67	100.0	49	73.1	16	23.9	2	3.0	67	100.0
Average	59	58.4	36	35.6	6	5.9	101	100.0	65	64.4	33	32.7	3	3.0	101	100.0
High	7	28.0	11	44.0	7	28.0	25	100.0	11	44.0	13	52.0	1	4.0	25	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 33.631$, p= .000 Kendall's tau-b = .331 $\chi^2(4)= 6.966$, p= .139 Kendall's tau-b = .158

	Low		Average		High		Total		Low		Average		High		Total	
Intra-professional Collaboration ('intracol')																
Low	40	67.8	16	27.1	3	5.1	59	100.0	45	76.3	13	22.0	1	1.7	59	100.0
Average	36	75.0	12	25.0	0	0.0	48	100.0	35	72.9	10	20.8	3	6.3	48	100.0
High	43	50.0	33	38.4	10	11.6	86	100.0	45	52.3	39	45.3	2	2.3	86	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 12.454$, p= .013 Kendall's tau-b = .175 $\chi^2(4)= 14.283$, p=.005 Kendall's tau-b = .201

	Low		Average		High		Total		Low		Average		High		Total	
Experience on Effectiveness Level of TM ('extmsev')																
Poor	34	70.8	13	27.1	1	2.1	48	100.0	40	83.3	8	16.7	0	0.0	48	100.0
Average	66	63.5	34	32.7	4	3.8	104	100.0	66	63.5	35	33.7	3	2.9	104	100.0
High	19	46.3	14	34.1	8	19.5	41	100.0	19	46.3	19	46.3	3	7.3	41	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 15.471$, p= .004 Kendall's tau-b = . 183 $\chi^2(4) = 14.802$, p=.005 Kendall's tau-b = .255

	Low		Average		High		Total		Low		Average		High		Total	
Experience on Effectiveness Level of MM (exmmsev')																
Poor	19	100.0	0	0.0	0	0.0	19	100.0	14	11.2	4	6.5	1	16.7	48	100.0
Average	61	59.2	38	36.9	4	3.9	103	100.0	71	68.9	31	30.1	1	1.0	104	100.0
High	39	54.9	23	32.4	9	12.7	71	100.0	40	56.3	27	38.0	4	5.6	71	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 18.324$, p= .001 Kendall's tau-b = . 195 $\chi^2(4)= 6.169$, p=.181 Kendall's tau-b = 135

Source: Fieldwork Survey (2006)

Intra-professional collaboration and interprofessional collaboration ('intracol')

There is a very strongly significant correlation between the intra-professional collaboration ('intracol') in exchange of resources (χ^2 = .013), while there is also an indication of very strong significance between the intra-professional collaboration in working jointly (χ^2 = .005). The data in Table 7.21 shows that in the case of the 'intra-professional collaboration' ('intracol') variable, a marked deviance of this general picture of distribution appears remarkably in the category of 'high intra-professional collaboration' in relation to 'high exchange of resources' (11.6% in comparison with 6.7%). This indication also confirmed by the behavioural patterns of working jointly where low level of intra-professional collaboration has high relation to higher behavioural patterns of working jointly (76.3% in comparison to 64.8%, respectively). This deviance would merit our comment on this significant variable as follows:

It is remarkable that respondents with a high level of intra-professional collaboration also report a significantly high form of collaboration in the exchange of resources. This phenomenon can be explained by the fact that healers who have a high level of intra-professional collaboration will have higher opportunities for the exchange of resources. A similar case occurs with the indication that a low level of inter-professional collaboration has a low relation to the behavioural patterns in working jointly.

Experience on Traditional Medicine (TM) goods and services and interprofessional collaboration ('extmserve')

There is a very strongly significant correlation between experience on effectiveness level of Traditional Medicine (TM) goods and services ('extmserve') of interprofessional collaboration in exchange of resources (χ^2 = .000). There is, however, a non-significant correlation of interprofessional collaboration in working jointly (χ^2 = .139).

It is indicated that in the case of the 'experience on Traditional Medicine (TM)' variable, a marked deviance of this general picture of distribution appears remarkably in the category of 'high experience in TM' in relation to 'high exchange of resources' (19.5% in comparison with 6.7%), and 'poor experience in TM has relation to 'low exchange of resources '(70.8 % in comparison with 61.7%, respectively). This indication is also confirmed by the behavioural patterns of working jointly where 'poor level of experience in TM' has a relation to 'low behavioural patterns of working jointly and 'high experience in TM' has a relation to 'high behavioural patterns of working jointly' (83.3% in comparison to 64.8% and 7.3% in comparison with 3.1%, respectively). This deviance would merit our comment on this significant variable as follows:

It is a remarkable confirmation that respondents with a high level of high level of experiences in TM also report a significantly high form of collaboration in the exchange of resources and vice versa. This phenomenon can be explained by the fact that healers who have a high level of experiences in TM will have higher opportunities in exchange of resources. The similar case goes to the indication that poor level of experiences in TM has low relation to the behavioural patterns in working jointly.

Experience on Modern Medicine (TM) goods and services and interprofessional collaboration ('exmmsev')

In the case of 'experience in Modern Medicine (MM), a marked deviance of this general picture of distribution appears remarkably in the category of 'poor experience in MM' in relation to 'low exchange of resources' (100% in comparison with 61.7%, respectively).

The same goes for the fact that 'high experience in MM' is related to 'high exchange of resources' (12.7% in comparison with 6.7%, respectively).

There is an interesting indication that in terms of working jointly, 'poor experience in MM' is related to a 'high level of working jointly' as indicated by 16.7% compared with 3.1%, respectively. However, in terms of statistical measurement, this indication is not statistically significant with $\chi^2 = .181$.

iii. Enabling Variables and Interprofessional Collaboration

In terms of enabling variables as indicated in Table 7.22, three variables are examined in their correlation to the interprofessional collaboration behavioural patterns of exchanging resources and working jointly among traditional medical practitioners by respondents in the Districts of the Mara Region. The variables are individual Social Economic Status (SES), Government and Community Efforts towards collaboration, and Community Linkages. However, with the significance level of $\chi^2 = 0.638$, the community linkages variable is omitted from the analysis because of its insignificance.

Socio-Economic Status ('*SES*') *and interprofessional collaboration* ('ses')
There is a weakly significant correlation between the individual Socio-Economic Status ('ses') and interprofessional collaboration in exchange of resources ($\chi^2 = .083$). There is, however, a non-significant correlation of interprofessional collaboration in working jointly ($\chi^2 = .616$). Although the level of significance is not strong statistically, the data indicated remarkably figures where 'low individual social economic status has relation to 'low exchange of resources' indicated by 66.1% in comparison with 61.7% whereas 'high level of individual economic status' is related to 'high exchange of resources' as indicated by 11.1% in comparison with 6.7%. A similar situation applies to the behavioural patterns of working jointly where 'high level of individual economic status' is related to 'high behavioural patterns of working jointly'.

Government and community efforts towards interprofessional collaboration ('gocoefot')
There is a very strong significant correlation between government and local community efforts ('gocoefot') and interprofessional collaboration in both the exchange of resources ($\chi^2 = .000$) and in working jointly ($\chi^2 (4) = .000$). It is indicated that in the case of the 'government and community efforts' variable, a marked deviance of this general picture of distribution appears remarkably in the category of 'major government and community efforts' in relation to 'high exchange of resources' (54.5% in comparison with 6.7%), and 'none of efforts by government and community' in relation to 'low exchange of resources' (82.8% in comparison with 61.7% respectively). This indication is also confirmed by the behavioural patterns of working jointly where the 'major efforts by government and community' variable is related to 'high behavioural patterns of working jointly' and 'none efforts by government and community' has relation to 'high behavioural patterns of working jointly' (9.1% in comparison to 3.1% and 83.6% in comparison with 64.8% respectively). These interesting findings show that government and community efforts play important roles in interprofessional collaboration.

Table 7.21　Distribution of *Enabling Variables* over Interprofessional Collaboration Behavioural Patterns of Exchanging of Resources & Working Jointly among Traditional and Modern Medical Practitioners by Respondents in the Districts of the Mara Region (N=193)

Enabling Variables	Behavioural Patterns in Exchange of Resources				Behavioural Patterns in Working Jointly			
	Low	Average	High	Total	Low	Average	High	Total
	N %	N %	N %	N %	N %	N %	N %	N %
Individual Socio-Economic Status ('ses')								
Low	80 66.1	35 28.9	6 5.0	121 100.0	78 64.5	39 32.2	4 3.3	121 100.0
Midle	37 58.7	20 31.7	6 9.5	63 100.0	41 65.1	21 33.3	1 1.6	74 100.0
High	2 22.2	6 66.7	1 11.1	9 100.0	6 66.7	2 22.2	1 11.4	71 100.0
Total	119 61.7	61 31.6	13 6.7	193 100.0	125 64.8	62 32.1	6 3.1	193 100.0

$\chi^2(4)$= 8.073, p= .083 Kendall's tau-b = .140　　$\chi^2(4)$= 2.650, p=.616 Kendall's tau-b = -.008

Government and Community Efforts towards Collaboration ('gocoefot')								
None	96 82.8	20 17.2	0 0.0	116 100.0	97 83.6	19 16.4	0 0.0	116 100.0
Minor	22 33.3	37 56.1	7 10.6	66 100.0	27 40.9	34 51.5	5 7.6	66 100.0
Major	1 9.1	4 36.4	6 54.5	11 100.0	1 9.1	9 81.8	1 9.1	11 100.0
Total	119 61.7	61 31.6	13 6.7	193 100.0	125 64.8	62 32.1	6 3.1	193 100.0

$\chi^2(4)$= 88.644, p= .000 Kendall's tau-b = .556　　$\chi^2(4)$= 51.673, p=.000 Kendall's tau-b = .492
Source: Fieldwork Survey (2006)

iv. Trustworthiness Variables and Interprofessional Collaboration

This Paragraph shows the research's result on the *'trustworthiness'* variable where the following Table 7.22 shows the summary of the figures.

Level of trusting modern medical practitioners and interprofessional collaboration ('mmtrust')
There is a mostly-significant correlation between trusting Modern Medicine (MM) practitioners ('mmtrust') and interprofessional collaboration in the exchange of resources (χ^2 = .000). However, there is a very strong significant correlation between trusting modern medical practitioners ('mmtrust' and interprofessional collaboration in working jointly (χ^2 = .003). It is indicated that in the case of 'level of trusting MM' a marked deviance of this general picture of distribution appears remarkably in the category of 'high level of trusting MM practitioners' in relation to 'high exchange of resources' (17.9% in comparison with 6.7%).

It is remarkable that respondents with a high level of trusting MM also report a significantly high form of collaboration in the exchange of resources. This phenomenon can be explained by the fact that healers who have a high level of trusting modern medical practitioners also collaborate high in exchange of resources as that is not only beneficial for clients and patients, but also for the status of both categories of practitioners in the community. The similar figure goes to the case of 'working jointly' where 'low level of trusting MM' is related to lower opportunities of working jointly among Traditional and Modern Medical Practitioners (77.5% in comparison with 64.8% respectively).

Table 7.22 Distribution of *Trustworthines Variables* over Interprofessional Collaboration Behavioural Patterns of Exchanging of Resources & Working Jointly among Modern and Traditional Medical Practitioners by Respondents in the Districts of the Mara Region (N=193)

Trustworthiness Variables	Behavioural Patterns in Exchange of Resources								Behavioural Patterns in Working Jointly							
	Low		Average		High		Total		Low		Average		High		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Level of Trusting MM ('mmtrust')																
Low	80	78.4	20	19.6	2	2.0	102	100.0	79	77.5	20	19.6	3	2.9	102	100.0
Average	22	42.3	26	50.0	4	7.7	52	100.0	25	48.1	25	48.1	2	3.8	52	100.0
High	17	43.6	15	38.5	7	17.9	39	100.0	21	53.8	17	43.6	1	2.6	39	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 31.472$, p= .000 Kendall's tau-b = .339 $\qquad$ $\chi^2(4)= 16.315$, p=.003 Kendall's tau-b = .230

Trustworthiness Variables	Low		Average		High		Total		Low		Average		High		Total	
Level of Trusting TM ('tmtrust')																
Low	70	68.0	27	26.2	6	5.8	103	100.0	79	76.7	23	22.3	1	1.0	103	100.0
Average	32	53.3	23	38.3	5	8.3	60	100.0	29	48.3	29	48.3	2	3.3	60	100.0
High	17	56.7	11	36.7	2	6.7	30	100.0	17	33.3	10	33.3	3	10.0	30	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

$\chi^2(4)= 3.863$, p= .433 Kendall's tau-b = .113 $\qquad$ $\chi^2(4)= 19.173$, p= .001 Kendall's tau-b = .239

Source: Fieldwork Survey (2006)

Level of traditional medical practitioners and interprofessional collaboration ('tmtrust')
There is a non-significant correlation between trusting traditional medical (TM) practitioners ('tmtrust') and interprofessional collaboration in the exchange of resources (χ^2 = .433). However, there is a very strong significant correlation between trusting traditional medical practitioners ('tmtrust') and interprofessional collaboration in working jointly (χ^2 = .001).

It is indicated that in the case of 'level of trusting TM', a marked deviance of this general picture of distribution appears remarkably in the category of 'high level of trusting TM practitioners' in relation to 'high working jointly (10.0% in comparison with 3.1%, respectively). It is remarkable that respondents with a high level of trusting TM also report a significantly high form of collaboration in working jointly.

This phenomenon can be explained by the fact that healers who have a high level of trusting traditional medical practitioners also collaborate highly in working jointly, as this is not only beneficial for clients and patients, but also for the status of both categories of practitioners in the community.

v. *Organisational Variables and Interprofessional Collaboration*

In terms of organisational variables, there are three variables examined: level of organisational inputs, level of organisational culture, and level of anti-groupthink in the organisation. Each variable shows significant and insignificant statistical measurements as shown in Table 7.23. The level of organisational input was omitted from the analysis considering the insignificant correlation to the dependent variables.

Organisational culture and interprofessional collaboration ('orgcultur')
There is a weakly significant correlation between organisational culture ('orgcultur') and interprofessional collaboration in the exchange of resources (χ^2 = .022). It is indicated that in the case of 'level of organisational culture' a marked deviance of this general picture of distribution appears remarkably in the category of 'weak level of organisational culture' in relation to 'low exchange of resources' (87.5% in comparison with 61.7%, respectively). The data also show that 'fair and strong level of organisational culture' is related to a 'high exchange of resources' (7.5% and 7.0% in comparison with 6.7%, respectively).

It is remarkable that strong organisational culture reports a significantly high form of collaboration in the exchange of resources and vice versa. However, there is a non-significant correlation between organisational culture ('orgcutur') and interprofessional collaboration in working jointly (χ^2 = .596).

Anti-group culture and interprofessional collaboration ('agroupthink')
There is a very strongly significant correlation between an anti-group culture ('agroupthink') and interprofessional collaboration in the exchange of resources (χ^2 = .005). It is indicated that in the case of 'level of anti-groupthink in the organisation', a marked deviance of this general picture of distribution appears remarkably in the category of 'high level of anti-groupthink in the organisation' in relation to 'high exchange of resources' (25.0% in comparison with 6.7% respectively).

It is remarkable that a strong level of anti-groupthink in the organisation reports a significantly high form of collaboration in the exchange of resources and vice versa. However, there is a non-significant correlation between anti-group culture ('agroupthink') and interprofessional collaboration in working jointly (χ^2 = .447).

Table 7.23   Distribution of *Organisational Variables* over Interprofessional Collaboration Behavioural Patterns of Exchanging of Resources & Working Jointly among Traditional and Modern Medical Practitioners by Respondents in the Districts of the Mara Region (N=193)

Organisational Variables	Behavioural Patterns in Exchange of Resources								Behavioural Patterns in Working Jointly							
	Low		Average		High		Total		Low		Average		High		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Level of Organisatinal Culture fostering collaboration ('orgcultur')																
Weak	14	87.5	2	12.5	0	0.0	16	100.0	12	75.0	3	18.8	1	6.3	16	100.0
Fair	86	64.2	38	28.4	10	7.5	134	100.0	87	64.9	42	31.3	5	3.7	134	100.0
Strong	19	44.2	21	48.8	3	7.0	43	100.0	26	60.5	17	39.5	0	0.0	43	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

χ^2(4)= 11.521, p= .022 Kendall's tau-b =.207 χ^2(4)= 4.045, p= .596 Kendall's tau-b = .051

	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Level of Anti-Group think in the Organisation ('agroupthink')																
Low	29	85.3	5	14.7	0	0.0	34	100.0	25	73.5	7	20.6	2	6.3	16	100.0
Average	84	57.1	53	36.1	10	6.8	147	100.0	92	62.6	51	34.7	4	3.7	134	100.0
High	6	50.0	3	25.0	3	25.0	12	100.0	8	66.7	4	33.3	0	0.0	12	100.0
Total	119	61.7	61	31.6	13	6.7	193	100.0	125	64.8	62	32.1	6	3.1	193	100.0

χ^2(4)= 16.224, p= .005 Kendall's tau-b =.226 χ^2(4)= 3.519, p= .447 Kendall's tau-b = .051
Source: Fieldwork Survey (2006)

vi. Intervening Variables and Interprofessional Collaboration

The following Table 7.24 shows the role of intervening variable in relation to the interprofessional collaboration among traditional medical practitioners and modern medical practitioners in the behavioural patterns of exchange of resources and working jointly. There is only variable examined in this analysis: the extension of personal involvement in collaborative project which involves national and international collaborative projects.

National or international collaborative project involvement and interprofessional collaboration ('projeinv')

There is a very strongly significant correlation between national or international collaborative project involvement ('projinv') and interprofessional collaboration in the exchange of resources (χ^2 = .009). It is indicated that in the case of 'the extended personal involvement in collaborative project(s)', a marked deviance of this general picture of distribution appears remarkably in the category of 'high level of the extended personal involvement in collaborative project(s)' in relation to 'high exchange of resources' (10.4% in comparison with 6.7% respectively) and vice versa.

It is remarkable that the more often personal involvement in collaborative project(s) is extended, the higher exchange of resources, as would be the case in collaboration and vice versa. However, there is a non-significant correlation between national or international collaborative project involvement ('projinv') and interprofessional collaboration in working jointly (χ^2 = .447).

Table 7.24   Distribution of *Intervening Variables* over Interprofessional Collaboration Behavioural Patterns of Exchanging of Resources & Working Jointly among Traditional and Modern Medical Practitioners by Respondents in the Districts of the Mara Region (N=193)

Intervening Variables	Behavioural Patterns in Exchange of Resources				Behavioural Patterns in Working Jointly			
	Low	Average	High	Total	Low	Average	High	Total
	N %	N %	N %	N %	N %	N %	N %	N %

Extent of Personal Involvement in Collaborative Project(s) ('projeinv')

Intervening Variables	Low N %	Average N %	High N %	Total N %	Low N %	Average N %	High N %	Total N %
None	27 77.1	7 21.1	1 2.9	35 100.0	27 77.1	6 17.1	2 5.7	35 100.0
Rare	62 44.8	24 44.8	5 10.4	91 100.0	61 67.0	28 30.8	2 2.2	91 100.0
Often	30 44.8	30 44.8	7 10.4	67 100.0	37 55.2	28 41.8	2 3.0	67 100.0
Total	119 61.7	61 31.6	13 6.7	193 100.0	125 64.8	62 32.1	6 3.1	193 100.0

χ^2(4)= 13.394, p= .009 Kendall's tau-b =.238 χ^2(4)= 7.299, p= 116 Kendall's tau-b = .145
Source: Fieldwork Survey (2006)

By using the range of an χ^2 significance level which has been used by Agung (2005), Djen Amar (2010), as well as by Ambaretnani (2012), all the determining variables are classified as shown in Table 7.25. Variables which are classified as non-significant are not analysed further. The same applies to variables which has 'indication of significant' which statistically not strong enough to be analysed in explaining the correlation among variables. Those variables are omitted for the bivariate analysis.

Thus, the general distribution of the exchange of resources and working together in the interprofessional collaboration behavioural patterns over the three levels is respectively about

two-thirds for the low level (61.7%), about one-third for the medium level (31.6%) and less than one-tenth for the high level (6.7%) for the exchange of resources, and more than two-thirds for the low level (64.8%), more than one-third for the medium level (32.1%) and less than one-twentieth for the high level (6.7%) for working together.

Table 7.25   Distribution of Determining Variables Based on their Significancy Levels on the Interprofessional Collaboration Behavioural Patterns among the Traditional and Modern Medical Practitioners over the Exchanging of Resources and Collaborative Working Jointly in the Mara Region (N=193)

Variable name	Pearson χ^2	Level of significance for exchange of resources	Pearson χ^2	Level of significance for working together
'district'	.004	'strongly significant';	.023	'strongly significant'
'religion'	.876	'non-significant'	.003	'most strongly significant'
'orgserv'	.917	'non-significant'	.329	'non-significant'
'orgstat'	.776	'non-significant'	.289	'non-significant'
'profgrup'	.711	'non-significant'	.289	'non-significant'
'age'	.066	'weakly significant'	.988	'non-significant'
'formed'	.143	'indication of significance'	.170	'non-significant'
'orgsize'	.329	'non-significant'	.339	'non-significant'
'percwrel'	.009	'very strongly significant'	.235	'non-significant'
'belimpact'	.604	'non-significant'	.554	'non-significant'
'belidises'	.173	'non-significant'	.169	'non-significant'
'awasucce'	.000	'most strongly significant'	.002	'most strongly significant'
'knowsect'	.000	'most strongly significant'	.139	'strongly significant'
'intracol'	.013	'very strongly significant'	.005	'very strongly significant'
'extmserve'	.000	'most strongly significant'	.139	'indication of significance'
'exmmserve'	.001	'very strongly significant'	.181	'non-significant'
'ses	.083	'weakly significant'	.616	'non-significant'
'gocoefot'	.000	'most strongly significant'	.000	'most strongly significant'
'comlinks'	.683	'non-significant'	.252	'non-significant'
'mmtrust'	.433	'non-significant'	.001	'most strongly significant'
'tmtrust'	.433	'non-significant'	.001	'most strongly significant'
'orginput'	.139	'indication of significance'	.596	'non-significant'
'agroupthink'	.005	'very strongly significant'	.447	'non-significant'
'projinv'	.009	'very strongly significant'	.116	'non-significant'

Source: Field Survey 2006

7.2.3 Multivariate Analysis of Variables: OVERALS

For the quantitative analysis of the data from this research it is appropriate to implement Categorical Components Analysis with optimal scaling for data reduction when variables are categorical (nominal and ordinal with only small numbers of values, each of which corresponds to specific category value/label). Moreover, categorical data cannot be normally distributed, because they are not continuous (*cf.* Field 2005).

Categorical Component Analysis is concerned with identifying the underlying variables from the set of variables while maximizing the amount of variance accounted for in those items by the principal components. The analysis fits in as it does not assume linear correlations among numeric data nor does it require assuming multivariate normal data. In optimal scaling, it is advantageous as the researcher specifies the chosen level of measurement. The reduction technique run in PASW 20.0, mainly in two dimensions with the exception of one variable, requires multiple runs in a block of variables as shown in the analytical model.

The multiple sets (multivariate analysis) are done by optimal scaling. Nonlinear Canonical Correlation Analysis, known as OVERALS has been developed by the Data Theory Scaling System Group (DTSS) of Leiden University in The Netherlands. The same has been appropriately used in a number of analyses of categorical nature, such as by Slikkerveer (1990), Agung (2005), Ibui (2007), Leurs (2010), Djen Amar (2010) and Ambaretnani (2012). As in multiple regression as well as in canonical correlation analysis, OVERALS deals with the relationship of sets of variables which are independent to each other. The OVERALS component loading values, corresponding *eigenvalues* in available dimensions, and component loading plots are obtained as results of the proceeding analysis of this study. Six blocks of independent variables (Socio-demographic, Psychosocial, Enabling, Trustworthiness, Organisational and Intervening) are used with one dependent variable (Interprofessional Collaboration), which has two variables in the canonical correlation analysis for a total of 27 variables.

Table 7.26 shows the distribution of the component loading with two dimensions in the OVERALS analysis. The grey shaded variables are the ones which appear strong, as they have a value of 0.5 or above (both negative and positive), while those in bold without shading have medium strength with values between 0.3 to 0.5 (both negative and positive). The table shows a distribution of the component loadings of 27 variables in sets of 193 respondents. Whenever there are no missing data, the component loadings are equivalent to the Pearson correlations between the quantified variable and object scores. Considering the outcome of individual variables in every block, it is shown that among the socio-demographic variables, the type of professional group ('profgroup') is the strongest in terms of correlation rate (0 .730 on Dimension 2).

The negative or positive experience of a respondent or his or her close person/relative with experience with Traditional Medicine (TM) goods and services ('extmsev') is the leading variable (0.564 on Dimension 1) in the rather crucial psycho-social variables. In the enabling variables, government and community efforts to encourage collaboration ('gocoefot') take the lead (0.641 on Dimension 1).

Table 7.26 Distribution of the Component Loadings of the 27 Variables Interprofessional Collaboration Behavioural Patterns of Exchanging of Resources & Working Jointly among Traditional and Modern Medical Practitioners by Respondents in the Districts of the Mara Region (N=193)

Set	Variable			Dimension1	Dimension 2
1	District[a,b]	Dimension	1	**.349**	.187
			2	**.340**	.232
	Religion[a,b]	Dimension	1	.191	.011
			2	-.213	**.338**
	Orgserv[a,b]	Dimension	1	.520	-.587
			2	.520	-.587
	Profgrup[a,b]	Dimension	1	.546	**-.496**
			2	**-.459**	.730
	Orgstat[c,d]			-.526	**.461**
	Age[c,d]			**.348**	-.199
	Formed[c,d]			**-.345**	.620
	Orgsize[c,d]			**-.406**	.281
2	Percwrel[c,d]			**.369**	.223
	Belimpac[c,d]			.217	.185
	Belidses[c,d]			**.350**	-.109
	Knosect[c,d]			.281	**.460**
	Awasucce[c,d]			**.382**	.222
	Intracol[c,d]			.234	**.383**
	Extmsev[c,d]			.564	**-.307**
	Exmmsev[c,d]			.041	**.386**
3	SES[c,d]			.197	.230
	Gocoefot[c,d]			.641	**.326**
	Comlinks[c,d]			-.008	-.213
4	Mmtrust[c,d]			.518	.205
	Tmtrust[c,d]			**.303**	**-.434**
5	Orginput[c,d]			-.069	.529
	Orgcutur[c,d]			.242	**.303**
	Orgthink[c,d]			**.437**	-.002
6	Projeinv[c,d]			.219	.399
7	Colexch[c,d]			.657	**.410**
	Colwork[c,d]			.563	.136

a. Optimal Scaling Level: Multiple Nominal

b. Projections of the Multiple Quantified Variables in the Object Space

c. Optimal Scaling Level: Ordinal

d. Projections of the Single Quantified Variables in the Object Space

Source: Computations based on Field Work Survey (2006)

The individual's level of trusting modern medical practitioners ('mmtrust') took a lead (0.518 on Dimension 1) in the variables concerning trustworthiness. Among organisational variables, the level of required resources such as human, finance, materials, data, workspace ('orginput') took the lead (0.529 0.641 on Dimension 2). Between the two dependent variables, collaborative behaviour through exchange of resources ('colexch') has more correlations (0.657 0.641 on Dimension 1) than the collaborative behaviour on working jointly ('colwork') for clients and patients (0.563 0.641 on Dimension 1).

In the overall values of component loading, it is evident the dependent variables both have dominant interchangebility between Dimension 1 and Dimension 2. While in the first dimension, 'colexch' scores highly with 0.657, and is medium, 0.410, in the second dimension. 'colwork' scores strongly with 0.563 in the first dimension and least by 0.136 in the second dimension. Isolating those variables with strong and medium rates; the strong (0.5 or greater) and medium (between 0.3 and 0.5) independent and intervening variables on the first and the second dimension in OVERALS analysis which are based on their component loading value, are indicated in the Table 7.26 above.

Table 7.27 below shows the distribution of the rank order of these variables from the highest values to the lowest ones. With regard to interprofessional collaborative behaviour, six variables appear strongly in the interactions on the first dimension, and include 'gocoefot', 'extmsev', 'profgrup', 'orgstat', 'orgserv', and 'mmtrust', while there are also four strong variables on the second dimension, namely 'profgrup', 'formed', 'orgserv', and 'orginput', all in descending order of their strength. There are nine variables with medium rates of interactions on the first dimension, namely 'orgthink', 'orgsize', 'awasucce', 'percwrel', 'beliefs', 'district', 'age', 'formed', and 'tmtrust', while on the second dimension there are ten variables, which, in descending order of strength, include 'orgstat', 'knowsect', 'tmtrust', 'projeinv', 'exmmsev', 'intracol', 'religion', 'gocoefot', 'extmsev', and 'orgcutur'.

Only eight variables show either a strong or medium rate of interaction within the component loading analysis of both the first and second dimensions. These are 'gocoefot', 'extmsev', 'profgrup', 'orgstat', 'orgserv', 'formed', 'district' and 'tmtrust'. It shows how significant (in terms of interactions) certain variables are in interprofessional collaboration in a pluralistic configuration between traditional and modern medical systems.

These variables are: 'government and community efforts on collaboration'; 'positive or negative experiences with Traditional Medicine (TM) goods and services'; 'practitioner's professional group', 'practitioner's status in the organisation'; 'type of health services involved'; 'practitioner's level of formal education'; 'district where each practitioner comes from'; and 'practitioner's level of trusting traditional medical practitioners'. The dependent variable is the collaborative behaviour of exchange of resources between practitioners of the two systems, *i.e.* traditional and modern.

Component loadings of all variables is presented graphically in a centroid plot (Figure 7.3). The distance from the origin to each variable point approximates the importance of each variable. Either the relationships or direction scores among variables can be explored as they appear in the plot. When there are no missing data, the component loadings are equivalent to the Pearson correlations between the quantified variables and the object scores. The two dependent variables are plotted with a different marker from the others, *i.e.* independent and intervening variables.

Table 7.27 Distribution of the rank order of variables based on their component loadings (N=193)

Dimension 1		Dimension 2	
Gocoefot	.641	Profgrup	.730
Extmsev	.564	Formed	.620
Profgrup	.546	Orgserv	-.587
Orgstat	-.526	Orginput	.529
Orgserv	.520	Orgstat	.461
Mmtrust	.518	Knosect	.460
Orgthink	.437	Tmtrust	-.434
Orgsize	-.406	Projeinv	.399
Awasucce	.382	Exmmsev	.386
Percwrel	.369	Intracol	.383
Belidses	.350	Religion	.338
District	.349	Gocoefot	.326
Age	.348	Extmsev	-.307
Formed	-.345	Orgcutur	.303
Tmtrust	.303		

Source: Fieldwork Survey 2006

Both dependent variables 'colexch' and 'colwor' are in the same quadrant, showing strong interaction with each other in the same direction. This suggests the higher the practitioners' exchanges of views, ideas, client or patients referrals, medical supplies and equipment, as well as information resources 'colexch', the more likely the pattern of working jointly in giving health services to their clients and patients 'colwork'.

It is further observed that the variables 'SES', 'district', 'percwrel', 'mmtrust', 'orgcutur', 'intracol', 'awasucce', and 'belimpac' are highly interacting in strength and direction as is also true between variables 'belidses' with 'age' and between variables 'projeinv' with 'awasuccee' due to the fact they appear to be close to each other and in the same quadrant.

However, the variables 'religion' and 'tmtrust', as well as 'formed' and 'orgserv', make pairs of variables which are almost equal and opposite to each other diagonally, therefore suggesting a negative correlation. Following the categories in the questionnaire on religion, it substantiates that the more one is a Christian or Muslim, the less likely one is to trust traditional medical practitioners as compared to being an affiliate of the African Traditional religion. The same negative (inverse) correlation can be observed between high formal education levels and serving in the traditional medical system. Both of these inverse correlations reaffirm the fact which has been described in Chapter V on the challenges facing the traditional medical system since the advent of the colonialists who discredited traditional medical practitioners and their services as the result of the spread of Christianity by missionaries who adopted erroneous hermeneutical expositions and teachings which alluded to Bantu traditional medicine as equal to witchcraft, an abomination to God. It is therefore not a quirk that the old Swahili term *kienyeji* (of indigenous, local), as used in *dawa ya kienyeji* (indigenous medicine) or *mganga wa kienyeji* (indigenous healer), has later been misused as a derogatory qualification to mean 'something for uneducated people' and not accepted by other major religions such as Christianity and Islam.

7.2.4 Multiple Regression Analysis of Blocks of Variables

After measuring the extent of the correlations between one variable and another in the bivariate analysis and the interactions among variables in the multivariate analysis, the stepwise analysis is further undertaken to compare the various blocks of variables in the model with each other in order to determine the relative strength of interaction, known as the multiple regression analysis.

A stepwise multiple regression analysis by the use of the 'eigenvalue' as a multivariate measure of interaction among all the variables concerned is conducted in PASW 20.0 as a result of the Dimension Reduction-Optimal Scaling technique. The optimal scaling of two blocks of variables is scaled in different levels and an optimally quantified component loading number (cl) with dimensions. Non-linear relations among variables can be deduced.
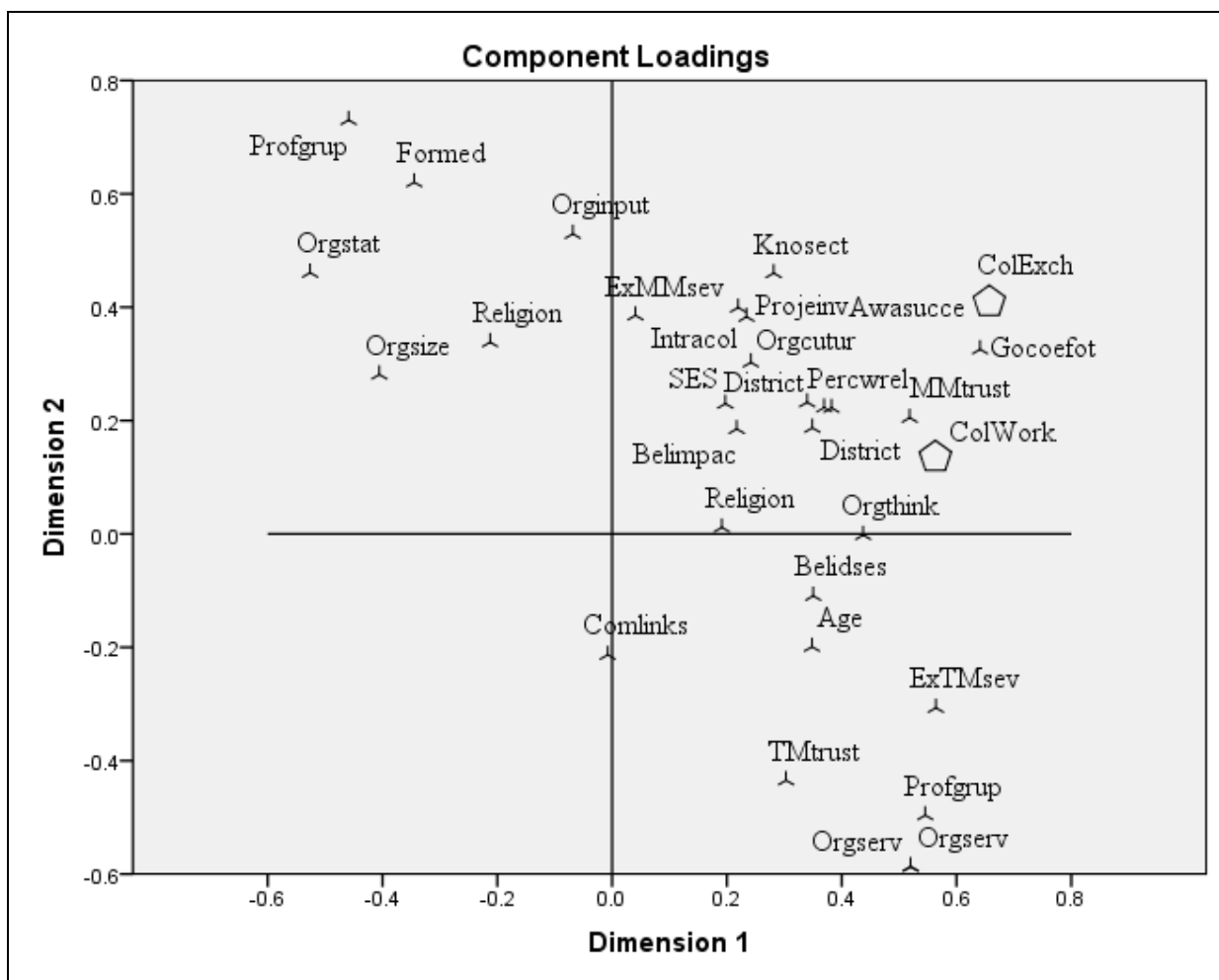
Figure 7.3 The plot of Component Loading Analysis (OVERALS) of interprofessional collaborative behaviour between traditional and modern medical practitioners.
Source: Fieldwork Survey 2006

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The results of this analysis are presented in Table 7.28 with 21 pairs of sets, showing both the two strongest variables on Dimension 1 and Dimension 2. The table has four columns, with the two on the left representing the two strongest variables of the OVERALS analysis on the first dimension, while those of the second dimension are presented on the right. Results show that on Dimension 1, 'government and community efforts towards collaboration' ('gocoefot') is one of the enabling variables from Block 3 which shows the overall highest strength of interaction (cl. 0.892) with the 'practitioners' collaborative behavioural pattern of exchange of resources' ('collexch') from Block 7.

On Dimension 2, 'organisational inputs in terms of the available resources' ('orginpt') such as human, finance, materials, working space and information from the organisational variables from Block 5 has the highest strength (cl. 0.819) over the others when interacting with a place where the practitioner works ('district') from Block 1. The overall assessment shows that there is a relatively significant interaction among all seven blocks of variables both in Dimensions 1 and 2.

Table 7.28 Distribution of Strongest Variables of the Two Sets of OVERALS Analysed on Two Dimensions

Blocks	Two Strongest Variables Dimension 1				Two Strongest Variables Dimension 2			
	Name	Value	Name	Value	Name	Value	Name	Value
1↔2	Orgserv	-.838	ExTHsev	-.651	District	-.720	Percwrel	-.503
1↔3	Age	-.594	SES	-.586	Comlinks	-.562	Gocoefot	-.514
1↔4	TMtrust	-.884	Profgrup	-.663	MMtrust	.793	District	-.493
1↔5	Orginput	.779	Formed	.659	Orgthink	-.743	Orgstat	.608
1↔6	Projinv	.830	Religion	-.385				
1↔7	ColWork	-.715	ColExch	-.715	ColExch	.485	ColWork	-.416
2↔3	Gocoefot	.722	Knosect	.669	Comlinks	-.631	ExTMsev	-.579
2↔4	MMtrust	.635	TMtrust	.587	Intracol	.599	TMtrust	-.555
2↔5	Orgthink	.722	ExTMsev	. 591	Orginput	-.819	Intracol	-.574
2↔6	Projectinv	-.821	ExMMsev	-.599				
2↔7	ColExch	-.867	Knosect	-.637	ColWork	-.668	Percwrel	.477
3↔4	MMtrust	.806	Gocoefot	.790	TMtrust	.760	SES	.667
3↔5	Orgcutur	.792	Comlinks	.655	Orgthink	-.745	Gocoefot	-.602
3↔6	Projeinv	.815	Gocoefot	.719				
3↔7	Gocoefot	.892	Collexch	.827	SES	.740	Collwork	-.495
4↔5	MMtrust	-.775	Orgthink	-.720	TMtrust	-.752	Orgcutur	.737
4↔6	Projeinv	.777	MMtrust	.772				
4↔7	ColExch	.748	MMtrust	.735	TMtrust	-.654	Colwork	-.466
5↔6	Projeinv	.802	Orgcutur	.563				
5↔7	ColExch	.725	Orgthink	.651	ColWork	-.714	Orginput	-.629
6↔7	Projeinv	.797	ColExch	.774				

Source: Computations based on Fieldwork Survey (2006)

The resultant component loading numbers of all independent and intervening variables per each interaction with block seven, which include the dependent variables concerning the level of interprofessional collaboration, are observed and compared. Independent variables with the highest component loading numbers interacting with dependent variables are presented in Table 7.29.

Further results show that upon the analysis of individual variables in the dependent and intervening variables in the descending order of strength the interaction starts with is the extent in which both the government and community puts practical efforts on the collaborative behaviours ('gocoefot') (cl. 0.892). Then, in Dimension 1, there is the level of individual practitioner's involvement in either national or international collaborative project or programmes ('projectinv') (cl. 0.797); the level of trusting modern medical practitioners ('mmtrust') (cl. 0.735); the amount of knowledge a practitioner has about health services in the plural medical system ('knowsect') (cl. -0.637); the level of anti-groupthink which exists in the practitioner's organisation or work place ('orgthink') (cl. 0.568); and rhe district where the practitioner works ('district') (cl. -0.537). In Dimension 2, the strongest interactions refer to the of the individual practitioner's ('SES') (cl. 0.740); followed by the organisational input level of the in terms of available resources ('orginput') (cl. -0.685); the level of trusting traditional medical practitioners ('tmtrust') (cl. -0.654); the perceived possibility of future good working relations ('percwrel') (cl. 0.477) and the professional group in terms of the cadre where the practitioner belongs ('profgrup') (cl. -0.395).

Table 7.29 Distribution of Strongest Component Loading of Independent Variables with Dependent Variables

Block Number and Factor	Strongest Variable (Dimension 1)	Strongest Variable (Dimension 2)
1. Social demographic	District (-.537)	Profgrup (-.395)
2. Psychosocial	Knosect (-.637)	Percwrel (.477)
3. Enabling	Gocoefot (.892)	SES (.740)
4. Trustworthiness	MMtrust (.735)	TMtrust (-.654)
5. Organisational	Orgthink (.568)	Orginput (-.685)
6. Intervening	Projeinv (.797)	

Source: Computations based on Fieldwork Survey (2006)

From the multiple (categorical) regression as the result of Dimension Reduction-Optimal Scaling, the multiple correlation co-efficients between the block of variables are obtained as a function of the *eigenvalue*. As Van der Burg (1988) explains, it can be calculated by the use of the general canonical correlation formulae: $\rho d = ((K \times Ed) - 1)/ (K-1)$, where d is the dimension number, K is the number of sets, and E is the *eigenvalue*. In this study with two sets of independent and dependent variables, the specific formula is therefore: $\rho d = (2 \times Ed) - 1$, where; ρd is the multiple correlation co-efficient, Ed is the *eigenvalue* and 2 represents the (number) 2 variable sets of the independent and dependent variables in the analysis.

Table 7.30 shows the multiple correlation coefficients on both the first and the second dimension, which are used to predict the ultimate analytical model (Figure 7.4).

The ultimate analytical model with five blocks of dependent variables, namely, socio-demographic, psycho-social, enabling, trustworthiness and organisational variables as well as one block of an intervening variable and one dependant variable is the interprofessional collaborative behaviour as presented in Figure 7.4. The representation of the model shows that the calculated multiple correlation co-efficients predict the correlation between the independent and dependent variables as well as correlation among interrelated variables.

All the variables have been adapted from the analytical model of Slikkerveer (1990), as discussed in Chapter II as the most appropriate model for the analysis of human behaviour for this kind of complementary qualitative and quantitative research.

Table 7.30 Calculated Multiple Correlation Co-efficients of the OVERALS Analysis from Blocks of Variables of the Analytical Model

Blocks	Multiple Correlation Coefficient on Dimension 1 ($\rho1$)	Multiple Correlation Coefficient on Dimension 2 ($\rho2$)
1↔2	$(2 \times 0.789) - 1 = 0.578$	$(2 \times 0.720) - 1 = 0.440$
1↔3	$(2 \times 0.704) - 1 = 0.408$	$(2 \times 0.695) - 1 = 0.390$
1↔4	$(2 \times 0.793) - 1 = 0.586$	$(2 \times 0.654) - 1 = 0.308$
1↔5	$(2 \times 0.763) - 1 = 0.526$	$(2 \times 0.643) - 1 = 0.286$
1↔6	$(2 \times 0.688) - 1 = 0.376$	
1↔7	$(2 \times 0.686) - 1 = 0.372$	$(2 \times 0.679) - 1 = 0.358$
2↔3	$(2 \times 0.752) - 1 = 0.504$	$(2 \times 0.657) - 1 = 0.314$
2↔4	$(2 \times 0.711) - 1 = 0.422$	$(2 \times 0.598) - 1 = 0.196$
2↔5	$(2 \times 0.758) - 1 = 0.516$	$(2 \times 0.700) - 1 = 0.400$
2↔6	$(2 \times 0.675) - 1 = 0.350$	
2↔7	$(2 \times 0.772) - 1 = 0.544$	$(2 \times 0.661) - 1 = 0.322$
3↔4	$(2 \times 0.662) - 1 = 0.324$	$(2 \times 0.580) - 1 = 0.160$
3↔5	$(2 \times 0.726) - 1 = 0.452$	$(2 \times 0.593) - 1 = 0.186$
3↔6	$(2 \times 0.665) - 1 = 0.330$	
3↔7	$(2 \times 0.841) - 1 = 0.682$	$(2 \times 0.585) - 1 = 0.170$
4↔5	$(2 \times 0.607) - 1 = 0.214$	$(2 \times 0.582) - 1 = 0.164$
4↔6	$(2 \times 0.604) - 1 = 0.208$	
4↔7	$(2 \times 0.858) - 1 = 0.716$	$(2 \times 0.796) - 1 = 0.592$
5↔6	$(2 \times 0.642) - 1 = 0.284$	
5↔7	$(2 \times 0.673) - 1 = 0.346$	$(2 \times 0.519) - 1 = 0.038$
6↔7	$(2 \times 0.635) - 1 = 0.270$	

Source: Computations based on Fieldwork (2006)

The aim of this study has been to document, analyse and explain to what extent the independent and intervening variables correlate and interact with the dependent variable. In other words, it provides an assessment of the possibilities of interactions among these blocks vis-à-vis the block of the dependent variables, which represent the behavioural pattern of interprofessional collaboration between traditional medical practitioners and modern medical practitioners. The available multiple correlation co-efficients on every block indicate the combined interaction among all the variables of the analytical model. As a result, the multiple (categorical) regression analysis in this study produces the ultimate analytical model, from which the following observations and interpretations can be made.

1. With the adapted definition from the Centre for Advancement of Collaborative Strategies in Health (2003), interprofessional collaborations as part of synergy formation have two components; the sharing of resources, ideas, materials and clients and patients, represented in the variable 'colexch' and the working jointly under some sort of unified management for a customer in need of health services represented in the variable 'colwork'. Both these dependent components (variables) interact significantly with Pearson's correlation (x^2) of .424 at 0.01 level, as indicated in the bivariate analysis.

0.526 / 0.286

0.586 / 0.308

0.516 / 0.400

0.408 / 0.390

0.452 / 0.186

0.422 / 0.196

0.578 / 0.440   0.504/ 0.314   0.324 / 0.160   0.214/ 0.164

| Socio–Demographic Factors 1 | Psycho-Social Factors 2 | Enabling Factors 3 | Trustworthiness Factors 4 | Organisational Factors 5 |

0.376   0.350   0.330   0.208   0.284

Intervening Factors 6

0.372 / 0.358   0.544 / 0.322   0.270   0.682 / 0.170   0.716 / 0.592   0.346 / 0.038

Interprofessional Collaborative Behaviour in Plural Health Care Practices
7

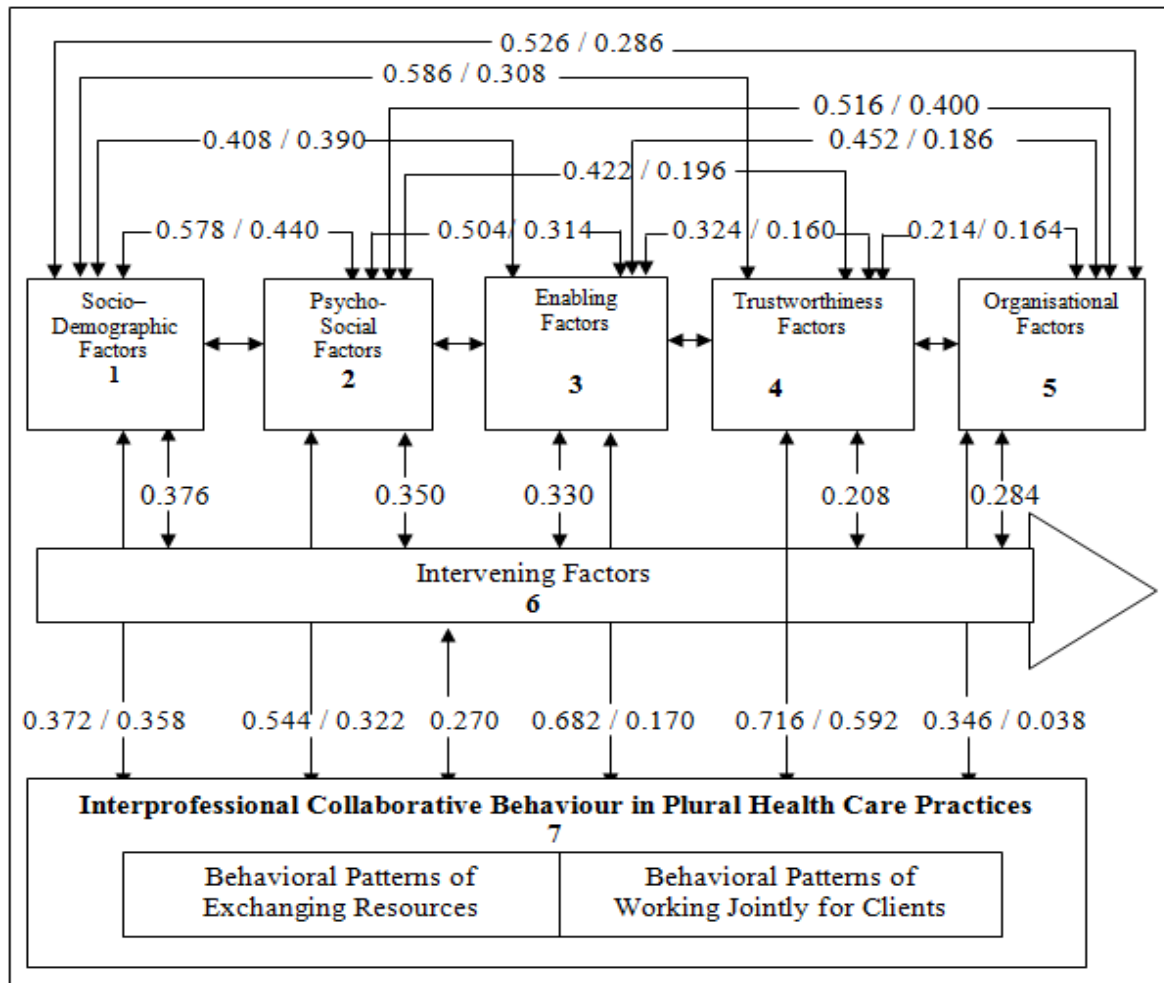| Behavioral Patterns of Exchanging Resources | Behavioral Patterns of Working Jointly for Clients |

Figure: 7.4 The Ultimate Analytical Model (with calculated multiple correlation co-efficients) between blocks of variables which affect collaborative behaviours between Modern and Traditional medical practitioners.
Source: Adapted from Slikkerveer (1990); Computations based on Fieldwork (2006)

2. Trustworthiness co-varies more strongly in the first dimension than all other variables with interprofessional collaborative behaviour ($\rho1= 0.716$). In other words, the more practitioners have trust and confidence in each other, the more likely they are to collaborate as supported both in the theory of reasoned action and the behavioural models. As noted above, trustworthiness includes both the capability of being depended upon (being reliable and responsible) as well as being worthy of credibility or authoritative in a subject matter. Specifically addressing this result is of high importance for what practitioners and health planners ought to think and to do in order to improve confidence in traditional medical practitioners and in the services and products of Traditional Medicine (TM) in general.

3. The second in strength of interaction are the enabling variables ($\rho1= 0.682$) in Dimension 1. These variables, such as the individual social economical status and government plus community efforts to enhance collaboration, have substantial influence on the way in which both traditional and modern medical practitioners collaborate. When one thinks of interprofessional collaboration, there is a need to address the political will and creation of an environment conducive to interprofessional collaboration between Traditional Medicine (TM) and Modern Medicine (MM) as well as Complementary and Alternative Medicine (CAM), both at the local and national level. This notion supports the required institutional and legal support under the Parliamentary Act No. 2 of 2002, which governs traditional medicine and practitioners in Tanzania.

4. The psycho-social variables rank third for their multiple correlation coefficients ($\rho1= 0.544$). Variables such as good experience of the goods and services of Traditional Medicine (TM); awareness of successful traditional and modern collaborative projects; perceived possibility of good future working relations in pluralistic medicine; and belief in disease specificity of medical systems, which cause practitioners and clients and patients to be convinced that certain diseases are better managed by Traditional Medicine (TM) while others by Modern Medicine (MM); and that the attitude, education and awareness of what entails health services are important if interprofessional collaboration is to be encouraged. This is in agreement with the research results of Caboury *et al.* (2011), wherein both awareness in terms of interprofessional exposure and expected results have been observed among major variables affecting collaboration.

5. From the model it can be observed that at least all the remaining independent variables, *i.e.* the socio-demographic and organisational variables, show a certain medium notable influence on the interactions ($\rho1 = 0.372$ and $\rho1= 0.346$ respectively). Within the socio-demographic block of variables, the practitioner's professional group ('profgrup') and the practitioner's work status ('orgstat') are medium significant with regard to the extent in which practitioners would collaborate. In the organisational block of variables, the organisation efforts towards anti-groupthink, ('orgthink') and the level of organisational culture fostering collaboration ('orgcutur') influence significantly the way in which traditional and modern medical practitioners would collaborate. Therefore, the more the organisations are open to accommodating different views and encouraging creative and critical thinking, the higher the likelihood is for practitioners to be involved in collaborative behaviours with practitioners from the other medical system.

6. The analysis shows that the intervening variables in this study have minimal influence on the behavioural patterns of collaboration among traditional and modern medical practitioners. This phenomenon could be the result of a relatively small number of respondents who had actually participated into national or international programmes which support integration between traditional and modern medical systems.

7. The overall results of this study provide ample evidence to the central theoretical framework, which defines interprofessional collaboration as a behavioural act which can be analysed through the measurement of the influence the knowledge, beliefs and practices on particular type of collaborative behaviour of the of practitioners. The adapted *knowledge-belief-practice complex* has been widely applied as an interactive behaviour model by various researchers, such as Kohn and White (1976); Cox and Claus (1984); Slikkerveer (1990, 1995); Agung (2005); Ibui (2007); Leurs (2010); Djen Amar (2010) and Ambaretnani (2012). The model takes into consideration the all-inclusive variables on both the individual level of the medical practitioners and the institutional level of the society. To this end, governments, local authorities, health facility owners, medical practitioners, researchers and all health services stakeholders - including clients and patients - ought to respond to all significant interactive variables which influence motivation, abilities and triggers for interprofessional collaboration with the various types of medical practitioners through their indigenous and modern domain of knowledge, beliefs and practices.

Chapter VIII CONCLUSIONS AND IMPLICATIONS

8.1 Conclusions

Human health and health services have seen dramatic advances worldwide, including the development of new vaccines and medicines, improved technology and even the eradication of certain diseases. However, those developments have not closed the gap of the inaccessibility of health care to about 40% of the world's population, particularly in the developing countries, including Tanzania, where barriers exist both in terms of availability and affordability of medicines and services.

The contemporary world of plural medical configurations continues to take into consideration the 'classic' approach to repair imbalances and restore the holism of human health from the Traditional Medicine (TM), which has existed long before the emergence of Modern Medicine (MM). As such, Contemporary Alternative Medicine (CAM) and Traditional Medicine (TM) do not intend to discard the advancement of modern health care, but rather to revisit the ideology of humanity and the complex connectedness of factors affecting health and healing.

The recognition of utilisation and support for capacity development of traditional and alternative medicine are well founded by the World Health Organisation, with an emphasis on the objective to achieve fully integrated health care (WHO 2011). The African Union Heads of State, who declared the period 2000-2010 as the African Decade on African Traditional Medicine (Kofi-Tsekpo 2004), as well as the Tanzanian Health System Reform (HSR) strategy of 1993, introducing the Public-Private Mix package strategy which also expresses the new approach to include traditional medical practitioners into national health care systems.

Consequently, the Tanzanian Health Sector Reform (1993) which has been implemented through the *Health System Strategic Plan* (HSSP) *II* of 2007, is in line with the *Local Government Reform and Decentralisation by Devolution* of 1994, *The National Strategy for Growth and Reduction of Poverty* (MKUKUTA) of 2005, the *Millennium Development Goals* (MDG) for 2015 lasting through 2015 and the *Primary Health Care Services Development Programme*, (PHCSDP) of 2007-2017. Specifically for traditional and alternative medicine, expectations are to enforce the Tanzanian Act of 2002, governing products and services of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM).

Regardless of the position on the outputs and outcomes - pessimistic or optimistic - the fact that traditional and alternative medical practitioners continue to be consulted by Tanzanians of all population groups both rural and urban, with different health-related needs, implies that the integration of both traditional and modern systems is indispensable. However, as the aim of health policy makers and managers is to reach afya jumuishi - the Swahili concept for a fully integrated medical system - the promotion of *interprofessional collaboration* between traditional and modern medical practitioners is an inevitable step along the continuum of strategies towards integration (Dotterich 2006).

As indicated in Chapter I, the benefits of the collaboration between traditional and modern medical practitioners in Tanzania are explored, the underlying reasons include the following:

- People's entitlement to freedom of association and heterogeneous beliefs are among the fundamental Universal Human Rights for all, including Tanzanians. Biomedical and ethnomedical practitioners shall be at liberty to collaborate peacefully, as heterodoxy and social heterogeneity are compatible (*cf.* Metertens 2000).

- Improvement of health care processes and outcomes while working effectively with others. (*cf.* Zwarenstein *et al.* 2009). By working in collaboration, resources are pooled together to achieve greater services and care for the clients and patients (*cf.* McNamara *et al.* 2011; Wood and Gray (1991).

- The utilisation of the untapped or underutilised supply of skilled traditional medical practitioners and their products (*cf.* Rappaport 1977). So the use of Traditional Medicine (TM) is to complement, and in some cases to substitute the use of Modern Medicine (MM).

- The industry of Traditional Medicine (TM) is a big business worldwide. In 2005, traditional medicines worth US$14 billion were sold in China, while Brazil gained US$160 million in income from traditional therapies in 2007 and the global market registered more than US$60 billion (*cf.* Shetty 2010).

- Cultural values and worldviews affect the way in which people respond when they have health-related problems. Research has shown that Africans seek out traditional medical practitioners because they feel they are connecting with the vital transmitters and caretakers of African culture (*cf.* Swantz 1972; Lambo 1974; Rappaport 1977).

- Some health problems are better treated within a particular medical system (*cf.* Maclean 1971; Frank 1973; Rappaport 1977). Therefore it is sometimes necessary to refer patients with specific problems to the other system.

- To date, modern health care has neither given all the answers nor the solutions to human suffering, diseases and health. This is evident from the fact that for a number of diseases still no vaccines have been developed and remain incurable despite continued medical research Furthermore, careless use of Modern Medicine (MM), surgical procedures and health facility settings account for considerable *iatrogenesis* and *nosocomial* infections (hospital acquired infections) as noted by Weingart *et al.* (2000).

- The experience of witnessing successful interprofessional collaboration between these two medical systems, such as in the fully-integrated systems in China, Republic of Korea and Vietnam (WHO 2002b); Tanga AIDS Working Group, the THETA Non Governmental Organisation (NGO) on HIV/AIDS in Uganda; the Aro project of Nigeria; the Australian Integrative Medicine Association, can also become a triggering factor to encourage further collaboration in different areas worldwide.

This study embarks on the general aim to document, describe, and analyse the major factors which interact with the patterns of collaboration behaviour among traditional and modern medical practitioners in the Mara Region of Tanzania. Both qualitative and quantitative research methodologies are implemented in order to analyse the different categories of factors both at the individual and system levels which interact in such interprofessional collaboration between practitioners of the two medical systems.

By the use of both qualitative and quantitative research methods and techniques, the specific objectives of this dissertation have been fulfilled as follows:

Firstly, Chapter II presents the discussion of the theoretical orientation on interprofessional collaboration, a requirement of integrated health care delivery in a pluralistic medical configuration as part of the health system reforms. The justifications for collaboration between modern and traditional medical practitioners, both of which are well respected by many, are outlined in Paragraph 2.1. Cultural aspects are also discussed, including communicative, cognitive, behavioural, material and organisational components and their relationship to human health. The Paragraph also presents the *Mandala of Health* surrounded by the cultural factors which are shaping communities, individuals and medical systems (*cf.* Hankock & Perkins 1985).

The indigenous aetiology and health care utilisation by people in a pluralistic context as well as the role and management of medicinal plants are also presented, showing that 92.7% of modern medical practitioners believe that Traditional Medicine (TM) has a significant role to play in the national health system. Ranking the role of Traditional Medicine (TM), the overall results show that the top three roles are the prevention, diagnosis, and cure of diseases. Also, the challenges, facing Traditional Medicine (TM) are highlighted.

Health system reforms with earmarked components to be addressed in the Tanzanian health care system derived from different shifts in the paradigm are described in Paragraph 2.2. Analogously to the Tanzanian situation, the theoretical pyramid of the general needs by Greenhalgh (2007) poses a challenge to the classical view of putting a strong emphasis and resources into the health needs of the few in specialised hospitals (at the apex of the pyramid), and instead focuses on the needs of the general population (at the base of the pyramid). Components of the present Tanzanian Health System Reform (1993), including the public/private mix, which promotes active participation of the private sector where traditional medical practitioners are found in the present national situation.

Another reorientation is documented in the field of *Ethnobotanical Knowledge Systems* (EKS) where the Community-Based Approach (CBA) stresses research which is directed towards the identification of commonly used traditional herbal remedies and the way in which they are used in relation to local perceptions of health and healing (*cf.* Slikkerveer 2000). The Community-Based Approach (CBA) is recommended in the promotion of Traditional Medicine (TM), opposing the Clinic-Oriented Approach (COA), which focuses on laboratory research on medicinal plants and their industrial production.

The concept of integrating traditional and modern medical systems is described in Paragraph 2.3, documenting the recent focus on the integration between Traditional Medicine (TM) and Modern Medicine (MM) with an emphasis on trust between the practitioners involved. From the organisational theory, it is deduced that integration in health care is inevitable due to the increased differentiation and specialisation in various professions. The reference to the scheme of different forms of integration of Exelsson (2006) shows that collaboration has high levels of both vertical and horizontal integration. The same Paragraph continues to explain the degree of recognition of Traditional Medicine (TM) and the statement of the problem concerning the practical gaps within the rhetoric of Tanzania's health system reforms.

Paragraph 2.4 describes the theory of reasoned action, also relevant to health care reforms as it postulates that collaboration is also a behaviourally influenced act, which can be realised if there is a will if the people involved have a positive attitude towards the collaboration (*cf.* Ajzen & Fishbein 1980).

In addition, the more recent Behaviour Model of Fogg (2003), proposes that a practitioner will have a greater possibility of collaborating when he or she is sufficiently motivated and has

perceived simplicity, *i.e.* the ability to do so, while effective triggers are in place to remind them to collaborate.

This study, along with supporting literature on interprofessional collaboration in health care also points to substantial gaps, such as the lack of an unified conceptual framework and theories on the subject, as well as to the limited attention paid to the inclusion of only a few medical professionals, such as nurses, physicians, pharmacists and chaplains. In this Paragraph, the concepts are further described to the level of the design of the analytical model of relationships, taking into account the health care utilisation model of Kohn & White (1976), the theory of reasoned behaviour of Ajzen & Fishbein (1980), the conceptual scheme on stages of integration of Dotterich (2006), the behavioural model of Fogg (2003), the causal relationship leading into interprofessional collaboration by Axelsson & Exelsson (2006), and the interaction behaviour model of client health behaviour of Cox & Claus (1984).

Eventually, the analytical model of this study is built on the analysis of phenomena in the specific situation of a medical pluralistic configuration, characteristic for many developing countries, as has been operationalised in the transcultural interaction behavioural model of Slikkerveer (1990; 1995). In this model, recently successfully implemented by several researchers, the additional factor *trustworthiness* is introduced as a separate variable for the study in the Mara Region (*cf.* Doucette *et al.* 2005).

By consequence, the resulting analytical framework for interprofessional collaboration in this study is similarly composed of various blocks of respectively independent variables, enabling variables, variables of trustworthiness, organisational variables, and intervening variables, and dependent blocks of variables encompassing behaviour patterns of interprofessional collaboration of exchange of resources and of working jointly for clients and patients, as defined by the Centre for Advancement of Collaborative Strategies in Health (CACSH 2003) which considers interprofessional collaboration as part of synergy formation with two components of sharing of resources and working together under uniform management.

The Institutional support for Traditional Medicine (TM) is advocated in Chapter III. Weak governmental support for the traditional medical system leads to the insufficient fund allocations, especially compared to the modern medical system. Furthermore, there is a lack of a unified national and regional indigenous information system on the classification of local Medicinal, Aromatic and Cosmetic (MAC) plants and diseases. Similarly, such information system is also not available for questionable practices in terms of quality, efficacy and even morality, such as in the case of Traditional Birth Attendants involved in performing female genital mutilation. Also, there is no information available on the improper representation and participation of the traditional medical system in policy planning and implementation of health activities in the region as compared with the modern medical system. Another problem is highlighted with regard to the over-use of certain useful plant and animal species, taken from the wild for the preparation of traditional medicaments. This problem of the 'nature on the run' results in environmental and habitat degradation and irresponsible use of natural and land resources in relation to the growing population in the country.

Secondly, the description of the research setting of the Mara Region of Tanzania in terms of its sociography, livelihood patterns, cultural characteristics affecting the health and healing of the inhabitants are subsequently described in Chapters IV, V and VI. It starts in Paragraph 4.1 with the presentation of Tanzania at a glance as a multi-party democracy with many geographical religions. The country has many rich natural ecosystems and cultural sites, some of which have been registered in the World Heritage List of the UNESCO,

such as the Serengeti National Park (1981), the Kilimanjaro National Park (1987), the Stone Town of Zanzibar (2000), and the Central Slave and Ivory Trade Route (2006).

The people in the Mara Region reflect the country's demographic profile of various ethnic origins including the Bantu, the Cushitic, the Nilotic and the Khoisan. In the course of time, the majority of the Tanzanians still uphold the elements of African socialism and are united by the common Swahili language. These elements form the strong legacy of the late Mwalimu Julius K. Nyerere (1922 – 1999), who happened to come from the Mara Region, and who is generally considered as the 'Father of the Nation'.

Then, a discussion follows on the poor health status of the population of Tanzania, where people continue to suffer severely of many communicable, preventable diseases. The top ten frequently reported diseases, causing high morbidity rates, include malaria, anaemia, protein energy malnutrition, pneumonia, upper respiratory tract infections, diarrhoeal diseases and intestinal worms for all ages while, particular among women, pulmonary disorders, obstetric and gynaecological problems are prevalent. The financial constraints of the Government of Tanzania continue to affects both the current and future budget of the health care system. By consequence, shortages of health facilities, basic medical materials and supplies remain a problem, as well as the inadequacy in the supply of competent health manpower. A major step towards solving these problems is to incorporate and fully integrate Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) in the mainstream modern medical system of Tanzania. Health system reform becomes an inevitable strategy for appropriate health policy formation and the prioritisation of needs in order to improve the quality of the national health care system of Tanzania.

Paragraph 4.2 presents the Mara Region and its sociography. The region has 429 villages within six councils of the local government, namely Musoma Rural, Musoma Municipal, Tarime, Rorya, Bunda and Serengeti, all situated in the Lake Victoria basin. The region has a projected yearly population growth of about 2.7% and has a population density of 43.7 inhabitants per square kilometre with an average household size of 5.5 members. The Mara Region as a multi-ethnic region is characterised by various unique traditions from different ethnic groups, but with the shared value of mutual respect and the continued utilisation of Traditional Medicine (TM). All traditional societies in the Mara Region are also patriarchal, whereby male domination over females continues to exist.

According to the Mara Regional Medical Officer Health Report of 2010, the ten most common diseases of the Mara Region are malaria, acute respiratory infections, pneumonia, diarrhoeal diseases, intestinal worms, schistosomiasis - caused by *schistoma mansoni*, a parasite found in Lake Victoria and other still waters - anaemia, upper tract infections, minor surgical conditions and HIV/TB. As is the case throughout the country, the region suffers from insufficient physical resources, including a proper infrastructure, medical equipment and medicines as well as inadequate human resources. It is estimated that the entire Mara Region has less than 50% of the required qualified manpower for the adequate delivery of health services.

In all district councils of the Mara Region, there are reported cases of uvulectomies and 'plastic teeth' extractions among children. The regional health surveys which have been conducted in 2004 and 2008 show that HIV infections had increased by 1.8% to reach 5.3% of the population. Major reasons of the spread of HIV/AIDS include female genital mutilation practices, the traditional custom of 'inheritance of wives', the traditional death cleansing rituals, persistent poverty and the dislike of use of condoms. The highest incidences are found in areas with concentrated mining and fishing activities.

The Paragraph also points out that in education, there is a large deficit in the number of teachers in the region, where the average student-teacher ratio for primary schools has been projected to be 58:1 while there is about 47% of classroom deficiency in the region. Generally speaking, the women are the key actors of the economic activities in rural areas; unfortunately they do not enjoy equally the fruits of their labour. Women have less access to the revenues from their work because of the existing patriarchal system in social life. The profile of the sample population of the study, which consists of traditional and modern medical practitioners in the Mara Region, is presented in Paragraph 4.3. Here, special attention is drawn on the unequal age distribution and the different education levels between the two groups of respondents in the sample.

Chapter V presents an overview of the general livelihood patterns of Tanzania and the Mara Region. While Paragraph 5.1 deals with the general norms, beliefs and philosophies and livelihood patterns of Tanzanians, Paragraph 5.2 focuses on the historical traditional leadership in the region, which was based on chiefdom divisions. The social institutions and patterns of life are described in Paragraph 5.3.

In Chapter VI, and specifically Paragraph 6.2, a discussion is presented of the plural medical system in the Mara Region as part of Tanzania. Both Traditional Medicine (TM) and Modern Medicine (MM) as upheld and practiced in the Mara Region are documented, while in Paragraph 6.3.1 the cultural characteristics of health are discussed in the Mara Region. Specific cultural characteristics which affect the health status of inhabitants of the Mara Region include mutilation of children's teeth; uvulectomies; unsafe, mass male circumcision; female genital mutilation; reckless swimming in the unsafe waters of Lake Victoria which harbour the bilharzia parasites; life-threatening activities to people with albinism; non-compliance with balanced dietary intake and the healthy livelihood; the patriarchal attitude of the suppressing women's rights; and minimal provision of health information. In addition, an indigenous classification and a list of common use of medicinal plants of the Mara Region are provided in Chapter VI, Paragraph 6.3.2.

The Chapter also describes the collaborative efforts between traditional and modern medical practitioners in the Mara Region through the organisation of an association called CHAWATIATA, which unite traditional healers, traditional birth attendants and circumcisers. Paragraph 6.3.3 also mentions the contribution of the *Jadi na Utamaduni katika Afya* (JUA) Project, which seeks to enhance the capacities of traditional medical practitioners through organised workshops and consultations. The *Jadi na Utamaduni katika Afya (*JUA) Project was the initial trigger which has led to the undertaking of this study in the Mara Region.

Thirdly, the description of the Tanzania health sector reforms and challenges facing contemporary Traditional Medicine (TM) in Tanzania has been presented as part of the theoretical orientation in Paragraph 2.2 of Chapter II. Here, the researcher lays the foundation of interprofessional collaboration as a major step towards the realisation of the planned health sector reforms of Tanzania under the public/private mix and change of ideology in order to involve more community participation in health planning, financing and management. The overall focus is to observe the need of a paradigm shift in the sector, where health care has to be demedicalised, culturally redefined and integrated.

The detailed problem statement with regard to Traditional Medicine (TM) in Tanzania is provided in the Paragraphs 2.3.3 where the required institutional support is advocated.
The dissertation has categorically listed the major problems facing the traditional medical system in Tanzania as its lower status, especially in government circles, the generally poor performance with less support and lack of a sufficiently enabling environment. These problems

have caused persistent shortcomings, such as a weak institutional support of the Government to the traditional system, unavailability of allocations of funds as in the modern system, lack of a unified national and regional information systems, both for indigenous Medicinal, Aromatic and Cosmetic (MAC) plants and for local perceptions and names of diseases, absence of validation of some questionable local practices in terms of their quality, efficacy and even morality, such as the involvement of Traditional Birth Attendants (TBAs) in performing female genital mutilation, lack of proper representation and participation in health policy planning and implementation in the region, as compared with the modern medical system. Other problems have been indicated, including the increasing reduction of some medicinal plant and animal species, used for the preparation of traditional medicines. This so-called *'nature on the run'* problem is largely caused by irresponsible use of natural resources in the wild resulting in environmental degradation, and loss of available land to the increasing population.

Fourthly, the description the selected analytical model of interprofessional collaboration behaviour and its components, encompassing predisposing, enabling and intervening variables in relation to the dependent variables of patterns of interprofessional collaboration behaviour among traditional and modern medical practitioners in the research area is presented in Chapter III.

The outline of the major blocks of variables in the model and their descriptions are presented as to correlate to a certain degree of significance with the patterns of interprofessional collaborative behaviour between modern and traditional medical practitioner in the research are. The introduction of major block of variables of collaboration is mentioned in the formulation of the analytical model in Chapter II, Paragraph 2.4.5. Here, it is explained that a set of independent variables include predisposing, socio- demographic and psycho-social variables interacting with a set of dependent variables which on one hand include the behavioural variables of exchange of resources and on the other hand behavioural variables of working jointly towards clients and patients. Both the independent and dependent variables also interact in conjunction with the intervening variables of the model.

Table 8.1 Overview of the various blocks of variables used in the analytical model

Block number	INDEPENDENT VARIABLES
Block 1	Predisposing Variables (Socio-demographic Variables)
Block 2	Predisposing Variables (Psychosocial Variables)
Block 3	Enabling Variables (Socio- Economic Status)
Block 4	Trustworthiness Variables (Interprofessional Confidence to each other)
Block 5	Organisational Variables (Organisational Culture, Resources Capability)
	INTERVENING VARIABLE
Block 6	Government and International projects on interprofessional collaboration
	DEPENDENT VARIABLES
Block 7	Interprofessional Collaborative Behavioural Factor (Exchange of resources)
	Interprofessional Collaborative Behavioural Factor (Working Jointly)

Source: Fieldwork Survey 2006

Subsequently, the operationalisation of the conceptual model is presented in Paragraph 3.3, while the actual composition of blocks of variables in the structured questionnaire is shown to

link up with the deductive pattern of *concept - variable – indicator – category* in the measuring process, supported in the elaborated work of Kohn & White (1976), Slikkerveer (1990), Agung (2005), Ibui (2007), Djen Amar (2010) and Leurs (2011). An overview of the various blocks of variables used in the analytical model is presented in Table 8.1.

Fifthly, the provision of a list with the indigenous classification of medicinal plants commonly used in Mara Region is provided in Chapter VI, specifically in Paragraph 6.3.2. The medicinal plants are described in both the local names and in Latin names, together with an indication of the parts of plants which are used and how the herbal medicines are used in the local peoples' health and healing practices.

Sixthly The detailed step-wise data analysis is presented in Chapter VII, showing the results of respectively the bivariate analysis, the multivariate analysis and the multiple regression analysis which are leading up to the construction of the ultimate analytical model, indicating the statistical values of the strengths of interactions between the various blocks of variables which are interacting with the patterns of interprofessional collaborative behaviour between modern and traditional medical practitioners. This objective has been achieved by the use of SPSS Version 20.0, also referred to as *Predictive Analytics Software* (PASW), and also described in Paragraph 7.2.1 regarding the discussion of the general level of interprofessional collaboration. Furthermore, explanations of the bivariate analysis are given in Paragraph 7.2.2, followed by the multivariate analysis of variables known as OVERALS in Paragraph 7.2.3, and completed with the categorical regression analysis of blocks of variables in Paragraph 7.2.4. These interesting results have been achieved by the use of an *eigenvalue*, described by Van der Burg (1983) as a multivariate measure of association of all the variables concerned as an outcome of the technique of *Dimension Reduction-Optimal Scaling*.

With the available collected non-parametrical or categorical data, their observed counts, percentages, the tests of statistical independence and measure of association in degrees of significance, such as the Pearson's Chi–square, Phi, Cramers V and Kendall's tau-b, are also presented. It is worthwhile to note, that not all the results of the bivariate analysis show significant associations because some pairs do not meet the minimum statistical assumptions or simply because they do not show any significant correlation. As a result, the ultimate analytical model with calculated multiple correlation coefficients between the blocks of variables is presented, showing the variable 'trustworthiness' to co-vary more strongly (0.716) in the first dimension with interprofessional collaborative behaviour than all other variables, followed by the 'enabling variables' in the first dimension (0.682). These results put more weight on both the political will and the government efforts for the provision of an enabling environment as well as institutional support towards the collaboration between traditional and modern medical practitioners.

The third category of variables with a significant correlation (0.544) are the 'psycho-social variables', which include the perceived possibility of good working relationships in the future, the beliefs on the specialty in particular diseases of the medical system, and the attitudes, education, and awareness of the practice of interprofessional collaboration.

Based on Component Loading outcome of individual variables per each blocks of factors from Chapter VII, we can deduce that there are certain individual variables which have shown more strong significant correlation with the dependent variable which is interprofessional collaborative behaviour between traditional and modern medical practitioners.

Such results as presented in Table 8.2 prompts policy makers and all other health stakeholders in Mara region and Tanzania as a whole to pay much attention to such variables which act as major determinants of interprofessional collaboration among traditional and modern medical practitioners in the health sector reform set of strategies and activities. The interpretation of such strong variables can be translated to the following policy and strategic plans:

Table 8.2 Independent variables of strongest significant correlation with interprofessional collaborative behavioural variables results from components.

Block of Factors	Strongest Variable (Dimension 1)	Strongest variable (Dimension2)
Enabling	Gocoefot (.892)	SES (.740)
Intervening	Projeinv (.797)	
Trustworthiness	Mmtrust (.735)	Tmtrust (-.654)
Psychosocial	Knosect (-.637)	Percwrel (.477)
Organisational	Orgthink (.568)	Orginput (-.685)
Social demographic	District (-.537)	Profgrup (-.395)

Source: Computations based on Field work Survey 2006

'Gocoefot' & 'SES': efforts need to be directed towards creating enabling environment by both government and communities efforts ('gocoefot') to encourage interprofessional collaboration through facilitation of public campaigns and sensitisation activities on the benefit of interprofessional collaboration and rational utilization of both traditional and modern medicine services and products as appropriate. All Tanzanians have to work smart with accountability to raise the Social Economic Status (SES) of individuals by alleviating poverty for the improvement of health and wellbeing of the people of Tanzania.

'projecinv': The Nation ought to continue vigorously to engage practitioners of both for traditional and modern medical systems to be involved in projects which fosters collaboration (projecinv) among them as it has engaged some traditional birth attendants countrywide.

'MM / TM Trust': The leaders of professional health and allied health bodies in Medical, Nursing, Pharmacy, Diagnostic, Rehabilitation, Training Health Administration and all Traditional Health practices need to cultivate mutual trust among individuals and groups of practitioners modern and traditional medicine (MM / TM Trust) under the leadership of the umbrella organisation which unites both systems, the Ministry of Health and Social Welfare (MoHSW).

'knowsect' & 'percwre': More intensive courses on public health which include medical anthropology and Ethnobotanical knowledge systems needs to be incorporated into all medical and allied health studies in modern medicine. More frequent capacity building workshops have to be offered to traditional and alternative medicine practitioners to be able to acquire substantial knowledge about the entire health sector (knowsect) which include all available medical systems. The Health Management Information System (HMIS) is to be redesigned in such a way that it contains also data and analysis of the traditional medicine in terms of its practitioners, its clients, services and products. When this is done as well as when both sides are given chance to appraise the Strength, Weakness, Opportunity and Challenges (SWOC) analysis of both medical systems over time, there is a likelihood to observe a positive change of perception towards future good working relationship ('percwre') between the systems.

'orginput' & 'orgthink':   It is essential that the Ministry of Health and Social Welfare (MoHSW) and the private health service providers ensure that there are satisfactory levels of organisational inputs ('orginput') in terms of competent human resources, finances, materials, infrastructures, and relevant information. Such strategy aims at improving working conditions and service delivery on both traditional and modern medical systems. Leaders and board members of all types of health facilities ought to be encouraged and sensitized to take it as part of their organisation cultures, to discourage the group think ('orgthink') attitude within their organisations.

'district' & 'profgrup': Afirmative action needs to be taken to alleviate the level of interprofessional collaboration between traditional and modern medical practitioners in Bunda and Tarime districts as compared to Serengeti and Musoma. The same can be said in terms of the type of professional group. More involvement of such groups of doctors, faith healers, fortune-teller, and traditional medicine vendors can increase their collaborative behaviours as it is seen to traditional birth attendants and modern medical attendants, nurses / midwives.

Seventhly, the presentation of the recommendations for integration and improvement of traditional medical services into the formal medical system of Tanzania with a view to achieve effective and successful health system reforms in the country is presented in Chapter VIII, Paragraph 8.2.1. The Paragraph starts with the explanation of the theoretical and methodological implications of this study, while Paragraph 8.2.2 describes the policy and the strategy on the avenue to fully integrated health care in Tanzania.

The Chapter also takes into consideration the health-related challenges which Tanzania is facing and the major issues which are relevant to the intended health system reforms. The proposed changes on the basis of the study may comprise *i.a.* attitude changes, policy changes, operational changes, and priority setting and evaluation changes, which include topics such as: the following:

- Sensitizing Leaders and Board members of health facilities to discourage the organisational *groupthink* syndrome which has encroached the political and professional ways on decision making and responding to pertinent issues for development of human and the country as a whole

- preparing medical practitioners to change their attitudes in order to appreciate the efforts towards integrated medical system, including collaboration among traditional and modern medicine practitioners;

- acquiring the ideological base to recognise the need for interprofessional collaboration and a shared will to achieve such collaboration;

- provision of a mandate and institutional support for the services, organisations and projects of practitioners of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM);

- availability of a dialogue and the development of capacity among stakeholders in health care;

- strengthening research, training and development of indigenous knowledge related to health and well-being;

- rethinking religious doctrines in relation to nurturing good cultural heritage which has been displaced during the colonial and post-colonial periods of time;

- working towards international humane partnerships and cooperation;

- development of policies briging together the interests in improved management of biodiversity and people's improved livelihood

- development of policies bringing together the interests of the pharmaceutical and biotechnological organisations in the improved management of biodiversity and in the improved livelihood of the people;

- development of a database and a network related to bio-cultural diversity within the country in conjunction with international institutions and networks;

- improvement of medical products and services offered by the traditional medical practitioners;

- upgrading of gender roles in order to recognise and provide equal opportunities to the marginalised women and children in the society for an improved health status and valuable socio-economic contributions to the community.

At the beginning of the 1970s, as Pearce (1982) notes, a radical change towards integration between Modern Medicine (MM), Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) was introduced by many practitioners and health policy makers. Through the World Health Organisation in the Africa Region, the Heads of State of the African Union declared the period of 2000-2010 as Africa decade on African traditional medicine
In short, more planners and policy makers today are paying attention to the prevention, care and cure of people through the use of all possible resources from the modern, traditional as well as the alternative services, while also improving all other elements which affect the health of the population.

In Tanzania, and in Africa in general, the rather negative attitudes towards traditional and alternative medical practitioners, their medicaments and their services is the result of the long colonial suffering and kinked religious hermeneutics resuscitated by the 'groupthink' machinery which promotes high levels of forced, irrational consensus at the expense of consumer rights, efficiency and the overall reality of medical pluralism. This situation has to be changed as health policy makers and planners take a major step towards integrated health care development, beginning with a community-based approach to health promotion, the creation of conducive environment and institutional support towards interprofessional collaboration between traditional and modern medical practitioners.

8.2 Implications

8.2.1 Theoretical and Methodological Implications

Apart from the interesting results from the analyses of the correlation and interaction among various variables which influence the interprofessional collaboration behaviour between traditional and modern medical practitioners, this study has also led to some new theoretical and methodological implications. The research underpins the importance of incorporating significant independent variables, other than those at the individual level, including organisational variables. Even more interesting is the categorisation of some new variables in separate blocks in the multivariate analytical model, adapted from recent interactive-oriented studies by Slikkerveer (1995) and Ambaretnani (2012) for the pioneering application of a new behavioural model of interprofessional collaboration. The multivariate analysis of this study has shown to be able to capture the relationship among complex variables which are interacting in a differential mode to affect the way in which certain types of humans – in this case traditional and modern medical practitioners - collaborate as they provide different services to their clients and patients.

This research also shows that the specific technique of the development of a structured and pre-coded questionnaire is most useful for the execution of various household surveys in the Mara Region. Embarking on the development of a deductive scale from the definition of a concept through the factors into variables and their indicators to measurable answer categories, the questionnaire has been successfully adapted from Slikkerveer (1990; 1995). On the basis of the analysis of both qualitative and qualitative data of the research focused on two separate groups of traditional *versus* modern medical practitioners, the study highlights the importance of taking a pluralistic configuration of ethnosystems in the research area into account, as well as of contemporary systems of organisations related to sustainable health care development. In other words, the analysis needed eventually to implement a transcultural perspective on traditional and modern medical practitioners in the research area.

In order to study ostentatiously such a complicated problem of collaborative behaviour of diverse professionals in a pluralistic medical configuration, a set of multiple research methods and techniques are employed (Yin 1989). The selected methodology validates the combined use of a structured questionnaire, semi-structured interviews, workshops, personal observations and document analysis to explore, describe and analyse the correlations between and among various independent and intervening variables which are interacting with dependent variables of the patterns of collaborative behaviour of respondents. The results of the study have been further analysed by the use of non-linear correlation analysis (OVERALS) in order to obtain an ultimate model of interprofessional collaborative behaviour in health care in the research area.

The preference for the selection of this analytical methodology is the result of its ability to determine the degree of significance of the correlations among variables, and as such to understand and predict the values of the dependent variables, in this case the behavioural patterns of interprofessional collaboration between traditional and modern medical practitioners. The special analytical methods and techniques, developed by the Department of Data Theory of Leiden University, has been adapted and implemented rather successfully for human behaviour-oriented research in the transcultural configurations in developing countries by a number of researchers from different disciplines, including research in Ethiopia and West-Java, Indonesia by Slikkerveer (1990; 1995); in Bali, Indonesia by Agung (2005); in Kenya by Ibui (2007); in West ava, Indonesia by Djen Amar 2010; in Bali, Indonesia by Leurs (2011);

and in West Java, Indonesia by Ambaretnani (2012); and in the Mediterranean Region by Slikkerveer (2012).

The special analytical approach has the advantage not only to identify particular variables as significant determinants of behavioural patterns in a given configuration, but also to measure the relative strengths of the interaction of these determinants as they interact with each other in relation to the dependent variables. As indicated above, in this study, the analytical model has similarly shown to be rather functional in the identification, analysis and explanation of several significant determinants of interprofessional collaborative behavioural patterns of exchanging resources and working jointly for clients and patients by traditional and modern medical practitioners in the Mara Region of Tanzania.

8.2.2 Policy Implications and Practical Recommendations

'As regards to policy implications, the inclusion of culturally appropriate health care and pluralistic plans of action are proposed in certain indigenous medical perceptions, practices and healers are integrated in order to achieve optimal use of all available resources by the entire population.' This concise excerpt from Slikkerveer (1990: 287) from his pioneering study in Ethiopia also represents the implications from this study in the Mara Region. The evidence base for such integration of Traditional Medicine (TM) and Modern Medicine (MM) remains as yet rather limited. A review by Briggs & Garner (2007) indicates several important practical implications, with which the implications of this study link up as follows:

- Integration is not a cure for inadequate resources in health care. Inadequacy of competent human materials, financial and information resources must be addressed.

- There are more examples of statements and policies in favour of integrated health services than there are actual physical examples. Integration requires policy makers, managers, and health workers to be engaged on all levels as appropriate.

- Integrated services do not imply everything has to be integrated into one package. There are many possible arrangements which suit the situation and prevailing environments.

- Despite high levels of health provider integration, health service users may experience low levels of integration in their access to care, or vice versa. This may be due to poor communication and coordination.

Consequently, this study is associated with a variety of interrelated subjects, such as health system reforms, integrated health care, human resource management, organisational research and development, ethnosystems and the contextualisation of the *knowledge-belief-practice* complex, which necessitates a scrutiny on different available as well as intended policies in Tanzania and other developing nations with similar situations. Practical recommendations are therefore indicated in detail below with regard to the strengthening of interprofessional collaboration among different medical practitioners in conjunction with other related policies and strategies, aimed at achieving integrated health care development. These recommendations should not be taken as a conclusive panacea, but as evidence-based advice to be considered together with similar measures suggested by other researchers, academicians and scholars for the ultimate aim of improving human health and initiating positive socio-economic and cultural changes in Tanzania and elsewhere in the developing world.

1. Sensitizing leaders of health facilities to discourage the organisational groupthink syndrome.
 Now that Tanzania has celebrated 50 years of independence from Tanganyika, all policymakers, health facility board members, health managers and medical practitioners are urged to enter a new phase of encouraging practical steps to prevent national and local health decision-making organisations and leaders from suffering from the known 'business as usual', epidemic of groupthink, which has long encroached the political arena worldwide. In order to depart from this syndrome, the Ministry of Health and Social Welfare (MoHSW) should demand critical thinking and open discussions from the village Primary Health Care Committee to the District Health Boards to the national level where stakeholders of traditional and alternative medicine are incorporated and represented with full participation. Full participation of representatives of primary health care teams (including traditional medical practitioners) would help to appropriately identify the population's health problems and assessment of the health needs in the specified areas in question, as Lionis & Trell (1999) observed. At times, some of the members in different decision forums have to purposefully assume the role of the 'devil's advocate' to question un-tested policies and plans.

Consequently, open and critical discussions could resolve conflicts and contradictions, as the masses continue to proclaim their grievances about health providers and the government indiscriminately, without taking into account the initiatives to contribute with positive criticism and actions to help raise the present health levels of the Tanzanians.

As Gardner (2005) highlights, it should also be recognised that collaboration is a journey, where all concerned parties such as practitioners and health policy makers need to learn to value and manage diversity, while developing constructive conflict resolution skills in order to create a win-win situation in times of controversial or conflicting ideas and scenarios.

2. *Appropriate preparation of medical practitioners with the right attitude towards integrated health care and cultural sensitivity*
As Abbott (2011) discovered with regard to students, and Winkler *et al.* (2010) discovered in people with epilepsy and their relatives, most medical and paramedical students in Tanzania also perceive a connection of mind, body and spirit. However, a more theoretical inputs into the discourse need to be incorporated by health care trainers into their syllabi in order to shape their attitude towards the utilisation and integration of Modern and Traditional and Alternative Medicine. Equally important is the fact that in addition to the *Muhimbili Institute of Traditional Medicine*, there should be more formal higher university education and research colleges of both traditional and alternative medicine as is the case *e.g.* in China, where there are more than 30 universities, 3 colleges, 51 medical. Schools; in the Republic of Korea, where there are research institutes, 11 oriental medical universities; in Vietnam where there are 3 research institutes, 3 faculties in medical schools, 2 medical technical). Tanzania would also benefit from centres with an inclusive system approach such as those in India, Sri-Lanka, Indonesia and Australia (*cf.* WHO 2002b). In the same way, all medical and paramedical colleges are advised to incorporate studies which relate health and disease to peoples' culture, such as medical anthropology and Ethnomedicine.

Entrepreneurship in health care has also brought about moral issues which are facing the medical practitioners in both traditional and modern medical systems. Today, if a doctor, nurse, pharmacist, dentist, healer, bonesetter, soothsayer or any other medical practitioner is not thinking ceiling with waves of making more money, it is having more patient attendances if not contemplating gaining fame as a celebrity of a rare career in the society. No wonder that the agenda of the 'brain drain' of human resources in developing countries is losing its grip as an

inept response which is mirrored in the freedom of labour mobility just as soccer players move from one team to another so long as it goes with a transferring form with a heavier cheque.

Consequently, curriculums, teachings, internships or apprenticeships for medical practitioners need to be reviewed in order to reflect an effort towards a change in attitude from business to service orientation, from curative to preventive and from expertise to facilitation.

Despite the perspective of the melting pot, which refers to the increasing contacts between peoples of different cultures and as such render making the world a smaller village, the perspective of the kaleidoscope of cultural differences continues to be evident. Tanzania, like many other developing countries, continues to receive foreign medical practitioners either as part of the technical assistance programmes from abroad, or as the result of the individual freedom of movement and the worldwide open labour market. In response, the Ministry of Health and Social Welfare (MoHSW) is advised to create a kind of induction environment in respective local areas of service in order to ensure certain minimum level of cultural competence by the foreigner practitioners enabling them to appropriately treat all clients and patients with appropriate cultural sensitivity and respect.

It is highly appreciated when countries have prepared their candidates well for working abroad, such as the training of Tropical Doctors at the Royal Tropical Institute (KIT) in Amsterdam, The Netherlands, The Institute of Tropical Medicine in Antwerp, Belgium, the Royal Society of Tropical Medicine and Hygiene in London, United Kingdom, and the Australian College of Tropical Medicine in Red Hill, Australia, among others.

3. *The ideological base for the need of interprofessional collaboration and definition*
A shared recognition and definition of collaboration between the two medical systems and among other stakeholders is imperative, with the recognition that the goal is not about power, but about working together toward a common goal (*cf.* Morrison 1996). Collaboration between Traditional Medicine (TM) and Modern Medicine (MM) is capable to bridge the equity gap in global public health. There is a pressing need for all health service stakeholders to engage in critical thinking and dialogue in order to generate a knowledge base about the outcomes of interprofessional collaboration of both medical systems. Such thinking should be based on results of empirical studies showing efficacy as a means of achieving specific customer oriented health service outcomes and not as a mere political ideology. In the same way, there is a need to outline the resulting difficulties of collaboration for effective management, which the groups are expected to face (*cf.* Kvarnström 2008).

4. *Mandate and institutional support*
The Government of Tanzania is advised to give both a mandate and institutional support for the envisaged collaboration. The Ministry of Health and Social Welfare (MoHSW) should participate in the Health Sectors Reform Action Plan to implement the Traditional Medicine (TM) policy in accordance with the present enacted law of Tanzania (Act no.23 of 2002) governing the practices of Traditional and Alternative Medicine by encouraging the appropriate use of traditional medicines and giving incentives to those involved in the management of medicinal plants such as provision of land, knowledge of sustainable conservation and special recognition in the societies where they live.

Furthermore, the Government should acknowledge Traditional Medicine (TM) not only for health care provisions but also for income generation. Therefore, substantial institutional support should be given to the associations of traditional medical practitioners and medicinal plant collectors.

Policies should be designed not only for governing control of Traditional Medicine (TM), but also, in conformity with the law, of the conservation of the indigenous heritage, together with the fair and equitable sharing of the benefits arising from utilisation, including protection and compensation of Intellectual Property Rights for individuals and communities with indigenous 'hardware' and 'software,' based on the *United Nations Declaration of the Convention on Biological Diversity* (Article 8j and Article 29, UNEP 1992) concerning the rights of indigenous peoples of their sustainable community development.

Just as the modern health system has been developed and funded by governments, also the practitioners and institutions of traditional and alternative medicine should be developed, funded, and controlled. An effective mechanism for quality supervision and assurance of the collaboration between traditional and modern medical practitioners needs to be in place. For quality health services, Primary Health Care, especially in rural areas, need to be fully supported by regional, district and community authorities, as Lionis *et al.* (2004) suggest.

5. *Dialogue and capacity development among stakeholders on health*

Frequent healthy discussions about issues of collaboration among practitioners and health stakeholders in general such as the rational use of traditional medicines need to be encouraged. Such dialogue includes, but is not limited to traditional practitioners, physicians, nurses, botanists, agronomists, environmentalists, zoologists, pharmacologists, pharmacists, pharmaceutical technologists, anthropologists and economists. Biocultural diversity conservation also needs to be incorporated as a separate general subject in primary and secondary school curriculums.

Awareness campaigns on the utilisation and management of appropriate traditional medicines have to be instituted in combination with the national primary health and environmental conservation strategies. It can be achieved by the use of mass media, communication networks and capacity-building workshops which are targeting traditional herbalists, village health workers, business companies and individuals dealing with medicinal plant products, pharmaceutical companies and farmers. A major possible theme to be promoted during national festivals, such as when the freedom torch is run across the entire country, as well as in health-related campaigns and during public holidays, would be a slogan which promotes the role of traditional therapies and medical practitioners in the national health care system and the economy.

6. *Research, training and development*

Anderson and Kaleeba (2002) reviewed the collaborative projects (The TAWG – scheme in Tanzania) which incorporate Traditional Medicine (TM) in HIV/AIDS prevention and control. The review demonstrates that collaborative projects have been minimal, and that they suffer from financial constraints. They operate short-term in a unified local place and are mostly characterised as small-scale. The review shows that such projects are often inadequately reported and appraised. It is therefore suggested that further comparative research on collaboration between modern and traditional medical practitioners and their systems need to be conducted to reveal insights which may be applicable to other similar places.

The *Muhimbili Institute of Traditional Medicine* and the *National Institute for Medical Research* in cooperation with other scientific institutions of health studies in Africa and abroad ought to exert more efforts in the study of assessing the scarcity of priority plants, animal and minerals for use as medicines, especially with regard to the related over-exploitation and environmental degradation.

Researchers should be acquainted and make use of the present databases such as UCTAD, NAPRALET and PHARMEL, and consult *the International Brand for Plant Genetic Reserves* (IBPGR). Particular emphasis must be laid on development and adoption of an effective system for the protection of indigenous knowledge and the prevention of biopiracy from in- and outside the country. The Traditional Knowledge Digital Library (TKDL) of India is currently one of the most outstanding examples.

Pilot studies should be focused on assessing possibilities of large-scale production of priority medicinal plant species. The recent launching of a new herbal medicine processing plant of the Kenyan School of Alternative Medicine and Technology (Samtech) in Nyeri, Kenya for the production of tablets, syrups and capsules is a good example (1).

When considering research on Medicinal, Aromatic and Cosmetic (MAC) plants, it is a time of great importance also to take the Claridge 'model of total drug effect' into account. The preference and effects of any medication to an individual depends on many factors, such as the characteristics of the recipient, *e.g.* socio-cultural background, education, experience, personality, age; the characteristics of the provider or dispenser, *e.g.* sense of authority, trustworthiness, attitude, professional status, age; the setting, such as the environment in which the medicine is administered; and the characteristics of the medicines, such as taste, shape, colour and name (*cf.* Claridge 1970). For the purpose of utilisation of health care, it is vital to conduct pharmacognological and agrobotanical surveys on all so far non-codified systems of traditional herbal medicine in order to assist the updating of the selection of essential medicinal plants.

It is also useful to have an organisation with representation from different disciplines and ministries, to coordinate all efforts of the parties which are involved in integrated traditional medicine, including research institutes, documentation centres, health centres for clinical trials, to regions and districts authorities. Furthermore, a comprehensive consumer study of the services and products of Traditional Medicine (TM) needs to be taken in order to document how services of Traditional Medicine (TM) are currently conceptualised and utilised under the existing models of collaboration in terms of patients' needs and expectations. In a more realistic sense, researchers on health care utilisation are strongly advised to consider and use the explanatory models of multivariate analysis of patterns of relationships among various predisposing and enabling variables, including aetiology, traditional classifications of plants and diseases, and socio-psychological variables within the dynamic context of social and cultural change of the society concerned (*cf.* Slikkerveer 1990: 56-57).

Formal training and research guided by the World Health Organisation Guidelines (WHO 2000a; 2012b), the Ethnosystems Methodological Approach (Slikkerveer 1995), as well as the Hermeneutic Phenomenology Methodology need to be undertaken with rather flexible and open-ended inquiries in Tanzania in different fields, such as social and medical anthropology, ethnobotany and ethnopharmacology. This approach will further explore the nature of human experience *versus* the usually predictive and prescriptive theories. Such strategy, in turn, will contribute to the moral and socio-political dimensions in the contemporary process of integrated health care development. The results are also significant for revisiting the health sector reforms, with special consideration of the integration of Traditional Medicine (TM) and Complementary and Alternative Medicine (CAM) into the national health care delivery system of Tanzania.

7. *Revisiting religious doctrines in relation to traditional culture*
'To condone all herbalists and traditional medical practitioners in a blanket is like staggering in a colonial hangover' (*cf.* Chirangi 2000)(2) In agreement, African religious leaders and theologians today have conceded that there is a need for contextualisation of African

Christianity in order to remove cultural foreignness, *e.g.* artefacts, liturgical expressions, songs, metaphors, the world view, symbols etc. and for the purpose of addressing some peculiar African socio-cultural issues such as indigenous medicine and aetiology, the spirit world, parental curses, extended family ties, and passage rite ceremonies.

A good example of this move is the preliminary explorations by Martin (1996) on the gospel and culture of the *Research Institute on Christianity in South Africa* (RICSA), a study which was sponsored by the *World Council of Churches* (WCC) (3). In the same way, Chavunduka (1999) in his article '*Christianity, African Religion and African Medicine'* concludes, that: *'The way forward for the Christian Church is to examine carefully African religion and medicine and other cultural aspects, with a view to identifying clearly those practices which are not against Christian faith and morals and incorporate them into modern medicine and Christian worship; if possible, they should also try to find a way out of what are considered non-Christian rites and other cultural practices. A few Christian churches are already doing this'*.

A failure to address this challenge is to lay unnecessary burdens to believers and perpetuate hypocrisy with the dualistic identity; of being an African (in hidden forms) and a Christian (openly) instead of being with one identity – an African Christian.

8. *Humane international partnership and cooperation*

International policies of the World Bank, the International Monetary Fund, the World Trade Organization and other international organisations governing the provision of international aid, cooperation and trade ought to encourage mutual respect among partners based on common understanding leading to poverty alleviation and improvement of the quality of life towards sustainable human development to people in developing countries. Developing countries need to be assisted more in gaining accessibility to the markets, to information as well as obtain better trade opportunities. Policies for lifting the accrued debt burden from poor countries are beneficial. One of the approaches of controlling bio-piracy is to take a shared benefit approach with indigenous people, such as through the model of *Access and Benefit Sharing* (ABS), which grants access to the traditional knowledge, but in return claims a fair share of benefits for the local society for every newly-developed medical product.

9. *Policies which link the interests of the pharmaceutical and biotechnology sector with improved management of biodiversity and people's improved livelihood*

The use of raw materials from the available biodiversity for pharmaceuticals and biotechnological companies has a direct link with the health and livelihood of peoples living in areas of biodiversity (Grifo & Rosenthal 1977). It is been suggested that the government should develop effective policies to ensure not only the conservation of biodiversity but also to support sustainable development of people living around. Considerations such as the nation's interests touches on researchers, businesses, prospectors and communities at large (Reid *et al.* 1993). These interests cannot continue to be left at the mercy of commercial investors in the name of 'corporate social responsibility'. Whilst this research is about collaboration in health care, collaboration in biodiversity conservation strategies, both traditional and modern for the development of sound management of Tanzanian's biological diversity can be an important national goal. With the aim of attaining the sustainable use of Medicinal, Aromatic and Cosmetic (MAC) plants, the issue of conservation needs to be addressed. Both plant research and harvesting practices need to be carries out in a responsible way.

Furthermore, as Rukangira (2001) mentions, *ex-situ* cultivation of specified species of Medicinal, Aromatic and Cosmetic (MAC) plants should be necessary to obtain raw materials grown under the same conditions of climate and ecology.

Pharmaceutical companies and any organisations profiting from indigenous knowledge need to give something substantial back to the people who own the knowledge. Such approach could be achieved through loyalty, corporate social responsibility projects and support of the promotion of knowledge and products of Traditional Medicine (TM), *e.g.* in trade exhibitions.

10. *Development of a database and strengthening networking in biodiversity*

Governmental and non-governmental organisations need to document medicines in the wild in the context of the plants and their surrounding cultures at the national documentation centre. Such strategy is only possible through an appropriate research and biodiversity network connecting all institutions and regions within the country, and through other international networks such as the *Natural Product Research for Eastern and Central Africa* (NAPRECA), the network and database on *Native and Naturalised Plants of the Mediterranean Region* (MEDUSA) and the *Leiden Ethnosystems and Development* (LEAD) Programme for exchange of information and preservation of important data on various species of Medicinal, Aromatic and Cosmetic (MAC) plants. The information to be recorded about each plant should be as comprehensive as possible and include both the vernacular and scientific names of the plant, its role, the habitat description, taxonomy, possible formulas (forms), storage, underlying indigenous knowledge and perception, harvesting practices, conservation status, possibilities for business and trade, any taboos/restrictions about the plant, etc.

It is paramount for the institutes and organisations in Tanzania to carry out data banking and promotion of safe and efficacious forms of Traditional Medicine (TM). Such organisations include the *Institute of Traditional Medicine* at the *Muhimbili University of Health and Allied Studies* (ITS- MUHAS), the *National Institute of Medical Research* (NIMR), The Commission of Science and Technology, the Tanzania Food and Drug Agency, the Government Chemist Laboratory Agency and CHAWATIATA, the organisation for traditional healers working in collaboration and coordination with *Natural Product Research for Eastern and Central Africa* (NAPRECA), of which the country office now is at the *Institute of Traditional Medicine* at the *Muhimbili University of Health and Allied Studies* (ITS- MUHAS).

11. *Improvement of medical products and services*

The public needs to be aware of the hazards of inappropriate use of medicines and other health services, not only on the status of individual and public health, but also on the economy and the society. Long-term disregard will end in the rationalisation that the inappropriate use of health services will not improve health. Therefore, correct information and quality products and services should not be compromised. The largest difference among medical practitioners refers to their attitude. In order to improve health care delivery, practitioners of both medical systems need to be motivated towards positive thinking, such as Martin (1991) mentions: '*You are what you think, and you feel what you want.*' Consequently, the Ministry of Health and Social Welfare (MoHSW), the medical practitioners and their associations, such as *Medical Association of Tanzania* (MAT) and *Chama cha Waganga na Wakunga wa Tiba Asilia Tanzania* (CHAWATIATA) have to adapt their commitment, control and challenge (Kobasa 1979) with the following clarifications:

- *Commitment*: Making a positive commitment to oneself to learn to like working, create good relationships, and live in harmony with others as well as nature. This compels the Ministry of Health and Social Welfare (MoHSW) to give credit where it is due and to oneself on success stories.

- *Control*: Keeping one's mind focused on crucial things. Setting goals and priorities and visualising actions. Developing a strategy to solve problems, learning to relax, and be honest to one's self.

- *Challenge***:** Being courageous, changing and improving regularly. This implies doing the best and not looking back, learning and grabbing new opportunities, asking questions about pertinent issues, and keeping in mind success is not judged by what you start with but what you end up with.

12. *Gender streamlining*

Last but not least, on basis of ample evidence, women in developing countries, especially in Sub-Saharan Africa in which the Mara Region is located, carry many tasks and responsibilities and are associated with a range of needs and contributions to both the national economic growth and the national health status, especially in rural families. Women are the most marginalised subsistence farmers and gardeners, major providers and promoters of folk preventive and curative health care, primary socialisers and caretakers who impart traditional knowledge and values to children. In this view, strategies to 'fight' gender inequality should go hand-in-hand with the empowerment of women, increased sensitivity and practical responses to women's special needs and their involvement in decision-making organisations of all ministries in the countries.

In conclusion, it is clear that traditional societies in Tanzania with unique diversity in terms of socio-cultural characteristics and a rich heritage have been practising and/or responding to traditional health care for many generations. Traditional healers and their trainees have managed and utilised medicinal plants in addition to other medicinal ingredients from animal products, minerals and spiritual exhortations, in order to alleviate and protect humankind from diseases, illness, misfortune and risks, as well as to improve the health and wellbeing of the population.

However, today Tanzanians, as is the case in many developing countries, witness their life in an uneven medical pluralistic configuration, where there is so much emphasis on modern medicine and practices to seek good health, often at the expense of traditional medicines. The socio-cultural changes and economic motives since the colonial era have gradually marginalised traditional health workers and their knowledge and practice into poorly managed, stigmatised conditions.

In order to redress this rather unacceptable situation, this study calls for affirmative actions for integration between traditional and modern medicine in the Tanzanian pluralistic medical system, along through the development of an ethnobotanical knowledge system and related bio-cultural conservation strategies of Medicinal, Aromatic and Cosmetic (MAC) plants. It should be known that adoption of mere health and or environmental polices based only on economic gain regarding the management and utilisation of these MAC plants will eventually prove to be ecologically unsustainable and socially unacceptable.

Therefore, careful consideration is needed for the intersectoral and interdisciplinary outcomes affecting individual citizens, local communities, and the nation at large and an equitable, humane and just international cooperation and interdependence. This integrative approach can be realised through the concerted efforts of different ministries, such as the Ministries of Health and Social Welfare; Education; Land and Human Settlements Development; Natural Resources and Tourism; Agriculture and Cooperatives; Science, Technology and High Education; Community Development, Gender and Culture; and Industries and Trade.

In addition, a country-wide involvement is needed from related Faculties and Departments in the Universities and Colleges throughout Tanzania, including various disciplines in the *Medical Social Sciences,* such as Medical Anthropology and Sociology; Ethnobotany; Ethnomedicine, Ethnopharmacology, Zoopharmacognosy, Social and Cultural Ecology, Agriculture, Palaeo-ethno-botany and Divinity. It is therefore paramount to ponder the words of Akerele (1987): who noted: *'Traditional medical practitioners constitute the most abundant and in many cases, valuable, health resources present in the community. They are important and influential members of the communities who should be associated with any move to develop health services at a local level.'*

Notes

1. This herbal medicine processing plant is the first of its kind in the common market for the Eastern and Southern Africa (COMESA) region for large-scale production of herbal medicines. The facility also acts as a training centre for herbal practitioners to update their knowledge in line with the demands of their contemporary clients the region. The news was also reported by James Njorege in Science and Development Network (Scidev net) and published at: http://www.scidev.net/en/news/kenya-launches-herbal-medicine-processing-plant.html. Accessed on 15th Jan, 2012.

2. Chirangi M (2000) '*Institution Capacity Development: Formulation of Management Systems and Policies. A Case Study of Tanzanian Church Hospitals'* Master's Thesis. The thesis urges church policy makers to establish Paragraphs on indigenous medicine under the department of health in dioceses.

3. Stephen Martin (facilitator and editor) co-writes this article from 10 June 1996, found at, http://b.uct.ac.za/depts/ricsa/commiss/goscult/gosplcul.htm (accessed 10 April 2011) entitled *'Gospel and culture in South Africa'* for the World Council of Churches (WCC). It is concluded that elements of traditional and modern culture which repress than express human dignity need the healing judgement of the gospel and the focus needs to be on the identity of the community.

Appendix I: Organisational Chart of the Ministry of Health and Social Welfare of Tanzanian

THE ORGANISATION STRUCTURE OF THE MINISTRY OF HEALTH AND SOCIAL WELFARE
(Approved by the President on 3rd June, 2011)

MINISTER

PERMANENT SECRETARY

ADMINISTRATION AND HUMAN RESOURCES MANAGEMENT DIVISION — DIRECTOR

GOVERNMENT COMMUNICATION UNIT — PRINCIPAL OFFICER

PROCUREMENT MANAGEMENT UNIT — DIRECTOR

LEGAL SERVICES UNIT — PRINCIPAL LEGAL OFFICER

- GOVERNMENT CHEMIST LABORATORY
- TANZANIA FOOD AND DRUGS AUTHORITY

POLICY AND PLANNING DIVISION — DIRECTOR

FINANCE AND ACCOUNTS UNIT — CHIEF ACCOUNTANT

INTERNAL AUDIT UNIT — CHIEF INTERNAL AUDITOR

INFORMATION AND COMMUNICATION TECHNOLOGY UNIT — PRINCIPAL COMPUTER SYSTEMS ANALYST

CHIEF MEDICAL OFFICER

SOCIAL WELFARE DISION — DIRECTOR
- FAMILY, CHILD WELFARE SERVICES AND EARLY CHILDHOOD DEVELOPMENT SECTION
- JUVENILE JUSTICE SECTION
- PEOPLE WITH DISABILITY AND ELDERLY PERSONS SECTION

HEALTH QUALITY ASSUARANCE DIVISION — DIRECTOR
- PHARMACEUTICAL SERVICES SECTION
- HEALTH SERVICES INSPECTORATE AND QUALITY ASSURANCE
- HEALTH EMERGENCE PREPAREDNESS AND RESPONSE SECTION
- NURSING SERVICES SECTION

HUMAN RESOURCE DEVELOPMENT DIVISION — DIRECTOR
- HEALTH HUMAN RESOURCES PLANNING SECTION
- ALLIED HEALTH SCIENCES TRAINING SECTION
- NURSES SERVICES TRAINING SECTION
- CONTINUING EDUCATIOTION AND POSTGRADUATE TRAINING SECTION
- SOCIAL WELFARE STAFF DEVELOPMENT SECTION

CURATIVE SERVICES DIVISION — DIRECTOR
- PUBLIC AND PRIVATE HEALTH SERVICES SECTION
- DIAGNOSTIC AND HEALTH CARE TECHNICAL SERVICES SECTION
- TRADITIONAL AND ALTERNATIVE MEDICINE SECTION
- ORAL HEALTH SERVICES SECTION
- NON-COMMUNICABLE DISEASES, MENTAL HEALTH AND SUBSTANCE ABUSE SECTION

PREVENTIVE SERVICES DIVISION — DIRECTOR
- EPIDEMIOLOGY AND DISEASE CONTROL SECTION
- REPRODUCTIVE AND CHILD HEALTH SECTION
- ENVIRONMENTAL HEALTH, HYIGENE AND SANITATION SECTION
- HEALTH EDUCATION AND PROMOTION SECTION
- NUTRITIONAL SERVICES SECTION

Appendix II: Freedom of Expression versus Irresponsible Communication.

Freedom of Expression versus Irresponsible Communication (Verbal Diarrhoea)		
Kigezo (Indicator)	*Uhuru wa Kuwasiliana* (Freedom of Expression)	*Uharo wa Kauli* (Verbal Diarrhoea)
Maana (Meaning)	*Uhuru wa kuwasiliana kiuwajibikaji* (Right to communicate responsibly)	*Kuwasilian bila uwajibikaji* (Communicating irresponsibly)
Msingi (Base)	*Demokrasia huria kwa maendeleo* (Liberal democracy for development)	*Agenda binafsi* (Individual motives)
Tunu zionekanazo (Underlying Values)	*Msukumo wa hisia na fikra, ushahidi / vyanzo vinavyokubalika, maendeleo, usawa, haki za binadamu na wanyama, kueneza elimu, kuheshimu kanuni za kutokusudia kuumiza and au kukashifu* (Pushed by feeling and thinking, credible evidence, development, equality, human and animal rights, search and spread of knowledge; principle of harm and or offence taken into consideration)	*Zaidi msukumo wa hisia pekee, ushahidi / vyanzo 'magamaga', ubinafsi, unyanyepaa, dharau, majigambo, kutoheshimu kanuni ya kuumiza and au kukashifu, uvivu, kutojali* (More pushed by feelings only, lack or non-credible evidences, ethical egoism; bigotry, arrogance, principle of harm and offence not taken into consideration, laziness, carelessness)
Matokeo (Output andOutcome)	*Mawasiliano yenye ufanisi, kuelimisha umma, ubunifu, ujenzi wa mahusiano mema, utetezi wa haki za binadamu na wanyama, maamuzi yenye busara, mabadiliko ya kimaendeleo yainuayo Taifa na kusheshimu utu wa mwanadamu* (Effective communication, public education, innovations, collaboration, promotion of human and animal rights, objective decision making, National developmental changes and respect to human dignity).	*Kueneza chuki, kashfa, kuleta aibu, kufuru, utapeli / udanganyifu, kuogofya, ujinga, mtukuzo wa ubnafsi, migogoro, maamuzi yasiyo ya busara, upotevu wa rasilimali muda na nyinginezo, kutoaminiana, kudumaza Taifa na kutoheshimu utu wa mwanadamu* (Spread of hatred, defamation, obscenity; blasphemy, deceitful, incite fear, stupidity, promotion of selfishness, conflicts, subjective decision making, misuse of time and other resources, lack of trust, Nation stagnation and dehydration of human dignity)
Source: Excerpts from Chirangi, M, *Strategic Plan Workshop Presentation (1998),* at Wasso, Designated District Hospital, Loliondo,Tanzania. ***Verbal Diarrhoea Dehydrates Human Dignity***.		

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Appendix III: Tanzanian Health Related Laws and Amendments

Sheria za Tanzania zihusikanazo na Afya na Marekebisho Yake (Tanzanian Health Related Laws and their Amendments)			
Na.	Mwaka	Jina la sheria (Act)	Madhumuni
1	1973	Taasisi ya Chakula na Lishe Tanzania The (Tanzania Food and Nutrition Centre Act, Cap 109)	Kuanzisha Taasisi ya Chakula na Lishe nchini.
2	1979	Taasisi ya Kitaifa ya Utafiti wa Magonjwa ya Binadamu (The National Institute for Medical Research Act Cap 59)	Kuanzisha Taasisi ya Taifa ya Utafiti wa Magonjwa ya Binadamu
3	1993	Bohari ya Dawa (The Medical Stores Department Act, Cap 70)	Kuanzisha MSD kwa ajili ya kununua, kuhifadhi na kusambaza dawa
4	1996	Taasisi ya Saratani (Ocean Road The Ocean Road Cancer Institute Act Cap 86)	Kuanzisha Hospitali ya Saratani ya Ocean road.
5	1996	Taasisi ya Mifupa Muhimbili The Muhimbili (Orthopaedic Institute Cap 94)	Kuanzisha Taasisi ya Mifupa ya Muhimbili.
6	1999	Sheria ya Mfuko wa Taifa wa Bima ya Afya. (The National Health Insurance Fund Act, Cap 395)	Kuanzisha Mfuko wa Bima ya Afya kwa watumishi wa serikali.
7	2001	Sheria ya Mfuko wa Afya ya Jamii The (Community Health Fund Act, Cap 409)	Kuanzisha Mfuko wa Afya ya Jamii.
8	2001	Sheria ya Hospitali ya Taifa Muhimbili (The Muhimbili National Hospital Act, Cap150)	Kuanzisha Hospital ya Taifa ya Muhimbili.
9	2002	Sheria ya Tiba Asili na Tiba Mbadala The (Traditional and Alternative Medicine Act, Cap 244)	Kutambua na kudhibiti Waganga wa tiba za jadi na mbadala na huduma wanazozitoa
10	2002	Sheria ya Famasi (The Pharmacy Act, Cap 311)	Kuanzisha Baraza la Famasi na kuka kazi zake pamoja na udhibiti wa taaluma ya famasi.
11	2003	Sheria ya Chakula Dawa na Vipodozi (The Tanzania Food Drugs and Cosmetics Act, Cap 219)	Kudhibiti vyakula, madawa, sumu na vipodozi ili kusimamia viwango na kumkinga mtumiaji
12	2003	Sheria ya kudhibiti Bidhaa za Tumbaku (The Tobacco Products (Regulation) Act, Cap 12)1	Kusimamia bidhaa za tumbaku nchini.

		Sheria za Afya na Ustawi wa jamii na Marekebisho baada ya uhuru (Tanzanian Health and Social Welfare Laws and their Amendments) cont..	
13	2003	Sheria ya usimamizi na udhibiti wa kemikali za Majumbani na Viwandani (The Industrial and Consumers Chemicals (Management and Control Act, Cap 182)	Kusimamia na kudhibiti uzalishaji, uingizaji, usafirishaji, kuhifadhi na kuharibu kemikali.
14	2007	Sheria ya Kusajili Wataalamu wa Afya ya Mazingira (The Environmental Medical practitioners(Registration Act, No 20 of 2007)	Kuunda Baraza la Kusimamia na kusajili Wataalamu wa taaluma za Afya ya mazingira.
15	2007	Sheria ya Wataalamu wa Macho (The Optometry Act, No 12 of 2007)	Kuboresha huduma za macho kwa kuanzisha baraza la Wataalamu wa macho nchini
16	2007	Sheria ya Wataalamu wa Maabara za Afya (The Health Laboratory Practitioners Act, No. 22 of 2007)	Usajili na kuka kanuni za utendaji wa Wataalamu wa maabara nchini.
17	2007	Sheria ya Wataalamu wa Radiolojia na Mionzi (The Medical Radiology and Imaging Professionals Act, No. 21 of 2007.)	Kuanzisha Baraza la Wataalamu wa mionzi, kuainisha majukumu yake na kanuni za udhibiti
18	2008	Sheria ya Kuzuia na Kudhibiti Virusi na UKIMWI The HIV and AIDS (Prevention and Control Act, No. 2 of 2008)	Kupambana na UKIMWI katika jamii na kusaidia watu wanaoishi na virusi vya UKIMWI.
19	2008	Sheria ya Afya ya Akili (The Mental Health Act, No 21 of 2008)	Kuratibu na kusaidia Wagonjwa wa afya ya akili na huduma za kinga dhidi ya magonjwa ya akili
20	2009	Sheria ya Vinasaba vya Binadamu (The Human DNA (Regulation) Act, No. 9 of 2009).	Kuka misingi na utaratibu wa kusimamia matumizi ya technolojia ya vinasaba vya binadamu.
21	2009	Sheria ya Afya ya Jamii (The Public Health Act, No.1 of 2009)	Kulinda, kuhifadhi na kuboresha usafi wa makazi na mazingira
22	2010	Sheria ya Watu Wenye Ulemavu The Persons with Disabilities Act, No. 9 of 2010	Kutambua na kusimamia haki za Watu Wenye Ulemavu nchini.
23	2010	Sheria ya Uuguzi na Ukunga (The Nursing and Midwifery Act, No.1 of 2010)	Kuboresha huduma za uuguzi na ukunga
24	2010	Sheria ya Mtoto (The Law of the Child Act , No. 21 of 2010)	Kutabaisha na kulinda haki za msingi za watoto

Glossary

Acculturation: A second culture learning. It is the process by an individual acquires cultural values, knowledge, skills and attitudes enable him /her to function to some degree in a second culture.

Achieved status: A status obtained through choice and achievement

Acupressure: A Traditional Chinese Medicine bodywork technique which uses the application of pressure (with the thumbs, elbow, or fingertips) to the same specific points on the body to encourage the flow of energy '*Qi*' to the related physiological systems and internal organs to promote self-healing. It works with the belief of energy meridians within the body.

Acupuncture: A Traditional Chinese Medicine based on an energetic model. Energy or '*Qi*' flows along specific pathways in our bodies called "meridians". It is believed that each meridian is associated with particular physiological systems and internal organs.

Acupuncture involves the insertion of the tips of needles into the skin at specific points along these meridians for treating various disorders by stimulating nerve impulses. Acupuncture is employed mainly in chronic pain, allergies, respiratory problems, digestive problems, skin disorders, hormonal problems. Its adage is, "no pain, no blockage; no blockage, no pain".

Afya Jumuishi: An encupusulated Swahili concept which connotes integrated heath services between modern, traditional and complementary/alternative medical systems.

Analytical framework: Scheme of how and what to be analysed in research. It shows the relationship between Concepts and Variables. There is a close link between the major research question and sub question with analytical framework.

Arusha Declaration: Published by the publicity section of Tanganyika National Union (TANU), Dar es Salaam in 1967, it has been the *ujamaa* (socialism) political statement agreed in Arusha, Tanzania which contained the (TANU) policy and self-reliance policy. It has been divided into five sections namely; the TANU creed, socialism policy, self-reliance policy, TANU membership and the Arusha resolution. Ujamaa policy stood on the following pillars: absence of exploitation, the major means of production and exchange under control of the peasants and workers, the existence of democracy and that socialism is a belief.

Aromatherapy: Aromatherapy had been around for 6000 years or more. The ancient Egyptians, the Greeks and Romans all used aromatherapy oils. It is the inhalation and bodily application of essential oils from aromatic plants to relax, balance, rejuvenate, restore or enhance body, mind and spirit. Aromatherapy's pure essential oils are extracted from many parts of the plant including the flower, leaf, resin, bark, root, twig, seed, berry, rind and rhizome. Aromatherapy can be used to strengthen the immune system and aid in the self-healing processes for both emotional and physical disorders. Its effects include: antiseptic, antibacterial, antifungal, calming the central nervous system, combating insomnia, metabolic benefits, enhancing memory and various psychological benefits. Fragrances can have a relaxing effect measured as an increase in alpha brain waves. It is sometimes used in clinics and hospitals for treatment of pain relief, including labour pain and pain caused by chemotherapy, and for the rehabilitation of cardiac patients.

Ascribed status: A status of an individual assigned by the society based on one's birth characteristics such as race, sex.

Astrology: The history of astrology can be traced back to the second millennium BC, the time of the ancient Babylonians who started assembling their system of celestial omens. These omens slowly gave rise to the astrological principles and methods found to have developed in Asia, Europe, and the Middle East. It is the use of knowledge of the apparent positions of celestial bodies as seen at the time and place of the birth or other event held to be useful in

understanding, interpreting, organizing knowledge about reality and human existence on earth. Astrological Counselling charts the interrelationships between an individual and the heavenly bodies in order to understand cosmological influences on individual fate. The configuration of the planets and stars at the moment of birth determines one's inclinations, strengths and weaknesses.

Ayurveda: A holistic system of medicine rooted in Vedic culture from India which uses a constitutional model. All bodily processes are believed to be governed by a balance of three *doshas*. However *dosha* appears to dominate a person's behaviour and physique which is called his constitution type. Each constitution type has particular strengths and susceptibilities. A person's constitution determines their basic physiology, personality, and what factors will cause imbalance, disharmony and susceptibility to illness. Ayurveda's approach to healing is to establish harmony between self and environment to create optimal health. An Ayurvedic practitioner will assess the disorder and other influencing factors to arrive at a treatment plan. Treatments can involve therapies of dietary changes, aromatherapy, colour, sound, massage, exercise, meditation and herbal remedies.

Baba wa Taifa: A Swahili social title (translated, 'the Father of the Nation') given to a person with immense contributions to the building of a Nation. In Tanzania, this has been designated to the late *Mwl.* Julius Kambarage Nyerere Burito, the first president of Tanganyika and later the United Republic of Tanzania. On a deeper meaning, the 'Father of the Nation' is not only the first native to lead an independent Nation but a person whose major ideals (of servant leadership, unity, social justice, African socialism and African liberation) shaped the initial socio-economic and political stand. As such, these ideals remain to be remembered as standing legacies in the Nation.

Baraza la Wazee wa Kimila: (Swahili) A traditional elderly judicial and decision making council within a specific thnic group.

Biocapacity: Denotes the ability of ecosystems to produce useful biological materials and to absorb Carbon Dioxide generated by humans, using current management and extraction technologies. Useful biological materials are defined as those materials the human economy actually demanded in a given year. The ecological footprint measures demand on this productive capacity.

Ceteris Paribus: (*Lat.*) refers to "all other conditions or factors held constant". It is used to rule out the possibility of other factors which could override the correlation between the dependent and dependent variables.

CHAWATIATA: (Swah.) *Chama cha Waganga na Wakunga wa Tiba Asilia Tanzania (CHAWATIATA)*. An association for traditional healers and birth attendants in Tanzania. It is organised in each region of Tanzania.

Cramer's V: A variant of *phi* which measures strength of association between two categorical variables when one has more than two categories.

Collaboration: A positive Act of individuals or organisation working together and or sharing resources for a common goal.

Collaborationism: A derogatory act of working as a traitor in support of the occupying Army forces.

Conceptual framework: A collection of relevant concepts and their explanation without dwelling into their relationship in terms of dependent and depended variables. In this area, the researchers try to link concept to literature which relate to the research hypothesis or questions.

Conscientization: Originated by the Brazilian pedagogical and educationist Paulo Freire, it refers to a *critical consciousness*, of which the objective is to empower social groups through knowledge and resources acquisition. Conscientization focuses on achieving an in-depth

understanding of the world, allowing for the perception and exposure of perceived social and political contradictions to freedom and own improved life.

Contingency theory: Though there are many types of contingency theories, the general meaning provides a classical behavioural theory the argument that there is no one best way of organizing or leading an organisation effectively as it depends of the internal and external environment (Fiedler 1964). Therefore, the optimal organisation or leadership style is contingent reflecting the respective situation. Four important ideas of Contingency Theory are:

1 There is no universal or one best way to manage;
2 The design of an organisation and its subsystems must 'fit' with the environment;
3 Effective organisations not only have a proper 'fit' with the environment but also between its subsystems;
4 The needs of an organisation are better satisfied when it is properly designed and the management style is appropriate both to the tasks undertaken and the nature of the work group.

Corporate Social Responsibility (CSR): A concept whereby organisations collaborate with other stakeholders in the society to support social and environmental concerns in their business operations. CSR, also known as *corporate citizenship or corporate conscience* is a built and self-regulating policy of an organisation monitoring and ensuring conformity with the existing ethical standards, international norms and active contribution to community development. In summary, CSR is dedicated to the triple bottom line, which is: *People, Planet and Profit*.

Cultural competence: The ability to be aware and sensitive to different cultural values and norms for effective interaction in a cross- cultural situation. In terms of health care management, the aim is to ensure fairness and appropriate treatment of all clients of all cultures in a way which upholds their human dignity.

Discrete (variable): Is a non- continuous data which have only fixed complete numbers, such as the number of patient referrals with which decimal numbers are not possible as the case of continuous data such as weight, height and the like.

Ecological footprint: Also known as *Environmental Footprint* is the negative impact of humans on environment and ecosystems created by their overuse of land, water, and other natural resources. It provides a useful tool which can help to raise public awareness and shape a healthier and more sustainable environmentally friendly use.

It represents the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding wastes. How much of the earth (or how many planet earths) it would take to support humanity if everybody lived a given lifestyle can therefore be estimated. For 2006, humanity's total ecological footprint has been estimated at 1.4 planet earths – in other words, people use environmental resources 1.4 times as fast as earth can renew them.

Egalitarianism: An ideology which stands for equality. Believing that all human are equal in fundamental worth hence to be treated equally in certain dimensions such as religion, ethnicity, race, political affiliation, social status, cultural heritage**.** Hull (2001) objects Egalitarianism, it hates exceptional people whose achievement are due to their own efforts and or physical and mental ability. He therefore gives an example of 'dumb downing' students into the lost common denominator, thence discouraging promotion of excellence and superior ability of individuals. He attests talents and ability, which creates inequality, and that people cannot punish the able for the unable. Berkman (2000) also argues that equality does not mean an equal amount but equal opportunity. As a true Anarchist, airs his opinion equality is about freedom and not quantity. People have different needs and tastes, therefore give them equal

opportunity and freedom to satisfy their needs and tastes. It is this which idea opens ways for innovations and greater development of humanity.

Eigenvalue: A value does not change under some transformation. All matrix have some eigenvalue. Eigenvalue show how evenly the variance is distributed.

Enculturation: A culture learning process. It is the process by which individual acquires cultural values, knowledge, skills and attitudes to enable him / her become a functional member in his / her society.

Emic: Relies on the intrinsic cultural distinctions which are meaningful to the members of a given society. The *Emic* view also means insider's view. The concepts *emic* and *etic* are derived from linguistic words *phonemic* and *phonetic* to differentiate the very nature of objectivity. Emic View also means the intsider's view.

Ethnocentrism: Habit of evaluation and interpretation behaviours and objects by reference to standards of one own culture rather than those of the culture to they belong.

Etic: Relies on the extrinsic concepts and categories whch are meaningful to scientific observers. Most cultural anthropologists agree that the goal of anthropological research must be the acquisition of both *emic* and *etic* knowledge. Etic View also means the outsider's view.

Ex- situ Conservation: Refers to techniques of protecting endangered species of plant or animal outside its natural habitat (off-site); differentiated from in-situ (in the original, natural habitat). An example of x- situ methods is removing part of the population from a threatened habitat and placing it in a new location, which may be a wild area or within the care of humans such as a botanical garden, a zoo etc. Despite their use, the x-situ methods have difficulties to imitate the environment of the original colony location amidst many variables defining the original colony such as soil texture, predation, lack of natural defense to diseases and pests, microclimate and symbiotic species etc. Ex-situ techniques are also more costly to the involved organizations and the nation at large as compared to in-situ ones.

Germ theory of diseases: Infecting microbes known as germs such as viruses, bacteria, fungi etc. causes diseases. It is also known as *pathogenic theory of Medicine* which opposes the other view by proposing that microorganisms only becomes infectious if conditions inside the body were conducive for them following body system imbalances.

Groupthink: An organisational syndrome coined by a Social Psychologist Irving Janis in 1972. *Group think* ignores alternatives and leads an organisation into irrational decision making while dehumanizing other groups which seem to be considered as rivals.

Janis highlights eight symptoms of this syndrome, which include among others:- Illusion of invulnerability leading to decision makers becoming excessively optimistic; collective rationalization while not being serious in reading warnings; belief in inherent morality where ethical outcomes of their decision are ignored; stereotyped views of out-groups by considering other different views as rivals; direct pressure on dissenters as everyone is expected to be a total conformist at all times; self-censorship built by mistrust of bringing new ideas different to those upheld by the group; illusion of unanimity, which is just a false assumption that all are in agreement; and self-appointed 'mind guards' with the aim to protect decision makers from information which seem to be controversial to the typical ways and views of the organisation.

Health Basket Fund: Established in 2000 under the *Health Sector Wide Approach* of the Tanzanian *Health Sector Reform*, *Strategic Plan III*. It is a funding mechanism with sources from different development partners such as: World Bank (WB), United Nations (UN), The United Nations Children's Fund (UNICEF, the United Nations Population Fund (UNFPA), Canada, Netherlands Denmark, Germany, Ireland, Norway, Switzerland in line with the Paris Declaration for more effective and efficient use of aid resources towards medical systems and health service delivery improvement in the entire country.

Hermeneutic phenomenology: An alternative research methodology tries to pay attention to both descriptive (phenomenological) methods which investigate how things appear as well as interpretive (hermeneutic) methods, how one makes sense of them.

Homeopathy: A system of medical practice which is believed to treats a disease especially by the administration of minute doses of a remedy which would in healthy persons produce symptoms similar to those of the disease. Homeopathic remedies are made from naturally occurring plant, animal, or mineral substances mostly recognized and regulated by the Food and Drug Authorities and manufactured by established pharmaceutical companies under strict guidelines. Homeopathy is used to treat acute and chronic health problems as well as for disease prevention and health promotion.

Iridology: It is believed that modern Iridology has been founded by Dr. Ignatz and Von Peczley, a Hungarian physician. It is the study of the iris of the eye for indications of bodily health and disease. Patterns, colours and other characteristics of stoma fibbers of the iris are examined for information about a patient's systemic health. Practitioners match their observations to iris charts divide the iris into many zones believed to correspond to specific parts of the human body. Little if any rigorous scientific evidence exists confirming any such link between aspects of the iris and a patient's state of health and there is no recognized causative mechanism for any purported correlation.

Iatrogenesis and **iatrogenic:** The negative impact or unplanned adverse effects after the use of medical treatment and or advices. These conditions may be due to medical error, negligence, drug or medical procedure complications and or just by chance.

Integrated: Joined together harmoniously to make parts into a whole. A system is fully integrated if all parts involved are merged completely in terms of its operation and administration.

Jua: (Swahili): Let you know also means 'the Sun': In this work it is used as an abbreviation *Jadi and Utamaduni katika Afya,* literally translated to mean *Customs and Culture in Health*

Kendalll's tau: Measures correlation coefficient of non- parametrical data. Compared with Spearman's correlation coefficient, it is preferred in small data set with large number of tied ranks.

Mandala: Originally from Sanskrit meaning a circle with squares and trianges; it is a geometric design usually with aconcentric structure symbolizing the universe or the world with different internal and external factors in interplay.

Massage therapy: The practice of applying pressure or vibration to the soft tissues of the body, including muscles, connective tissue, tendons, ligaments, and joints. As a form of therapy, massage can be applied to parts of the body or successively to the whole body, to heal injury, relieve psychological stress, manage pain, improve circulation and relieve tension. Where massage therapy is used for its physical and psychological benefits, it may be termed 'therapeutic massage therapy' or 'manipulative therapy' .

Meditation: A focused or deep reflection. It may incorporate observation and control of the breath, imagery, mantras, and sitting postures. As the body becomes deeply relaxed, the mind transcends all mental activity to experience the simplest form of awareness, where consciousness is open to achieving greater spiritual clarity. Other benefits of meditation include enhancing creativity and effectiveness, reducing stress and helping the body defend against illness.

Melting pot perspective: Perceiving a societal state of homogenous culture reached after the fusion of different cultures through assimilation and adaptation. This is different from the known realistic *'kaleidoscopic'* perspective or the *'salad bowl'* denotes multiculturalism.

Mji wa Huruma: A Swahili term to mean ' Town of Mercy'

Mji wa Matumaini – A Swahili term to mean 'Town of Hope'

Naturopathy: It started in Germany and other Western countries with 'water cure' (Hydrotherapy). It is based upon the premise that nature will, given the right conditions, cure all illness. It is a system of natural medicine which focuses on the importance of our lifestyle: fresh air, exercise, sunshine, wholesome diet, pure water, healthy environment, rest and emotional balance. Naturopathic Physicians (NDs) use the latest biochemical research involving nutrition, herbology, homeopathy, and other natural treatments.

Nosocomial infections: Also known as *hospital-acquired infection* are infections acquired after obtaining health care from a health facility if they first appear in 48 hours or more after admission in a hospital or other health facility or within 30 days after discharge.

Obhudubhi bwa jiswi: (with slight differentiations in Jita / Ruri / Kwaya vernacular), means signalling of the presence of a shoal of fish in the sea, lake, river or pond.

Omufumu: (with slight differentiations in Jita / Ruri / Kwaya vernacular), meaning a traditional healer

Omwasibwa no Omurwaye: (with slight differentiations in Jita/ Ruri / Kwaya Vernacular), names given to *sick role* versus *patient role*.

Osteopathy: Having a philosophical connections right back to the Hippocratic school of medical thought in the fourth century BC, It is a system of treatment based on the theory that diseases are primarily due to deranged mechanism of the bones, nerves, blood vessels, and related tissues, and can be remedied by manipulations of these parts. Osteopathic Doctors apply gentle manipulation to restore normal body structure and motion, thereby enhancing all circulatory systems and facilitating the body's healing process. Osteopathy is beneficial for pain management and speeding up the recovery time of surgeries and other medical problems.

Patriarchy: As opposed to Egalitarian, it is social system with characteristic of social organisation where the male is the family head and the title is traced through the male line. Male have primary authority over women and children. Males have more opportunities and power about the available resources and they are the Rulers, while women are supposed to be subordinates.

Pearson's Chi-Square (χ^2): A test of independence of two categorical variables, testing whether they are associated.

Polyandry: Marriage of a female to more than one husband practiced in Tibet, Nepal, Srilanka and India.

Polygyny: Marriage of a man to to more than one wife.

Qi Gong: Originating from China, Qi Gong is believed to integrate slow movements, physical postures, breathing techniques and focused intention. Qi Gong practices can be classified as martial, medical, or spiritual. All styles have three things in common: they all involve a posture, (whether moving or stationary), breathing techniques, and mental focus. Some styles increase the energy *'Qi'*, others circulate it, use it to cleanse and heal the body, store it, or emit *'Qi'* to help heal others. *'Qi'* Gong is helpful for those who have chronic pain or low energy.

Quackery: Misrepresentations, doing pretentiously without sound knowledge and offering false proven health services for personal gain by quakes or Charlatans.

Reliability of scale: A characteristic a researcher need to be aware when choosing a scale. It indicates how free it is from random error and its internal consistency (the extent to items are measuring the same underlying attributes.)

Rite of **passage:** Religious practice which marks an individual's passage from one life stage to another.

Satanophobia: a continued abnormal and unwarranted fear of Satan or the Devil which affects negatively one's quality of life. It can cause panic attacks and forces people's disassociation

from other organisations or members of the society thought to belong to Satan. The situation is created by the unconscious mind as a protective mechanism.

Significant others: Also known as relevant others, is a term used in Psychology and Sociology to refer to a person with great influence to somebody's life and behaviour in general. This person stands as a referent on what is acceptable or not acceptable in their society. The significant other can be one's parent, teacher, close friend, partner, mentor, religious leaders, employers, team couch, leaders etc. who gives guidance in life endeavours. Sometimes the whole society with its ethical systems is referred as the *general other* to differentiate it from the *significant others*.

Shamanic healing: Existing as early as the Palaeolithic, predating all organized religions, is an ancient practice based on native traditions for accessing spiritual realms for guidance and healing. The practitioner acts as an interpreter for the universal field of consciousness humans are all part of, using spiritual guides, animals, angels and other spiritual helpers to help resolve issues for the client. Healing can occur at levels of the body, mind, spirit and soul. Shamanic Healing awakens and enlightens your soul's journey here on Earth.

Spiritual counselling: Recognizes universal laws and the Divine created us and lives within us through spiritual counselling. This form of counselling is expanded to include the presence and power of your belief in spiritual God or Spirit. Spiritual Counselling helps the client to determine their true purpose in life and work, and supports the facilitation of spiritual growth for the client through spiritual counselling.

Spearman's Correlation Coefficient: A standardized measure of the strength of relationship of two non- parametric variables with ranked scores.

Theoretical framework: A core set of theories relevant to the research and explanation on how they fit together (relationship between them). Also can be 'ready- made map' to guide researchers to embark on research questions.

Uveloctomy: Also called *staphylectomy*, is a surgical practice in which all or part of the uvula is removed. When surgeons remove the uvula, the soft palate may not be able to completely prevent air flow from the throat to the nose during speech.

Validity of Scale: A characteristic which a researcher need to be aware of when choosing a scale. It refers to the degree which measures what is supposed to be measured, be it content validity, criterion validity or construct validity.

Verbal diarrhoea: Differentiated from Freedom of Expression, this is an irresponsible way of communicating. Whilst, upholding the ideals enshrined in all International instruments which determines standards of protection of rights to freedom of expressions, such as the UN (1948), Article 19 of Universal Declaration of Human Rights, Article 19 of the International Covenant on civil and political rights as well as the African Union Charter on Human and People's Rights (1981), article 9. the researcher differentiates Verbal Diarrhoea from Freedom of Expression by summing that, verbal diarrhoea would dehydrate human dignity instead of protecting it.

Yoga: Originated in India, it is gentle way to strengthen, align and tone the body (through exercises and postures) as well as calm the mind and spirit. There are various methods to choose from, each using a variation of stretching postures, breathing techniques and meditation techniques. Internationally, yoga as traditionally practiced in India and other parts of Asia can include a complicated system of exercise, diet and meditation tied to specific philosophy or religion. As religion it is associated with meditative practices in Hinduism, Buddhism and Jainism.

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Summary

This scientific inquiry is a correlational human resource and organisational policy-oriented study, which has been conducted in the Mara Region of Tanzania. It specifically investigates major factors, which correlate to interprofessional collaborative behaviours in the context of health service delivery between traditional and modern medical practitioners. Interprofessional collaboration is a *sine qua non* stage towards fully *integrated health care* encapsulated in a coined Swahili concept of *afya jumuishi*.

The sample population in this study includes 82 female and 111 male medical practitioners from both Modern Medicine (MM) and Traditional Medicine (TM) systems in the Mara Region. While modern medical practitioners include, doctors, clinicians, nurses, counsellors, workers in laboratory, radiography, pharmacy, dentistry, environmental health, community health, and medical training while traditional medical practitioners include traditional healers, traditional birth attendants, circumcisers, faith healers, traditional medicines vendors and predictors.

The background instigating situation of such scientific study, is the prevailing problem of the existence of a non- fully integrated medical system in Tanzania as it is in other places especially in developing countries. Previous studies have discussed and presented practical recommendations towards improvement of *efficiency*, *equity* and *effectiveness* through Health Sector Reform (1993); Gene 1987; World Bank 1993; Frenk 1994; Gilshon *et al. 1*994; Mc Pake 1994, Chabot *et al.* (*eds*) 1995; Kagodya & Mchomvu 1996; WHO 1998; Berman & Bossert 2000). Despite, the political and strategic will echoed in the *Tanzania Development Vision 2025 Pg. 10-11,* as well as in the *Health Sector Strategic Plan (July 2009 - June 2015),* the implicit focus in the activities have mainly been only on the modern health sector. Therefore, there is a discrepancy between the ideals in Tanzanian health sector reform proclamation and realities on promotion and collaboration with traditional medical practitioners in the country.

Even with the existence of the Tanzanian Act No. 23 of 2002, which governs traditional and alternative medical practices, the actors and activities of health sector reform in the Ministry of Health and Social Welfare (2009) have not fully implemented the practical enforcement of this Law to promote efficient traditional health services which include the notable but disserted indigenous health knowledge, skills and products. Traditional Medicine (TM) embodies those indigenous health therapies, medicaments, techniques, knowledge and skills which are not based on modern, allopathic medical principles but have both significant positive and negative effects to the health of the people. Such traditional services have continued to be utilised by people of all socio-demographic profiles in the country.

In the contemporary world, people and their families from all population groups from all geographical areas, have access to goods and services either from the traditional, alternative or modern medical systems, or from a combination of those systems for health improvement, environmental care as well as for acquisition of certain social status as they live in a medical pluralistic configuration. Like in many African countries, people in Tanzania live in an era of medical pluralism. The utilisation patterns correlate to psychosocial factors of beliefs, attitudes and knowledge of the indigenous people more than other factors such as socio-economic status and socio–demographic factors (*cf.* Slikkerveer 1990). Whilst, there are examples of successful interprofessional collaboration among medical practitioners in the modern health sector among physicians, counsellors, pharmacists, health facility chaplains, nurses and other paramedics, in Africa, there are scant such efforts of interprofessional collaboration between modern and

traditional medical practitioners. In such scenario, medical systems have suffered from poor co-ordination and non-integrated care to clients and patients.

Undeniably, in the last century, the world has witnessed in the Modern Medicine (MM) new major transformations in human health, such as development of new vaccines, medicines, high-tech equipment, advanced medical research, eradication of certain diseases like *Rinderpest* and *Smallpox* and a notable general trend of increase in life expectancy.

Notwithstanding, these developments have not covered the gap of inaccessibility to health care to about 40% of the World population, especially in the developing countries. Moreover, most of the medicines and high-tech services are unaffordable to the majority of the population who has to live on less than one dollar per day. It is from this premise of the traditional medical system, with its relatively affordable costs and embedding in the local culture, that it has to be incorporated and institutionally supported into the formal health care system. In this way, Traditional Medicine (TM) will be able to contribute substantially to the health of people as it has been confirmed and promoted in the World Health Report (WHO 2011).

Since the 1970s, a radical change towards integration between modern (Western) and traditional and alternative medicine is being engineered by many health policy makers and practitioners, (Pearce 1982). Through the World Health Organisation (WHO), the African Union Heads of States declared the period 2000 - 2010 as *the African Decade on African Traditional Medicine* (Kofi-Tsekpo, 2004). This is a declaration which considers the importance and the approval by governments and international institutions on the need to full integrate Traditional Medicine (TM) as well as Complementary and Alternative Medicine (CAM) into the national health sector. The call of the World Health Organisation (WHO) to full integration, aims at officially recognising and incorporating it into all areas of provision of health care. Specifically, Traditional Medicine (TM) has to be included into the country's policy of the provision of medicines, which has to be regulated, and traditional health services should be available at all health facilities (both private & public). Also, traditional services should be reimbursed under health insurances, while education on Traditional Medicine (TM) should be available, and relevant research should be undertaken. Before reaching the fully integration state, it is crucial to insist on interprofessional collaboration between practitioners of the traditional and modern medical systems, as both are being visited by clients.

This research investigates to what levels the different independent and intervening factors correlate with the dependent factors of interprofessional collaborative behaviours between traditional and modern medical practitioners of the Mara Region of Tanzania. The reality and challenges of the level of collaboration between them are also explored.

The general aim of this study is to describe, analyse and document major factors, which correlate to collaborative behaviour in the context of health service delivery between traditional and modern medical practitioners in the Mara Region on Tanzania. Both qualitative and quantitative research methodologies have been employed to collect data and to analyse the different categories of factors both at the individual and system levels, which interact in such interprofessional collaboration between practitioners of the two systems (traditional and modern). Some insights of challenges and realities of Traditional Medicine (TM) in practice are also noted and highlighted to underscore the prospects of Tanzania on the road to fully integrated health care system. In order to realise this general aim, seven specific objectives will have to be achieved as follows:

Firstly, to discuss the theoretical orientation on interprofessional collaboration as a level towards integrated health care delivery in a pluralistic medical configuration as a major part of the health sector reforms,

Secondary, to provide a description of the Mara Region of Tanzania as the research setting in terms of its sociography, livelihood patterns and cultural characteristics, as well as the health of her inhabitants,

Thirdly, to describe the Tanzanian health sector reforms and challenges facing the contemporary Tanzanian traditional medical system,

Fourthly, to outline major components of factors and their descriptions which correlate with patterns of interprofessional collaborative behaviours between traditional and modern medical practitioners,

Fifthly, to present a list with indigenous classification of medicinal plants commonly used in the Mara Region of Tanzania,

Sixthly, to analyse data and present results up to the resulting ultimate analytical model, with mathematical indication of the strengths of correlations between blocks of variables interacting in an interprofessional collaborative behaviours between traditional and modern medical practitioners of the Mara Region; and

Seventhly, to present the study's theoretical, methodological and policy implications. Consequently, giving appropriate recommendations gearing towards integration and improvement of Traditional Medicine (TM) into the formal health care system of Tanzanian for the provision of quality, accessible, affordable and humane health services to the entire population.

This research is presented in eight chapters:

Chapter I presents in the introduction an overview of the recent developments in health and healing in Africa, and Tanzania. It provides a glimpse of the health care development in the pre-colonial, colonial and postcolonial times; medical pluralism and the concept of an integrated medical system; and the general aim, specific objectives, structure and organisation of the study. The chapter elaborates the link between culture and health on medical pluralism, integrated health care in Tanzania, and explains the existence and development of both traditional and modern medicine in Tanzania. The chapter clarifies the concept of interprofessional collaboration in a pluralistic medical configuration and underscores its necessity towards fully integrated health care system in Tanzania.

Chapter II captures the theoretical orientation. It begins with an overview of concepts which reveals the recognition of components of culture in affecting human health, the paradigm shift trend in health policy and management, the importance of ethnobotanical knowledge systems to effective health promotion and the existing theories towards successfully interprofessional collaboration. In addition, a conceptualisation of interprofessional collaboration is presented. A culture serves as a road map for both perceiving and interacting with the world. One's culture influences or determines the way in which a person believes, thinks, perceives, behaves, eats, sleeps, puts on clothes, relates to others and to the environment, works, consults in case of pain, interprets diseases and ill health in general. Concisely, cultures shape people's health as much as their genes do. Therefore, there is a close link between culture and health of the people in

their particular environment. Various definitions are presented, such as from Medical Anthropology (Herman 2001), Medical Sociology (White 2002), and Health Psychology (Taylor 2003) as well as from UNESCO and all other related research institutes and centres. There are five major common themes on components of culture. Such components can be deduced either as they shape the health of people or as they affect interprofessional collaboration between traditional and modern medical practitioners, the *raison d'être* of this study.

Communication Components: consisting of languages, symbols etc. Both in traditional and modern medicine, there exist diverse communication patterns and symbolisms with different meaning in their services. The different naming and classification of diseases and ill health by use of different languages can be one of the major hindrance towards behavioural patterns of mutual working together between the two groups on the same customer.

Cognitive Components: consisting of ideas, assumptions, knowledge, technologies, accounts etc. When the type and levels of education is very much different between the two groups of modern and traditional medical practitioners, their interventional approach stands apart. For example, just the different level of knowledge of human anatomy and physiology has been used by some modern medical practitioners to despise the indigenous knowledge acquired by traditional medical practitioners.

Behavioural Components: consisting of mores, norms, values, laws, rituals, beliefs, folkways, religion, intimacy and economics. Religious beliefs of people, values, norms etc. have affected the way they behave. Organisational culture and the 'groupthink' factors either motivate or demotivate the process of resource exchange and joint working between the two medical systems.

Material Components (Material Culture): consisting of created objects, artwork, fashions, designs, clothes, housing, means of transport, infrastructures, food products, tools etc. When the trend has been focusing to acquiring advanced technical medical equipment and big structures of modern health facilities, traditional healers and traditional midwives feel isolated from the national health care sector.

Organisational Components: consisting of social structures, political organisations, family and organisational ties and relations, membership identity, gender, politics, institutional support etc. The traditional medical system encompasses different organisational settings with a simple organisational structure, which has fewer hierarchical levels. Generally, it displays a kind of cobweb communication network *vis-a-vis* the large structured network of the modern medical system, which has several hierarchical levels. In order to integrate the traditional and modern medical systems, a country needs not only to take into consideration its present situation, but also other related institutional, support and policy framework issues.

   Therefore, all the five mentioned components of culture have a direct or indirect link to this study in two folds. Firstly, when culture is seen as the base, which prompts re-evaluation on the importance of Traditional Medicine (TM) and its practitioners in the overall contribution of health levels of the people, and secondly, when the research topic of collaboration of practitioners is understood to be a behavioural act of either exchange of resources and or working together in a certain specific cultural setting and value system.

The classical definition of health by the World Health Organization (WHO 1948):*"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"* shows clearly health has a social component. More crucial from a wider socio-cultural context, ill health as a process brings a person into a *sick role*, which evaluates human ability or failure to meet the obligation of the society, (*cf.* Mechanic 1995). In summary, the *sick role* model suggests that, being sick has in itself some customary rights such as being exempted from social roles and that the sick are not responsible to their conditions. However, the model also contends that sick people have obligation to consult competent medical practitioners to be able to recover from sickness in relation to the norms of the specific societies where they belong. It is explained that, the individual experiences symptoms of illness and then later accepts the *sick role* as his or her role, which is limited before assuming the 'patient role' lastly.This concept is also well acceptable in the Tanzanian context, whereby there is a difference between 'having illness' and being categorized as a 'patient', well differentiated in the Jita ethnic group of the Mara Region as *Omwasibhwa* and *Omurwaye* respectively. As such, the sick model has been criticized that, it fits more in short term than long term illnesses. Some sick people may not necessarily give up their social roles, but may resist dependency and avoid to be known publicly especially when the disease is stigmatized in the society. Furthermore, the model of the *sick role* can also be criticised as in the case of alcoholism (*cf.* Chalfont & Kurtz 1971).

A graphical presentation known as the *Mandala of Health* by Hankock & Perkins (1985), presents a holistic guide towards understanding health and the way cultures and environment shape peoples' health. It shows that, the culture of the community affects family livelihood, the spiritual life, psychological experiences, work patterns, political and legal framework, social organisation and medical systems, which bring about different lifestyles which affect the health of individuals as biological factors also do. Consequently, all those factors are interdependent, hence triggering the causal – impacts to the overall health levels. To sum up on determinants of health, studies have shown that ill conditions are not only dependent on biological facts but also on social and socio-cultural determinants (*cf.* Koos 1954; Marmot 2005; WHO 2010). Consequently as also found by Slikkerveer (1990), these determinants affect people's choice in health care utilisation. Slikkerveer (1990) explains how Bank (1973) deduces the process in which an individual goes through before seeking help from a medical practitioner.

The chapter also explains the way traditional African societies used to determine the roles and management of Traditional Medicine (TM). Apart from other numerous uses of plants such as for food, food additives, flavours, timber, aromatic, cosmetic and other purposes, the societies of Tanzania like in most African countries have used proportions of medicinal plants, be it alone or in concoctions with other plants, animal or mineral products, in powder, tincture, ashes, soot, fumes, conserves, syrups, charms or in raw form for different purposes which are beneficial to the community and to the individual members.

In one of the questions to respondents in this research, results show that among the top five selected roles of Traditional Medicine (TM) in the society include: *disease prevention, disease diagnosis, disease curative, human protection against evil acts and property protection.* The other additional roles of Traditional Medicine (TM) include, *locating natural resources such as in mining and fishing ('obhudubhi bhwa jiswi') and for stopping alcoholism and other drug addictions.*

Customary, these roles determined the speciality and therefore the title of the traditional practitioner. It is of no surprise in this research that, only 7.3% of the practitioners from the modern medical system think that Traditional Medicine (TM) has no significant role whatsoever, while the rest 92.7 % are on the contrary side. All (100%) of the traditional

medical practitioners do acknowledge the significance of Traditional Medicine (TM) in the society.

Chapter III outlines in detail the research design and the analytical model, which includes the applied research approach, the research problem statement, research questions, research methodology, scope and the conceptual model to be used and further elaborated in Chapter VII. The Chapter stresses the use of the *Leiden Ethnosystems Approach.* This approach embarks on the early work of Garfinkel (1964) and Circourel (1967), and is later developed into three basic concepts from Structural Anthropology by Slikkerveer (1982; 1990; 1996), with a view to offer an interdisciplinary non-normative framework to allow comparison and synthesis of different factors in an *emic* as opposed to *etic* view, which interact in complex ways. The three basic concepts underlying this research approach of indigenous knowledge systems, includes the *Participant's View (PV), the Field of Ethnological Study (FES)* and *the Historical Dimension (HD)* all applied in the context of interprofessional collaboration between traditional and modern medical practitioners. The approach has been widely used in recent days under the *Leiden Ethnosystems and Development* (LEAD) program of Leiden University, in policy based studies in Agriculture, Wildlife Management, Environmental Conservation, Health Services Utilisation, Economics, Microfinance, Communication and Management of Medical Systems worldwide, where complex systems of indigenous people are investigated as they interact with modern systems (*cf.* Van den Breemer *et al.* 1989; Leakey & Slikkerveer 1991b; Van den Breemer *et al.* 1991; Adams & Slikkerveer 1996; Slikkerveer & Lionis 1996; Agung 2005; Ibui 2007; Gheneti 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012).

Both primary and secondary data were obtained by use of a combination of different research methods and techniques, such as a structured questionnaire administered to medical practitioners; semi-structured interviews to key informants; proceedings of workshop, conducted under the then 'Health Human Resources Capacity Building Project' *Jadi na Utamaduni katika Afya* (JUA); personal observations and through document analysis of various writings such as annual reports and publications related to the subject of interprofessional collaboration in health care.

The operationalisation of the concept of *interprofessional collaboration* as used in the analytical model of this study follows the definition by the '*Centre for Advancement of Collaborative Strategies in Health*' (2003), which defines it as behavioural patterns as part of synergy formation among different professionals. Such behavioural patterns have two interrelated components of dependent factors which include:

- *the behavioural patterns of sharing resources;* and
- *the behavioural patterns of working jointly for clients.*

The analytical model is used in formulation of the questionnaire through a deduced flow as adapted from Kohn & White (1976) by steps from *Concepts* to *Variables* to *Indicators* to *Categories.* The model is further developed by Slikkerveer (1990) and as such built up on seven blocks of variables, which attribute to interprofessional collaborative patterns of behaviours by health functionaries of both medical systems. These variables are independent variables, which include s*ocio-demographic, psycho-social, enabling, trustworthiness, organisational* and *intervening variables* as well as the dependent variables which include *collaborative behavioural patterns of exchange of resources and collaborative behavioural patterns of working jointly for clients and patients.* Through a process of linking concepts into measurable phenomenon, a structured questionnaire is formulated. Finally the Chapter highlights the

performed types of statistical analyses in this study, including the bivariate analysis, the multivariate analysis (OVERALS) and the multiple regression analysis with the selected formula, which brings the study to the construction of the final ultimate model presented in Chapter VII.

Chapter IV presents the background information by describing the research setting which is the Mara Region and Tanzania a country of diverse natural resources as a whole. Here, the geography, and the historical, economic, socio-cultural and political background of the Mara Region and Tanzania as a country are described. The Chapter also explores the study sample population profile including the medical practitioners of both traditional and modern medical systems in the Mara Region.

Chapter V is devoted to the presentation of the general community livelihood patterns from inhabitants of the Mara Region as well as the existing cultural characteristics, which affect directly or indirectly the health of the people of the Mara Region. The Chapter also elaborates the major challenges facing Traditional Medicine (TM) in the region. The general major challenges of the Twenty-First Century facing Traditional Medicine (TM) in the country include:

-   Lack of enabling environment towards Traditional Medicine (TM);
-   Absence of a mechanism, which promotes integration between modern and Traditional Medicine (TM);
-   Weak protection of indigenous intellectual property rights and unsustainable harvesting of medicinal plants;
-   Dwindling of natural resources;
-   Lack of indigenous information system and reliable data bank;
-   The need to carry out education, research and development on Traditional Medicine (TM);
-   The problem of safety of products of Traditional Medicine (TM);
-   Contextualization of the world's religions on teachings about Traditional Medicine (TM);
-   Moral degradation and the breaking of social structures;
-   Shocking poverty in the society.

Chapter VI discusses health and healing in the Mara Region. It starts by showing health indicators in the medical system of the country. The general health status and health services in Tanzania, representing the entire country including the Mara Region is shown. Few selected national indicators are compared with those from developing countries in the same continent of Africa (Tunisia and Kenya), from Asia (Indonesia) and from an European country (The Netherlands). Cited major challenges in health care are also presented as the focus in the Tanzanian long-term plan and part of the health sector reforms. The general vision as well as the approach in the way health service delivery is organised is also explained.

Paragraph 6.2 highlights the notable development and changes which have taken places in the medical systems in Tanzanian in the past, from pre-colonial, colonial and post–colonial period of time. The Chapter also describes the major role of the Ministry of Health and Social Welfare (MoHSW). Paragraph 6.3 explains the pluralistic medical configuration in the Mara Region. Such configuration includes, traditional believes on causes of illnesses and remedies; the use of Traditional Medicine (TM) in the region; Modern Medicine (MM) in the region and efforts to promote collaboration between the medical systems.

Chapter VII presents the major qualitative and quantitative findings and the respective statistical analysis by use of the statistical package SPSS Version 20.0 also referred as Predictive Analytics Software (PASW). The interpretation of all Bivariate, Multivariate and Multiple Regression Analyses of blocks of variables shows the interaction with interprofessional collaboration among traditional and modern medical practitioners. In summary, these results show that the level of interprofessional collaboration between practitioners of the two systems is still rather low.

The bivariate analysis reveals the level (frequency) of collaborative behaviour in the exchange of resources ('collexch') by both types of practitioners (traditional and modern) combined (N=193) is 61.7% (low level); 31.6% (medium level) and only 6.7 % (high level). Likewise, the level of collaborative behaviour by working jointly ('collwork') is 64.8% (low level); 32.1% (medium level*)* and only 3.1% (high level). This confirms that there is a notable challenge of low interprofessional collaboration where the majority of both types of medical practitioners continue to give health services to their clients in isolation with less collaboration, a system which need to be improved through an appropriate reform package of the health sector.

A closer observation in the bivariate analysis results, with regards to the level of collaboration between the two different groups of medical practitioners per the two ways of collaborations shows that traditional medical practitioners have a higher level (although in small margin) than their counterparts in the modern medical system in taking the lead to exchange of resources. The frequency scores of the extent of collaborative behaviour in exchange of resources by traditional to modern medical practitioners respectively are: 7.5% to 6.2% (high level); 32.5% to 31.0% (medium level), 60.0% to 62.8% (low level). The frequency scores in the collaborative behaviour in working jointly again favour traditional medical practitioners in taking the lead as compared to modern medical practitioners.

The frequency scores on the level of working jointly between traditional to modern medical practitioners for the same client with health problem is as follows: 3.8% to 3.1% (high level); 37.5% to 32.1% (medium level) and 58.8% to 64.8% (low level). Such results substantiate the qualitative findings, which also recognise an indication of a practical trend where generally traditional medical practitioners seemingly would be willing to participate in collaborative endeavours such as giving their clients referrals towards modern medical practitioners without much resistance as compared to their counterparts of the modern medical system doing the same towards Traditional Medicine (TM).

Between collaborative behaviours of exchanging resources and working jointly, it is generally accepted, that practitioners of both systems are more willing to exchange resources such as information, ideas and give referrals to clients than the practical idea of giving health services jointly towards a client (6.7% to 3.1% for high-level collaboration respectively). The philosophical explanation to this may lie on the rooted fundamental differences between the two systems of health in terms of aspects of care. These major differences as elaborated in Chapter VII include among others, the differences in practitioners' world view, care orientation and approach, focus of care, diagnostic tools, methods as well as the difference in understanding of what medical efficacy is. Therefore, the practitioners of both systems may feel at easy to allow their clients to visit other medical systems available in the region as they wish as it is their right to make rational choices in health care. Such decisions depend on what is available and the perceptions of the clients regarding the level of effectiveness of such services. The collaborative mode of *working jointly* appears more difficult because of their working guiding premises which are either, their professional ethics or their individual beliefs. This may be regarded to be a hindering block when practitioners of both systems may think to engage in

medical practice together with other practitioners with different world views, care orientations and approaches is to compromise to such guiding principles as such.

Multiple correlation co-efficients are obtained as a result of multiple (categorical) regression as a result of *Dimension Reduction – Optimal Scaling*. Multiple correlation co-efficients between the block of variables are obtained as a function of *Eigenvalue* as narrated by Van der Burg (1988) by use of the general canonical correlation formula:

$\rho d = ((K \times Ed) - 1)/(K - 1)$ where; d is the dimension number, K is the number of sets, and E is the eigenvalue. In this study with two sets (independent and depended variables), the specific formula therefore is:

$\rho d = (2 \ X \ Ed \ ) - 1$ where; *ρd* is the multiple correlation co-efficient, *Ed* is the Eigenvalue and the 2 represents the (number) 2 variable sets (independent and dependent variables) in the analysis.

Among all independent variables*, trustworthiness* co-varies strongly in the first dimension than all other variables with interprofessional collaborative behaviour ($\rho 1 = 0.716$). In others words, the way in which practitioners have trust and confidence to each other, the more the likelihood to collaborate as supported in both the theory of reasoned action and the Fogg behavioural model. As noted earlier, *trustworthiness* includes both the capability of being reliable and responsible as well as individual worthy of credibility or authoritative in the speciality. Therefore, practitioners, health planners and the government ought to support in general the activities which improve confidence on traditional medical practitioners, their services and products.

Enabling variables is the second in strength of correlation ($\rho 1 = 0.682$) in first dimension. Therefore variables such as the *individual social economic status* and *Government plus community efforts to enhance collaboration* have substantial influence in the way both traditional and modern medical practitioners would collaborate. Therefore, there is a need to address the political will and creation of good conducive environment for interprofessional collaboration between traditional and modern medicine, as well as alternative medicine both at the local and national level. Such enabling efforts, solidifies the required institution and legal support under the Parliamentary Act No. 2 of 2002, which governs Traditional Medicine (TM) and its practitioners in Tanzania.

Psycho-social variables of which multiple correlation coefficients ($\rho 1$)$= 0.544$ ranked the third variables such as *good experience of Traditional Medicine (TM) goods and services; awareness of successful traditional and modern collaborative projects; perceived possibility of good future working relationship in plural medicine; belief on disease medical system specificity* (which makes practitioners and clients believe that certain diseases are better managed by Traditional Medicine (TM) while others are for Modern Medicine (MM)*; attitude, education and awareness of what entails to health services* are important if interprofessional collaboration is to be encourage. This is in agreement with the research results of Caboury *et al.* (2011) where both awareness in terms of interprofessional exposure and expected results were noted among major factors affecting collaboration.

From the analysis it can be observed that at least all the rest of independent variables (socio-demographic and organisational variables) show certain moderate notable influence on interactions ($\rho 1 = 0.372$ and $\rho 1 = 0.346$ respectively). Within the socio-demographic block of variables, the *practitioner's professional group* ('profgrup') and *the practitioner's work status* ('orgstat') are moderately significant with the extent in which practitioners would collaborate. In the organisational block of variables, the *organisation efforts towards anti- 'groupthink'*, ('orgthink') and the level of *organisational culture fostering collaboration* ('orgcutur') influence significantly the way traditional and modern medical practitioners would collaborate.

Therefore, the more the organisations are open to accommodate different views and encourage creative and critical thinking the more the likelihood the practitioners to involve in collaborative behaviours with practitioners from the other medical system.

Chapter VIII concludes by enlightening theoretical and methodological implication as well as policy and practical recommendation towards effective and efficient health sector reforms and improvement of interprofessional collaboration among modern and traditional medical practitioners towards Tanzanian fully integrated health care development system. The practical recommendations suggested to health policy makers, medical practitioners, trainers and researchers in health care, religious leaders, non- government organisations, local and central government at large to enhance interprofessional collaboration towards *afya jumuishi* which results into quality integrated health services delivery are as follows:

- leaders and board members of health facilities to sensitize people and discourage the organisational *groupthink* syndrome which has encroached the political and professional ways on decision making and responding to pertinent issues for development of humans and the country as a whole;

- health care trainers to prepare medical practitioners to the change of attitude to appreciate integrated medical system undertakings including collaboration of traditional and modern medical practitioners;

- health care trainers and researchers to acquire the ideological base for the need of interprofessional collaboration and definition for a shared recognition and definition of collaboration between the two medical systems;

- the government to provide mandate and institutional support to traditional and complementary and alternative medical practitioners; their services, organisations and projects;

- to conduct positive critical dialogues and capacity development among health stakeholders frequently;

- the government and learning institutions on human and allied health studies to strengthen research, training and development of indigenous knowledge and natural resources related to health and ill-being;

- religious leaders and theologians to revisit religious doctrines in relation to nurturing good cultural indigenous heritages which have been despised during and post-colonial era;

- the government and non-government organisations to work towards humane international partnership and cooperation with mutual respect for sustainable human development projects;

- The government to develop effective policies linking pharmaceutical and biotechnology sector's interests with improved management of biodiversity. Pharmaceutical companies profiting from indigenous knowledge, need to pay royalties, develop corporate social responsibility projects and promote Traditional Medicine (TM) knowledge and products;

- the government and non-government organisations to develop data-base and strengthening bio-diversity networking within the country and with outside relevant networks;

- the Ministry of Health and Social Welfare, medical practitioners and their associations such as *the Medical Association of Tanzania (MAT), Chama cha Waganga na Wakunga wa Tiba Asilia Tanzania (CHAWATIATA)* to ensure improvement of medical products and services offered to the public;

- the government and all local organisations to consider gender equality a crosscutting agenda in order to recognise and give equal opportunities to the marginalized women and children in the society for better health status and valuable socio-economic contributions in the communities.

The conclusion provides an overall summary of what has been presented in the entire dissertation in accordance to the set objectives of this study which envisions to prompt policy makers and health services managers to bring Tanzanians to an efficient level of *afya jumuishi* in the near future.

Samenvatting

Dit onderzoek omvat een studie naar de samenhang tussen de inzet van personele middelen (*human resources*) en het beleid ten aanzien van dienstverlenende organisaties in de lokale gezondheidszorg. Het onderzoek is uitgevoerd in de Mara Region van Tanzania. Meer in het bijzonder probeert het de belangrijkste variabelen in beeld te brengen die de samenwerking, of juist het gebrek daaraan, tussen de verschillende professionals in de traditionele en moderne gezondheidszorg bepalen, respectievelijk hun medische dienstverlening beïnvloeden. Deze interprofessionele samenwerking is een fase die een *sine qua non* is om te komen tot een volledig geïntegreerde gezondheidszorg, vervat in het concept *afya jumuishi*, in Swahili, de taal van het land.

De steekproef voor deze studie bestaat uit 82 vrouwelijke en 111 mannelijke medische professionals uit zowel het traditionele als het moderne medische systeem in de Mara Region. Voor het moderne systeem bevat de steekproef onder meer artsen, medische assistenten, verpleegkundigen, raadgevers, werkers in laboratoria, radiografie, farmacie, tandartsenpraktijken, gezondheidsmilieus, volksgezondheid, en medische opleiding, terwijl voor het traditionele systeem kruidendeskundigen, vroedvrouwen, besnijders, spirituele genezers, geneesmiddelen verkopers en waarzeggers in de steekproefzijn opgenomen.

De achtergrond voor het initiatief van deze wetenschappelijke studie is de belangstelling voor het probleem van de niet-geïntegreerde medische zorg, niet alleen in Tanzania, maar in meerdere ontwikkelingslanden. Eerdere studies hebben aanbevelingen gedaan ter vergroting van de *efficiëntie, doelmatigheid* en *gelijkwaardigheid* van de gezondheidszorg door reorganisaties in de gezondheidssector (*cf.* Gene 1987; World Bank 1993; Frenk 1994; Gilshon *et al*. 1994; McPake 1994; Chabot *et al.*1995; Kagodya & Mchomvu,1996; WHO 1998; Berman & Bosset 2000). Ondanks de politieke wil en de strategische visie die tot uitdrukking komt in de *Tanzania Development Vision 2025* Pg. 10-11*,* alsook in het *Health Sector Strategic Plan* (July 2009 – June 2015), is de aandacht tot nu toe vooral uitgegaan naar de moderne gezondheidszorg. Daardoor is er een discrepantie ontstaan tussen de verkondigde idealen in de beoogde reorganisatie van de gezondheidszorg en de realiteit van de dagelijkse samenwerking met de genezers in de traditionele zorg.

Zelfs bij het bestaan van de Tanzanian Act No. 23 van 2002, die de traditionele zorg en de alternatieve medische praktijken bestuurlijk regelt, hebben de actoren en de activiteiten in de hervorming van de gezondheidssector van het Ministerie van Gezondheidzorg en Sociale Zaken (2009) de praktische uitvoering van deze wet nog niet geimplementeerd, die de efficiënte traditionele gezondheidsdiensten bevordert waarin aanzienlijke maar op zichzelf staande inheemse medische kennis, behandelingen, vaardigheden en producten aanwezig is. De traditionele zorg bevat alle handelingen en middelen die niet zijn gebaseerd op moderne allopathische medische principes, maar die zowel een belangrijk positief als negatief effect hebben op de gezondheid van de bevolking. Deze traditionele diensten worden nog steeds gebruikt door mensen uit alle socio-demografische lagen van de bevolking.

In de huidige wereld hebben mensen en hun families van alle bevolkingsgroepen uit alle windstreken toegang tot goederen en diensten ofwel van traditionele, alternatieve of van modern medische systemen, of van een combinatie van deze systemen voor verbetering van gezondheid, zorg voor de leefomgeving, of voor het verkrijgen van zekere sociale status waar zij leven in een plurale medische configuratie. Zoals in vele Afrikaanse landen, leven de mensen in Tanzania in een tijdperk van medisch pluralisme. De gebruikspatronen hangen meer samen met psychosociale factoren zoals geloof, houding en kennis van de inheemse bevolking,

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dan met economische of demografische factoren (*cf.* Slikkerveer 1990). Terwijl er al voorbeelden zijn van succesvolle professionele samenwerking tussen gezondheidspersoneel binnen de moderne medische sector tussen artsen, adviseurs, farmaceuten, geestelijke verzorgers, verpleegkundigen, en andere paramedisch personeel, zijn er in Afrika nog weinig van dergelijke pogingen van interprofessionele samenwerking tussen moderne en traditionele functionarissen. In dit scenario hebben de medische systemen geleden onder slechte coördinatie en niet-geïntegreerde zorg voor cliënten en patiënten.

Ontegenzeggelijk heeft de wereld in de afgelopen eeuw in de moderne geneeskunde nieuwe belangrijke transformaties gezien, zoals de ontwikkeling van nieuwe vaccins, geneesmiddelen, hoogwaardige instrumenten, geavanceerd medisch onderzoek en eradicatie van bepaalde ziekten, zoals Runderpest en Pokken, en een aanzienlijke algemene trend in de toename van de levensverwachting.

Desalniettemin hebben deze ontwikkelingen niet de kloof van ontoegankelijkheid tot gezondheidszorg van ongeveer 40% van de wereldbevolking verkleind, met name in ontwikkelingslanden. Bovendien zijn de meeste geneesmiddelen en technisch hoogwaardige diensten onbetaalbaar voor het merendeel van de bevolking, dat met minder dan een dollar per dag moeten leven. Het is op basis van dit uitgangspunt van het traditionele medische systeem, met de relatief op te brengen kosten en de inbedding in de lokale cultuur, dat traditionele geneeskunde (TM) geïncorporeerd en institutioneel ondersteund moet worden in het formele systeem van gezondheidszorg. Op deze wijze zal Traditionele Geneeskunde (TG) in staat zijn om substantieel bij te dragen en de gezondheid van mensen, zoals ook wordt bevestigd en bevorderd door het World Health Report (WHO 2011).

Sinds de jaren zeventig is er door vele medische beleidsmakers en mensen uit de praktijk een radicale verandering teweeggebracht in de integratie tussen moderne, Westerse en traditionele en alternatieve geneeskundezorg (Pearce 1982). Met behulp van de Wereld Gezondheid Organisatie (WHO) verklaarden de staatshoofden van de Afrikaanse Unie de periode 2000 tot en met 2010 tot *"Het Decennium van de Afrikaanse Traditionele Medische Zorg"* (Kofi - Tsekpo 2004). Deze verklaring benadrukt zowel het belang als de goedkeuring die regeringen en internationale instituties geven aan de noodzaak tot volledige integratie van traditionele en alternatieve gezondheidzorg in het nationale gezondheidssysteem. De oproep van de Wereld Gezondheids Organisatie (WHO) tot volledige integratie van Traditionele Geneeskunde (TG) heeft tot doel om het officieel te erkennen en te incorporeren in alle gebieden van de verlening van gezondheidszorg. Meer in het bijzonder zou Traditionele Geneeskunde (TG) onderdeel moeten worden van het gezondheidsbeleid van het land in de verstrekking van geneesmiddelen, die gereguleerd zou moeten worden, en traditionele gezondheidsdiensten zouden bij alle gezondheidscentra (zowel privaat als publiek) beschikbaar moeten zijn. Ook zou de traditionele dienstverlening door de zorgverzekering vergoed moeten worden, terwijl onderwijs over Traditionele Geneeskunde (TG) beschikbaar moeten zijn en relevant onderzoek uitgevoerd zou moeten worden. Voordat een volledige situatie van integratie wordt bereikt is het van cruciaal belang om interprofessionale samenwerking tussen functionarissen van het traditionele en moderne medische systemen te eisen waar beiden door cliënten worden bezocht.

Deze studie onderzoekt op welke wijze de verschillende onafhankelijke en interveniërende variabelen verband houden met de afhankelijke variabelen van gedrag van interprofessionele samenwerking tussen traditionele en moderne medische functionarissen uit de Mara Region van Tanzania. De werkelijkheid en de uitdagingen van het niveau van samenwerking tussen hen zal eveneens worden onderzocht.

De algemene doelstelling van dit onderzoek is om de belangrijke factoren te beschrijven, te analyseren en te documenteren die samenhang vertonen met collaboratief gedrag in het kader van de verlening van gezondheidszorg door traditionele en moderne medische functionarissen in de Mara Region van Tanzania. Zowel kwalitatieve als kwantitatieve onderzoeksmethoden en technieken zijn toegepast om data te verzamelen en om de verschillende categorieën van factoren op zowel het individuele als op het systeem niveau te analyseren, die onderling verband vertonen met interprofessionele samenwerking tussen functionarissen van de twee systemen (traditioneel en modern). Verschillende inzichten in de uitdagingen en werkelijkheden van Traditionele Geneeskunde (TG) in de praktijk worden ook genoemd en naar voren gehaald om de vooruitzichten van Tanzania te benadrukken op weg naar een volledig geïntegreerd systeem van gezondheidszorg. Teneinde deze algemene doeltelling te realiseren, zullen zeven specifieke vraagstellingen bereikt moeten worden, te weten:

Ten eerste, de theoretische oriëntatie aangaande interprofessionele samenwerking te bespreken als niveau tot geïntegreerde gezondheidszorg in een pluralistische medische configuratie als een belangrijk onderdeel van de hervorming van de gezondheidssector;

Ten tweede, het beschrijven van de Mara Region van Tanzania als het onderzoeksgebied in termen van haar sociografie, patronen van levenswijze en culturele kenmerkende, alsmede de gezondheid van de inwoners;

Ten derde, het beschrijven van de hervormingen van de gezondheidssector van Tanzania, en de uitdagingen die aan het huidige traditionele medische systeem worden gesteld.

Ten vierde, het uitwerken van de belangrijke factoren en hun beschrijving, die samenhangen met patronen van interprofessioneel samenwerkingsgedrag tussen de traditionele en moderne medisch functionarissen;

Ten vijfde, het presenteren van een inheemse classificatie van medicinale planten die algemeen gebruikt worden in de Mara Region van Tanzania.

Ten zesde, het analyseren van gegevens en het presenteren van resultaten tot aan het uiteindelijke analytische model met aanduiding van de sterkte van correlaties tussen de blokken van variabelen met de variabelen van gedrag van interprofessionele samenwerking tussen de traditionele en moderne medisch functionarissen van de Mara Region; en

Ten zevende, het presenteren van de theoretische, methodologische en beleidsimplicaties. Bijgevolg het formuleren van passende aanbevelingen die gericht zijn op integratie en verbetering van Traditionele Geneeskunde (TG) in het medische systeem van Tanzania ten behoeve van de verlening van kwalitatieve, toegankelijke, betaalbare en menselijke gezondheidsdiensten voor de bevolking.

Dit onderzoek wordt gepresenteerd in acht hoofdstukken.

Hoofdstuk I geeft in de inleiding een overzicht van de recente ontwikkelingen in gezondheid en genezing in Afrika, resp. Tanzania, en behandelt de ontwikkeling van gezondheidszorg in de pre-koloniale, koloniale en postkoloniale perioden, de betekenis van medisch pluralisme en het

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begrip geïntegreerde gezondheidszorg, het algemene doel en de specifieke vraagstellingen, alsmede de structuur en de organisatie van deze studie. Het hoofdstuk werkt de verbinding tussen cultuur, gezondheid en medisch pluralisme en geïntegreerde gezondheidszorg in Tanzania. Het verklaart verder het bestaan en de ontwikkeling van de traditionele en moderne geneeskunde in Tanzania. Het hoofdstuk geeft een uitleg van het concept van interprofessionele samenwerking in een pluralistische medische configuratie, en de noodzaak daarvan voor een volledig geïntegreerd systeem van gezondheidszorg in Tanzania.

Hoofdstuk II omvat de theoretische oriëntatie. Het vangt aan met een overzicht van concepten die de erkenning laat zien van de componenten van cultuur die invloed hebben op gezondheid, de wijziging in het paradigma dat ten grondslag ligt aan beleid van gezondheidszorg en management, het belang van de etnobotanische kennissystemen voor de bevordering van gezondheid en de bestaande theorieën over succesvolle interprofessionele samenwerking.

In aansluiting daarop wordt de conceptualisering van interprofessionele samenwerking gepresenteerd. Cultuur dient als een wegenkaart voor het begrip voor, en interactie met de wereld. Ze bepaalt de wijze waarop men gelooft, denkt, begrijpt gedraagt, eet, slaapt, kleedt, met anderen en met het milieu omgaat, werkt, overlegt in geval van pijn, en, in het algemeen, ziekte en slechte gezondheid interpreteert. Vandaar dat er net zo'n nauwe relatie bestaat tussen de cultuur en de gezondheid van mensen als met hun genen. Verschillende definities worden gegeven, zoals van 'Medische Antropologie' (Herman 2001), 'Medische Sociologie' (White 2002) en Gezondheids- psychologie' (Taylor 2003), alsmede van de UNESCO en alle overige onderzoeksinstituten en centra. Er zijn vijf belangrijke gezamenlijke thema's over componenten, die afgeleid kunnen worden ofwel omdat zij vorm geven aan de gezondheid van mensen, of omdat zij de interprofessionele samenwerking beïnvloeden tussen traditionele en moderne medische functionarissen, de *raison d'être* van deze studie.

Communicatie Componenten: die bestaan uit talen, symbolen, etc. In traditionele en moderne geneeskunde bestaan er diverse communicatiepatronen en symbolen met verschillende betekenis in hun diensten. De verschillende benaming en classificatie van ziekten en slechte gezondheid door gebruik van verschillende talen kan een van de belangrijke hindernissen vormen bij gedragspatronen van wederzijdse samenwerking tussen de twee groepen voor dezelfde cliënt.

Cognitieve Componenten: die bestaan uit ideeën, aannames, kennis, technologie, verslagen etc. Wanneer het type en niveau van onderwijs zo verschillend is tussen de twee groepen van traditionele en moderne medische functionarissen, staat hun benadering van interventie daarvan apart. Bij voorbeeld, het verschillend niveau van kennis van menselijke anatomie en fysiologie is gebruikt door sommige moderne medisch functionarissen om de inheemse kennis die door traditionele medische functionarissen is bijeengebracht te verachten.

Gedrags Componenten: die bestaan uit mores, normen, waarden, wetten, rituelen, geloven, volksgewoonten, religie, intimiteit en economieën. Het religieuze geloof, warden, normen etc. hebben de manier bepaald, waarop menden zich gedragen. De cultuur van de organisatie en van de factoren van het 'groepsdenken' motiveren of demotiveren het proces van uitwisseling van middelen en het samen werken tussen de twee medische systemen.

*Materiële Componenten (*Materiële Cultuur)*: die bestaan uit gecreëerde objecten, kunstwerken, mode, ontwerpen, kleren, behuizing, transportmiddelen, voedselproducten, gereedschappen etc.

Wanneer de trend zich gericht heeft op het verkrijgen van geavanceerde technische medische instrumenten en grote structuren van moderne gezondheidsfaciliteiten, dan voelen traditionele genezers en vroedvrouwen zich geïsoleerd van het nationale gezondheidssysteem.

Organisationele Componenten: die bestaan uit sociale structuren, politieke organisaties, familie en organisationele verbanden en religies, identiteit van lidmaatschappen, geslacht, politiek, institutionele ondersteuning etc. Het traditionele medische systeem omvat verschillende organisationele vormen met een eenvoudige organisationele structuur met minder hiërarchische niveaus. Het vertoont een soort netwerk van communicatie ten opzichte van het grote structurele netwerk van het moderne medische systeem, dat uit verscheidene hiërarchische niveaus bestaat. Teneinde de traditionele en moderne medische systemen te integreren moet een land haar huidige situatie, andere betrokken instituties en ondersteunende en beleidsgerichte kaders in ogenschouw nemen.

Daarom vertonen alle vijf genoemde componenten van de cultuur on twee opzichten een direct of indirect verband met de onderhavige studie. Allereerst, wanneer cultuur wordt beschouwd als een basis die de herwaardering van het belang van Traditionele Geneeskunde (TG) en haar functionarissen in de algehele bijdrage aan het gezondheid niveau van de bevolking, en ten tweede, wanneer het onderzoeksonderwerp van samenwerking tussen functionarissen begrepen wordt als een gedragshandeling van ofwel uitwisseling van middelen ofwel het samenwerken in een specifieke culturele setting en waardesysteem.

De klassieke definitie van gezondheid van de Wereld Gezondheids Organisatie (WHO 1948), als: *'een staat van fysiek, mentaal en sociaal welzijn, en niet alleen de afwezigheid van ziekte of aandoening'* toont duidelijk aan dat gezondheid een sociale component heeft. Vanuit een bredere socio-culturele context leidt slechte gezondheid als een proces een persoon naar het aannemen van de *'ziekte rol'*, die de menselijke mogelijkheid of onmogelijkheid evalueert om aan de verplichtingen van de samenleving te voldoen (*cf.* Mechanic 1995). Kort samengevat suggereert het model van de *'ziekte rol'* dat ziek zijn op zichzelf enige gewoonterechten heeft, zoals het gevrijwaard zijn van sociale rollen en dat de zieken niet verantwoordelijk zijn voor hun condities. Echter, het model houdt ook in, dat zieke mensen de verplichting hebben om competente medische functionarissen te raadplegen om te herstellen van de ziekte in relatie tot de normen van de specifieke samenleving waartoe zij behoren. Alszodanig is het model van de *'ziekte rol' bekritiseert* dat dit meer aansluit op de korte termijn, dan op de lange termijn van chronische ziekten. Sommige zieke mensen zullen hun sociale rol niet noodzakelijkerwijs opgeven*,* maar zich tegen afhankelijkheid verzetten en zo vermijden publiekelijk bekend te worden, vooral als de ziekte gestigmatiseerd wordt in de maatschappij. Bovendien kan het model van de *'ziekte rol'* ook bekritiseerd worden in geval van alcoholisme (*cf.* Chalfont & Kurtz 1971).

Een grafische weergave bekend als de *'Mandala of Health'* van Hancock & Perkins (1985), geeft een holistisch beeld van de wijze waarop omgeving en cultuur de gezondheidstoestand van de bevolking bepalen. Het laat zien, dat de cultuur van een gemeenschap invloed heeft op de bestaanswijze van een familie, het spirituele leven, psychologische ervaringen, werkpatronen, het politieke en legale kader, de sociale organisatie en de medische systemen, die de verschillende levensstijlen die net zoals de biologische factoren de gezondheid van het individu beïnvloeden.

Bijgevolg zijn al deze factoren onderling van elkaar afhankelijk, en zetten de impact van oorzaak en gevolg op de algehele gezondheidsniveaus in gang. Om een overzicht te geven van

de determinanten van gezondheid hebben enkele studies aangetoond, dat ziekte condities niet alleen afhankelijk zijn van biologische factoren, maar ook van sociale en culturele determinanten (*cf.* Koos 1954, Marmot 2005, WHO 2010). Naar aanleiding daarvan werd door Slikkerveer (1990) aangetoond, dat deze determinanten eveneens hun ziektekeuzegedrag in het zoeken naar passende zorg bepalen. Slikkerveer (1990) verklaart, op welke wijze Bank (1973) het proces van de gang naar een traditionele genezer reduceert, waarin een persoon het proces doormaakt voordat deze hulp zoekt van een medische functionaris. Er wordt verklaard hoe een persoon ziekte symptomen ervaart en vervolgens de 'ziekte rol' aanvaard, waarbij zijn of haar rol beperkt wordt, voordat de 'patiënt rol' tenslotte wordt aangenomen. Dit concept is ook van toepassing in de Tanzaniaanse context, waarin een verschil wordt ervaren in het hebben van een ziekte en gecategoriseerd worden als een 'patiënt', waarbij men bij de Jita etnische groep in de Mara Region wordt onderscheiden in respectievelijk *'Omwashibhwa'* en *'Omurwaye'*.

Het hoofdstuk verklaart ook de wijze waarop de traditionele Afrikaanse gemeenschappen de rol en management van Traditionele Geneeskunde (TG) werd bepaald. Naast de vele gebruiken van planten zoals voor voedsel, voedseltoevoegingen, smaak, hout, aromatische en cosmetische doeleinden, hebben de traditionele Tanzaniaanse gemeenschappen, zoals in de meeste Afrikaanse landen de delen van medicinale planten gebruikt, alleen of in mengsels met andere planten, of dierlijke en minerale producten, in poeder, tinctuur, as, rook, conserven siroop, amuletten of in ruwe vorm voor verschillende doeleinden, die goed zijn voor de gemeenschap en de individuele leden. Uit een van de vragen aan de respondenten in dit onderzoek tonen de resultaten aan, dat onder de top vijf geselecteerde rollen van Traditionele Geneeskunde (TG) in de samenleving behoren: *preventie van ziekte, diagnose van ziekte, behandeling van ziekte, bescherming tegen kwade intenties, en de bescherming van eigendommen.* Daarnaast speelden een rol: *het vinden van natuurlijke hulpbronnen zoals mineralen en vissen ('obhudubhi bhwa jiswi') en voor het stoppen van alcoholisme en andere verslavingen.*

Deze rollen bepaalden volgens gebruik de specialiteit en daarom de titel van de traditionele genezer. Het is niet verbazingwekkend in deze studie, dat slechts 7.3 % van de moderne medische functionarissen denkt, dat Traditionele Geneeskunde (TG) geen belangrijke rol speelt, terwijl de resterende 92.7 % van hen het omgekeerde denkt. Alle (100 %) traditionele genezers erkennen de betekenis van het belang van Traditionele Geneeskunde (TG) in de samenleving.

Hoofdstuk III werkt in detail het onderzoeksontwerp en het analytische model uit, inclusief de toegepaste onderzoeksbenadering, de formulering van het onderzoeksprobleem en de onderzoeksvragen en methodologie van onderzoek, alsmede de omvang en het conceptuele model dat gebruikt wordt en in Hoofdstuk VII verder wordt uitgewerkt. Het besproken conceptuele model komt terug in de uitwerking in Hoofdstuk VI. Dit Hoofdstuk benadrukt het gebruik van de '*Leiden Ethnosystems Approach'.* Deze benadering gaat uit van het vroege werk van Garfinkel (1964) and Circourel (1967), en is later ontwikkeld met drie basis concepten door Slikkerveer (1982; 1990; 1996) met de bedoeling om een interdisciplinair en non-normatief kader te bieden voor de vergelijking en synthese van factoren in een *emic* ten overstaan van een *etic* benadering, in zoverre deze factoren op een complexe wijze met elkaar interacteren. De drie basis concepten van deze benadering bestaan uit de '*Participant's View'* (PV), '*The Field of Ethnological Study'* (FES), en de '*Historical Dimension*' (HD), die in dit geval allen worden toegepast op de situatie waarbinnen functionarissen van traditionele en moderne medische systemen samenwerken. Deze benadering is recentelijk wijdverbreid toegepast binnen het '*Leiden Ethnosystems and Development Programme'* (LEAD) van de Universiteit Leiden, in diverse beleidsondersteunende studies in Landbouw, Natuurbehoud, Milieubescherming Utilisatie van Gezondheidszorg, Microfinanciering, Communicatie en Management van

Medische Systemen over de gehele wereld, waarin onderzoek wordt verricht naar inheemse volken die interacteren met moderne systemen (*cf.* Van den Breemer *et al*. 1989; Leakey & Slikkerveer 1991b; Van den Breemer *et al*. 1991; Adams & Slikkerveer 1996; Slikkerveer & Lionis 1996; Agung 2005; Ibui 2007; Gheneti 2007; Djen Amar 2010; Leurs 2010; Ambaretnani 2012).

Zowel primaire als secundaire gegevens zijn verzamneld met gebruik van een combinatie van verschillende methoden en onderzoekstechnieken, zoals gestructureerde questionnaires die werden gebruikt bij medische functionarissen, semi0gestructureerde interviews met sleutelinformanten; procedings van workshops die zijn gehouden onder het 'Health Human Resources Capacity Building Project' *Jadi na Utamaduni katika Afya* (JUA); persoonlijke observaties en met behulp van de analyse van documenten van verschillende geschriften zoals jaarverslagen, en publicaties inz. het onderwerp van interprofessionele samenwerking in de gezondheidszorg.

De operationalisering van het concept van *interprofessionele samenwerking* zoals dat gebruikt wordt in het analytische model van deze studie volgt de definitie van het '*Centre for the Advancement of Collaborative Strategies in Health*' (2003), waar deze gedragspatronen worden gedefinieerd als onderdeel van de creatie van synergie tussen verschillende professionals. Deze gedragspatronen hebben twee gerelateerde componenten van onafhankelijke factoren, die bestaan uit:

- *Het gedragspatroon ten aanzien van het delen van middelen; en*
- *Het gedragspatroon ten aanzien van het fysiek samenwerken aan dezelfde patiënten.*

Het analytische model wat ten grondslag ligt aan de opbouw van de vragenlijst is genomen van Kohn & White (1976), waarin stapsgewijs wordt gewerkt van *Concepten* naar *Variabelen,* naar *Indicatoren*, naar *Categorieën.* Dit model is verder ontwikkeld door Slikkerveer (1990) en alszodanig opgebouwd uit zeven blokken van variabelen, die worden toegeschreven aan gedragspatronen van interprofessionele samenwerking tussen gezondheidsfunctionarissen van beide medische systemen. De variabelen zijn onafhankelijk, en omvatten zowel *socio-demografische*, *psycho-sociale, in staat stellende, betrouwbaarheid, organisationele* en *interveniërende* variabelen, als *afhankelijke* variabelen die de gedragspatronen omvatten van interprofessionele samenwerking van uitwisseling van middelen en samenwerking voor cliënten en patiënten. Door een proces van het verbinden van concepten met meetbare fenomenen is de gestructureerde questionnaire geformuleerd. Tenslotte geeft het hoofdstuk de uitgevoerde typen van statische analyses van deze studie weer, zoals de bivariate, de multivariate analyse (OVERALS) en de multipele regressie analyse met de geselecteerde formules, die de studie tenslotte tot het ultieme model leidt, zoals dat gepresenteerd wordt in Hoofdstuk VII.

Hoofdstuk IV presenteert de achtergrond informatie door en beschrijving van het onderzoeksgebied in de Mara Region, en Tanzania als een land met diverse natuurlijke hulpbronnen als geheel. Hierbij worden de geografische, alsmede de historische en politieke achtergrond van de Mara Region en Tanzania als land beschreven. Het Hoofdstuk verkent ook het profiel van de bevolking van de steekproef die de medische functionarissen van beide traditionele en moderne medische systemen in the Mara Region omvatten.

Hoofdstuk V is gewijd aan de presentatie van zowel de algemene patronen van levenswijze in de gemeenschap van de inwoners van de Mara Region, als van de bestaande culturele karakteristieken, die direct of indirect invloed hebben op de gezondheid van de mensen in de Mara Region. Het Hoofdstuk werkt ook de belangrijkste uitdagingen uit waarmee de

Traditionele Geneeskunde (TG) in het gebied wordt geconfronteerd. De algemeen belangrijkste uitdagingen van de 21ste eeuw voor Traditionele Geneeskunde (TG) in het land omvatten:

- Gebrek aan een receptieve omgeving voor Traditionele Geneeskunde (TG);
- Er is geen mechanisme dat de samenwerking tussen beide systemen bevordert;
- Er is geen officiële bescherming van het inheemse intellectuele erfgoed, noch van duurzaamheid in het gebruik van medicinale planten;
- Voortgaande afbraak van natuurlijke hulpbronnen;
- Gebrek aan een inheems informatiesysteem en betrouwbare databank;
- De behoefte om onderwijs, onderzoek en ontwikkeling van Traditionele Geneeskunde (TG) uit te voeren;
- Het probleem van veiligheid van producten van Traditionele Geneeskunde (TG);
- Het verstrekken van een religieuze context in het onderricht over Traditionele Geneeskunde (TG);
- Morele terugval en het opbreken van sociale structuren;
- Schokkende armoede in de samenleving.

Hoofdstuk VI bespreekt ziekte en gezondheid in de Mara Region. Het begint met het aantonen van gezondheidsindicatoren in het medische systeem van het land. De actuele gezondheidsindices voor het land, de visie en het beleid voor de nationale zorg (zie 6.1), en de huidige status van de dienstverlening. Een aantal indicatoren wordt vergeleken met die uit andere Afrikaanse landen (Tunisië en Kenia), uit Asia (Indonesië) en uit een Europees land (Nederland). Daarna gaan we in op de uitdagingen die er liggen voor de ontwikkeling van het lange termijn gezondheidszorg beleid en de voorgenomen reorganisatie van de zorg in Tanzania. We beschrijven zowel de visie als de organisatie en de uitvoering van de dienstverlening in de praktijk.

Paragraaf 6.2 toont de opmerkelijke ontwikkeling en veranderingen aan die plaats hebben gevonden in het verleden, van de pre–koloniale, koloniale en postkoloniale tijde Het Hoofdstuk beschrijft ook de belangrijke rol die l, en de belangrijkste rollen voor het Ministerie van Gezondheidszorg en Sociale Zaken. Paragraaf 6.3. verklaart de pluralistische medisch configuratie van de Mara Region. Deze configuratie omvat het traditionele over de oorzaken en behandeling van ziekten, het gebruik van Traditionele Geneeskunde (TG) in de regio; moderne Geneeskunde (MG) in de regio, en pogingen om samenwerking tussen de systemen te bevorderen.

Hoofdstuk VII presenteert de belangrijkste uitkomsten van kwalitatief en kwantitatief onderzoek, en respectievelijk de statistische analyse door gebruik van het statistiek programma *SPSS* Versie 20.0 ook bekend als *Predictive Analysis Software* (PASW). De interpretatie van alle Bivariate, Multivariate, en Multiple Regressie Analyse van de blokken van variabelen toont de interactie aan met de interprofessionele samenwerking tussen de traditionele en moderne functionarissen. Kort samengevat tonen deze resultaten aan, dat het niveau van de interprofessionele samenwerking tussen de functionarissen van de beide systemen nog erg laag is.

De bivariate analyse geeft aan dat het niveau (frequentie) van gedrag van samenwerking in de uitwisseling van middelen ('collexch') door beide typen van functionarissen (traditioneel en modern) gecombineerd (N=193) 61.7 % (laag), 31. 6% (gemiddeld) en 6.7 % (hoog) is.

Eveneens geeft de daadwerkelijke samenwerking in het gezamenlijk werken ('collwork') een waarde aan van 64.8 % (laag), 32.1 % (gemiddeld), en 3.1 % (hoog). Dit bevestigt dat er een aanzienlijke uitdaging van een laag niveau van interprofessionele samenwerking bestaat, waarbij de meerderheid van de beide typen van medische functionarissen doorgaan met het verlenen van diensten aan hun cliënten op afzonderlijke wijze met minder samenwerking, een systeem dat verbetert dient te worden door middel van een juist hervormingsprogramma van de gezondheidssector.

Een nadere beschouwing van de resultaten van de bivariate analyse met betrekking tot het niveau van samenwerking tussen de twee verschillende groepen van medische functionarissen per de twee wijzen van samenwerking toont aan, dat traditionele medische functionarissen een hoger niveau scoren (hoewel met een smalle marge) dan hun counterparts in het moderne medische systeem met het aan de leiding gaan in de uitwisseling van middelen. De scores van de frequenties van de omvang van het samenwerkingsgedrag met uitwisseling van middelen door traditionele functionarissen met moderne functionarissen zijn respectievelijk 7.5 % t.o.v. 6.2 % (hoog), 32.5 % t.o.v. 31.0 % (gemiddeld), en 6.0 % t.o.v. 62.8 % (laag). De frequentie scores in het samenwerkingsgedrag in het gezamenlijk werken vertonen de voorkeur van traditionele medische functionarissen om de leiding te nemen in vergelijking tot de moderne medische functionarissen.

De scores van de frequenties op het niveau van het gezamenlijk werken tussen traditionele en moderne medische functionarissen voor dezelfde cliënten met gezondheidsproblemen is als volgt: 3.8 % t.o.v. 3.1 % (hoog), 37.5 % t.o.v. 32.1 % (gemiddeld) en 58.8 % t.o.v. 64.8 % (laag). Deze resultaten ondersteunen de kwalitatieve onderzoeksgegevens, waarin ook een indicatie wordt herkend van een praktische trend, waarbij in het algemeen traditionele medische functionarissen meer bereid zijn om in samenwerkingsactiviteiten met moderne medische functionarissen deel te nemen, zoals het geven van verwijzingen aan hun cliënten naar moderne medisch systeem, die hetzelfde doen t.o.v. Traditionele Geneeskunde (TG).

Tussen samenwerkingsgedrag in de uitwisseling van middelen en het gezamenlijk werken is het in het algemeen aanvaard, dat de functionarissen van beide systemen meer bereid zijn om middelen uit te wisselen zoals informatie, ideeën en het geven van verwijzingen aan cliënten, dan het praktische idee van het gezamenlijk verlenen van diensten aan een cliënt (6.7 % t.o.v. 3.1 % voor een hoog niveau). De filosofische verklaring hiervoor ligt in de onderliggende fundamentele verschillen zoals aangegeven in Hoofdstuk VII, t.w. de verschillen in de wereldbeelden van de functionarissen, benadering en oriëntatie van de zorgverlening, de focus op de zorg, de diagnostische hulpmiddelen, behandelingsmethoden, alsook de verschillen in het begrip over wat medisch doeltreffend is. In dat verband zouden de functionarissen van beide systemen zich gemakkelijk voelen bij het toelaten van hun cliënten om andere medische systemen te bezoeken, die in het gebied beschikbaar zijn, als zij dat willen, aangezien het hun recht is om een rationale keuze te maken in gezondheidszorg, afhankelijk van wat beschikbaar is en van de perceptie van de cliënten over het niveau van dergelijke diensten. De samenwerkingswijze betreffende het *gezamenlijk werken* blijkt moeilijker te zijn omdat de uitgangspunten van de richtlijnen ofwel te maken hebben met professionele ethiek, ofwel met individueel geloof. Dit kan beschouwd worden al een struikelblok wanneer functionarissen van beide systemen zouden overwegen om een medische praktijk op te zetten samen met andere functionarissen met verschillende wereldbeelden, benaderingen en oriëntaties van de zorgverlening, dat dan zou betekenen, dat een compromis gesloten zou moeten worden met dergelijke richtlijnen.

De multipele correlatie coëfficiënten zijn berekend door middel van de module *'Dimension Reduction - Optimal Scaling'*. De multipele correlatie coëfficiënten tussen de verschillende

blokken van variabelen, en uitgedrukt in een functie van 'Eigenvalue' zoals beschreven door Van der Burg (1988), in de formules voor canonische correlatie analyse:

$pd=((KxEd)-1)(K-1)$ waarbij *'d'* de dimensie voorstelt, *'K'* het aantal groepen van sets, en *'E'* de Eigenvalue. In deze studie met twee sets van variabelen (onafhankelijke en afhankelijke) wordt de formule daardoor:

$pd=(2xEd)-1,$ waarbij *'pd'* de correlatiecoëfficiënt is, *'Ed'* de 'Eigenvalue', en de *2* staat voor de beide groepen van variabelen (onafhankelijke en afhankelijke) in de analyse.

Onder alle onafhankelijke variabelen, de variabele *'betrouwbaarheid'* correleert sterk in de eerste dimensie in vergelijking met alle andere variabelen met gedag van interprofessionele samenwerking (p1=0.716). Met andere woorden, hoe meer functionarissen vertrouwen in elkaar hebben, hoe meer de kans bestaat tot samenwerking, zoals ondersteund wordt door de theorie van 'reasoned action' en het gedragsmodel van Fogg. Zoals eerder aangegeven, omvat *'betrouwbaarheid'* zowel de eigenschap om betrouwbaar en verantwoordelijk te zijn, alsook een individu te zijn die kredietwaardig is of een autoriteit is in zijn specialiteit. Daarom zouden functionarissen, beleidsmakers in de gezondheidszorg en de overheid in het algemeen de activiteiten moeten ondersteunen die het vertrouwen verbeteren in traditionele medische functionarissen en hun diensten en producten.

De '*in staat stellende*' variabelen vertonen de tweede sterkste correlatie in de 1e dimensie (p=0.682). Daarom hebben de *'individuele socio-economische status'* en de *'activiteiten van de regering en de gemeenschap om samenwerking te bevorderen'* beiden een substantiële invloed op de wijze waarop traditionele en moderne functionarissen zouden moeten samenwerken. Daarom bestaat de behoefte om zich te richten op de politieke wil en het scheppen van een goede omgeving voor interprofessionele samenwerking tussen traditionele en moderne geneeskunde, evenals alternatieve geneeskunde, zowel functionarissen, alsmede alternatieve geneeskunde op zowel het lokale als het nationale niveau. Dergelijke in staat stellende activiteiten versterkt de vereiste institutie en legale ondersteuning onder de Act No. 2 van het Parlement van 2002 die Traditionele Geneeskunde (TG) en functionarissen in Tanzania regelt.

De *psycho-sociale variabelen* waarvan de multipele correlatie coëfficiënt (ρ1)= 0.544 de derde sterkste correlatie aangeeft, zoals *'goede ervaring met traditionele geneeskunde', 'bewustzijn van succesvolle samenwerking tussen traditionele en moderne samenwerkingsprojecten, 'gepercipieerde mogelijkheden van goede werkrelaties in de toekomst in plurale geneeskunde'* en *'geloof in ziekte-specifieke systemen'* (waarbij functionarissen en cliënten overtuigd zijn dat bepaalde ziektes beter behandeld kunnen worden door Traditionele Geneeskunde (TG), terwijl andere door Moderne Geneeskunde (MG) kunnen worden behandeld; *'houding, opvoeding en bewustzijn van wat leidt tot gezondheidsdiensten'* zijn belangrijk als interprofessionele samenwerking aangemoedigd moet worden. Dit komt overeen met het werk van Cabourel *et. al.* (2011), waarin het bewustzijn van de aard van de dienstverlening en de bekendheid met de resultaten worden aangeduid als de belangrijkste factoren die samenwerking beïnvloeden.

Uit de analyse kan verder worden opgemaakt, dat tenminste alle overige onafhankelijke variabelen (socio-demografische en organisationele variabelen) een zekere gematigde maar wel opmerkelijke invloed uitoefenen op de interacties (p1=0.372 respectievelijk p1=0.346). Binnen het socio-demografische blok van variabelen correleren de *'professionele groep van de functionarissen'* ('profgrup') en de *'werk status van de functionaris'* ('orgstat') redelijk significant met de mate van bereidheid tot samenwerking tussen de medische functionarissen. In het blok van organisationele variabelen hebben de variabelen van de *'organisationele inspanningen ter voorkoming van groepsdenken'* ('orgthink'), en het niveau van de *'organisationele cultuur die samenwerking bevordert'* ('orgcult') een significante invloed op de

manier waarop traditionele en moderne functionarissen zouden willen samenwerken. Dus, naarmate de organisatie meer open staat om andere denkbeelden toe te laten en het creatief en kritisch denken aanmoedigt, neemt de bereidheid van de functionarissen toe om met functionarissen van het andere medische systeem samen te werken.

Hoofdstuk VIII geeft de conclusies aan door zowel de theoretische en methodologische implicaties toe te lichten, als het beleid en de praktische aanbevelingen voor de effectieve en efficiënte hervorming van de gezondheidssector en verbetering van de ontwikkeling van de volledig geïntegreerde gezondheidszorg in Tanzania. De praktische aanbevelingen, die aan de gezondheidsplanners, medische functionarissen, trainers en onderzoekers naar gezondheidszorg, religieuze leiders, non-gouvernementele organisaties, lokale en centrale regeringsagentschappen worden gesuggereerd om de interprofessionele samenwerking te versterken om te komen tot een *afya jumuishi* die moet resulteren in een geïntegreerde kwalitatief hoogwaardige zorg, omvatten het volgende:

- de leiders en bestuurders van gezondheidsinstellingen moeten gevoelig worden gemaakt worden om het organisationele '*groepsdenken syndroom*' tegen te gaan, dat de politieke en professionele wijze van besluitvorming is binnengedrongen en moeten antwoord geven op pertinente problemen van ontwikkeling van mensen en van het land als geheel;

- de training van genezers moet een gedragsverandering teweegbrengen ten faveure van het bewerkstelligen van een geïntegreerd medische systeem, inclusief de samenwerking van traditionele en moderne medische functionarissen;

- de ideologische basis voor trainers en onderzoekers van de gezondheidszorg moet verkregen worden voor de behoefte aan interprofessionele samenwerking en de definitie van een gedeelde erkenning van een samenwerking tussen de twee medische systemen;

- een mandaat en institutionele ondersteuning van traditionele en complementaire en alternatieve medische functionarissen moet door de regering verleend worden; *i.e.* hun diensten, organisaties en projecten;

- positieve kritische dialogen en ontwikkeling van capaciteit moeten frequent onder stakeholders van gezondheidszorg worden gehouden;

- onderzoek, opleiding en ontwikkeling van inheemse kennis en natuurlijke hulpbronnen in relatie tot ziekte en gezondheid moeten door de regering en opleidingsinstituten in studies over mens en ziekte versterkt worden;

- religieuze leiders en theologen moeten de religieuze doctrines in relatie tot het opkweken van een goede inheemse culturele erfenis herwaarderen, die gedurende de koloniale en postkoloniale periode veracht zijn;

- de regering en niet-gouvernementele organisaties (NGOs) moeten werken naar een internationaal humane partnerschap en samenwerking met wederzijds respect voor duurzame ontwikkelingsprojecten van de mens;

- de regering moet effectieve beleidslijnen ontwikkelen met de belangen van de farmaceutische en biotechnologische sectoren met verbeterd management van biodiversiteit. Farmaceutische bedrijven die van inheemse kennis profiteren dienen royalties te betalen en projecten met *corporate social responsible* te ontwikkelen, en kennis en producten van Traditionele Geneeskunde (TG) te bevorderen;

- de regering en niet-gouvernementele organisaties (NGOs) moeten een databank ontwikkelen en netwerken van biodiversiteit versterken binnen het land, en met relevante buitenlandse netwerken;

- Het Ministerie of Health & Social Welfare (MoHSW), de medische functionarissen en hun organisaties zoals de Medical Association of Tanzania (MAT), en C*hama cha Waganga na Wakunga wa Tiba Asilia Tanzania* (CHAWATIATA) dienen de verbetering te verzekeren van medische producten en diensten die aan het publiek worden aangeboden;

- de regering en alle lokale organisaties dienen de gelijkheid van man en vrouw te beschouwen als het belangrijkste agendapunt teneinde gelijke kansen te bieden aan de gemarginaliseerde vrouwen en kinderen in de maatschappij voor een verbeterde gezondheidstatus en waardevolle socio-economische bijdragen in de gemeenschappen.

Deze conclusie geeft een algemene samenvatting van hetgeen gepresenteerd is in de gehele dissertatie volgens de gestelde doeleinden van deze studie, die de visie heeft om beleidsmakers en managers van gezondheidsdiensten ertoe aan te zetten om de Tanzanianen op een effectief niveau te brengen van *afya jumuishi* in de nabije toekomst.

Curriculum Vitae

Musuto Mutaragara Chirangi was born on the 28th of June 1965 in Musoma, Tanzania. After completion of his high school education, he obtained in 1994 a Bachelor Degree of Business Administration and Management (Major) and Community Development (Minor) from the *Daystar University* in Nairobi, Kenya. In 1998, he obtained a Certificate of Health Economics and Organisation Management from the *Masoka Training Centre* in Moshi, Tanzania, followed by his Master Degree in 2000 on Labour and Human Resources Management Studies from the *International Graduate Institute of Social Studies* in The Hague, The Netherlands. Soon thereafter, in 2001, he received a Certificate of the Intensive Postgraduate Course on Ethnobotanical Knowledge System from the *Research School-Biodiversity of Leiden University* in Leiden, The Netherlands.

Meanwhile, since 1994, he was the Hospital Health Secretary at the Nyerere Designated District Hospital and the Kisare Nursing School in Serengeti, Tanzania. During this period of time, Mr. Chirangi MA acquired managerial experience in strategic planning and practical supervision to the four Heads of Units in charge of the Human Resources Development and Training, Finance, Maintenance and other Institutional Services.

In addition, he was more than 10 years active as Project Coordinator in Health and Community Development project proposal formulation, implementation, combined with continuous quality assurance and management consultancies in Tanzania. Such projects include the new project in Musoma of the private non-for-profit *Bethsaida Health Centre* with a Home Care Facility; the Community-Based Health Promotion Programme (*Jamii Imara*); the *Nyerere Football Club;* the *Doopsgezinde Scholarship Fund;* and the *Serengeti Disabled Development Agency* for Rehabilitation in Serengeti.

Mr. Chirangi was also the Workshop Facilitator in a funded International Management Capacity Building Project to more than 50 organizations, including the Hospitals and Health Training Colleges, the Policy Makers and Executives in implementing the *Problem-Based Learning, Participatory Learning and Action Strategies*. Also, he became two times the Team Leader in the Dutch Youth International Exchange Programmes under the *Stichting 4 You* and one time in the *Strangers No More* Project for the International Youth Exchange Programme between The Netherlands and Tanzania under the *Stichting Doopsgezinde Zending*. He has co-supervised both Undergraduate and Graduate Students in their doctoral fieldwork projects at different institutions in Tanzania, and co-facilitated a Memorandum of Understanding for the programme between the Faculty of Health, Medicine and Life Science of Maastricht University and Shirati Hospital of the Mara Region, Tanzania.

During his PhD study in the field of Integrated Health Care Development under the supervision of Prof.Dr. L.J. Slikkerveer, Director of the *Leiden Ethnosystems and Development* Programme (LEAD) of Leiden University, he has given several presentations in multi-cultural environments on Health Policies, Government Sector Reforms and Management, Medical Anthropology and Advanced Field Research, both at Leiden University and Universitas Padjadjaran in Bandung, Indonesia.