

**INFLUENCE OF CULTURAL DIMENSIONS ON UNDER-FIVE
MORTALITY AMONG AGRO-PASTORAL COMMUNITIES IN
HANDENI DISTRICT, TANZANIA**

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**A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS
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EXTENDED ABSTRACT

Despite efforts devoted to reduce under-five mortality, it has been observed that the reduction trend is not reaching the targeted goals hence the need to explore the possible constraints. The overall objective of the study was to examine the influence of cultural dimensions on under-five mortality among agro-pastoral communities in Handeni District, Tanzania. The specific objectives were to assess health services utilisation in the study area, to examine the influence of cultural dimensions on household power dynamics, to examine influence of household health care seeking behaviour on incidence of under-five mortality and to examine gender determined roles and their influence on the health of under-five year's among agro-pastoral communities. Data were collected using a structured questionnaire from 160 randomly selected agro-pastoralist households. The findings showed high availability of informal health facilities in the study area as well as high preference to informal health facilities by agro-pastoralists due to logistical and traditional reasons. Lack of permanent road and education affected access to formal health facilities which are concentrated at the district headquarters. It was observed that increased years of stay in the study area strengthened adherence to traditional and cultural values which favored use of informal health facilities than formal ones. It was found that 83.1% and 78.1% of the households' decisions on selling household livestock and crops, respectively were made by male household heads. Women involved in selling livestock and crops were 10.6% and 16.3%, respectively. This suggest that agro-pastoralist traditional life style in the study area favors men more than women as women are isolated from household decision making and deprived of authority over household resources and income. In turn, this tendency affects women and their children, particularly under-five years. On health care seeking behaviour the result for binary logistic regression showed that mother's age ($\beta = -0.430$) at $p \leq 0.05$, number of children in household ($\beta = -0.082$) at $p \leq 0.01$ and masculinity ($\beta = -1.014$) at $p \leq 0.05$ were the main variables influencing

health care seeking behaviour and consequently under-five mortality. Cultural values which favour inequality in household income use were also found to influence under-five mortality through health care seeking behaviour among agro-pastoralists. Furthermore, it was found that household decision making had negative and significant influence on health of under-five children ($\beta = -0.071$) at $p \leq 0.001$, which implies that timely household decision contributes to the reduction of household incidence of under-five mortality. Control of household income had a negative and significant influence on the health of under-five years children ($\beta = -1.828$) at $p \leq 0.05$ indicating that participatory decision on the use of household income contributed to the increase of household incidence of under-five mortality. The same applies to participation in subsistence farming which had a negative and significant influence on the household health of under-five children ($\beta = -1.013$) at $p \leq 0.05$, a condition which contributed to the reduction of under-five mortality among agro-pastoral communities. This is because subsistence takes more time and had low production. The study recommends awareness creation campaigns to be done on the relevance of using formal health facilities as well as establishment of formal health facilities within the study area. Moreover, efforts should be made to ensure all villages are connected to reliable roads to improve access to the health facilities. However, necessary efforts should be made through Government and non-Governmental organizations to minimize influence of cultural values and traditional practices which facilitate unequal participation in household decision making and resource use. These have direct and indirect influence on the health of under-five children. In this view, urgent efforts are needed to assist in promoting health care seeking behaviour from informal to formal health facilities hence contribute towards reduction of under-five mortality. Lastly, participation of men and women in household decision making and control of household income should be encouraged among agro-pastoral communities. This will give women

more time to care for children and facilitate timely treatment hence contributes to the improvement of their health.

DECLARATION

I, **Justin Job Ringo**, do hereby declare to the Senate of Sokoine University of Agriculture that the thesis presented here is my own original work and that it has not been submitted for a degree award to any other university.

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TABLE OF CONTENTS

EXTENDED ABSTRACT	ii
DECLARATION	v
COPYRIGHT	vi
ACKNOWLEDGEMENTS	vii
DEDICATION	ix
TABLE OF CONTENTS	x
LIST OF TABLES	xv
LIST OF FIGURES	xvii
LIST OF APPENDICES	xviii
LIST OF ABBREVIATIONS AND ACRONYMS	xix
 CHAPTER ONE	 1
1.0 INTRODUCTION	1
1.1 Background to the problem statement	1
1.2 Problem Statement and Justification	4
1.3 Research Objectives	6
1.3.1 Overall objective	6
1.3.2 Specific objectives	6
1.4 Research Questions	6
1.5 Theoretical Ground	8
1.5.1 Hofstede's cultural dimensions	8
1.5.2 Health Service Model	10
1.6 Conceptual Framework	11
1.7 Study Limitations	12
1.8 Organization of the Thesis	13

References	15
-------------------	-----------

CHAPTER TWO	21
--------------------	-----------

2.0 Access and Challenges of Health Facilities amongst Agro-pastoralist Communities in Handeni District, Tanzania	21
2.1 Abstract	21
2.2 Introduction and Background	22
2.3 Study Area and Research Context	24
2.4 Theoretical Background	27
2.5 Methodology	28
2.6 Results	30
2.6.1 Demographic characteristics	30
2.6.2 Available options of health facilities	32
2.6.3 Utilized health facilities in the study area	32
2.6.4 Choice of formal health facilities	33
2.6.5 Challenges of Accessing FHF's	36
2.7 Discussion	37
2.8 Conclusions and Recommendations	40
References	42

CHAPTER THREE	48
----------------------	-----------

3.0 Influence of Cultural Dimensions on Household Power Dynamics Among Agro-pastoralists in Handeni District, Tanzania	48
3.1 Abstract	48
3.2 INTRODUCTION	49
3.3 The Cultural Dimensions Models	52

3.3.1	Constructs of hofstedes cultural dimensions-----	53
3.3.2	Power distance -----	53
3.3.3	Masculinity -----	54
3.3.4	Uncertainty avoidance -----	55
3.3.5	Collectivism -----	56
3.4	Concepts of Power Dynamics -----	57
3.5	Conceptual Framework -----	58
3.6	METHODOLOGY -----	59
3.6.1	Research design and sampling procedure -----	59
3.6.2	Data collection methods -----	60
3.6.3	Variables and measurements -----	60
3.6.4	Household decision making -----	60
3.6.5	Power distance -----	61
3.6.6	Masculinity -----	61
3.6.7	Other variables -----	61
3.6.8	Data analysis -----	62
3.7	RESULTS AND DISCUSSION-----	63
3.7.1	Management and control of household's resources in the study area-----	63
3.7.2	Relationship among Socio-economic characteristics, power distance and masculinity -----	64
3.7.3	Influence of cultural dimension on household decision making -----	66
3.8	Conclusions and Recommendations -----	69
	References-----	70

CHAPTER FOUR	78
4.0 Health Care Seeking Behaviour and Incidence of Under-Five Mortality in Agro-pastoral Communities in Handeni District, Tanzania	78
4.1 Abstract	78
4.2 INTRODUCTION	79
4.3 Literature Review	81
4.3.1 Health care seeking behaviour	81
4.3.2 Determinants of households' Health care Seeking Behaviour (HSB)	83
4.3.3 Under-five mortality	85
4.4 METHODOLOGY	87
4.4.1 Description of the Study Area	87
4.4.2 Research design and sampling procedures	87
4.4.3 Variable measurement	88
4.4.4 Data analysis	89
4.5 RESULTS AND DISCCUSION	92
4.5.1 Association among cultural values, traditional practices, socio-economic factors and health care seeking behaviour	92
4.5.2 Factors determining households' health care seeking behaviour	95
4.5.3 Surveyed households experience of under-fives mortality	97
4.6 Conclusions and Recommendations	99
CHAPTER FIVE	107
5.0 Gender Determined Roles and Health of Under-Five Years Old Children among Agro-Pastoral Communities in Handeni District, Tanzania	107
5.1 Abstract	107
5.2 Introduction and Background	108

5.3	Literature Review-----	111
5.3.1	Division of gender roles -----	111
5.4	Methodology -----	115
5.5	Results-----	117
5.5.1	Household incidences of under-five mortality -----	117
5.5.2	Use of health facilities in the study area-----	118
5.5.3	Influence of gender roles to the household incidence of under-five mortality-----	118
5.6	Discussion -----	120
5.7	Conclusions and Recommendations -----	123
	References-----	124
	 CHAPTER SIX -----	 130
6.0	Summary of Major Findings, Conclusions and Recommendations -----	130
6.1	Summary of Major Findings and Conclusions -----	130
6.2	Recommendations -----	133
6.3	Recommendations for Further Research -----	134
6.4	Major Contribution of this Study to the Body of Knowledge-----	135
	 APPENDICES -----	 136

LIST OF TABLES

Table 2.1: Demographic characteristics of respondents (n =160).....	31
Table 2.2: Respondents' level of education by sex (n=160)	31
Table 2.3: Health facilities and services used in the study area (n=160)	33
Table 2.4: Logistic Regression Predicting Likelihood of Choosing Formal Health Facilities (n=160)	34
Table 2.5: Distance in kilometers (km) to health services within and outside the study area	36
Table 2.6: Issues challenging access to FHF's (n = 160)	36
Table 2.7: Roads condition.....	37
Table 3.1: Management and control of household resources (n = 160).....	64
Table 3.2: Socio-economic characteristics of respondents Hofstede's cultural dimensions variables	66
Table 3.3: Regression results of cultural dimension influence to household decision making (n=160).....	67
Table 4.1: Test for normality.....	92
Table 4.2: Correlation analysis results of factors related to health care seeking behaviour.....	94
Table 4.3: Binary logistic Regression results of factors influencing health care seeking behaviour (n=160).....	95
Table 4.4: Binary logistic regression results on health care seeking behaviour among agro-pastoralists and Households Under-Fives Mortality (n=160)	97
Table 5.1: Sampling procedure	116
Table 5.2: Incidence of under-five mortality among agro-pastoralist households (n = 160).....	118

Table 5.3: Attendance to formal and informal health facilities (n = 160).....	118
Table 5. 4: Gender roles' influence on under-five mortality among agro-pastoralists	
households	119

LIST OF FIGURES

Figure 1.1:	Conceptual frame work-under-five mortality	12
Figure 2.1:	Source: Modified Kohn & White in 1976's Health Services Model	28
Figure 2.2	Available options of health facilities in the study area (n=591)	32
Figure 3.1:	Conceptual framework	59

LIST OF APPENDICES

Appendix 1: Household questionnaire.....	136
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LIST OF ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
ACORD	Agency for Cooperation and Research in Development
ANC	Antenatal Care
AIDS	Acquired Immune Deficiency Syndrome
CSSH	College of Social Sciences and Humanities
CV	Cultural Values
DPPM	Department of Policy, Planning and Management
DHS	Demographic Health Survey
DDS	Department of Development Studies
DED	District Executive Director
DM	Decision Making
FHFs	Formal Health Facilities
GR	Gender Relations
HBM	Health Belief Model
HCSB	Health Care Seeking Behaviour
IFAD	International Fund for Agricultural Development
IMCHB	International Model of Client Health Behaviour
IHF	Informal Health Facilities
MAS	Masculinity
MDG	Millennium Development Goals
NSGRP	National Strategy for Growth and Reduction of Poverty
NBS	National Bureau of Statistics
NGO	Non-Governmental Organisation
PD	Power Distance

RA	Resources Allocation
SUA	Sokoine University of Agriculture
SSA	Sub-Saharan Africa
TZS	Tanzanian Shillings
UDSM	University of Dar es Salaam
U5M	Under-Five Mortality
UN	United Nations
URT	United Republic of Tanzania
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VEOs	Village Executive Officers
WEOs	Ward Executive Officers
WHO	World Health Organisation

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Problem Statement

Globally, under-five mortality¹ has declined by 47%, from 90 deaths per 1000 live births in 1990 to 48 deaths per 1000 live births in 2012 (UN, 2011; GHO, 2012; UNICEF, 2015). Although sub-Saharan Africa (SSA) has experienced substantial decline in under-five mortality from 178 deaths per 1000 live births in 1990 to 109 deaths per 1000 live births in 2011, the situation is not reflecting effort and resources directed towards reduction of child mortality (World Bank, 2011; Jotham, 2013). High under-five mortality in SSA has been caused by persistence of Acquired Immune Deficiency Syndrome (AIDS), neonatal diseases² and pneumonia which are responsible for more than 20% of child deaths while malaria and diarrhoea diseases account for 18% and 17%, respectively (WHO, 2004; URT, 2008; UNICEF, 2008; KNUST, 2010; UNICEF, 2013; Thiam *et al.*, 2013). Severity of under-five mortality in SSA traditional communities like agro-pastoralists is likely to be influenced by culture which triggers household power dynamics particularly on decision making and control over household resources essential for meeting costs of health services (Muoneke *et al.*, 2011; USAID *et al.*, 2011).

Cultural set up of traditional community like agro-pastoralists may account for health problems. This is because regularly men go for pastures leaving behind women in harsh environment and limited decision making. At the same time, women are left with some responsibilities including taking care of children and other dependants like older and sick persons (IFAD, 2010). In such cases, women are left with little choice to avoid common traditional and cultural accepted health systems which are not questioned by household

¹ Under five mortality is the annual number of children dying between birth and exactly five years of age expressed by number of deaths per 1000 live births (WHO, 2009; URT, 2010; Chowdhury, 2013).

² Examples of neonatal diseases are: Birth Asphyxia, Sepsis (Infection), Prematurity, Hypothermia and Hypoglycaemia

heads, usually men. Household decision making, division of labour, resource allocation and authority on earnings from diverse sources are not equally cutting across all members in households as a result of cultural set up of a particular community in SSA (Chandrashekhara *et al.*, 2011; UN, 2013). Lack of balanced household decision making and appropriate use of resources for wellbeing of household members particularly under five children may contribute to under-five morbidity and mortality within traditional communities like agro-pastoralists in SSA at large and in Tanzania in particular (Claeson *et al.*, 2000; URT, 2008).

Tanzania is ranked the 27th in the world with high under-five mortality rate of between 130 and 150 per 1000 live births and also one of the top ten countries in the world which accommodate the largest concentration of agro-pastoralists (Mlekwa, 1996; Susuman *et al.*, 2012). Agro-pastoralists usually live in remote rural locations in order to access pastures for their animals. In such remote areas, they lack access to important health care service and facilities (Blench, 2001; Oxfam, 2008). Despite the fact that agro-pastoralists have started living sedentary life, movement across vast land is common amongst them as an attempt to diversify their livelihood through involvement in farming, business and other productive activities (Oxfam, 2008; Magembe *et al.*, 2013). Within traditional communities such as agro-pastoralists in Tanzania, deep rooted traditional culture greatly influences household practices. The most outstanding agro-pastoralist attitude is regarding men as the overseers and the final decision makers endowed with power over all major household activities and the use of household resources (IFAD, 2011). The agro-pastoralists cultural practices are cemented in the traditional beliefs and values (Liz, 2003).

Cultural dimensions like power distance and masculinity affect household decision making, health care seeking behaviour and utilization of health services in traditional communities of the SSA (Adebusoye, 2001). Utilization of modern medicine and services like immunisation and vaccination by traditional women in SSA where 80% of population are used to cultural and traditional remedies face challenges (Fact Sheet, 1979; Chibwana *et al.*, 2009; Chinenye and Ogbera, 2013; Tomison, 2013).

In agro-pastoral communities' women experience problems related to marginalisation and limited decision making on different issues including health matters. Limited decision making power among women could be accounted for by power distance between men and women and masculine behaviour of men. In high power distance societies like in agro-pastoral communities, the hierarchy of authority is centred on men and age set in which men and elders are vested with the power to make decision in the household. Similarly, men are too muscular in resources acquisition and have power to decide how resources at household level can be utilized. The use of such resources may not necessarily serve sick children since, culturally, children issues in agro-pastoral communities are mostly the responsibility of women.

In a cultural community like agro-pastoralist, women can rarely freely sell a cow, piece of land or use property and other accumulated household wealth items without seeking permission from their respective husbands even when there is an urgent case like child illness where money and other resources could avert death (Kipuri and Ridgewell, 2008; Gaag, 2013). Low status of women in a household is reflected in the lack of women decision making power including inability to seek care during pregnancy, delivery and throughout the child development process whose impact to under-five year's children mortality is obvious (Yamin *et al.*, 2013).

While previous studies have focused on socio-economic attributes such as poverty, mothers' education, violence, and political fragility as contributing factors to under-five mortality among agro-pastoralists (Downie, 2011), little is known on the influence of cultural issues among agro-pastoralists on inability to access formal health care services which subsequently has influence on under-five mortality. The study on which this thesis is based intended to examine the influence of cultural dimensions i.e. power distance and masculinity on household power dynamics and health care seeking behaviour, and how both household power dynamics and health care seeking behaviour affect under-five mortality. The study also identified the best predictor of under-five mortality to set an entry point for intervention. The knowledge gained from the study adds value to the national and global efforts to address challenges of under-five mortality.

1.2 Problem Statement and Justification

Previous studies in different countries including Tanzania identified poverty, low mothers' education, violence, political fragility and diseases as important drivers of under-five mortality (Caulfield *et al.*, 2004; WHO, 2011; UN, 2013; WHO, 2013). Other studies emphasised that maternal education influences mothers' attitudes towards health care seeking behaviour and that most of the countries in SSA including Tanzania may not achieve sustainable development goal number 3 of reducing under-five mortality to 25 deaths per 1000 live births by 2030 (UN, 2015). Special attention is needed to address other causes of morbidity and under-five-mortality to achieve the set target (Mwaikambo, 2010; URT, 2010; Susuman and Hamisi, 2012). This argument opened up opportunities to examine other factors that may affect health care seeking behaviour that subsequently lead to under-five mortality.

While it is compelling to believe that attitude of health care seeking behaviour is influenced by mothers' maternal education, this study considered that there are other factors influencing attitudes towards health care seeking behaviour other than education. For example, health care seeking behaviour is likely to be influenced by cultural factors like power distance and masculinity. This is done directly or indirectly through household power dynamics which include gender relations, decision making and resources allocation. However, absence of empirical evidence to support this argument compelled the researcher to conduct the study to examine the influence of cultural dimensions on health care seeking behaviour and household power dynamics, and whether they are drivers of under-five mortality.

The findings of this study shed light to both policy makers and development practitioners thus serves as a tool for development of appropriate policies which will favour reduction of under-five mortality in the agro-pastoral communities. The study on which this thesis is based was important to generate empirical information on which sustainable interventions may be based to help the Government, NGOs and other development practitioners improve health services and reduction of under-five mortality among agro-pastoral communities in Tanzania. The study aimed at contributing to efforts to reduce under-five mortality which is also a target of Tanzania's National Strategy for Growth and Reduction of Poverty (NSGRP). But also the target National (Tanzania) Second Five Year Development Plan (FYDP II) of 2016/17-2020/21 and Sustainable development Goal (SDG) Number three.

1.3 Research Objectives

1.3.1 Overall objective

The overall objective of the study was to examine the influence of cultural dimensions on under-five mortality among agro-pastoral communities in Handeni District, Tanzania.

1.3.2 Specific objectives

Specifically, the study intended to:

- i. Assess access and challenges of health facilities among agro-pastoral communities;
- ii. Examine the influence of cultural dimensions on household power dynamics among agro-pastoral communities;
- iii. Determine influence of household health care seeking behaviour on incidence of under-five mortality; and
- iv. Investigate gender determined roles and the health of under-five years' children among agro-pastoral communities.

1.4 Research Questions

Agro-pastoralist community lives in remote areas which have challenges in terms of access to formal health facilities. This inaccessibility contributes to higher under-five mortality in those communities (Oxfam, 2008). Some studies have examined agro-pastoral communities in different aspects and observed some factors affecting their well-being such as poverty and health risks (Elhadi *et al.*, 2012). A lot has been done about agro-pastoral communities highlighting on the risks including those which are related to poor attendance to appropriate health facilities. Agro-pastoralists dwell more in remote areas which affect their access to correct health facilities (WHO, 2009). Failure to access proper health facilities affects health of agro-pastoralists, particularly that of under-five children (UN, 2013). This is because most of appropriate health facilities are located in the urban

areas and sometimes adjacent to roads, railway lines and other infrastructures which are not established in the rural areas where most agro-pastoralists reside. This situation affects access to appropriate health facilities like formal ones, which adversely affect health of under-five years. The study focussed on access and challenges of health facilities among agro-pastoral communities. This situation motivated this study to answer the following question:

What are the challenges affecting access to formal health care facilities in agro-pastoralist communities?

Traditional values and practices among agro-pastoralists result into power inequality which hinders households' participatory decision making between men and women. It isolates women from control of income and authority over important household resources like land, livestock and farm products. Traditional isolation of women from households' financial means while they are the ones who take care of children has implication to the health of under-five children (Save the Children, 2013). This is because sending children for correct treatment like formal health facilities has implication on expenses which will need to be considered. Traditional practices embracing agro-pastoral communities, among other things, encourage use of cultural recognised medicines which make agro-pastoralists think of formal health facilities as the last option (Kato and Kratzer, 2013). To address traditional and cultural related issues the study intended to answer the following question:

What is the influence of cultural dimensions on household power dynamics among agro-pastoralists?

Decision to seek treatment in traditional communities like agro-pastoral communities can be influenced by several factors. Dominance of cultural values and traditional practices causes agro-pastoralists to adhere to the traditional treatments rather than formal

treatment. However, gender determined roles are likely to make women not to experience tangible household earnings hence unable to meet treatment costs at formal health facilities (DHS, 2010). Persistence of this situation in traditional communities like agro-pastoralists can contribute to the prevalence of under-five mortality. This raises questions on association among cultural values, traditional practices, socio-economic factors and health care seeking behaviour among agro-pastoralists. Briefly, the question is:

What is the influence of health care seeking behaviour on incidence of under-five mortality in agro-pastoral communities?

The study considered gender determined roles and their influence on the health of under-five years children among agro-pastoral communities. The essence is that irrational household roles division and decision making among men and women in agro-pastoral communities could stand as a source of poor health particularly for under-five children. Inequalities in household roles divisions are considered to deny women power and authority over household resources and income, which could facilitate treatment particularly for children under-five years. The study considered that equal involvement in household roles could give women more time to care for children and contribute to reduction of under-five mortality differently from when women are assigned all household chores by themselves within agro-pastoral communities. This raised a question on:

Which are the influence of the gender determined roles on the health of under-five years children among agro-pastoral communities?

1.5 Theoretical Ground

1.5.1 Hofstede's cultural dimensions

The Hofstede's cultural dimensions which is discussed as a complex whole includes knowledge, beliefs/religion, art, morals, customs and any other capabilities as well as habit

acquired by man as a member of society (Soares *et al.*, 2007). The Hofstede's cultural dimensions include power distance, masculinity, individualism and uncertainty avoidance. This study considered two dimensions among others: power distance and masculinity which are likely to influence health care seeking behaviour within traditional communities in SSA, compared to other dimensions (individualism and uncertainty avoidance). Power distance reflects the consequences of power inequality and authority relations in society and also relationship in the family context (Soares *et al.*, 2007). The two Hofstede's cultural dimensions can explain situations amongst agro-pastoral communities where power distance within the household members is likely to favour men. Men are muscular compared to other household members particularly women. They can easily achieve in different areas than women including engaging in various economic activities, capturing and controlling household resources as well as decision making (IFAD, 2012; OXFAM, 2013). This has direct and indirect influence to household health care seeking behaviour and under-five mortality (Raymond, 2013; World Bank, 2013).

Cultural system and community practices of are mostly inherited from ancestors throughout generations, accepted and coherently linked to a particular community. Despite the fact that, in cultural practices, some gain while others stand as losers yet the community accepts and sustains the cultural setup (UNICEF, 2012). For example, with regard to the power distance dimension applicability in traditional communities like agro-pastoralist men are accepted in communities and households as the persons with the authority over resource use and also as decision makers. The cultural set up denies women and children the right of enjoying household resources, money, assets and others even though they are highly involved in communities and household production systems. It is a rare tradition for women to question and demand adjustment of these cultural setups;

rather they accept, obey and take it as part of daily life, a situation which makes it difficult to harmonize and come up with rational use of resources and decision making.

Culturally accepted inequalities in traditional community like agro-pastoral communities are likely to cause a number of problems including health care seeking behaviour because, basing on power distance when a man is not around, a woman is likely to hesitate in reacting to the immediate case especially when money and other resources are required in order to attend a promising health service. Women perform a lot in their responsibilities like bearing and rearing children, caring for family sick members, collecting water and firewood, preparing and serving food, milking and churning milk to make butter and yet they have no room to make sound decision, something which is affecting their health care seeking behaviour (Agri-ProFocus, 2012). The study explored cultural effects on household power dynamics and their influence on health care seeking behaviour.

1.5.2 Health Service Model

The study adopted and slightly modified the Health Services Model (Simon, 2007) which stands for overall level of health services scheme in which the health care development takes place determining the size, structure and degree of services supply whereby attitudes underlying a given health service system regulate the individuals' use of them. Even if the social objectives of health services organizations are infrequently accurately expressed, their spheres are at least crudely identifiable. Once boundaries vary within and along with nations and culture, one would anticipate that under single scheme persons with particular disorders might look for care from personnel within an official health services structure, whereas under another system alike disorders might be engaged in other social institutions. Likewise, the practical division of labour within a health services system

identify areas for every component, such as groups of manpower and facilities, thus defining conformist points of entry as well as blueprint of referral for particular disorders.

1.6 Conceptual Framework

A conceptual framework is a tool which guides a research enquiry and enables exploration of a study. It stands as a map which guides the researcher throughout the development of research questions, literature review, methodology, data analysis, presentation and discussion of the results. In a nutshell, a conceptual framework holds the research together and enables a researcher to focus on the study variables. The conceptual framework for this study is described in Figure 1.1. The study key variables described in the conceptual framework include cultural factors, households' power dynamics, health care seeking behaviour, demographic factors, and under-five mortality. Influence of cultural variables, power distance and masculinity had an influence on household power dynamics which take on board gender relations, decision making, and resource allocation. Collectively, their impact had an influence to the health care seeking behaviour and under-five mortality. Inequalities in power, authority and decision making in agro-pastoralist households directly or indirectly relate to the health of agro-pastoralists in the study area. Disadvantaged household members, particularly women, are affected in number of ways including seeking health care from informal health facilities which sometimes have adverse impact to under-five children (Singh, 2015).

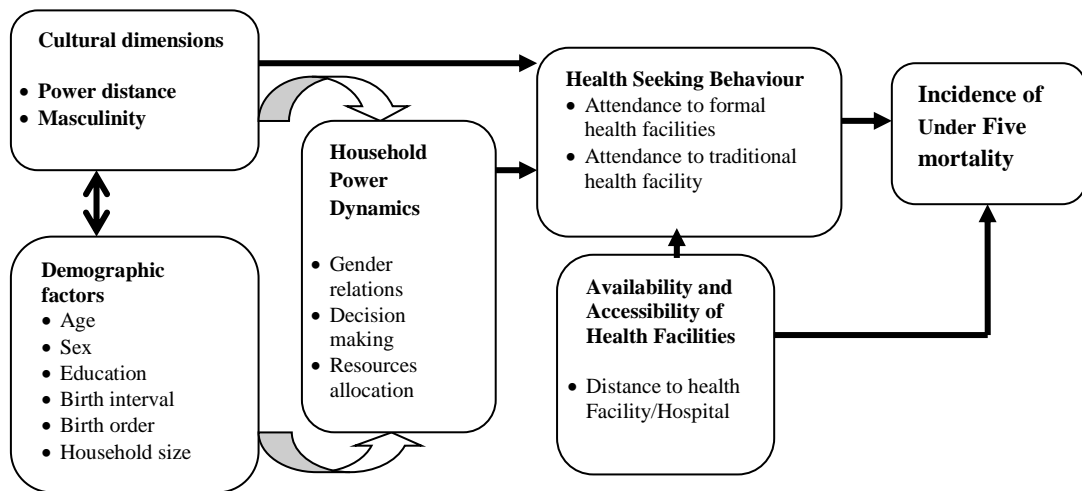


Figure 1.1: Conceptual Framework for the Incidence of Under-five mortality in the study area

Source: Developed from literature review and Hofstede's cultural dimension

1.7 Study Limitations

Language challenged the data collection process since some of the respondents were not comfortable with both Swahili and English as they mostly used their mother language. To overcome this limitation, the Village Executive Officers assisted by identifying persons who helped in interpretation whenever a need arose. Another challenge in data collection was the mobile nature of agro-pastoralists. This challenged the data collection exercise due to regular absence of male heads of household who were the spokesmen on issues related to livestock production and household income which, in number of ways, are related to the health of under-five children addressed by this study. This was overcome by revisiting the study villages and particular households. The study involved only four villages from Handed District due to financial and time constraints which limited the study from being conducted in all agro-pastoralists site.

Lastly, some of the data like age, birth dates of children, exact time when a household experienced under five-mortality were based on the memory recall by respondents; these were considered to be a close approximation of the variables which the study intended to

measure. This kind of challenge was overcome by crosschecking the data through triangulation where proxy and probing questions for activities in the household were asked. Sometimes, efforts were made to crosscheck some answers from household head spouse. Measures taken against these limitations ensured reliability and validity of the data collection process and analysis.

1.8 Organization of the Thesis

The thesis was developed based on publishable manuscripts set up of Sokoine University of Agriculture. Each manuscript stands as a chapter in this thesis and the entire thesis is divided into six chapters. The manuscripts one to four form chapter two to six while the first chapter covers extended background, statement of the problem, justification as well as overall and specific objectives addressed by the study. Furthermore, chapter one includes the theoretical part which highlights the Hofstede's cultural dimensions' model and Health service model (HSM). The two models were used to guide the study.

In chapter two, the first manuscript is presented concentrating on access and challenges of using health facilities among agro-pastoral communities. The chapter shows that there were two kinds of health facilities; formal-located within the study villages and informal-located at the district headquarters where poor roads, distance and adherence of agro-pastoralists to traditional treatment challenged attendance to formal health facilities for treatment.

Chapter three of this thesis consists of second manuscript which explores the influence of cultural dimensions on household power dynamics among agro-pastoralists in the study area. The chapter explains how agro-pastoralists' culture influences decisions on the use

of household resources as well as how power distance and masculinity as part of cultural dimensions' influence household decision making.

Furthermore, chapter four of the thesis consists of the third manuscript which explains health care seeking behaviour and prevalence of under-five mortality in agro-pastoralist communities. The chapter describes relationship of cultural values, traditional practices, socio-economic factors and health care seeking behaviour. The chapter shows how mother's and traditional treatment influence household's experience of under-five mortality.

On the other hand, chapter five presents the fourth manuscript which explains gender determined roles in relation to the health of under-five children among agro-pastoral communities. The chapter discusses how timely household decision making, control of household income and equal involvement of household members in the subsistence farming influence household's experience of under-five mortality.

The last part of the thesis which is chapter six is about overall conclusions and recommendations. The chapter concludes across the previous chapters and gives recommendations to the Government, Non-governmental organisations, policy makers and other stakeholders like health practitioners and individuals.

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CHAPTER TWO

2.0 Access and Challenges of Health Facilities amongst Agro-pastoralist

Communities in Handeni District, Tanzania

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2.1 Abstract

This study examines high incidence of under-five mortality among agro-pastoralists resulting from lack of access to health care facilities. A proportional sampling method was adopted, and descriptive statistics and binary logistic regression were used in data analysis. The results revealed low dependence of agro-pastoralists on formal healthcare facilities, which could be explained by prevalence of informal healthcare facilities in villages where they reside. Education, income, accessibility, and duration of stay in a particular area accounted for choice of health care facilities. Level of education and income determined preference for formal health facilities, possibly due to influence of education on understanding benefits of treatment in formal health facilities and income to meet associated costs. Accessibility of health facility influenced the decision to patronize formal health facilities. This was evident in villages, which were connected to reliable road networks. Additionally, the length time one resides in a particular area played a role in adhering to traditional values influencing the choice of informal health care facilities. The government and private sector should invest in rural road networks and promote education among agro-pastoralists on importance of using formal health care facilities and rational use of household income to improve accessibility to formal health facilities.

Key words: Health, agro-pastoralists, formal health facilities, informal health facilities,

traditional healers

2.2 Introduction and Background

Agro-pastoral farming system is a practice of agriculture that includes both the growing of crops and rearing of livestock (Tsegaye *et al.*, 2013). Both activities need large acreage, which creates pressure on other land uses (Rufino *et al.*, 2013). According to Boureima and Flury (2016), vast land in sub-Saharan Africa has been used for agro-pastoral activities even for areas which were initially earmarked for other uses, such as settlements and reserves. Interactions between agro-pastoral and non-agro-pastoral activities have resulted in social problems such as land use conflict and poor access to Formal Health Facilities (FHF) and services.

Studies have found that agro-pastoral communities in remote areas have difficulty accessing FHF resulting in the communities patronizing Informal Health Facilities (IHF) (Duba *et al.* 2001; Caulfield *et al.*, 2016). However, Cheikhoussef *et al.* (2011) argue that traditional knowledge of plant species as medicines and traditional views on causes of diseases compel agro-pastoralists to rely more on traditional treatments. However, this has resulted in severe health issues such as diarrhoea that need FHF intervention (Shidhaye *et al.*, 2015). Therefore, identifying causes of health problems and related treatment in FHF is important among agro-pastoral communities. Further, it is also important for women who are usually responsible for caring for under-five children and older persons within agro-pastoralists households, to attend treatment at FHF (Charlton & Rose, 2001).

Health services play an important role in promoting population's health and livelihoods of communities. According to Montenegro *et al.* (2011), health services results in improved community health status and its members regardless of age, gender, location and occupational background. Access and utilization of health services ensure healthy society

and results in minimal health problems such as reduced incidences of under-five mortality and resources which could otherwise be used for productive activities (Enwerem *et al.*, 2014). In a situation where residents have challenges accessing health services, they are likely to seek traditional healers or traditional birth attendants or delay presenting themselves to appropriate health facilities. However, Minstry *et al.* (2016) point out that delays in seeking FHF result in late diagnosis, and delayed treatment, delivery support and vaccination services. It has to be noted that laboratory test available in FHF are basic for diagnosing health problems and recommending appropriate treatment (English *et al.*, 2009). Moreover, inadequate formal health services and treatments can result in people suffering from common and preventable diseases (American Diabetes Association, 2015).

The nature of agro-pastoralists' activities requires them to live in remote locations where there is adequate land for farming, and grazing. Unfortunately, these locations are far away from the nearest FHF. Thus, households opt for informal health facilities, including traditional birth attendants during delivery. It is reported that traditional healers and traditional birth attendants are not trained in western medicine and as a consequence, leading to the death of the pregnant mother and her baby (Kayombo, 2013; Minstry *et al.*, 2016). Patients who sought treatment from IHFs before resorting to FHF experience more health complications (Dawood *et al.*, 2017). The under-five children from agro-pastoralist households are mostly affected by this practice (Atwine *et al.*, 2015).

According to the National Bureau of Statistics (NBS, 2015), Handeni District has a high rate (84.8%) of under-five mortality compared with 60.8% and 41.5% recorded in Muheza and Rombo Districts respectively. The high rate of under-five mortality recorded in Handeni District might be explained by the health care seeking behaviour of agro-pastoralists, which are specific to their norms and cultural values. The values, practices

and nomadic lifestyle of agro-pastoralists, among other reasons, make it difficult for them to access and use FHF in a timely manner. In addition, the available options of health facilities, accessibility and delivery of health services may compound the problem. It is in this context that this paper examined options of health facilities, access and challenges of formal health service delivery in the study area, Handeni District, Tanga Region in Northeast Tanzania. The following are the research questions answered by this paper: 1) What options of health facilities exist in the study area? 2) What factors account for the choice of a certain health facilities among agro-pastoralists? And 3) what are the challenges affecting access to FHF and implication of health service delivery among agro-pastoralists?

2.3 Study Area and Research Context

The study was conducted in Handeni District, Tanga Region located in North-Eastern part of Tanzania. According to Tanzania's 2012 Census, Handeni covers 355 702 km² and had a total population of 276,646 (URT, 2012). The major economic activities in the district include livestock farming, hunting and gathering, fishing, forestry resource and subsistence farming (Tanga City Council Report, 2012). The district experiences coastal climate with high temperatures (27°C to 30°C) and high humidity, while the mean annual precipitation is 800 mm to 1500 mm. Agro-pastoralists in the study area were previously traditional full time pastoralists, but they have slowly begun to live a sedentary life (Bee *et al.*, 2002). In addition, due to climate change, agro-pastoralists in Handeni District have adopted seasonal migration (nomadic) which sometimes leads them to live in more remote areas (Botterli, 2015). They are also characterized by traditional values and practices of which power is centred in the hierarchy of age set and division of labour which all together have an influence on household decisions.

Available health options in a particular community are among determinants of access to health facilities. According to Muiya and Kamau (2013), health services are categorized as formal and informal health facilities (FHF and IHFs). The FHF are those, which are certified and registered by regulatory authorities while the IHFs are not. Handeni District has public and private hospitals which are located in the district headquarters and IHFs are dominant in the rural areas. According to Boex *et al.* (2015), the government has taken initiatives to ensure availability of health facilities such as village dispensaries, clinics, pharmacies and antenatal care in rural areas. Lemire (2016) pointed out that, while government's efforts could ease the people's access to the FHF, the majority of agro-pastoralists seek services from traditional birth attendants specifically for expecting mothers. This situation threatens survival of mothers and their babies.

High attendances to IHFs despite the effort of the government to promote FHF, may explain the high mortality rate recorded in Handeni District. This raises an empirical question:

- 1) *What types of health facilities exist in the study area? Are the available formal health facilities accessible to agro-pastoral communities?*

Studies have also reported that indigenous knowledge about diversity of medicinal plants, cost, friendly staff and perceived experience of birth attendants and education are determinants of the choice of IHFs (Ibrahim & Ibrahim, 1998; Shehu *et al.*, 2016). Although these factors could be true, these studies were carried out in communities other than agro-pastoralists whose lifestyles may deny community members access to health services, not because they have indigenous knowledge on certain plant species but probably because of inaccessibility to FHF. Given that Tanzanian agro-pastoralists are

considered vulnerable communities (United Nation Children and Education Fund [UNICEF], 2016), this paper answers the following research question:

- 2) *What factors account for the choice of a certain health facility among agro-pastoralists?*

Understanding these factors would help policy makers to come up with appropriate interventions to increase the choice of health facilities among agro-pastoralists and improve their health.

Under-five children lack adequate care due to agro-pastoralists' nomadic life style. Living in remote areas limits access to FHF's since such areas are located away from formal health care services (Mrisho *et al.*, 2009). Male household heads are more mobile than females who take care of their children, with inadequate resources to access FHF's. Treatment and cost of medicines at FHF's as well as lack of certain medicines at formal health facilities are cited as common challenges, which often affect under-five children (Acacio *et al.*, 2015).

Poor access to health services is considered to be among the factors responsible for high under-five mortality among agro-pastoral communities. Therefore, the study intends to answer the following question:

- 3) *What are the challenges affecting access to FHF's and implication of health service delivery among agro-pastoralists?*

Understanding challenges affecting access to FHF's and the complication related to service delivery will improve timely service delivery and improve the health of the vulnerable agro-pastoralists.

2.4 Theoretical Background

Different theoretical models explain access to health facilities. These include health services models, interaction model of client health behavior, health belief model, equity of access model, among others. In this paper, a slightly modified Kohn and White health services model is used to describe the theoretical framework for a multi-variety analysis.

Health service model was developed by Kohn and White in 1976 (Simon, 2007) to understand macro level of health services systems. According to this model, health care process is determined by a number of attributes. Although factors such as the structure and supply of services, as well as guidelines underlining a given health system are different, they regulate individuals using the services. Figure 2.1 shows two sets of factors, agro-pastoralists' life styles and their psychobiological system, that determine both morbidity and access to health facilities. Collectively, they involve things such as education, income, cultural values, behavior and mental phenomena. Factors influencing health services use may not affect all the people at the same time and level, leading to difference in attendances to health facilities. Health access is influenced by location, cost element, cultural values and trust given to traditional healers (Chauhan *et al.*, 2015). Factors influencing health services sometimes challenge attainment of health services by driving people to explore different health options. Factors influencing use of health facilities are not uniform; hence, sometimes people use formal, informal or combine both FHF and IHFs. The paper considers a combination of different health care systems and its impacts particularly on the health of under-five children.

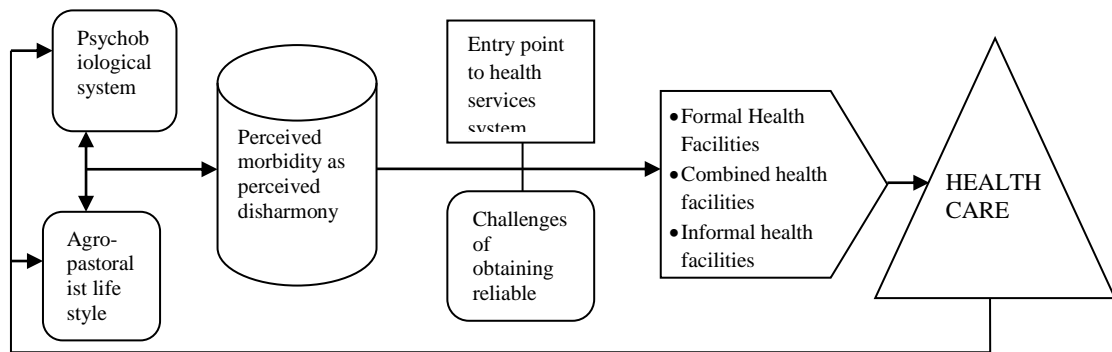


Figure 2.1: Source: Modified Kohn & White in 1976's Health Services Model

2.5 Methodology

The study uses a cross-sectional research design whereby data was collected at a single point in time. This design has been recommended by several scholars (see for example Babbie, 1990; Bailey, 1998; Bryman, 2004 and Delice, 2010) due to its cost and time effectiveness in data collection. Handeni District was considered as the study area due to the observed high (84.8%) rate of the under-five mortality, but also being among the districts in Tanzania with high number of agro-pastoralists (URT, 2015; Mwamfupe, 2015). Furthermore, purposive sampling technique was used in selection of wards and villages involved in the study.

A sample of 160 households was selected for the study and was obtained through proportionate stratified sampling. Through this technique, four villages, Kibaya, Msomera, Malezi and Kilimilang'ombe with 1 024, 1 000, 713, and 400 households, respectively were sampled. A proportion for each village was calculated by dividing the total number of village households to the overall total households for all the villages. The selected sample was considered relevant since all the villages had the same interest, values and traditional practices. Also, the sample size was considered adequate since scholars (Bailey, 1994; Gray, 2014) argue that a sample of 30 or more cases is suitable for studies in which statistical data analysis can be done.

Data was collected using a structured questionnaire. In order to test validity of the questionnaire, it was pre-tested in Bangu Village in Handeni District by interviewing 20 households. A review of the questionnaire was done whereby some questions were added while ambiguous statements were omitted. Later, the amended version of the questionnaire was used for the actual data collection.

For the first and third research questions, data was analyzed using descriptive statistics whereby frequencies and percentages were computed. The focus was to identify health care facilities available in the study area, challenges affecting access to FHF's and implications of health services delivery to agro-pastoralists.

A binary logistic regression model was used to address the second research question on factors influencing choice of health facilities in the study area. The model used is shown in the equation below:

$$\text{Log} [P_i / (1-P_i)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_9 X_9 + \varepsilon$$

Where;

$\text{Log} [P_i / (1-P_i)]$ = Natural logarithm of the odds for choice of health facilities. The dummy for the dependent variable (choice of health facilities in the study area) was coded as 1= formal health facilities, 0 = informal health facilities.

P_i = the probability that formal health facility would be chosen

β_0 = Constant

ε = error term

β_1 to β_9 = Logistic regression coefficients of the predictor variables. Independent variables in the model are as follows:

X_1 = Accessibility (1= Permanent roads, 0 = seasonal roads)

X_2 = Sex (1 = male, 0 = female)

X_3 = Age (in years)

X_4 = Education (1= formal education, 0 = informal education)

X_5 = Household number of children (ratio)

X_6 = Years lived in the area (ratio)

X_7 = Use of household resources to meet treatment costs (Yes =1, No = 0)

X_8 = Marital status (1 = married, 0 = not in union)

X_9 = Household annual income (ratio)

2.6 Results

2.6.1 Demographic characteristics

Demographic characteristics such as age, sex, education, marital status, are considered important variables in research since selection of services like health facilities can vary with respect to these variables (Konya *et al.*, 2016). A majority of the respondents in this study were in the 30-44 age group (55%), followed by those in the 18-29 age group (28.1%). The individuals in these age categories were considered mature enough to be involved in common agro-pastoral activities. The majority of the respondents were females (61.2%) (Table 2.1). This was because most males were either out grazing their livestock or farming.

Table 2.1: Demographic characteristics of respondents (n =160)

Demographic Attributes	Number	Percent (%)
Age of household head (years)		
18-29	45	28.1
30-44	88	55.0
45-54	22	13.8
55+	5	3.1
Sex		
Male	62	38.8
Female	98	61.2
Marital status		
Married	130	81.2
Not in union	30	18.8
Education of household head		
Formal education level	91	56.9
Informal education level	69	43.1
Household size (number of persons)		
2-8	125	78.1
9-15	32	20.0
16-22	2	1.3
23-29	1	0.6
Household number of Children		
1-5	101	63.1
6-10	56	35.0
11-15	2	1.3
16-17	1	0.6

Source: Field survey, 2014

Those who had formal education accounted for 56.9% (Table 1). The numbers of children in the households were categorized into four age groups (1-5, 6-10, 11-15 and 16-17 (Table 2.1). The average number of children per household was six (6). This was higher compared with the national average of 5.4 (URT, 2010). Worth noting here is that, the majority (63.1%) of the households had one to five children. Therefore, it implies that more attention is required in the study area since this age group is classified as a vulnerable group (URT, 2015) as health problems are inevitable.

Table 2.2: Respondents' level of education by sex (n=160)

Level of education	Male		Female	
	Number	Percent	Number	Percent
Formal education	38	69.1	53	50.5
Informal education	17	30.9	52	49.5

Source: Field survey 2014

Table 2.2 shows that 69.1% and 50.5% of male and female respondents had formal education respectively. Further, the results show that 49.5% and 30.9% of male and female respondents had informal education respectively.

2.6.2 Available options of health facilities

The study examined the available options of health facilities in order to establish whether health service delivery was adequate before providing recommendations. The results are presented in Figure 2.2 with options of health facilities categorized into formal and informal. The FHF included village dispensaries (12%), clinics (12%), antenatal care (7.5%) and pharmacy (14.4%). On the other hand, IHF included Traditional Birth Attendants (29.4%) and Traditional healers (25.0%), who were dominant in the rural area across the study area. Despite the dominance of IHF in the rural areas, respondents pointed out that occasionally they sought medical treatment at district and private hospitals located at the district headquarters.

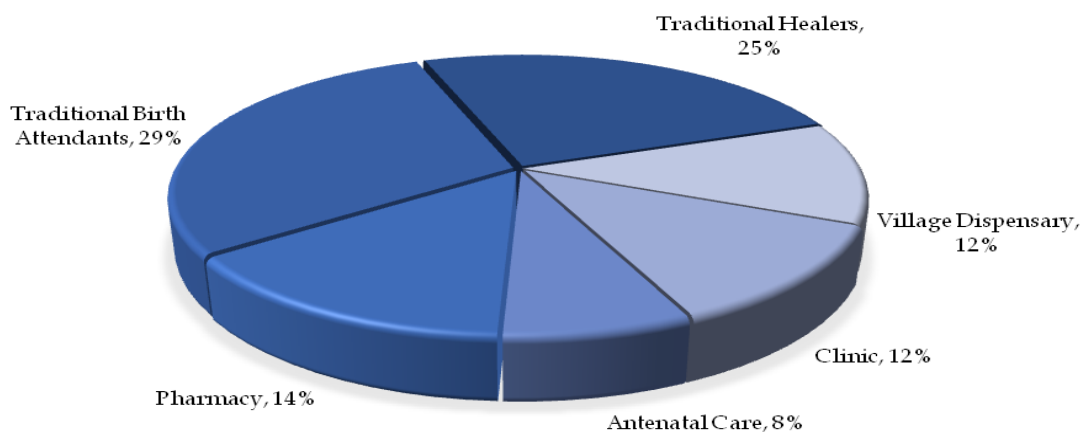


Figure 2.2 Available options of Health Facilities in the study area (n=591)

2.6.3 Utilized health facilities in the study area

There are variations among villagers in accessing health care facilities. For instance, in Msomera village where there is a dispensary and clinic, only 23.12% and 21.87% of the respondents attended those facilities respectively, while 28.1% of all respondents in

Kibaya village with no formal health facilities sought the help of traditional healers. Interestingly, the findings show that all respondents (100%) from the study areas visited traditional birth attendants (Table 2.3).

Table 2.3: Health facilities and services used in the study area (n=160)

Ward	Village	Formal Health Facilities					Informal health Facilities	
		Village dispensary	Clinic	Antenatal Care	Pharmacy	District & private Hospital	TBAs	Traditional healers
Misima	Kibaya	20(12.50)	9(5.63)	9(5.63)	30(18.75)	11(6.87)	52(32.50)	45(28.12)
	Msomera	37(23.12) *	35(21.87) *	10(6.25)	30(18.75)	7(4.37)	51(31.90)	42(26.25)
Chanika	Malezi	14(8.75)	13(8.13)	18(11.25) *	36(22.5) *	5(3.12)	36(22.50)	33(20.62)
	Kilng'ombe	9(5.63)	8(5.00)	5(3.12)	9(5.63)	1(0.63)	21(13.10)	19(11.88)
Total		80(50.0)	65(40.63)	42(26.25)	105(65.63)	24(15.0)	160(100.0)	139(86.85)

Source: Field survey 2014

Key: * FHF's available in the study area. IHFs were all available

Number of attendance are shown outside the bracket

Percent (%) of attendance to health services are shown inside the bracket

2.6.4 Choice of formal health facilities

The choice of health facilities was examined in this study in order to establish the tendency of agro-pastoralists to use formal or informal health facilities and implication on their health. Binary logistic regression model was used to estimate the probability of a binary response based on several independent variables. Table 2.4 shows the results of binary logistic regression which was used to examine the choice of FHF's or IHFs (formal = 1; while informal = 0). The Omnibus Test of the model coefficient gives an overall indication of how well the model performs. It is referred to as goodness of fit test (Pallant, 2005). A highly significant value $p \leq 0.05$ is needed and in this case, the value was $p \leq 0.05$. The chi-square value reported in this study was 33.686 with 9 degrees of freedom. For the Hosmer Lemeshow Goodness of fit test, poor fit is indicated by a significant value $p \leq 0.05$, so to support the model, a p-value greater than 0.05 is needed. In this study, the chi-square value for the Hosmer Lemeshow test was 5.634 with a p-value of 0.688. This

value is larger than 0.05, which supports the model. The Nagelkerke R Square value indicates the amount of variation in the dependent variable explained by the model ranging from 0 to 1. The two values are 0.190 and 0.275, suggesting that between 19.0% and 27.5% of variability in the outcome variable is explained by a set of predictors. Binary logistic regression results indicated that some of independent variables had influence on the choice of FHF or IHF.

The findings in Table 2.4 show that permanent road, level of education, years living in the study area and household annual income had significant influence on the choice of formal health facilities and services.

Table 2.4: Logistic regression predicting likelihood of choosing formal health facilities (n=160)

Variables entered in the model	β	S. E	Wald	p-value	Odds ratio
Accessibility					
Permanent road	0.487	0.245	3.941	0.047	1.627
Seasonal Road ^(a)					
Sex					
Male	0.307	0.476	0.417	0.518	1.359
Female ^(a)					
Education					
Formal education	0.154	0.059	6.843	0.009	1.166
Informal education ^(a)					
Age (Cont)	0.009	0.028	0.090	0.764	1.009
Household number of children (Cont)	-0.010	0.085	0.140	0.906	0.004
Years lived in the study area (Cont)	-0.509	0.192	7.00	0.008	0.182
Use of HH resources for treatment					
Yes	0.006	0.199	0.001	0.975	1.006
No ^(a)					
Marital status					
Married	-0.015	0.187	2.013	0.531	0.087
Not in union ^(a)					
Annual income (Cont)	0.005	0.000	5.388	0.020	1.005
Constant	3.285	1.247	6.936	0.008	26.698

Note: ^(a) = Reference category

Based on the results of the logistic regression in Table 2.4, the findings showed that permanent roads were the strongest predictor among agro pastoralists to choose FHF, recording an odds ratio of 1.627, $\beta=0.487$, $p \leq 0.0$. This indicates that those residing close to permanent roads were over 1.6 times more likely to choose formal health facilities than

those who did not have access to permanent roads, controlling for all other factors in the model. The variable permanent road suggests reliability of road from rural to district town where formal health facilities are mainly located. This means households in areas with permanent roads location have increased access and thus more likely to attend FHF. Given the fact that the study was carried out in rural areas with relatively poor road infrastructures, this is one of the reasons that may explain why the majority of agro-pastoralist did not seek treatment at FHF, which are mostly located in the district town. The results further indicate that education had a significant influence on the choice of health facility with an odd ratio of 1.166, $\beta=0.154$ at $p \leq 0.05$. The findings imply that household heads with formal education are 1.2 times more likely to use FHF than those with no formal education.

Table 2.4 shows the odds ratio of 0.182, at $p \leq 0.05$ for years the agro-pastoralists lived in an area which was less than 1, indicating that for every additional year of living in an area, the agro-pastoralists were 0.182 times less likely to report seeking the services of FHF. Income had a positive relationship and significant influence on the choice of health services ($\beta= 0.005$) at $p \leq 0.05$ (Table2.4). The odds ratio of 1.005 suggests that an annual income increase of 1 Tanzania shilling in the agro-pastoralist households increases the likelihood of attending FHF by 1.005 times.

2.6.5 Challenges of Accessing FHF's

Table 2.5: Distance in kilometers (km) to health services within and outside the study area

Villages	Distance (Km)			
	Kibaya	Msomera	Malezi	Kilimilang'ombe
Health services				
District & Private hospital	16.3	40	17.1	20.1
Village dispensary	1.4	1.4	1.4	1.1
Pharmacy	0.5	0.6	0.4	0.3
Clinic	1.2	0.8	1.6	1.2
Antenatal care	0.5	0.6	0.2	0.2
Traditional Birth Attendants	1.9	1.7	0.5	2.0
Traditional healers	0.5	0.4	0.3	0.4

Source: Field survey 2014

Uses of basic services amongst other health services are not free of challenges, the most important being cost and distance to FHF's. Table 2.5 shows the distance to these health facilities are 16.3 km, 40.0km, 17.1 km and 20.1 km from Kibaya, Msomera, Malezi and Kilimilang'ombe villages respectively. Distance from villages to FHF's at the District headquarters hinders residents in the study area to access FHF's. Other factors include high costs whereby more than a half (59%) of the respondents did not access formal services because they could not afford the cost of treatment. The majority (70.6%) of the respondents reported shortage of medicines at formal health facilities as a barrier.

Table 2.6: Issues challenging access to FHF's (n = 160)

Factors influencing choice of formal services	Disagree		Undecided		Agree	
	Number	percent	Number	Percent	Number	Percent
Unaffordable costs	95	40.0	1	0.6	64	59.4
Medicines are not available at FHF's	36	22.5	11	6.9	113	70.6
Laboratory services reliability	114	71.2	9	5.6	37	23.1
Mobility life style hinders access to available FHF's	33	20.6	24	15.0	103	64.4
Health care personnel are corrupt	25	15.6	29	18.1	103	66.2
It consumes a lot of time to visit the nearest health facility	17	10.6	16	10.0	127	79.4

Source: Field survey 2014, FHF=Formal health facilities

Factors such as state of mobility which features among agro-pastoralists' life style was pointed out by 64.4% of the respondents (Table 2.6) as a challenge affecting access to FHF, and that it was pushing agro-pastoralists away from established FHF. Corruption was mentioned by 66.2% of the respondents among factors affecting access to FHF. Apparently, this impedes poor rural dwellers' access to FHF

Table 2.7: Roads condition

Village	Permanent		Seasonal	
	Number	Percent	Number	Percent
Kibaya	37	52.9	15	16.7
Msomera	10	14.3	41	45.6
Malezi	20	28.6	16	17.8
Kilimilang'ombe	3	4.3	18	20.0
Total	70	100.0	90	100.0

Source: Field survey 2014

The condition of village roads was determined whether an individual could have year-long access to FHF at the District headquarters. Table 2.7 shows 52.9% of residents from Kibaya village were permanently connected to the district headquarters by the main road throughout the year, while 45.6 % of the respondents from Msomera village experienced poor connectivity.

2.7 Discussion

The purpose of this study was to examine options of health care facilities, access and challenges of formal health service delivery among agro-pastoral communities. It was found IHFs were available in the villages of the study area while FHF were located in the district headquarters. The findings indicate FHF were not readily accessible to the agro-pastoral communities. For instance, only 8.75% (Table 2.3) of the respondents from Malezi village sought the services of the village dispensary as opposed to 20.62% from the same village who patronized the traditional healer. Additionally, more than 90% of respondents use IHFs, particularly traditional birth attendants during child delivery. The

intensive use of traditional treatment increases the vulnerability of the under-five children. This supports Downie's (2012) observation that delivery by traditional birth attendants is the biggest contributor to causes of under-five mortality cases.

This study identified the following factors that determined the choice of health facilities: indigenous culture and practices of a particular place, respondents' education level and income. For indigenous culture and practices of a particular place, it was found that people dwelling in a particular area for a long period of time tended to seek traditional treatments, influenced by knowledge and cultural values attached to the health services in an area and ignore formal health services. These practices can have consequences on the health of rural population. However, further studies on influence of cultural dimensions are essential in exploring cultural values in relation to the use of health facilities.

The study also found, low level of education affects both male and female access to FHF's. According to Acharya *et al.* (2010), education is crucial in influencing decisions related to choice of health facilities and services as well as mobilization and management of household resources to fight against diseases. As shown in Table 2.2, nearly half of the respondents (49.5%) had no formal education. It should be borne in mind that education is essential in making decision; without education, people can decide wrongly and later suffer the consequences of poor decision. For example, Yaya *et al.* (2017) concluded that participants with formal education were about twice as likely to seek FHF's compared with those without. Thus, it is clear that more than half of residents in the study area had poor awareness and understanding of relevance of seeking health services from FHF's. The study suggests investing in education in the study area may influence agro-pastoral communities to attend to FHF's for treatment hence reducing their health problems.

In addition, it was shown that treatments at the FHF at the district headquarters had placed some financial pressure on the households (Tables 2.5 & 2.6) such as travelling expenses, as well as treatment, accommodation and meal costs. These costs were incurred mainly by expecting mothers and their assistants because expecting mothers may not necessarily give birth on the same day of their admission. Thus, livestock owned by these agro-pastoralist households can be sold to meet treatment costs. The current study emphasizes on awareness creation among agro-pastoralists so that they can see rationality of using household resources in order to overcome barriers such as travelling and treatment costs.

The study also found that dependency on traditional knowledge is risky since some diseases may need specialized diagnosis which could lead to appropriate treatment. This is consistent with Surawicz *et al.* (2013) observation that, in some cases, inappropriate treatment was associated with poor diagnosis and interpretation of diseases which led to health complications. Eshete *et al.* (2016) noted that traditional treatments were accompanied by a cultural based interpretation of the causes of diseases.

Logistics and distance to formal health facility was another issue. There was an average distance of 23.2 km to the nearest FHF (Table 2.5). According to Kadobera *et al.* (2012), population living more than 1 km from healthcare services experienced 17% increased mortality risk. Long distance, coupled with the nature of roads from rural areas to the location of FHF, contributed to persistent health problems among agro-pastoralists in the study area. Long distance and unreliable road network to formal health facilities caused delay and hence late treatment. In such a situation, expecting mothers and other patients, particularly under-five children, suffer and sometimes it leads to loss of life that could have been prevented if they had approached the nearest FHF. Therefore, establishment

of FHF's and ensuring service availability within the study area could facilitate access to reliable services and treatment. The study emphasized those children from households living more than 5 km away from formal health facility were at greater risk given that rural roads were not passable during certain times of the year.

In addition, seasonality of the village roads posed challenges to access FHF's at the district headquarters. For example, Table 2.3 shows that only 4.37% of the respondents from Msomera village were accessing FHF's at district headquarters. This is because of poor village road conditions during certain times of the year. Thus, village roads need improvement as to facilitate access to the FHF's which may contribute to reducing health problems in the study area, specifically for under-five children.

Generally, the findings imply that improved access to health services, greater investment in education, quality of formal services and minimizing corruption and bureaucracy in formal health system will motivate residents in the study area to patronize FHF's. Furthermore, accessibility of formal health facilities will have desirable health effects on agro-pastoralists. Mobility which is seen as a challenge to access FHF's should be handled by establishing FHF's within the study area.

2.8 Conclusions and Recommendations

This study found that IHFs were available across the villages in the study area while FHF's were concentrated at the district headquarters. Additionally, the IHFs were attended by the agro-pastoralists for logistical and traditional reasons. The study recommends conducting awareness creation campaigns in the study area on the relevance of using FHF's that can help in reducing health problems among agro-pastoralists.

In addition, level of education and income were the key factors accounting for the choice of FHF. Therefore, strengthening awareness and empowering women in decision making and allowing them to use household resources in fighting diseases can help the communities access FHF, hence reducing their health problems. Accessibility to the area was a variable influencing choice of FHF. Agro-pastoralists living in villages adjacent to the main road heading to the district headquarters were found to access FHF more than those who reside in villages located in interior part of the study area. Therefore, the study recommends that the government and Non-Governmental Organizations should collaborate and establish FHF within the study area. Also, it is recommended that traditional birth attendants should be guided to assist accompanying expectant mothers to FHF rather than encouraging them to help the mothers deliver at their places. Necessary efforts should be taken to ensure all the villages are connected to the main road with reliable feeder roads. This will help access and attainment of basic services offered at FHF.

Further, the study found that extended stay in an area is likely to tune people to indigenous cultural values, practices and knowledge, which motivate them to rely on IHF as an alternative to FHF. Thus, there is need to harmonize cultural values, practices and uses of FHF. Dangers associated with not having or missing vaccinations due to the communities' preference for traditional medication need to be examined and addressed. The study recommends future works to employ qualitative techniques and look at the role of culture on household power dynamics and uses of FHF or IHF among the agro-pastoral communities.

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CHAPTER THREE

3.0 Influence of Cultural Dimensions on Household Power Dynamics Among Agro-pastoralists in Handeni District, Tanzania

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3.1 Abstract

This study used the Hofstede's cultural dimensions to assess their influence on household power dynamics among agro-pastoral communities. Data were obtained from a random sample of 160 agro-pastoralist households from Handeni District using a structured questionnaire. Binary logistic regression model was used to examine the influence of cultural dimensions on household power dynamics. Both power distance and masculinity as parts of the Hofstede's cultural dimensions' variables used in the binary logistic regression model were found to have significant influence on control of household resources and decision making by male household head at $\beta = -0.313$, $p \leq 0.1$, and $\beta = -2.385$, $p \leq 0.01$ respectively. The observed influence of income was significant at $\beta = 0.005$, $p \leq 0.05$. Correlation analysis showed a small relation between social economic variables, power distance and masculinity. The findings indicate that male household heads control household resources as well as household decision making process. The study recommends to government and other stakeholders interventions to create awareness on the relevance of women involvement in control and decision making on household resources. Involvement of women in household decision making can contribute to the household wellbeing, including improvement in health of children under-five years.

Key words: Cultural dimensions, household, agro-pastoralists, power distance, masculinity

3.2 INTRODUCTION

Household power dynamics is the relationship of power among people in a given household. In this power relationship some household members are more powerful and dominant than others in making decision. In most African countries, inequality in household decision making is skewed towards men. This results into lack of power by many women, especially in traditional societies including agro-pastoralists (Murnen, 2016). Consequently, women are affected in a number of ways including lack of power to control over household resources and inability to attain reliable health care services as well as having limited access to income. It is generally reported that inequalities in household's decision making begin at home before their manifestation in societies (Kalil, 2013). In patrilineal societies, like in most agro-pastoralist societies in Tanzania, men have greater power to make decision simply because they are men (Sultana, 2011). Patrilineal family relationship follows father or family's line of male descendants i.e. father, his father, his father's father and so on. In a patriarchal family, the internalized norms make males dominate women in all aspects. Women are responsible to men because men hold the highest household position in terms of power and overall authority (Mutanana and Bukaliya, 2015).

The power inequality in a patrilineal family leads to biased decision making on household resources including income (Mader and Schneebaum, 2013). It ensures control of women by making them financially insecure and isolating them from decision making process in the household (Mutanana and Bukaliya, 2015). Culturally, men are entitled to make decision and give instructions to women for implementation (Jayachandran, 2014). However, according to ADB (2015), most of the instructions given to women are neither reliable nor practical due to lack of common understanding between households' males and females. Women are also denied power to own productive resources which could

empower them economically and enhance their contribution to household wellbeing and subsequently to the decision making (ACORD, 2014). Women in patrilineal societies may not decide freely to visit relatives nor seek outside employment which could increase their income. This suppresses their potential capacity to participate towards household wellbeing (Subba and Madhusudhan, 2014). Isolation from household resources control and decision making is likely to reduce women access to reliable health care services like public hospitals, private hospitals and pharmacies (ADB, 2015).

In his study, Kumiko (2008) observed that the question of matrilineal and patrilineal has been discussed over a long period and indicates some different characteristics between the two. However, the same study observed that the demarcation between matrilineal and patrilineal in terms of resource ownership and power to make decision has no clear boundary. Further, Stege *et al.* (2008); in their study done in Marshall Islands, Solomon Island and Vanuatu; explain matrilineal as maintenance of the lineage rather than any political role and that both matrilineal and patrilineal remain male dominated. Over a long period of time, it has been reported that patrilineal traditions influences matrilineal traditions in some communities, including Tanzania (Kumiko, 2008). There are strong social and cultural norms throughout the world which sustain power imbalance between male and female (Klingrover and Havlicek, 2015). The study on which this paper is based considered the Hofstede's cultural dimension model which includes power distance, masculinity, uncertainty avoidance and collectivism to drive household resource allocation, gender relation and decision making for good health of household members, particularly that of children under-five years.

Hofstede's cultural dimensions have been employed in several studies such as Wu (2006), Begriell (2011), Khairullah (2013) and Werner (2015). These studies have explored

convergence of different national cultures, impact of culture to organizations, effect of cultural dimension on innovation for European countries and International business. While the uses of Hofstede's cultural dimensions have been criticized for capturing cross country cultural differences, on the other hand, Soares *et al.* (2007) uphold that measuring Hofstede's cultural dimensions at the individual level constitutes an important contribution to cultural research. It is from this context, this paper considers Hofstede's cultural dimensions relevant to understand the household power dynamics and their implication on health of under-five year's old children.

This paper empirically assessed the influence of cultural dimensions on household decision making representing household power dynamics variables including gender relations and resources allocation. From policy perspective, balanced household decision making is one of the important elements for improving household well-being among agro-pastoralist societies in Tanzania. Generally, if inequalities at the household level are not addressed, potential skills and talents from disadvantaged household members, most of whom women, will remain undeveloped. The adverse consequences will trickle down to poor health of children under-five years amongst other effects (Hora, 2014; Chigbu, 2015). The important questions addressed by this paper are: How does culture influence decision on the use of household resources? How do power distance and masculinity as cultural dimensions influence household decision making? Responding to the above research questions, the study employed power distance and masculinity variables of Hofstede's cultural dimensions as they neatly match the study methodology.

Power distance is explained to be based on age and household as opposed to collectivism which mainly deals with groups. In collectivism, people are integrated to groups from birth onwards and self-introduction; "I" is avoided (Hofstede, 2011). The paper considered

an individual household as a sampling unit whereby the household head was taken as the respondent. Masculinity indicates dominance such as achievement, power, competition and material success which are almost universally associated with male roles (O'Connor *et al.*, 2015). On the other hand, uncertainty avoidance has to do with degree to which cultural members are ready to accept and deal with ambiguity. It needs high level of prediction about the future which leads to clear rules of behaviour and strict laws (O'Connor *et al.*, 2015). These arguments convinced the researcher to employ power distance and masculinity in studying agro-pastoralist households in the study area.

3.3 The Cultural Dimensions Models

Desire to understand cultural differences motivated Hofstede in the 1970s to start investigations that led to establishment of a model of cultural dimensions. The model explains culture using four constructs namely power distance, masculinity, uncertainty avoidance and collectivism. These are globally known and considered as standard for understanding cultural differences. They are also known to assist in scientific theory building in cross cultural researches (Soares *et al.*, 2007; Khastar, 2011). Although, other scholars like Bond (1987), developed Confucian work dimension and Minkov (2011) developed three cultural dimensions identified as indulgence vs. restraint, monumentalism vs. flexibility and masculinity feminist role-based. They both were mentored by Hofstede.

In his study, Werner (2015) tested a link between innovation and Hofstede's cultural dimensions across European countries. The study indicated that only two variables, power distance and individualism, had significant influence on innovation. This could be due to the fact that in European countries culture makes everybody accept that power is distributed unequally and that interests of individuals prevail over the interest of group

(Hofstede, 2011). Further studies such as one by Mhawar (2015) maintain that globalization process has an effect on the countries which intercut and seem to adopt a combination of cultures. According to Khastar *et al.* (2011), choosing proper levels of analysis is one of the important challenges to Hofstede's theory, and that theory has to be established based on detailed description of levels. This assertion was made based on their study that analysed Hofstede's theory of cultural differences and assessed place of ethnic culture in organization. There is wide support in the literature for the use of this conceptualization. For instance, Soares *et al.* (2007) asserts that measuring these dimensions at individual level forms an important contribution to cross cultural research. The study on which this paper is based assumed that the Hofstede's cultural dimensions could be useful in analysis of culture of agro-pastoralists, their influence on agro-pastoralists' household power dynamics and the impact on health of children under-five years.

3.3.1 Constructs of Hofstede's cultural dimensions

The Hofstede's Cultural Dimension is the mostly used cultural framework in a number of disciplines like marketing, sociology, psychology and management studies (Bond *et al.*, 2004; Blodgett *et al.*, 2008; Koc, 2016). Below are the details of constructs of the Hofstede's cultural dimension model and why they are considered appropriate for this study.

3.3.2 Power distance

According to Hofstede (2011), power distance is the degree to which the less powerful associate with an organization and an institution like family accepts and anticipates that power is distributed unequally. In this case, unequal distribution of power is accepted among people with and without power, or approved by followers as much as by the

leaders (Huber, 2001). In a low power distance society, power is shared and well dispersed in the sense that society or household members view themselves as equal, children are taught to take control of their own life as soon as possible (Waal and Chipeta, 2013). It is different in high power distance where society and household accept unequal distribution of power and where people understand their places in the system or household where aged people are both respected and feared.

When power is attached to a male/female household head and make them overall in making important decisions it may cause problems. For example, within agro-pastoral societies, male heads are often absent from home for a number of days. In case of emergency such as a sick person whose condition needs special and immediate attention, absence of this household member endowed with power to make decision may affect household initiatives to rescue the life through treatment. Children under-five years are more vulnerable compared to adult persons when proper treatment is not available on time (Abdulkadir and Abdulkadir, 2016). With the absence of empirical evidence on whether power distance has influence on power dynamics at household level, this paper was scheduled to confirm this proposition and establish if power dynamics have any implication on the health of children under-five years.

3.3.3 Masculinity

Varieties of masculinity aspects reflect traditional values attached to males and females (Wade & Rochlen, 2013). Masculinity, a cultural dimension, refers to how much society values traditional male and female roles with emphasis on ambition and acquisition of resources. In high masculinity societies or households, men are expected to be powerful, tough, providers, confident and generally effective leaders characterized with values such as success, money and possession of resources (Agodzo, 2014). In a high masculinity

society, imbalanced decisions are skewed to the one characterized with power and if not properly exercised can lead to wrong decision on the use of household resources.

When household resources and income are not wisely used, household members can suffer in different aspects including health particularly that of children under-five years (Craig and Mullan, 2011). In a low masculinity society, the family structure is flexible with small gender wage gap, women and men work and decide together equally across several household matters (Cox *et al.*, 2011). Roles in a low masculinity society are domestic oriented ones including taking care of children, preparing food, collecting firewood, and fetching water. Women are associated with low mass roles while men become more associated to roles that require physical strength (Murnen, 2016). Household roles division between male and female have a critical influence to development of health of children, specifically under-five years (Yogman, 2016).

3.3.4 Uncertainty avoidance

Next to masculinity, another Hofstede's cultural dimension is uncertainty avoidance. This is all about fear of the known and unknown which is an inborn and genetically determined character in our body (Carleton, 2016). These include fear of things such as disease outbreak or fear which is not related to any specific entity. The latter is the fear of uncertainty. Uncertainty avoidance as a Hofstede cultural dimension expresses the extent to which the members of a society feel uncomfortable with insecurity and doubt (Bleidorn *et al.*, 2015). It is a culture that moulds its people to feel either uncomfortable or comfortable in unstructured situations which are not normal (Noort *et al.*, 2016). If agro-pastoralist and farmer communities had capacity to predict prevailing resource scarcity, they would have avoided current common conflicts between them. The conflict has led to severe problems affecting persons, particularly children under-five years (Abebe, 2014).

There is a call to show land uses so as to reduce fighting and associated consequences between agro-pastoralists and farmers (Mwamfupe, 2015).

Uncertainty avoiding culture attempts to reduce the possibility of such a situation by strict behavioral codes, laws and rules, disapproval of deviant options and all people believe in absolute truth (Hofstede, 2011). Uncertainty avoidance can be done at different levels involving government and individuals. If strong uncertainty in life is felt as a continuous threat that must be fought, it can form a base for higher stress, emotionality, anxiety and neuroticism behaviours. Children under-five years in households with these attributes can be vulnerable since parent attention will be oriented to the mitigation exercises. According to Hofstede (2011), prolonged uncertainty avoidance correlates with mental problems of an individual which this paper considers a catastrophe to children under-five years whose parents' experiences that level of output from uncertainty avoidance.

3.3.5 Collectivism

Human behaviour always makes different groups; this is because all the time cultural range reveals collective understanding and customs (Postmes *et al.*, 2016). Collectivism dimension indicates the extent to which people in a society are integrated into group's interests and success which are more important than an individual's and that, for an individual to be accepted by members in a group is very important (Hsu, 2011). People from birth on wards are integrated into groups, often with extended families with uncles, aunts, and grandparents continuing protecting the exchange for questioning loyalty and oppose other in-groups. Under collectivism the self-introduction "I" is avoided, there is a "We" consciousness rather than "I". Others are classified in-group or out-group (Hofstede, 2011).

Generally, collectivism is contrary to individualism which explains a free social construction in which individuals are anticipated to take care of only themselves and their immediate families (Bleidorn *et al.*, 2015). An agro-pastoralists' community as a group has cultural values which consider traditional practices including use of traditional medicines. A household head in an agro-pastoralists community may be influenced by cultural values concerning use of traditional medicines which can have adverse consequences to household members, especially children under-five years. Children under-five years need treatment from formal health facilities which reduce vulnerability related to treatment in traditional medicines (OXFAM, 2008; Kassile, 2012).

3.4 Concepts of Power Dynamics

Power dynamics embraces terms such as power, gender relations, resource allocation, income, decision making, education, occupation, seniority and the like (Daplah, 2013). This paper deals with selected items only: power, gender relations, resource allocation and decision making. How men and women interact in an attempt to influence decision making is critical in determining structural roles that men and women play in social relations such as household decision making (Chawla, 2016). This is all about household gender relation works which differ in societies as cultural meanings given to being male or female varies (Schmitt *et al.*, 2016). In spite of the key roles by women in societies and households, their participation in household decision is limited as a result of cultural values that favor men (Cuddy *et al.*, 2010). Across communities and cultures, men have more rights and privileges in management and control of household resources and income than most women (Heath, 2013). Nigussie *et al.* (2014) and PSAP (2013) describe agro-pastoralist women to be having vital roles to play in livestock management, but they have little power in decision making and opportunities compared to men. Children under- five

years in hands of such women are affected as their mothers lack funds and authority over household resources which could be used in caring for them, amongst other uses.

3.5 Conceptual Framework

The conceptual framework (Fig 3.1) presents relationships among variables in this study whose interaction can lead to improved health of children under-five years or otherwise, depending on the nature of interaction. The variables shown in the conceptual framework include cultural dimensions, household power dynamics, and household health care seeking behaviour. Cultural dimensions through power distance and masculinity can influence household power dynamics. In a society where health of children under-five years is given priority, minimum health problems are reported and vice versa is true (Alonso, 2015). Under cultural dimensions, accepted cultural values and norms vary across societies manifesting in different practices such as control and use of household resources. Hence, there is direct link between cultural dimensions and power dynamics as presented in Figure 3.1. When emphasis on health issues is not among first priorities, household resources and associated income are considered to intervene health issues when it is too

late. This scenario affects access to reliable health services at right time, causing reliance on traditional treatment which the study considers inappropriate, particularly for children under-five years. Children under-five years need thorough diagnosis and generally extra care to understand and treat their health problems (English, 2017).

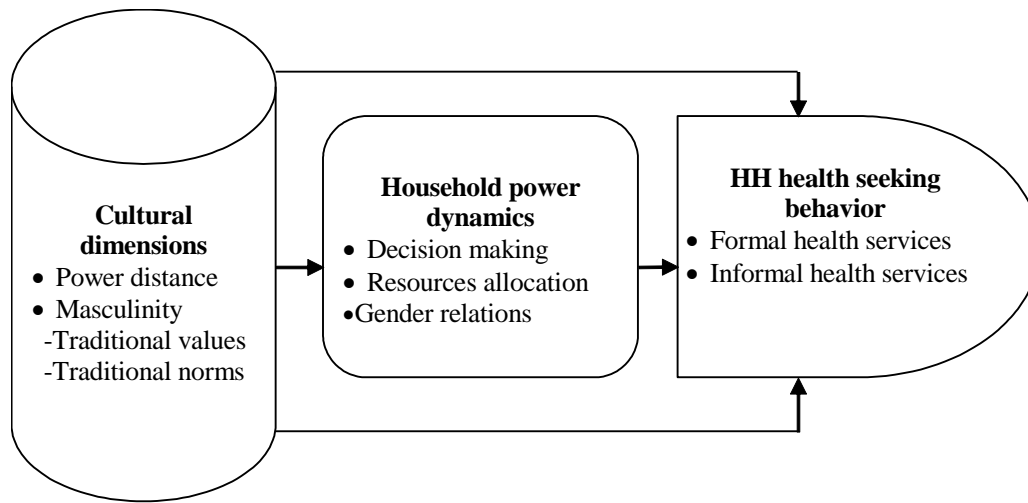


Figure 3.1: Conceptual framework

- i. How does culture influence decision on the use of household resources?
- ii. How do power distance and masculinity as cultural dimensions' influence household decision making?

3.6 METHODOLOGY

3.6.1 Research design and sampling procedure

The study adopted a cross-sectional research design whereby data were collected at a single point in time. The design has been recommended by several scholars (see Bailey, 1998; Bryman, 2004; Delice, 2010) due to its cost and time effectiveness in data collection. Wards and villages involved in the study were obtained through purposive sampling technique. The technique was preferred because the study targeted wards and villages which had high populations of pastoralists and agro-pastoralists.

The study involved 160 agro-pastoralists' households, a sample size which was considered to be adequate basing on homogeneity nature of households from the four villages. According to Bailey (1994) and Gray (2014), samples of 30 cases or more are recommended for researches which conditionally must have variables to be manipulated

and analysed statistically. From the two wards (Misima and Chanika) four villages were selected, two villages from each ward. The four villages involved in the study had 3 137 households. The selected villages and their respective household sizes were Kibaya (1 024), Msomera (1 000), Malezi (713) and Kilimilang'ombe (400). Proportionate stratified sampling was used to determine the number of households involved from each village in the study area. The total number of households for each village was divided by the overall total number of households for all villages and multiplied by 160 (arbitrarily decided sample) to get proportions of samples for each village. The outcome for each village was divided by 160 and the answer multiplied by 100 to get the sub-sample for each village.

3.6.2 Data collection methods

The primary data were collected using a structured questionnaire. The questionnaire was pretested at Bangu Village in Handeni District. The pretesting of the questionnaire was done in order to test clarity of questions before embarking on data collection. After the pre-testing some of questions were adjusted for clarity. The sampling unit for this study was individual households of agro-pastoralists in the study area.

3.6.3 Variables and measurements

3.6.4 Household decision making

Nineteen (19) items in the questionnaire were used to test female involvement in household decision making. Three different options of answers were available for each question in the questionnaire. These were; 1 if only a male was involved in household decision making, 2 if both male and female were involved in household decision making and 3 if only a female was involved in household decision making. These options were later transformed into a dummy for male and female involvement in household decision making (dependent variable) where female involvement = 1, otherwise = 0.

3.6.5 Power distance

Power distance was measured by fifteen (15) items in the questionnaire. The items were used to test involvement and ideas about leading households in the study area. A summated index scale with five alternative responses for the fifteen items was prepared ranging from 1= strongly disagree, 2 = disagree, 3= undecided, 4 = agree and 5 = strongly agree. Transformation of these options enabled creation of two dummy variables coded as 1 = household leadership was not participatory (high power distance). 0 = household leadership was participatory (low power distance).

3.6.6 Masculinity

On the other hand, masculinity was measured by observing if there were differences in subdivision of household roles among household elders. Twelve (12) items in the questionnaire were used to assess masculinity through responses in the index summated scale ranging from 1= strongly disagree, 2 = disagree, 3= undecided, 4 = agree to 5 = strongly agree. The respondents had to tick adjacent to each point to show their ideas about subdivision of household roles. Transformation of the options lead to two dummy variables coded as 1= inequality in household roles subdivision (high masculinity), 0 = equal subdivision of household roles (low masculinity).

3.6.7 Other variables

Other variables considered in the study were education, attendance to pharmacy, household annual income and household size. Education and attendance to pharmacy were measured as dummy variables with 1= formal education, 0 = no formal education and 1= attending pharmacy, 0 = Not attending pharmacy. Household annual income was measured in amount of Tanzanian shillings while household size was measured by number of members in the household.

3.6.8 Data analysis

The Statistical Package for Social Sciences (SPSS) software was employed in the analysis of quantitative data. Descriptive statistics were computed including frequencies and percentages, while binary logistic regression was used to estimate decision making which was the dependent variable.

The independent variables used were age and education of respondents, household average annual income, household's size, attendance to pharmacy, power distance and masculinity. Age determines experience and time spent on household affairs as well as trust from others that one is mature enough to handle some responsibilities or not (Settersten *et al.*, 2015). Education and average household annual income can determine a particular household decision making on issues like household size and sources of treatment such as formal, traditional or buying medicine straight from pharmacy. All these have implication to children under-five years in a particular household.

Outputs from the model were interpreted based on β -coefficients for measuring the directions of the impact (positive or negative) of predictor variables, Wald statistics for measuring the magnitudes of the impact and p-value for testing significance of the impact. The binary logistic regression model that was used is shown as:

$$\text{Log} [p / (1-p)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_7 X_7$$

Where;

$\text{Log} [P_i/(1-P_i)]$ = Natural logarithm of the odds for female involvement in household decision making. The dummy for the dependent variable (female involvement in household decision making) was coded as 1 = Yes and 0 = No;

$P_i = 1$, certainty (100%) that females were involved in household decision making

1-Pi = uncertainty of female involvement in household decision making

β_0 = Constant;

β_1 to β_7 = Logistic regression coefficients of the predictor variables. The independent variables in the model were as follows:

X_1 = age of respondent in number of years (ratio);

X_2 = education (formal education = 1, no formal education = 0);

X_3 = household annual income in Tsh (ratio);

X_4 = household size (ratio);

X_5 = attendance to pharmacy (Yes = 1, No = 0);

X_6 = power distance (household leadership is participatory = 1, household leadership is not participatory = 0);

X_7 = masculinity (hierarchy in subdivision of household roles = 1, no hierarchy in subdivision of household roles = 0)

3.7 RESULTS AND DISCUSSION

3.7.1 Management and control of household's resources in the study area

Management and control of household resources were assessed in order to establish presence of evenly or skewed control between male and female household heads. The results in Table 3.1 show that 83.1% of the household decisions on selling household livestock were made by male household heads. Similarly, 78.1% of all decisions of selling crop products were also made by males. Almost 64.4% of the household decisions on spending household cash from livestock were made by male household heads while 61.3% of all decisions on spending cash from crops were also made by males. The percent of females deciding on spending cash from sale of livestock and crop products were 30.0% and 33.7%, respectively. This is higher compared to 10.6% and 16.3% of some women who were involved in decision making on selling of some household resources.

The findings suggest that cultural values and practices in the study area give power to male heads of households and make them superior to women and children. This may further imply that women do not freely use household resources to solve household problems including treatment of children under-five years. These findings are in line with those of a study by Lemire & Budgell. (2016) who revealed that males in Nigeria were generally controlling households. Increased percentages of women's involvement in decision on spending cash from livestock and crop products may result from the prevailing global movement to women empowerment. There is a need to develop participatory behaviour in making decision on the sale and use of earnings from household resources in order to have common focus among household members. This can help in solving household problems particularly those which are related to health of children under-five years, among other things.

Table 3.1: Management and control of household resources (n = 160)

Activities	Involvement in management and control of household resources					
	Male		Female		All	
	Number	%	Number	%	Number	%
Decision on selling household livestock	133	83.1	17	10.6	10	6.3
Decision on selling household crop products	125	78.1	26	16.3	9	5.6
Decision on spending cash from sale of livestock	103	64.4	48	30.0	9	5.6
Decision on spending cash from sale of crop products	98	61.3	54	33.7	8	5.0

3.7.2 Relationship among Socio-economic characteristics, power distance and masculinity

The relationship among socio-economic characteristics of the respondents (i.e. age, education, household average annual income, and household size attendance to pharmacy) and some of Hofstede's cultural dimensions which consist of power distance and masculinity were investigated using Pearson product-moment correlation coefficient. Prior

to this investigation, an analysis was performed to ensure no violation of the assumption of normality. The Shapiro-Wilk test (formal test for normality) confirms normal distribution of data since it does not reject the null hypothesis of normality of the residuals at $p = 0.06$. The Pearson product-moment coefficient analysis (Table 3.2) showed small correlation between respondents' socio-economic characteristics and Hofstede's cultural dimensions-power distance and masculinity. In the analysis, respondents' household size appeared to relate to the respondents' age. This implies that aged households bear high number of children particularly in traditional communities like agro-pastoralists. It was further found that power distance as a variable slightly relate to age of respondents. This is caused by the fact that it is about accepting inequality in distribution of power in a household where aged household members bear high power compared to younger ones. Masculinity on the other hand relate to household annual income, reflecting its characteristics on traditional male and female roles. This is associated with values such as success, money and possessions of resources. The findings on relationship between masculinity and power distance are obvious since the two variables are from the same category among the four variables under Hofstede's cultural dimensions.

Table 3.2: Socio-economic characteristics of respondents Hofstede's cultural dimensions variables

	Age of Respondents	Education level	HH annual income	HH Size of respondents	Attendance to pharmacy	Power distance	Masculinity
Age of Respondents							
Education level	0.013						
HH annual income	0.088	-0.140					
HH Size of respondents	0.525***	0.017	0.035				
Attendance to pharmacy	-0.052	-0.018	-0.099	-0.090			
Power Distance	0.114	0.018	0.088	0.069	-0.017		
Masculinity	0.142	0.010	0.183**	0.848 **	-0.094	0.642***	

3.7.3 Influence of cultural dimension on household decision making

The study examined influence of cultural dimensions on household decision making which was assumed to have link to the health of children under-five years. The study used binary logistic regression model to establish the influence of cultural dimensions to household decision making. The Omnibus test of the model coefficient was highly significant at $p \leq 0.05$ which suggests that the model was fit to handle the variables. The chi-square (X^2) value in these results was 40.5 with 9 degree of freedom. The Hosmer and Lameshow goodness of fit test indicates that poor fit is observed when the significant p-value ($p \leq 0.05$) (Pallant, 2005). In this case the X^2 value for Hosmer-Lemeshow test was 7.2 with a p-value of 0.519 larger than 0.05 which indicates that it supported the model. The Nagelkerke R square gives an indication of the amount of variation in the dependent variable explained by the model from a minimum of 0 to a maximum of approximately 1.

In this case it was 0.224 to 0.317 suggesting that between 22.4% and 31.7% of the variability explains set of variables entered into the model.

Table 3.3: Regression results of cultural dimension influence to household decision making (n=160)

Variables entered in the model	β	S.E	Wald	p-value	Odd ratios
Age of respondent	0.531	0.377	1.986	0.159	1.701
Education	0.752	0.486	2.396	0.122	2.121
Household annual income	0.005	0.000	8.276	0.004	1.005
Household size	0.725	0.546	1.761	0.185	2.065
Attendance to pharmacy	0.560	0.418	1.796	0.180	1.751
Power distance	-0.313	0.92	11.645	0.001	0.76
Masculinity	-2.385	0.933	6.530	0.011	0.89
Constant	-4.112	1.687	5.940	0.015	0.016

The regression results (Table 3.3) indicate that power distance, household annual income and masculinity variables had significant influence on household decision making. Also, household power distance as shown in Table 3.3 had a significant negative influence on household decision making ($\beta = -0.313$) at $p \leq 0.1$. The Wald statistic of 11.645 and the odds ratio of 0.76 imply that household power distance was among influential variable as its increase, decreased chances of women's involvement in household decision making. The odd ratio shows that power distance was 0.76 times more likely to reduce women involvement in household decision making. These findings mean that, as in most traditional cultures, agro-pastoralist culture in the study area favours men compared to women. This is confirmed by results in Table 3.1 which demonstrate that 83.1% of decisions on selling livestock and 78.1% decisions on selling crops were made by males. Failure to integrate women in household decision making has several implications such as making less informed decisions as well as stagnation of women's ideas which could contribute to wellbeing of the particular household. An observation by Fomby and Cherlin (2007) in a study they conducted in America supports the current findings that women have crucial contribution to household development and to improve health, particularly

that of children under-five years. Sensitization is needed for women empowerment and awareness creation in order to reduce women isolation from household decision making.

Income makes households afford most of the things they desire such as paying rent or mortgages as well as paying other bills like life insurance, food and water utilities. In this study, income was assessed to establish if it has an influence on female involvement in household decision making. It was found (Table 3.3) that income had a positive relationship and significant influence on female involvement in household decision making ($\beta = 0.005$) at $p \leq 0.05$. The Wald statistic value of 8.276 and the odds ratio of 1.005 suggest that the variable income was also influencing both male and female (from high income households) at 1.01 times more to participate in household decision making than households with low income. In addition, it was noted (Table 3.1) that, there were improved involvement of women, 30.0% and 33.7%, in the household decision making on spending income resulting from sales of livestock and crop products which were largely decided by males. This finding is in concurrence with Blackden *et al.* (2015) who inferred that income was the reason behind equal participation in household decision making among males and females in Tanzania. Efforts to improve households' wellbeing need to capitalize on equalization of power to control household resources and associated income. Contribution of cultural values to skewed household decision making needs assessment and rectification. This will help households' achievement including improvement in health, specifically that of children under-five years.

The coefficient of the masculinity (Table 3.3) had a negative relationship and significant influence on female involvement in household resources ownership. This extends its impact to household decision making ($\beta = -2.385$) at $p \leq 0.01$. The Wald statistic value of 6.530 and the odds ratio of 0.85 indicate that high masculinity was also influential among other variables entered in the model. It was 0.85 times more likely to decrease the

probability of female possessions of household resources and power to decide, compared to males. These deprived women the right to contribute to the household wellbeing through particular household resources. The effect can manifest in different areas including in health of children under-five years (ACTIONAID, 2013). As seen in Table 1, an increase in percent of women deciding on household income from sales of household livestock and crop products had potential impact on the household development; hence it needs support. Women's involvement in household decision making is possible through assessing prevailing cultural values and their outcome like ending up with high masculine community which affect involvement of both males and females in control of household and decision making.

3.8 Conclusions and Recommendations

This paper explored the influence of cultural dimensions on household's decision making using Hofstede's cultural dimensions. Household decision making was taken as a representative variable for gender relation and resources allocation which collectively stands as household power dynamics. Descriptive statistics were used to compute frequencies and percentages of the household decision on sale of household livestock and crop products as well as spending of the income generated. Binary logistic regression analysis was used to examine the influence of masculinity and power distance on household decision making. Findings from the study on which this paper is based indicate that males dominated household decision on selling all household resources including livestock's and crops. Lack of females' participation in households' decision making negates their capacity to perform important household roles such sales of household resources and control of earnings. Women lack access to income which could make them participate in household decision making in different areas including well-being of children under-five years. Cultural practices which lead to inequality between male and

female need an assessment and whenever necessary adjustment for the sake of improved household well-being. Government through Ministry of Health and other stakeholders like NGOs dealing with social affairs should conduct awareness creation campaigns, seminars and workshops in the study area to sensitize equal participation in household decision making between males and females. These must involve cultural elders, District development officers, village leaders and women representative from each village who will need to discuss the cultural issues widening the gap towards equal participation in the household decisions making. The impact of differences in household decision making on the household wellbeing in relation to the health of children under-five years needs to be considered. Thorough discussion and strategic implementation are needed to correct inequality that can affect women and children under-five years. Thus, potential development and household well-being through participatory involvement in household decision making will be achieved. The study recommends further research in health care seeking behaviour and its effects among agro-pastoral communities. The study's contribution to the body of knowledge is that not all Hofstede's cultural dimensions fit in the study at the individual household level. That is why uncertainty avoidance and collectivism were excluded in the current study.

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CHAPTER FOUR

4.0 Health Care Seeking Behaviour and Incidence of Under-Five Mortality in Agro-pastoral Communities in Handeni District, Tanzania

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4.1 Abstract

This paper explored health care seeking behaviour and its influence on households' incidences of under-five mortality among agro-pastoralists. The study used a cross-sectional research design whereby a structured questionnaire was used to collect data from 160 agro-pastoralist households. Correlation analysis results shows existence of a linear relationship between cultural values, traditional practices, socio-economic factors and health care seeking behaviour. Logistic regression results show mother's age, number of children in household and masculinity have significant influences on a household's health care seeking behaviour. Further, the logistic results indicate that mother's age and traditional treatment attendance have significant influences on household's experience of under-five mortality. The findings demonstrate that the variables influenced individual households to seek treatment from traditional than modern health facilities. It is therefore recommended that Health Officials and Community Development Officers should create awareness and promote health services seeking behaviour from reliable sources among agro-pastoralists. In addition, the Government and other stakeholders are urged to further educate agro-pastoralists and other rural dwellers to abandon cultural practices and values which contribute to poor health seeking behaviour and lead to higher households' incidence of under-five mortality.

Key words: health care seeking behaviour, agro-pastoralists, under-five children, mortality, incidence

4.2 INTRODUCTION

Health care seeking behaviour (HSB) is a sequence of actions undertaken by individuals who perceive themselves as having a health problem or are ill for the purpose of finding the right medication (Ketis, 2014). It is argued that inappropriate HSB provides a base for continuous health problems in a particular household and community (Sutan *et al.*, 2016). Health problems related to poor HSB include prevalence of diseases and incidence of mortality, specifically for under-five children more so in rural areas (UNICEF, 2014). Incidences of under-five mortality (U5M)³ are high in developing countries, Tanzania included. This may be due to households' poor health care seeking behaviour (Arunda *et al.*, 2016). Generally, people living in rural areas are reluctant and use informal than formal health services. This is caused by prevalence of common knowledge on local and cultural treatment, leading to high incidences of under-five mortality, a situation that requires interventions.

Rahman *et al.* (2001) maintains that the well-being of under-five children depends on their parents and guardians' HSB. Therefore, households characterized by undesirable health care seeking behaviour could subject their members to negative health consequences. Nonetheless, under-five children are more vulnerable than adults since the course of action to intervene children's health problems depends on someone else who may subject them to poor treatment (Ngimbudzi *et al.*, 2016). Due to traditional practices, cultural values and poverty, parents and guardians sometimes face trade-offs between investing in a child's health and other household responsibilities. In this case, under-five morbidity situations are likely to persist and ultimately lead to mortality which can highly be avoided.

³ Under five mortality (U5M) refers to deaths occurring to children aged below five years while under five mortality rate is the number of deaths of children below five years of age per 1000 live births

In most African rural areas, Tanzania included, response to ill health may include household's consultation with modern health facilities or any form of traditional illness management system. These systems include self-treatment by taking or applying local remedies, visit to traditional healers and buying medication from drug stores without prescription (Fomundam, 2011; Afolabi *et al.*; 2013; Engenda *et al.*, 2016). Moreover, delayed and inappropriate HSB and treatment can be linked to adverse consequences on patients' condition and medical costs. They are, at the same time, associated with hindrance to the potential benefits of early intervention including reduced under-five mortality (Ghazawy, 2015). Generally, in Sub-Saharan African countries, such as Tanzania, under-five mortality remains a significant health challenge which needs special attention for averting deaths which may occur due to preventable causes (Arunda *et al.*, 2016). For example, while around the world vaccination against measles helped prevent nearly 15.6 million deaths between 2000 and 2013, it is reported that 16 000 under-five children die every day worldwide, mostly from preventable causes (UNDP, 2015). This postulates that child survival needs special attention, specifically by accessing the right kind of health interventions given to sick persons, particularly under-five children.

Studies in Sub-Saharan Africa (SSA) report that within African countries, there has been emphasis on the use of treatment from formal health services (Levers, 2006; Pierre *et al.*, 2011; Maroyi, 2017). Despite several initiatives and strategies to ensure availability of health professionals and establishment of primary health care aiming at provision of formal health services, about 80% of people in rural SSA seek treatment from informal health services (URT, 2003; WHO, 2008; Oyeboode *et al.*, 2016). Although there are few studies explaining health care seeking behaviour in agro-pastoral communities, little is known about the impact of HSB on the health of under-five children. Therefore, the study on which this paper is based aimed at assessing health care seeking behaviour among

agro-pastoral communities in Tanzania and its influence on the health of under-five children so as to fill the gap. This paper addresses the following key questions: is there any association among cultural values, traditional practices, socio-economic factors and HSB among agro-pastoralists? What are the determinants of household health care seeking behaviour among agro-pastoral communities? And does health care seeking behaviour bear any influence on under-five mortality?

4.3 Literature Review

4.3.1 Health care seeking behaviour

There are two models of health care seeking behaviour (HCSB): the pathway and determinant models (MacKian, 2007). The pathway model of HCSB narrates the steps of the process from identification of symptoms to the use of a particular health care providing facility. The model focuses on identification of a logical sequence of steps of HSB as well as how the social and cultural factors affect the sequence. The model concentrates on the information that an individual might expect to process during occurrence of an illness. This involves the principle of cost benefit analysis used to evaluate the action taken towards health care seeking behaviour involving individual's interaction with social networks in that perspective (Ketis & Kersnik, 2014).

On the other hand, the determinant model focuses on the steps one would take to preserve or improve health. The model focuses on highlighting a set of determinants related to the choice of different kinds of health services (Graham, 2004; MacKian, 2007). Andersen (1995) grouped determinants of HSB into three major categories, which are population characteristics, health care systems and external environment. He observes that because of population characteristics, for example, traditional populations seek more of traditional services due to traditional values attached to such services. For the case of health care

systems, availability of services, guidelines and directives governing services delivery influences HSB while environmental factors include location of services, within or outside. Models dealing with factors influencing health care seeking behaviour are crucial in enabling one to understand how and why some individuals seek health care earlier than others.

Musoke *et al.* (2014) who assessed factors which affect HSB including physical, socio-economic, cultural and political ones in Uganda found that education level, economic status, cultural beliefs and practices influence HSB. He further added that environmental conditions, socio-demographic characteristics, gender issues, knowledge about the facilities and health care systems are amongst things which influence HSB. Because of being a worldwide marginalized groups, agro-pastoralist's HSB is being transformed by different challenges (UNEP, 2015).

According to Cordaid (2015), agro-pastoral communities cultivate small areas of land sufficient to feed their families from their own crop production. At the same time, they keep herds of livestock. The group faces many challenges in obtaining health care services compared to other populations (Shiekh & Kwaak, 2015). This is because agro-pastoralists emerge from different ethnic groups with different cultures and local knowledge which makes them prefer traditional medications to modern health facilities and services (Maro *et al.*, 2012). Also, in the course of seasonal movement as they look for grazing land, agro-pastoralists move to more remote areas where they easily access traditional sources of treatment compared to modern ones. These progressively cause agro-pastoralists to seek treatment from traditional than modern sources of treatment, a behaviour which denies them the possibility of receiving correct treatment in a timely manner. This situation results into persistence of morbidity and mortality, particularly for children under-five years.

Most previous studies focused on HSB in general and little on agro-pastoralists. For example, a study by Nonyane *et al.* (2016), conducted in Bangladesh, identified that most under-five deaths in developing countries are due to preventable causes for which care could be available by focused intervention. However, the study did not consider communities such as the agro-pastoralists whose HSB can be influenced by a combination of variables such as cultural values, traditional practices and socio-economic factors. This raises the question on whether:

Is there an association between cultural values, traditional practices, socio-economic factors and health care seeking behaviour among agro pastoralists?..... I

The association determinant between socio-economic factors and HSB of the agro-pastoralists provides policy options for intervention on issues related to key socio-cultural, traditional, and economic attributes that determine HSB. Generally, improved HSB may have a positive effect on other health variables such as under-five mortality.

4.3.2 Determinants of households' Health care Seeking Behaviour (HSB)

HSB among agro-pastoralists can be determined by different factors (Maro *et al.*, 2012; Shaikh and Hatcher, 2017). Age is one out of the several socio-economic variables which can influence one's decision to engage with a particular medical channel. Under-five children normally depend on other persons' (parents or guardians) for HSB. When parents and guardians predominantly seek health services from reliable sources, then communities and households enjoy good health (Uzochukwu and Onwujekwe, 2004). On the other side, those who seek treatment from unreliable sources, can experience health problems. These problems most of the times affect under-five children compared to older persons (McKay and Timmermans, 2017). According to Patil *et al.* (2016), there is relationship between age and HSB. However, the study did not show the vulnerability facing under-five

children when a household depends on unreliable treatment sources which is addressed in this paper.

Other variables which are likely to influence health care seeking behaviour are education and income. For instance, according to Ahmed *et al.* (2005), Ngarivhume *et al.* (2015) and Satti *et al.* (2016), education weakens the bonds to traditional treatment since educated household heads seek treatment from reliable sources compared to uneducated ones. Ahmed *et al.* (2005) uphold that well educated household heads had higher incomes compared to those households whose heads were not educated. Nonetheless, the study did not consider health effects of seeking treatment from unreliable sources, to under-five children whose parents were influenced by their lower level of education and poor income. The paper examines issues related to health of under-five children based on a household's HSB. Also, the same variables (education and income) are reported (see United Nations, 2009; Atta, 2015) to influence household sizes as well as cultural practices which together have implication on access or no access to reliable health services. The sizes of educated household heads were small ranging from 2 to 4 household members. This is different from uneducated household sizes which were larger. For large household heads implies high household expenditure which when income is inadequate leads to adoption of marginal services including traditional health services. This indicates a danger of health for under-five children who are vulnerable to be treated from unreliable sources.

The study on which this paper is based, therefore, focused in filling the gap observed in the previous studies. It aimed to address challenges facing under-five children from use of unreliable treatment sources as well as contribution of education in changing from poor sources of treatment to the promising ones. To explore this, the study attempted to answer the question:

What are the determinants of household HSB among agro- pastoral communities?..... 2

Generally, exploring factors influencing HSB enables a better understanding of the forces behind treatment choices in the study area and the related health consequences, particularly for under-five children. In addition, the findings provide a basis for different stakeholders as they aim to improve the health and well-being of under-fives in Handeni district and may be other areas with similar characteristics.

4.3.3 Under-five mortality

Globally, under-five mortality has declined by 53% from 91 deaths per 1000 live births in 1990 to 43 deaths per 1000 live births in 2015 (UNICEF, 2015). However, for SSA, the decrease of under-five mortality has been from 178 deaths per 1000 live births in 1990 to 109 deaths per 1000 live births in 2011. Records show a further decline of under-five mortality in the same region from 4.1% in 1990 to 1.6% in 2015. Although SSA countries have experienced a decline in under-five mortality, the degree of reduction varies from one country to another and within districts (UNICEF, 2014).

Tanzania is among the 27 countries in SSA with at least 40 deaths per thousand live births, and there has been a decrease of under-five mortality by at least a half since 1990 (UNICEF, 2014; URT, 2015). Nonetheless, there has been a substantial variation of under-five mortality decline within districts in Tanzania. For example, Handeni remains a district with a low pace in decreasing of under-five mortality. In 1998, the district recorded a under-five mortality rate of 173 deaths per 1000 live births which shows an insignificant decline in 2002 as it was observed to be 172 deaths per 1000 live births. Based on the 2002 Tanzania Population and Housing Census, it was observed that ten districts in Tanzania had already reached the set target of reducing under-five mortality

rates to 79 deaths per 1000 live birth by 2010. These districts were Ngorongoro, Monduli, Arusha, Moshi, Simanjiro, Arumeru, Moshi Municipality, Hai, Mwanga and Rombo. Other districts such as Ruangwa and Mtwara had the highest under-five mortality rates of 250 and 231 in 2002 from 257 and 255 in 1988, respectively. The trend of children under-five years' mortality decline for Ruangwa and Mtwara is encouraging compared to Handeni where only a minor change was observed between 1988 and 2002 (URT, 2015).

According to Tanzania's Population and Housing Census (2012), Handeni District has 84.8 deaths per 1000 live births, which was observed to be higher than that of many districts in Tanzania such as Ruangwa, Mtwara, Ngorongoro and Rombo which were 65.7, 62.3, 14.3 and 41.5 deaths per 1000 live births respectively among many other districts whose under-five mortality rate declined significantly compared to Handeni. This leads to an assumption that the prevailing HSB among the agro-pastoralists might be among the reasons for the persistence of a high under-fives mortality rate in the study area. Agro-pastoralists are a major group in Handeni District (Mwamfupe, 2015), and their livelihood style could be a possible cause of the slow changes in reducing the mortality rate. In the absence of empirical evidence, this raises a question on:

Does HSB among agro-pastoralists have an influence on the incidence of under-five mortality?..... 3

Generally, knowledge on the influence of health care seeking behaviour to the incidence of under-five mortality will contribute towards initiatives to reduce under-five mortality particularly within the agro-pastoral communities.

4.4 METHODOLOGY

4.4.1 Description of the study area

The study was conducted in Handeni District, Tanga Region located in the North Eastern part of Tanzania. Handeni District is amongst those in Tanzania with a large number of agro-pastoralists (Mwamfupe, 2015). Livestock keeping is amongst the major economic activities in the district. Other economic activities include hunting and gathering, forest resource and subsistence farming (URT, 2008). The district has both formal public and private health facilities, concentrated at the district headquarters. Traditional health facilities and services are also available in rural areas in the district. Two wards dominated by agro-pastoralists were chosen for the study, and these are Misima and Chanika. Further to the above, two villages with higher number of agro-pastoralists were selected from each ward making a total of four study villages. The villages were Kibaya, Msomera, Malezi and Kilimilang'ombe. The dominant ethnic groups in Handeni District are Maasai, Zigua, Ndorobo and people originating from Arusha Region "Waarusha". They migrated from different areas to Handeni District where they are mainly engaging in livestock keeping and farming (URT, 1997; URT, 2008).

4.4.2 Research design and sampling procedures

This study adopted a cross-sectional research design whereby data were collected at a single point in time (Bailey, 1994; Bryman, 2004; Zheng, 2015). In addition, the design enabled collection of data within a short period of time. Random sampling was used to pick households involved in the study from each village. The sampled villages collectively had a total of 3,137 households. Households involved in the sample from the four study villages were determined using proportionate sampling. Simple random sampling was used to get a sample of 160 agro-pastoralist households. To achieve this, the total households for each village were divided by the total number (3 137) of households for all

villages and multiplied by 160 to get the villages' representative sample. Thereafter, the proportion obtained for each village was divided by 160 and the answer multiplied by 100% to get the sampling percentage for each village.

The nature and characteristics of agro-pastoralists found across the study villages reflected a homogeneous scenario which helped on deciding the sample size for the study. Basically, a homogeneous population can be represented by a small sample relative to heterogeneous populations which require large samples. As Bailey (1994) and Grey (2014) recommended, a sample of 30 cases or more is adequate for studies whose variables are worked out and examined statistically. This study involved 160 agro-pastoralist households which are considered adequate.

4.4.3 Variable measurement

Respondents' HSB was measured as a dummy for questions such as attending to traditional treatment, 1 = Yes, 0 = No; attending to modern treatment, 1 = Yes, 0 = No. For the first model, the dependent variable-HSB was coded (1, 0) where 1= modern health facilities while 0 = traditional health services = 0. Further, respondents were asked to indicate whether they had experienced incidences of under-fives mortality (Dependent variable for the second model) for the previous twelve months prior to the survey. The variable was coded (1, 0), where 1 = household had experienced under-five mortality while 0 = No under-five mortality.

Measurements for other variables were as follows: marital status was measured as a dummy with 1, if an individual is married and 0 otherwise; education was also a dummy with 1 representing the head has formal education and 0 otherwise. A dummy for occupation was 1, for agro-pastoralist and 0 otherwise and traditional practices dominate 1

= Yes, 0 = otherwise, Severity of illness 1 = Severe, 0 = Not severe while for distance it was 1= kilometres (km) to modern health facilities and 0 = kilometres (km) to traditional health facilities. Domination of cultural values 1 = yes, 0 = otherwise Power distance was also measured as a dummy variable where 1 = participatory household decision making, 0 = otherwise while for masculinity, 1 = household wealth/wealth attached to male head, 0 = otherwise. Ratio level measurement was used in measuring age of mother as a continuous variable while household number of children was measured by counting all household members aged below 15 years. Income was computed as total average household income in Tanzanian Shillings (TZS) per annum.

4.4.4 Data analysis

Collected data were coded and analysed using SPSS. Correlation coefficient was used to establish association between socio-cultural, traditional, and economic variables and HSB. Shapiro-Wilk and Kolmogorov-Smirnov tests the scores in the sample were compared to a normally distributed set of scores with the same mean and standard deviation to test an assumption of normality prior to further inferential statistics. The null hypothesis was that sample distribution is normal. If the test is significant the distribution is non normal. This means that a p-value greater than 0.05 indicates a normal distribution of data while p-value less than 0.05 indicates that data are not normally distributed. Correlation analysis and binary logistic regression models were used to help answer research questions one and two, respectively. The assessment of variables involved in the correlation analysis was to see as to whether there was an association between socio-cultural, traditional, and economic on HSB and whether HSB among agro-pastoralists has an influence on household incidence of under-five mortality.

Further, a binary logistic regression model was used to address the second research question on determinants of a household's health care seeking behaviour in the study area. The dependent variable for the second model was a household's health HCSB, which was coded as modern health facilities = 1 and traditional health facilities = 0. The independent variables used were mother's age, marital status, number of children in a household, a household's average annual income, household head's level of education, occupation of household head, masculinity and power distance. The model used is shown in the equation below:

$$\text{Log} [p / (1-p)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_8 X_8$$

Where:

$\text{Log} [P_i / (1-P_i)]$ = Natural logarithm of the odds that household seeks health services from modern health facilities.

$P_i = 1$ = Certain, i.e. 100% that all households seek treatment from modern health facilities.

$1-P_i$ = Uncertain, i.e. none of the households seeks health services from modern health facilities.

β_0 = Constant;

β_1 to β_8 = Logistic Regression coefficients of the predictor variables;

Independent variables in the model and their measurements were as follows:

X_1 = Mother's age in complete years

X_2 = Marital status (1=Married, 0= Single)

X_3 =Household number of children (continuous)

X_4 = Average household's annual income in Tanzanian Shillings (TZS)

X_5 = Household head's level of education (1= Formal, 0 = No formal education)

X_6 = Occupation of respondents as agro-pastoralist

X_7 = Masculinity (1= household wealth/resources attached to male head, 0 = otherwise)

X_8 = Power distance (1= household decision making is participatory, 0 = otherwise)

In addition, binary logistic regression was used to assess whether HSB has any influence on under-five mortality. The independent variables used for research question three were age of mother, marital status, distance from health facilities, a household's annual income, level of education, attending traditional treatment, attending modern treatment and severity of illness. The model used is shown below:

$$\text{Log} [p / (1-p)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_8 X_8$$

where;

$\text{Log} [P_i/(1-P_i)]$ = Natural logarithm of the odds of a household experiencing under-five mortality. The dummy for the dependent variable (household experience on incidence of under-five mortality) regular were coded as 1= household experienced incidence of under-five mortality, 0= household have not experienced incidence of under-five mortality.

$P_i=1$ = Certain, i.e. 100% that all households have experienced incidences of under-five mortality.

$1-P_i$ = Uncertain, i.e. none of the households experienced incidences of under-five mortality.

β_0 = Constant;

β_1 to β_8 = Logistic regression coefficients of the predictor variables;

Independent variables in the model and their measurements were as follows:

X_1 = age of mother in complete years

X_2 = Marital status (1= Married, 0 = Single)

X_3 = Distance from health facilities (1= km to modern health facilities, 0 = km to traditional health facilities)

X₄ = Household's average annual income in Tanzanian Shillings (TZS)

X₅ = Level of education (1= Formal, 0= No formal education)

X₆ = Attending traditional treatment (1= Yes, 0= No)

X₇ = Attending modern treatment (1= Yes, 0 = No)

X₈ = Severity of illness (1= Severe, 0 = No severe)

4.5 RESULTS AND DISCUSSION

4.5.1 Association among cultural values, traditional practices, socio-economic factors and health care seeking behaviour

The association among cultural values, traditional practices, socio-economic factors and HSB was determined using the Pearson product-moment correlation. To justify its use, Shapiro-Wilk and Kolmogorov-Smirnov tests were used to test for normality. The results (Table 4.1) show that the data were normally distributed as the test failed to reject the null hypothesis of normality of the residuals/data ($p = 0.07$) and hence use of Pearson product-moment correlation was justified.

Table 4.1: Test for normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
Residuals	0.045	408	0.05	0.993	408	0.070

Health care seeking behaviour can be related to a number of factors which in one way or another collectively lead to use of traditional, modern or other treatment sources such as common traditional knowledge about medicine. For example, a combination of factors such as income (economic), cultural values and traditional practices can have an association with the HSB. This indicates that HSB may not be uniform as it is determined by a number of factors (Kalu *et al.*, 2017). In this study, the correlation analysis was used to map association

between some socio-cultural and economic factors (cultural values, traditional practices and economic) and health care seeking behaviour (i.e. Attending traditional or modern health services) (Table 4.2).

Correlation analysis on age, education level, cultural values, household annual income, traditional practices (socio-cultural and economics) and attending modern treatment (representing HSB) among respondents were analysed, and the results are as shown in Table 4.2. The reason behind this analysis was to establish whether there was an association between these variables. Correlation results indicate that there was a negative ($r = -0.193^*$) correlation between traditional practices and attending modern health facilities for treatment. Table 4.2 further indicates a negative ($r = -0.477^{**}$) correlation between cultural values and attending modern health facilities for treatment. The table also shows a negative ($r = -0.251^{**}$) correlation between attending modern treatment and education in the study area and a negative ($r = -0.481^{**}$) correlation between cultural values and education.

The study's findings suggest that traditional practices are associated with household health care seeking behaviour. The negative association between the two (traditional practices and health services seeking behaviour) indicates that traditional practices reduce attendance to the modern health facilities. Most of the time, traditional practices involve addressing health problems customarily amongst other practices like taboos, knowledge on traditional medicines and others (UNICEF, 2013). These practices hinder attendance to modern health facilities (see Table 4.2). It is also reported that some traditional practices such as keeping large numbers of livestock for prestige hinder conversion of this household resource into monetary terms which could be used to cover costs of accessing/seeking treatment from reliable health facilities (Ngoitiko, 2008). Usually, education helps to create awareness and raise consciousness among people to use their household resources to access treatment in

modern health facilities. It is unfortunate that, the findings in Table 4.2 show a negative association between education and the use of modern health facilities. This may be a result of cultural values assigned to traditional treatment and medicine as compared to the use of modern health facilities for treatment (Hill, 2003).

Table 4.2: Correlation analysis results of factors related to health care seeking behaviour

Variable	Age of Respondents	Education level of respondents	Cultural values	Attending for modern treatment	Household annual income	Traditional practices
Age of respondent	1					
Education level of respondent	0.045	1				
Cultural values	0.069	-0.418**	1			
Attending for modern treatment	0.141	-0.251**	-0.477**	1		
Household annual income	0.035	0.063	0.088	0.081	1	
Traditional practices	0.028	-0.182*	0.248**	-0.193*	0.021	1

*Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Cultural values embrace different issues, traditional medicines and health problems included. Therefore, traditional community such as the agro-pastoralists in the study area addressed their health problems traditionally as a result of cultural values (Ogbuehi and Ebong, 2015). This is obvious, as it was presented in the findings; cultural values seem to have a negative association with attendance to modern health facilities for treatment. Normally, cultural values have a very strong influence on different life aspects including treatment patterns. Consequently, even people with higher level of education sometimes do not attend modern health facilities for treatment or do things contrary to reality because of cultural values (IFAD, 2009; African Union, 2010).

4.5.2 Factors determining households' health care seeking behaviour

According to Borah *et al.* (2016), incidences of under-five mortality are results of several factors that regulate HSB thereby contributing to good or poor health. The binary logistic regression results (Table 4.3) show that among the variables entered into the model, only mother's age number of children in the household and masculinity had a significant influence on the health care seeking behaviour (use of modern or traditional health facilities).

Table 4.3: Binary logistic Regression results of factors influencing health care seeking behaviour (n=160)

Variables entered in the model	β	S.E	Wald	p-value	Odds Ratio
Age of mother	-0.430	0.150	5.31	0.012	0.66
Marital status	1.560	1.212	1.670	0.196	4.759
Household number of children	-0.082	0.017	14.387	0.000	0.922
Household Annual income	0.005	0.000	2.721	0.077	1.005
Level of education	0.560	0.418	1.796	0.180	1.751
Occupation of respondent	0.482	0.440	1.200	0.273	1.619
Masculinity	-1.014	0.445	4.840	0.028	0.367
Power distance	0.018	0.024	0.558	0.455	1.018
Constant	-4.417	1.901	5.398	0.020	82.847

Mother's age generally determines a household's HSB (Ogbuehi & Ebong, 2015). The results in Table 4.3 show that mother's age had a significant negative influence on the surveyed households' health care seeking behaviour from modern sources ($\beta = -0.430$ at $p \leq 0.012$). The Wald statistic of 5.310 and the 0.66 associated odds ratio indicate that aged mothers were less likely to seek health services from modern health facilities. Generally, a unit increase in a mother's age decreased the possibility of using modern health services by 0.66 times. A study by Hughes *et al.* (2013) in South Africa found that older mothers used traditional treatment more than younger ones. Further, the same study explains that females used traditional medicines more than males. Older women in agro-pastoral communities rely on traditional treatment. This is because most of the times they do not have money at hand and lack power to correctly decide on using other household

resources. And this is despite the fact that women are responsible in taking care of sick household members, particularly children under-five years. Generally, children need special attention, especially when they fall sick. It is obvious if their parents particularly mothers use more traditional treatment, the children will also be treated using the same. Therefore, the government and other stakeholders need to intervene because treatment at traditional facilities is often challenged with lack of the quality needed, particularly for treatment of under-fives. The households desire to have a high number of children among agro-pastoralists can lead to high household number of under-five mortality.

Household number of children had a negative and significant influence on the surveyed households HSB ($\beta = -0.082$) at $P \leq 0.000$. The Wald statistic of 14.387 indicates that the variable was the most influential with a likelihood of contributing 0.922 times in reducing a household's chances of using modern health facilities. Cultural prestige linked to high number of children and livestock within the study villages can be one of the reasons that drive agro-pastoralist households to bear many children thus increased costs for the competing needs such as food, education and cost of accessing reliable health services. The desire to maintain large livestock numbers affects use of the same to solve household needs even some of the emergency ones such as treatment of diseases. Consequently, delayed treatment can cause mortality. This is similar to a conclusion by Odhiambo *et al.* (2016) in their study conducted in Kenya that households with many children failed to respond to important household issues such as accessing reliable health services.

Masculinity as a cultural behaviour is related to aspiration to accumulate and control resources (Taylor *et al*, 2015). The results in Table 4.3 show masculinity had a negative and significant ($p \leq 0.028$) influence on the surveyed households' health care seeking behaviour ($\beta = -1.014$). The Wald statistic value of 4.840 and 0.4 odd ratio show that

masculinity was a variable amongst others which contributed to the decreased likelihood of a household to seek treatment from modern sources by about 0.4. This conforms to a study by Syafiuddin and Mahsyar (2016) which reports that when household resources are not under common control by all household members the result is failure to support important household development, including securing correct health treatment. This suggests the need for clear training programmes aimed at changing agro-pastoralists' attitudes from imbalanced control of household resources and needs to a more participatory one that will ensure even the households' health needs are adequately addressed.

4.5.3 Surveyed households experience of under-fives mortality

Several factors can contribute to poor health which gradually lead to mortality, particularly that of under-fives (Borah *et al.*, 2016). The binary logistic regression results (Table 4.4) show that among the variables entered in the model, age of mother and attending to traditional treatment had significant influence on agro-pastoralist households' experience of under-fives mortality.

Table 4.4: Binary logistic regression results on health seeking care behaviour among agro-pastoralists and household's under-fives mortality (n=160)

Variables entered in the model	β	SE	Wald	P-Value	Odd Ratio
Age of mother	1.053	0.079	17.000	0.000	0.349
Marital status	0.008	0.054	0.020	0.886	0.992
Attending to traditional treatment	0.340	0.020	22.000	0.020	1.035
HH Annual income	0.579	0.262	4.868	0.270	1.784
Level of education	0.149	0.178	0.699	0.403	0.862
Contact health care on the onset of disease	0.155	0.178	0.757	0.384	0.857
Severity of illness	0.173	0.179	0.930	0.335	0.841
Attending to modern treatment	0.379	0.293	1.675	0.196	1.460
Constant	2.929	0.387	57.164	0.000	18.704

Table 4.4 further shows that mother's age had a positive and significant influence on the surveyed households' experience of under-five mortality ($\beta = 1.053$) at $P \leq 0.01$. The

Wald statistic value of 17.000 shows that age of the mother was the second most important variable in relation to HSB 0.3 times contributing to household experience of under-five mortality. Aged agro-pastoralists women had many children thus increased needs for households in particular food and health services. A study by Agwanda & Amani (2014) asserts that having many children implies increased needs for food, clothing, education, health services and many others. Therefore, when all these expenses are not manageable, a particular household uses low quality services. When it comes to the case of health services, agro-pastoralists normally opt for traditional treatment which the study on which this paper is based consider unreliable. Based on the above facts, agro-pastoralist households with many of children are likely to experience higher under-five mortality incidences as under-five children are vulnerable than older persons. The paper generally upholds that having many children and lack of ability to provide the necessary health needs as a cause of higher incidences of under-five mortality in the study area. Awareness creation campaign is important in the area so that all households can bear the number of children whom they can support on health care, among other needs.

The binary logistic regression (Table 4.4) shows that attending traditional treatment had a positive and significant relationship with under-fives mortality ($\beta = 0.340$) at $P \leq 0.05$). The Wald statistic of 22.0 (highest) indicates that the variable has a strong relationship with under-five mortality. This implies that attending traditional treatment denied under-five children receiving correct treatment. The outcome of treatment at unreliable sources was high prevalence of mortality, specifically that of under-five children. Agro-pastoralists reside in rural areas where there is easy access to traditional treatment services. Normally, sick persons within agro-pastoralist households which rely more on the traditional treatment just like others are vulnerable to the associated adverse impacts of using unreliable treatment sources. Intervention is considered useful in order to reduce

impact which otherwise leads to mortality. Moreover, the nature of agro-pastoralists' lives, characterised by seasonal movements makes them more vulnerable than other rural dwellers (Lind *et al.*, 2016). A study by Manongi *et al.* (2014) in Tanzania conforms to the current study's observation that under-fives' mortality is pronounced more in rural areas mostly within agro-pastoral communities.

4.6 Conclusions and Recommendations

This study contributes to the general body of knowledge that the households' desire to have a high number of children among agro-pastoralists leads to higher under-five mortality. It is concluded that traditional practices, cultural values and households HSB are correlated and that this correlation leads to more use of traditional treatment. Therefore, it is recommended that there is need to urgently create awareness so that agro-pastoralists can understand the importance of seeking health care services from modern facilities. It is further concluded that mother's age, number of children in a household and masculinity do influence a household's HSB. The drivers of the above factors influence to the HSB are values and cultural practices which are dominant in the study area. Therefore, it is suggested that the government and other stakeholders should invest in establishment of formal health services within the study villages. In addition, community development officers and health personnel should continuously sensitize the residents in the study area on harmful traditional practices. They should also invest in training of trainers from study villages in order to facilitate understanding and changes within the agro-pastoralists community thus enabling them to seek treatment from reliable sources and consequently reduction of under-five mortality.

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CHAPTER FIVE

5.0 Gender Determined Roles and Health of Under-Five Years Old Children among Agro-Pastoral Communities in Handeni District, Tanzania

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5.1 Abstract

This paper explored gender determined roles and their impact to under-five mortality in the study area. A cross-sectional research design was used to collect data from 160 agro-pastoralist households using a simple random sampling technique. Data were collected in August, 2016 in Handeni District, Tanzania mainly through a questionnaire-based survey. Descriptive statistics showed households prevalence of under-five mortality 12 months prior to the survey for Kibaya, Msomera, Malezi and Kilimilang'ombe villages to be 24.6%, 24.6%, 31.6% and 19.2%, respectively. Binary logistic regression analysis showed that timely household decision, control of household income and equal involvement of household members in the subsistence farming had significant influence on reduction of household under-five mortality. The influence was at $\beta = -0.071$, $p = 0.000$, odd ratio = 0.931, $\beta = -1.828$, $p = 0.032$, odd ratio = 0.674 and $\beta = -1.013$, $p = 0.022$, odd ration = 0.362 respectively. The study findings indicate that women involvement in household decision making and use of household income contribute to the reduction of under-five mortality. It is also the same when subsistence farming is considered as a role for all household members rather than considering it as a women's role alone. Government, non-governmental organizations and other stakeholders should create awareness campaigns in form of seminars and workshops on gender equality in agro-pastoral communities. This paper recommends further studies to explore roles of culture on household power dynamics and their implication to under-five mortality.

Keywords

Gender determined roles; agro-pastoralists; under-five mortality; culture

5.2 Introduction and Background

Gender is an image representing the societies' collective knowledge of customs, values, roles, myths, and ideas; it is within this knowledge that an individual develops a stereotype or a belief about gender (Olah *et al.*, 2014). Gender stereotypes are related to cognitive processes because we have different expectations for men's and women's behavior which mostly vary with culture. Culture is the most important factors influencing gender inequality which burdens women with unequal division of gender roles that subsequently impact the health of under-five children (Tazeen *et al.*, 2011; Batra *et al.*, 2016). Inequality between men and women subject under-five children to the hands of less empowered women possibly missing power to make immediate decisions to avert health problems, which results into under-five mortality (Chant *et al.*, 2017).

Under-five mortality is a global challenge, which has led to establishment of efforts aiming at reducing its trends (Adinew *et al.*, 2017). Global efforts worldwide reduced under-five mortality from 91 deaths per 1,000 live births in 1990 to 43 deaths per 1,000 live births in 2015. This is a decrease of annual number of under-five deaths from 12.7 million to 5.9 million over the same period (UNICEF, 2015). While Sub-Saharan Africa (SSA) reduced under-five mortality from 180 deaths per 1,000 live births in 1990 to 83 deaths per 1,000 live births in 2015, Tanzania recorded a reduction of under-five mortality from 165.5 to 52 between 1990 and 2015, respectively (UNICEF, 2015; WHO, 2015), which is by far below the Millennium Development Goal (MDG) number 4 that targeted to reduce SSA under-five mortality to 60 deaths per 1,000 live births by 2015 (UNICEF, 2015; WHO, 2015). Among SSA countries, which remained with high under-five mortality in 1,000 live births by 2015 include Sierra Leone (187), Democratic Republic of Congo (180), Mali (165), Guinea-Bissau (156) and Angola (156) among others (United Nations, 2015).

In view of the above, the recorded reduction of under-five mortality in Tanzania is an achievement which makes Tanzania to be one out of ten SSA countries which have achieved the MDG 4 target of reducing by a half under-five mortality by 2015 (Save the Children/Jordi Matas, 2015). Other countries include Eritrea, Ethiopia, Liberia, Madagascar, Malawi, Mozambique, Niger, Rwanda and Uganda (WHO, 2015). Although there is an achievement in reduction of under-five mortality in Tanzania, still more efforts are needed since the current reduction does not apply equally to all regions and districts (URT, 2015). Handeni District with 84.8 deaths per 1,000 live birth was observed to be among districts in Tanzania with higher under-five mortality compared to 52 deaths per 1,000 of the overall under-five mortality for the entire country (URT, 2015). Populations living traditional life in rural areas like agro-pastoralists are likely to encounter challenges, which can hinder reduction of under-five mortality (URT, 2018). The challenges include access to appropriate health facilities and correct treatment services. Delayed use of household income and other resources caused by differential gender roles is likely to be one of the challenges contributing to the prevalence of under-five mortalities among traditional communities like agro-pastoralists.

Rural population, like agro-pastoralists, firmly adhere to culturally determined gender practices and roles (Zuma, 2017). They hardly change even when there are adverse consequences noted throughout generations in relation to such practices. For example, there has been a belief across many African traditional communities, which is manifested by boys' being more enrolled in schools than girls (Johannes, 2010; UNICEF, 2010). Several efforts have been made to promote awareness on why girls should be given equal chances to attend education like boys. Some of the efforts are introduction of programmes like education for all, educating a woman is the same as educating a nation, and

encouraging women to apply for training in different scholarships whereby statements like women are highly encouraged to apply are common (UNESCO, 2015; Koskey, 2017).

In the case of caring for under-five children, among other roles, women face challenges; sometimes their children become ill and a need arises to obtain treatment. Sometimes going for a treatment receives little attention due to high workload among women in agro pastoral communities who are left at home with their husband to take care of children among other duties (Ringo *et al.*, 2018). This is one example among many cases, which may explain the implication of uneven distribution of household roles (Pessin *et al.*, 2017). Subsistence farming, among other roles in traditional African societies, involves mainly women who culturally determine household food condition (FAO, 2011). Subsistence farming requires more of their time, which competes with time required to care for under-five children (Chauvin *et al.*, 2012). In this situation, inequality in division of gender roles stands as a barrier towards efficient performance of household roles by women as well as a stumbling block to get access to appropriate health facilities. A number of studies for example have reported inequality in the division of gender roles highlighting the need for a balance to ensure women have reasonable workload so that they can concentrate and put much attention on fewer activities including taking care of children (Coltrane, 2000; Perrone *et al.*, 2009; UNICEF, 2014).

This paper considers inequality in the division of gender roles to have impact on the health of under-five children that subsequently leads to under-five mortality. Gender inequality which in most African societies is practiced in favour of men and on the expense of women marginalization, results in poor care of under five children by women who are denied the right to make quick decision in order to save under-five children (Chan *et al.*, 2017). It is from this context; this paper explores gender-determined roles and their

associated impact on the health of under-five children. Along the same line, this paper answers the following key questions: what is the prevalence of under-five mortality among agro-pastoralists households? What are genders determined roles that mostly influence under-five mortality among agro-pastoralist households? Answering these questions provides information on appropriate measures to be taken in order to reduce the prevalence of under-five mortality in agro-pastoralist households. The rest of the paper is structured with four sections; first the literature review which gives an overview of the division of gender roles and the research gap. Secondly, the research methodology that highlights the research designs, sampling procedure and the data analysis procedure. The third section presents the results of the findings resulting from collected data and the fourth section is on discussion, which discusses the findings and give the implication of results, draw conclusions and the final recommendations on the areas for further studies and the possible ways to address the identified challenges.

5.3 Literature Review

5.3.1 Division of gender roles

Drawing from Ester Boserup argument, the differences in gender roles have their origins in different forms of agriculture traditionally practiced in the pre-industrial period (Alesina *et al.*, 2011). Basing on shifting and plough cultivation, Boserup indicated important differences arguing that shifting cultivation was observed as labour intensive employing hand held tools such as the hand hoe and digging sticks. This was different from plough cultivation reported to be much more capital intensive throughout the soil preparation using plough. Working with the plough was observed to be tiresome, as it requires physical strength to be able to control it. This built up specialty of roles alongside gender lines, leading men to work outside home in the fields and women performing roles within the home (Giuliano, 2014). Generally, roles classification produced norms about suitable

responsibilities of women in societies, which tend to stand even when production extends and involves other areas out of agriculture, upsetting the participation of women on activities performed outside home. These are such as employments, engaging in small businesses, marketing of household resources as well as cultural involvement of women in subsistence farming (Giuliano, 2014).

Within agro-pastoralist households, women in the absence of their husbands, especially during transhumance, take care of children who sometimes face challenge to access appropriate health care facilities. They are also responsible for taking care of calves and milking cows left behind by their husbands. Flintan (2011) observes that divisions of household roles among agro-pastoralists affect men and women differently in the sense that women concentrate on activities around home. When new opportunities such as small business raise women's income, responsibilities and workload also increase. Increasing women responsibilities relatively to an increase in income is based on the assumption that involvement in small business makes women able to support more responsibilities besides their common roles like caring for under-five children among others (Kapinga *et al.*, 2017; Tambi *et al.*, 2017).

Studies on the effect of gender roles on the health of under-five children have created interest of most scholars (Oku *et al.*, 2017). Health of the under-five children varies from place to place which may be due to cultural differences (Kandala *et al.*, 2011). Culture can be one of the most important factors influencing gender inequality, which burdens women with unequal division of gender roles that subsequently impact the health of under-five children. Generally, gender roles are a result of relations between individuals and their surroundings, and they give individual clues about what kind of behaviour is believed to be correct for what sex category. This is learned and passed through generations (Pessin,

2017). This paper considers division of gender roles to have influence on the health of under-five children, which may lead to the prevalence of under-five mortality. This argument is based on the fact that if women are overburdened with other core household duties than men are likely not to take much attention to each activity they do including caring of under-five children, which subsequently may lead to under-five mortality. In agro-pastoral communities it is a common phenomenon for unequal division of roles between men and women of which women carry more workload than men, yet it is not clear to what extent unequal gender roles among agro pastoralists has accelerated under-five mortality (Ringo *et al.*, 2018). This raises the question on:

Question 1: What is the prevalence of under-five mortality among agro-pastoralists household?

Understanding the prevalence of under-five mortality will help to identify the magnitude of the problem and give justification for intervention in order to address the challenge of inequalities in gender roles.

Gender refers to the socially constructed characteristics of women and men – such as norms, roles and relationships of and between groups of women and men (Pfeifferet and Mwaipopo, 2013). It varies from society to society and can be changed. While most people are born either male or female, they are taught appropriate norms and behaviors – including how they should interact with others of the same or opposite sex within households, communities and work places. When individuals or groups do not “fit” established gender norms they often face stigma, discriminatory practices or social exclusion – all of which adversely affect health. It is important to be sensitive to different identities that do not necessarily fit into binary male or female sex categories.

In view of the above, gender norms, roles and relations influence people's susceptibility to different health conditions and diseases and affect their enjoyment of good mental, physical health and wellbeing. They also have a bearing on people's access to and uptake of health services and on the health outcomes they experience throughout the life-course. According to Marinova (2003), culture can determine which sex category is superior between male and female. However, gender is beyond these groups as it takes on board other segments of population like children and elder groups. Gender roles vary spatially depending on cultural differences (UNFPA, 2017). It is clear that the sex category which is considered to be superior can make decision in different areas including decision on kind of treatment (at formal or informal health facilities), access to education, employment, household resources and assets ownership. A wider gap between male and female has implications to various household aspects including caring for family, which has implication for the health of under-five children (Kandala *et al.*, 2011; Ringo *et al.*, 2018).

While it is evident that gender roles are driven by culture and a wider gap on gender roles account for the under-five mortality (Perrone *et al.*, 2009), it is also logical to argue that not all gender roles have influence on under-five mortality. Along the same line, in view of the fact that culture differs from one society to another, it is compelling to believe that agro pastoralist have unique culture which is not necessarily similar to other societies. This may also suggest that not all agro-pastoralist gender roles have impact on the under-five mortality. On the bases of these arguments it is raising the following question:

Question 2: What are the genders determined roles among agro-pastoralist household contributing to the prevalence of under-five mortality?

5.4 Methodology

The survey was conducted in Tanga Region located in the North Eastern part of Tanzania. Handeni District was considered for the study as it is among districts in Tanzania, which have a large number of agro-pastoralists (Mwamfupe, 2015). Two wards, Misima and Chanika with many agro-pastoralists, were purposively chosen for the study. In addition, two villages were selected from each of two wards, making a total of four study villages. In general, agro-pastoralist male household heads were doing more outside home activities like grazing and lumbering, which made some of them take a number of days without going back home. Sometimes women were out where they were engaged in subsistence farming throughout the day and went back home during the evening. Some of women were doing small businesses around home while some of them remained at home.

A cross-sectional research design was used for the study. This design allowed collection of data at a single point in time, but also within a short time. Using a structured questionnaire, data collection exercise took place on August 2016. Random sampling was employed to select households for the study from the four villages that were selected. The villages were Kibaya, Msomera, Malezi and Kilimilang'ombe which together had a sum of 3 137 households which is 1 024, 1 000, 713 and 400 households for each of the villages, respectively. The number of households that were engaged in the sample in the four study villages was decided using relative allocation and simple random sampling techniques, resulting into a sample size of 160 agro-pastoralist households. The total number of households for every village was divided by 3 137, which was the sum of households for all villages, and multiplied by 160 to obtain the village representative samples. Afterwards, the obtained number for each village was divided by 160 and the answer multiplied by 100% to get the sampling percentage for each village (Table 5.1).

Simple random sampling technique was used to select representative household from each village where all households in each village has equal chance to be included in the sample. Nature and characteristics of agro-pastoralists found across the study villages were homogeneous, which assisted in deciding the sample size for the study. Essentially, a homogeneous population can be represented by a small sample, unlike a population with heterogeneous characteristics, which needs large samples. In addition, studies by Bailey (1994) & Grey (2014) suggest that at least a sample of 30 cases is sufficient for research works whose variables are explored statistically. This study involved a sample of 160 agro-pastoralist households which were considered to be sufficient because the agro-pastoralists in Handeni districts have many common characteristics, including livestock keeping, women and men roles classification, farming practices etc.

Table 5.1: Sampling procedure

Village name	Total village number of households (A)	Sampling percentage (%) (B)	Representative households from each village (B/100x160)
Kibaya	1,024	32.6	53
Msomera	1,000	31.9	51
Malezi	713	22.7	36
Kilimilang'ombe	400	12.8	20
Total household	3,137	100%	160

The primary data were collected using a structured questionnaire. The questionnaire was pretested at Bangu Village in Handeni District. The pretesting of the questionnaire was done in order to test clarity of questions before embarking on data collection. After the pre-testing some of questions were adjusted for clarity. The Statistical Package for Social Sciences (SPSS-Version 20) was employed in the analysis of quantitative data. Descriptive statistics were computed to analyze data whereby numbers and percent were generated to address the first research question, which was about prevalence of under-five mortality among agro-pastoralists households. Number and percent of the study residents attending formal and/or informal health facilities were also computed using descriptive statistics.

Ethical approval was obtained from the postgraduate studies committee of the Sokoine University of Agriculture. However, consent of respondents was sought before interviews were carried out. A binary logistic regression model was used for the second research question which intended to explore gender determined roles contributing to the prevalence of under-five mortality among agro-pastoralist households in the study area. A dummy for the dependent variable (household health condition of under-five children) was coded as prevalence of under-five mortality = 1, otherwise = 0. The model used is shown in the equation below:

$$\text{Log} [P_i / (1-P_i)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_7 X_7 + \varepsilon,$$

where:

$\text{Log} [P_i / (1-P_i)]$	= Natural logarithm of the odds of prevalence of under-five mortality = 1, while otherwise = 0
P_i	= The probability that a household has experienced under-five mortality
$1-P_i$	= Uncertainty of a household experiencing incidences of under-five mortality
β_0	= Constant
ε	= Error term
β_1 to β_7	= Logistic regression coefficients of the predictor variables

Independent variables in the model were measured as follows:

X_1	= Household decision making (1 = Timely, 0 = Otherwise)
X_2	= Household members involvement in subsistence farming (1 = equally involved, 0 = Otherwise)
X_3	= Education attainment between household members (1 = Formal education, 0 = Otherwise)
X_4	= Household member allowed to take loan (1 = Male household head, 0 = Otherwise)
X_5	= Control of household income (1 = Participatory, 0 = Otherwise)
X_6	= Caring for under-five children (1 = Female, 0 = Otherwise)
X_7	= Determination of child spacing (1 = Both male and female, 0 = Otherwise)

5.5 Results

5.5.1 Household incidences of under-five mortality

Results in Table 5.2 show that incidences of children under-five mortality in Kibaya, Msomera, Malezi and Kilimilang'ombe were 24.6%, 24.6%, 31.6% and 19.3% respectively.

Table 5.2: Incidence of under-five mortality among agro-pastoralist households (n = 160)

Villages	Households incidences of under-five mortality in 12 months prior the survey			
	No		Yes	
	Number	Percent	Number	Percent
Kibaya	38	36.9	14	24.6
Msomera	37	35.9	14	24.6
Malezi	18	17.5	18	31.6
Kilimilang'ombe	10	9.7	11	19.2
Total	103 (64.4%)	100%	57 (35.6%)	100%

5.5.2 Use of health facilities in the study area

Two different health systems, formal and informal were found applicable in the study area as shown in Table 5. 3. The same people who were found attending to traditional healers, sometimes attended to a pharmacy, a village dispensary, etc. That is why the total number (316) of counts for formal and 299 for informal health facilities users exceeded 160, which was the sample size for the study, indicating that a single person was recorded several times, depending on the health facilities attended at a particular time.

Table 5.3: Attendance to formal and informal health facilities (n = 160)

Ward	Village	Formal health facilities	Informal health facilities
Misima	Kibaya	79 (25.0%)	97 (32.4%)
	Msomera	119 (37.7%)	93 (31.1%)
Chanika	Malezi	86 (27.2%)	69 (23.1%)
	Kilimilang'ombe	32 (10.1%)	40 (13.4%)
Total		316 (100%)	299 (100%)

5.5.3 Influence of gender roles to the household incidence of under-five mortality

Several factors contribute to health of children under-five years among agro-pastoralist households. Various factors can collectively contribute to worsen agro-pastoralist households' economic status making it unfavorable for children under-five years' health and sometimes leading to prevalence of under-five mortality. This paper, among other things, examined division of gender roles among female and male-headed households in order to see which mostly influenced health of under-five children among agro-pastoralist households at the same time contributing to under-five mortality.

Binary logistic regression model was used to identify the most influential variables on under-five mortality. The results in Table 5. 4 show that household decision making, control over household income and household members involvement in subsistence farming had significant influence on household health condition of under-five years' children among agro-pastoralist households in the study area. The findings show that household decision making had a negative and statistically significant influence on health of under-five children recording an odds ratio of 0.931, $\beta = -0.071$, $p < 0.01$. Indication is that for every timely decision at the household particularly for treatment of under-five-children were 0.931 times likely to reduce under-five mortality in the study area. The results in Table 5. 4 further show that control of household income had a negative and significant influence on the health of under-five years' children at the odds ratio of 0.674, $\beta = -1.828$, $p < 0.05$. The findings indicate that, the more the household maintain participatory control of household income among agro-pastoralist, the more the households reduce increase under-five mortality by 0.674 in the study area. Subsistence farming in sub-Saharan African households is normally done by women. The results in Table 5. 4 show that equal involvement in subsistence farming had a negative and statistically significant influence on the household health of under-five children at the odds ratio of 0.362, $\beta = -1.013$, $p < 0.05$. Furthermore, this finding indicate that, involvement of household members in subsistence farming among agro-pastoralist were 0.362 times likely to reduce household incidence of under-five mortality in the study area, this is different when subsistence farming as a role is left to women alone.

Table 5.4: Gender roles' influence on under-five mortality among agro-pastoralists households

Variables entered in the model	β	S.E	Wald	df	p-value	Odd ratios
Household decision making	-0.071	0.020	13.125	1	0.000	0.931
Sex of household member allowed to take loan	0.617	0.738	0.697	1	0.404	1.853
Education attainment between household members	3.753	3.148	1.421	1	0.233	0.023
Control of household income	-1.828	1.840	0.895	1	0.032	0.674
Determination of child spacing	0.051	0.106	0.228	1	0.633	0.950
Caring under five children	0.253	0.592	4.476	1	0.380	1.286
Household members involvement in subsistence farming	-1.013	0.443	5.211	1	0.022	0.362
Constant	0.948	0.673	1.985	1	0.159	2. 581

-2 Log likelihood =101.078, Cox & Snell R²=0.230, Nagelkerke R² = 0.320

5.6 Discussion

The prevalence of under-five mortality in the study villages as shown in Table 5.2 varied from village to village. There were observed varied results from factors such as attendance to appropriate treatment at the right time or when it is too late, time spent to understand as whether there was a health problem and action taken as a response to the problem. Inequality or equal division of gender roles in the study villages is also one of the reasons behind the observed variation of under-five mortality within the study villages. This is because it affects access to appropriate health facilities, which have impact on the health of under-five children. When informal health facilities are thought and attended for the treatment of under-five children subsequently contributed to the incidence of under-five mortality.

Attendance of residents to health facilities (Table 5. 3) was mixed in such a way that a person attended to both health systems (formal and informal health facilities) interchangeably from time to time. Formal health facilities, government and private hospitals were located at the district headquarters away from the study villages. Msomera was the only village identified with a dispensary and a clinic hence; it is the only village, which had a slightly high percent (37.65%) of residents attending to formal health facilities. Informal health facilities dominate in the study village and easily accessed by village residents for treatment and delivery services. Traditional birth attendants were most of the time eager to help their fellow women during delivery, though it is a risky activity as sometimes there were cases beyond their handling ability to handle. Poverty makes expecting mothers who would wish to go to formal health facilities to postpone and opt for informal ones (Pfeiffer & Mwaipopo, 2013). The observed number of under-five mortality was likely to be caused by use of informal health facilities including child delivery at traditional birth attendants. Informal health services are cheap in the sense that

they do not need high finances like those which one would incur when going to formal health facilities (Owotunde *et al.*, 2017).

Culturally, expecting mothers in African communities are close to their aunts, grandmothers and mothers-in-law who have no power over household resources due to cultural determined gender roles which give male heads the right to make decision over the use of household resources (Kamiya, 2010). In this situation the first option is to send expecting mothers to traditional birth attendants. For the case of treatment, agro-pastoralists women taking care of under-five children consider informal health facilities as an immediate solution. Inequality in gender roles divisions denies women the authority and power to decide and manage requirements for the treatment at formal health facilities. Informal health facilities do not have capacity to diagnose causes of diseases and recommend appropriate mitigation measures (Baltzell *et al.*, 2013; Riddle *et al.*, 2016). This paper considers this to have direct or indirect link to the inequality in gender roles division, which at the end leads to under-five mortality.

The study observed that timely household decision making was more likely to reduce household incidence of under-five mortality at the odds ratio of 0.931 (Table 5. 4). This implies that timely decision on correct intervention towards addressing health problems specifically related to under-five children is important. A study by Dillip *et al.* (2017) conducted in Tanzania, which is in line with the current study, observed that timely access to appropriate health care is one of the factors contributing to reduction of child and maternal mortality. The current study encourages equality in decision making between male and female to enable timely attainment of treatment when there is a health problem, specifically that of under-five children within agro-pastoralist households. When only one household member, let's say a male head, is entitled to power to decide on important

household matters like use of household resources to meet the need of sending children for correct treatment, a particular household may decide to attend the services when it is too late. Timely decision is facilitated by a number of factors like power to decide by whoever is present during the need, being male or female. The same power to decide extends to the authority to use household resources and income to meet costs needed in order to save life of under-five children by making a timely decision about treatment.

In addition, the study observed that equal involvement in subsistence farming between women and men contributed to the reduction of household under-five mortality at the odds of 0.362. Equal involvement among household members minimizes effects that could face under-five children who are most of time under the care of women who are less empowered to make decision. Women having more time with their under-five children will be able to promptly respond against diseases and other health problems which is different when subsistence farming is mainly done by women. Studies by Kandala *et al.* (2011) and Tambi *et al.* (2017), which were conducted in DRC and Cameroon, observed that women involvement in subsistence farming limits care giving to under-five children. Unequal involvement in subsistence farming can expose under-five children to health problems which when persist longer may end in mortality.

The strength of this paper is that, it is a current and topical health, population and social study work which can guide the related study in other settings in Tanzania and even beyond. The weakness parts of this study are mainly based on the data collection period where language and mobility nature of agro-pastoralists challenged the data collection process. These weaknesses were addresses by interpretation, which was done by a person identified by Village Executive Officers. Revisiting agro-pastoralist households enabled to overcome problem originating from mobility nature of agro-pastoralists. To improve

future studies, this study recommends use of qualitative techniques such as depth interview and focus group discussion to explore influence of gender-based household roles to the health of under-five children.

5.7 Conclusions and Recommendations

It is concluded that prevalence of under-five mortality in the study area needs urgent intervention in form of training through seminars and workshops in order to save life of under-five children. Household gender roles division have an influence on the household condition of under-five children, specifically household prevalence of under-five mortality. Opting for informal health facilities ultimately contributes to the prevalence of under-five mortality in the study area. Government, non-governmental organizations and donors should provide formal health facilities within the study area. Road improvement and medicine availability need consideration in order to reduce prevalence of under-five mortality. Factors such as household decision making, control of household income and household members' involvement in subsistence farming have an influence to the household health of under-five children. For example, timely decision on the use of household resources or income to the treatment of under-five children can help in improving health of under-five children. Equal involvement between women and men in subsistence farming reduces workload to women and give more time to women to care for under-five children and contribute to the reduction of household under-five mortality.

This paper recommends that rational household roles division and decision should be considered on the use of household income and other resources. This is in order to improve the wellbeing of households, including obtaining correct treatment for under-five children, which will contribute to the reduction of under-five mortality. However, seminars and workshops should aim at changing attitudes in agro-pastoralists communities

regarding household decision-making, control of household income and involvement in subsistence farming. Advantages of allowing women to make decision and use household income for the sake of under-five children's health need to be made clear in the study area. The training also needs to indicate adverse health consequences affecting mostly under-five children in relation to accumulation of household's roles-including subsistence farming to women.

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CHAPTER SIX

6.0 Summary of Major Findings, Conclusions and Recommendations

6.1 Summary of Major Findings and Conclusions

The study on which this thesis is based aimed at exploring the influence of cultural dimensions on under-five mortality among agro-pastoral communities using Handeni District in Tanga Region as a case study. Specific issues addressed were assessment of access and challenges of health facilities-formal and informal health services utilisation, examination of influence of cultural dimensions on household power dynamics among agro-pastoralist households in Handeni District, households' health care seeking behaviour and incidence of households experiencing under-five mortality and finally investigation of gender determined roles and their influence on the health of under-five years children among agro-pastoral communities.

To address the issues highlighted above, exploration of access and challenges of health facilities used in the study area were examined. Factors responsible for the choice of particular facilities as well as challenges affecting access to health facilities among agro-pastoral communities were considered. It was found that informal health facilities (IHF) were available across the villages in the study area while formal health facilities (FHF) were concentrated at the district headquarters. Additionally, it was found that IHFs were preferred by agro-pastoralists for logistical and traditional reasons as for example in one village with a clinic and a dispensary (formal health facilities) only 23.1% and 21.9% of respondents respectively attended the facilities while interestingly about 100% of the respondents attended at traditional birth attendants. Lack of permanent roads and education affected access to formal health facilities. Increased years of stay in the study

area strengthened adherence to cultural values hence favoured more use of informal health facilities than formal ones.

Exploration of cultural influence on decision over uses of household resources, power distance, masculinity as well as cultural dimensions' influence on household decision making was also done. This led to the observation that 83.1% and 78.1% of the household decisions on selling household livestock and crops respectively were made by male household heads that culturally are endowed with power to decide. The percentages of women who were involved in selling of livestock and crops were 10.6 % and 16.3 %, respectively. It was shown that power distance, household annual income and masculinity had an influence on household decision making. This means that agro-pastoralists' life style in the study area favours more men than women whereby women are isolated from household decision making and denied authority over household resources and income, something which in turn affects them and their children, specifically under-five years old.

Influence of household health care seeking behaviour on incidence of under-five mortality was studied through examination of association among cultural values, traditional practices, socio-economic factors and health care seeking behaviour in relation to household's under-five mortality among agro-pastoralists. The study's findings suggest that health care seeking relates to a number of factors which collectively lead to the use of traditional or modern sources of treatment. Some of these factors include income, cultural values and traditional practices which the study found to be associated with the health care seeking behaviour. Health care seeking behaviour is not uniform as it is determined by a number of factors. Other factors which were found to influence health care seeking behaviour include mother's age, household number of children and masculinity. Mother's age influenced health care seeking behaviour among agro-pastoralists in the study area as

older mothers were found to choose more of traditional birth attendants and traditional medication than modern ones. This imposed a great challenge on the health of under-five children. Large household number of children observed in the study area implied increased costs for competing needs among other costs of accessing reliable health services. Masculinity characteristics among agro-pastoralists which are about male head aspiration to accumulate and control resources made them to desire large numbers of livestock, a behaviour which was observed to affect use of household resources to settle household needs, among others accessing reliable treatment. This resulted in poor health of under-five children and contributed to the incidence of household under-five mortality in the study area.

Furthermore, gender determined roles and their influence on the health of under five years among agro-pastoralists was investigated. This was found to have an influence on the household health of under-five children and incidence of under-five mortality. Factors such as household decision making, control of household income and household members' involvement in subsistence farming have a direct or indirect influence on the households' health of under-five children. For example, timely decision on the use of household resources or income to the treatment of under-five children can help in improving health of under-five children. If authority to make such decision is known to be a men's role, it affects timely administration of treatment process. Equal involvement in subsistence farming gives women more time to care for their children and contributes to the improvement of health and reduction of household's under-five mortality. The difference is that where subsistence farming remains a women's alone role they will lack adequate time to care for and seek appropriate treatment for their children. That is where poor health of children emerges, which ultimately leads to under-five mortality.

6.2 Recommendations

- i. There is a need for the Government through the Ministry responsible for health in collaboration with Local Government Authority (LGAs) and Non-Governmental Organisations (NGOs) to conduct awareness creation campaigns in the study area on the relevance of using formal health facilities. This is particularly for the treatment of under five-children among agro-pastoral communities. Awareness campaign should also take on board an emphasis on participatory household decision making between men and women. This will help in meeting expenses required in solving emergency household needs such as treatment at formal health facilities. This will promote a fair ground for using household income and resources in order to improve the wellbeing of households in different aspects. Correct uses of household income and resources will facilitate obtaining correct treatment for under-five children in time among other services and contribute to reduction of under-five mortality in agro-pastoral communities. Inequalities in household roles divisions will also need to be addressed as they deny women power and authority over household resources and income which could facilitate treatment particularly for children under-five years. Awareness creation campaign will also need to involve community development officers, health personnel, traditional elders, village leaders, and men and women representatives from each village.
- ii. Government and private sector should collaborate and establish formal health facilities within the study area. Moreover, necessary efforts should be made to ensure all villages are connected to the main road with reliable feeder roads.

- iii. From policy perspective specifically, health policy emphasis is needed that addresses the role of traditional birth attendants such as to assist and accompany expecting mothers among agro-pastoral communities to formal health facilities rather than encouraging them or to help expecting mothers deliver at their places. Also, health policy needs to encourage agro-pastoralist households to bear number of children whom they can support. This is because increased number of children implies pressure on caring for them which contributes to seeking treatment from unreliable sources including informal health facilities.

6.3 Recommendations for Further Research

Few possible areas for more research come into view from the current study. These areas are such as those linked to the average and practical point of view as far as the study is concerned. On average, one of the information missing hence remains unaddressed and warrant further investigation is related to the level of generalisation. This study based its findings on data involving four villages in Handeni District representing agro-pastoral communities. This means that the observations are based on the study area and others with similar characteristics. It would be of vital importance if the same methodology would be applied in other areas with different characteristics. Information to be generated will make it possible to make comparisons of observations with regard to their differences in health services utilisation, cultural dimensions and household power dynamics, household health seeking behaviour in relation to under-five mortality and gender roles' influence on the health of under-five children.

Agro-pastoral communities dwell in remote areas with limited formal health facilities among other services. Their lifestyle is characterised by mobility which advances more to remote areas with much more traditional healers and traditional birth attendants but with

decreased access to formal health facilities. Traditional healers and traditional birth attendants do not have modern means such as laboratory to perform diagnosis; they also lack systematic vaccination like those which are given in formal health facilities i.e. hospitals, dispensaries and clinics. In absence of formal health facilities under-five children are more vulnerable as risks extend from lack of regular check for expecting mothers (clinic services), delivery at traditional birth attendant's places where some situations are beyond their ability to assist. This situation calls for a research on the possibility to establish mobile formal health services in agro-pastoral communities.

6.4 Major Contribution of this Study to the Body of Knowledge

One of the contributions of the study to the body of knowledge is that an extended stay in an area is likely to tune people's minds into indigenous cultural values, practices and knowledge, which motivate them to rely on informal health facilities as an alternative to formal health facilities. This suggests a need to harmonize cultural values, practices and create awareness on the relevance of using formal health facilities. This will help Agro-pastoral communities to avoid dangers associated with not having correct treatment or missing vaccinations for under five children due to the communities' preference for traditional medication.

Furthermore, this study contributes to the body of knowledge that the traditional households' habits of keeping high numbers of livestock as a status coupled with desire to have a high number of children leads to higher under-five mortality. Traditional communities like agro-pastoralists need to understand that traditional practices and cultural values need to open room for the use of household wealth and resources for the improvement of their livelihood which include reduced mortality particularly that of under-five children.

APPENDICES

Appendix 1: Household questionnaire

Questionnaire No.....

Questionnaire on Influence of Cultural Dimensions on Under-Five Mortality among Agro-Pastoral Communities in Handeni District, Tanzania

A: Questionnaire identification

Date of interview

Name of enumerator

My name is Justin Job Ringo from Sokoine University of Agriculture (SUA), Morogoro. I am conducting a study on Influence of Cultural Dimensions on under-five mortality among pastoral communities in Tanzania. You have been chosen to participate in the study whose finding are expected to contribute to the efforts towards reduction of under-five mortality. Your responses to this questionnaire will be treated with high degree of confidentiality. Your participation is valuable and useful in strengthening efforts to reduce under-five mortality in Tanzania and elsewhere.

B: Location of Respondents

1.	Location	Tanga Region	
2.	Districts	Handeni	() ()
3.	Wards	1. Chanika 2. Misima	() () () ()
4.	Villages	1. Kibaya 2. Msomera 3. Malezi 4. Kilimilang'ombe	() () () ()

C: Background details/information

5.	What is your age		.....years
6.	Sex	1. Male 2. Female	() ()
7.	What is your marital status?	1. Never married 2. Married 3. Living together 4. Divorced 5. Separated 6. Widowed	() () () () () ()

		7. Other (Specify).....	() ()
8.	What is your religion?	1.Muslim 2.Christian 3.Traditional 4.None 5. Others (Specify)...	() () () () ()
9.	If Christian what is your denomination (RE)		.....
10.	What is your highest level of education?	1. No formal education 2. Adult education 3. Pre primary education 4. Primary education 5. Secondary education 6. Vocational training 7. University	() () () () () () ()
11.	What is your occupation?	1. Farmer 2. Full time pastoralists 3. Both farming and pastoralists 4. Business 5. Official employment 6. Traditional healer 7. Others (Specify).....	() () () () () () ()
12.	What is the size of your household?		.....
13.	How many children do you have		.....
14	What is your household's annual income? (Average)		.....

D: Possible options of health facilities

15.	Are there health facilities in your area?	1. Yes 2. No	() ()
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16	What are the formal health facilities available in your area? Tick inside the box of the available formal health facilities.			
S/N	Formal health facilities available in your area	Tick (√)	Distance from home to the health facility (km)	Time spent from home to the facility
1	District hospital			
2	Village Health Centre			
3	Private Hospital			
4	Clinic			
6	Chemist/Pharmacy			
7	Antenatal Care (ANC)			
8	Others (Specify).....			

17	What are the informal health facilities available in your area? Tick inside the box of the available informal health facilities.			
S/N	Informal health facilities available in your area	Tick (√)	Distance from home to the health facility (Km)	Time spent from home to the facility
1.	Common traditional knowledge			
2.	Traditional healers			
3	Traditional birth Attendants			
4	Others (Specify).....			
18	Between the two formal and informal health facilities, where do you mostly attend for health services?	1. Formal health facilities 2. Informal/traditional health facilities		() ()

E: Cultural dimensions, household power dynamics and health seeking behaviour

19.	The following table indicates statements about power distance in a household. Please put √ in the appropriate box (PD)					
S/N	Statement indicating state of household power distance	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	The household head makes most decisions without consulting other household members					
2	Household head uses authority and power when dealing with other household members					

3	Seldom does the household head ask for the opinions of other household members					
4	Other household members may not argue against the household head					
5	The household head does not delegate important tasks to other household members					
6	Women have high power to tolerate unequal distribution of household wealth					
7	Inequalities are expected and desired in household					
8	All persons in a household depend on the more powerful member in various aspects like decision making					
9	Children in a household are expected to become a source of old age security to parents					
10	Children are taught and expected to obey the household structure					

20.	Please give your opinion on the following statement with regard to your household. Put \checkmark in the appropriate box. (MAS)					
S/N	Statement	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	Household discussion on various matters are most of time chaired by the male household head					
2	It is more important for the male household head to engage in defined career than it is for women					
3	Male household heads are expected to show the way out of household challenges including health problems					
4	Solving household problems usually requires an active, determination and sometimes application of force which are typically attributed to men					
5	It is common and acceptable to have man as a household head rather than a woman					

21.	In the following table indicate how female works are appreciated in the household/community. Put \checkmark in the appropriate box.(MAS)					
S/ N	Appreciation of female works	Strongly disagree 1	Disagre e 2	Undecided 3	Agree 4	Strongly agree 5
1	Women are always given room to explain their opinions in the household					
2	Women are always allowed to make important household decision					
3	Women are always given power to control household resources					
4	Women are always allowed to compete for leadership positions at any level					
5	Women always decide on the use of household earnings					
6	Women always decide on kinds of medical treatment for children					

22.	The following table indicate reasons/customs which may cause traditional women to deliver at home rather than formal hospital. Put \checkmark in the appropriate answer. (CV)					
S/ N	Traditional customs that require pregnant women to deliver at home	Strongly disagree 1	Disagre e 2	Undecid ed 3	Agree 4	Strongl y agree 5
1	To fulfil household needs to pray and say cultural words to the new born baby					
2	Desire of household to avoid provoking traditional deity who are assumed to control household health affairs					
3	Desire of household to fulfil cultural practices inherited from ancestors					
4	To avoid possible harmful treatment from formal health facilities					
5	Desire of household to avoid contaminated medicine from health facilities					
6	Desire of household to avoid intended and accidental exchange of baby in the health facility					
7	Desire of household to avoid unknown medicine from hospital					

8	Desire of household to avoid risks associated with modern medicine					
9	Desire of household to avoid mixing of traditional treatment with modern treatment					

23.	Rate the influence of the following factors to health seeking behaviour in relation to religion (CV)					
S/N	Influence of beliefs to health seeking behaviour	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	Household beliefs may cause postponement of attending formal treatment					
2	Some beliefs restrict followers not to attend hospital for medical treatment					
3	Sometimes household fail to attend at health facilities as a result of misunderstanding religious teaching about healing					
4	Household have sometimes failed to donate blood as it is restricted by households' ways of belief					
5	Household beliefs hinder equality in decision making between male and female in a number of ways including health facilities to be followed					
	Household beliefs hinder equality in resources ownership between male and female members					

F: Household power dynamics

24	Who is responsible in doing the following roles? Put ✓ in the appropriate box (GR)			
SN	House construction and repairing	Male 1	Female 2	All HH members 3
1.	House construction			
2.	House repairing			
3	Give medicine to children as prescribed by doctor			
4	Take care of medicine from hospital/ Pharmacy			
5	Cooking and washing kitchen utensils			
6	Taking longer time caring for sick children & other sick persons			
7	Others (Specify).....			

25.	Please indicate ownership of the following livestock products between male, female or all household members. Put√ in the appropriate box. (GR)			
S/N	Livestock products owned by Male or Female	Male 1	Female 2	All HH members 3
1	Animal skin			
2	Milk			
3	Butter			
4	Yoghurt			
5	Cheese			
6	Animal manure			
7	Others (Specify).....			

26.	Please indicate ownership of the following household assets between male, female or all household members. Put√ in the appropriate box. (GR)			
S/N	Household assets owned by male, female or both	Male 1	Female 2	All HH members 3
1	TV Set			
2	Radio			
3	Mobile phone			
4	Bicycle			
5	Motor vehicle			
6	Pots			
7	House			
8	Wheelbarrow			
9	Others (Specify).....			

27.	Who decide on the following items in your Household? Put √ in the appropriate box (DM)			
S/N	Who decide on the following?	Male 1	Female 2	Both male & female 3
1	Buying costly furniture			
2	Selling household resources for medical reasons			
3	Whether to buy or to sell cows and goats			
4	How to spend family savings			
5	Whether to take a loan			
6	Treatment when a child is sick			
7	Whether to visit a doctor when you are sick			
8	Whether you can work for money outside home			
9	Visiting your father's home			
10	Whether or not to have another child			
11	Whether or not to use family planning			
12	When to stop breast feeding			
13	How to feed the family			
14	Sale of livestock			
15	Sale of crops			

16	How to spend cash from sale of livestock			
17	How to spend cash from sale of crops			
18	Religion/denomination to be followed by HH members			
19	Who decide on the kind of treatment to be followed when there is a serious sick child/person			

28.	Who own the following resources in the household? Put ✓ in the appropriate box (RA)			
S/N	Resources owned by Male or Female in HH	Male 1	Female 2	Both Male & female 3
1	Farm			
2	Cows			
3	Calves			
4	Heifers			
5	Goats			
6	Bulls			
7	Chickens and eggs			
8	Plots			
9	Sheep			
10	Ducks			
11	Donkeys			
12	Others (Specify).....			

29.	Please rate on who control/dominate the major household resources between male, female or both? Put ✓ in the appropriate box. (RA)					
S/N	Control of household resources	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	Male					
2	Female					
3	Male and female					
4	Males, females and children					
5	Others (Specify).....					
30.	How long is he/she (one who controls household resources) usually not at home/migrate during the year?	1.Days 2. Months				..... .....
31.	What do you do when there is a health problem that requires solution and one who controls household resources is not available?	1..... 2..... 3..... 4.....				

32.	Please indicate degree to which the following household resources are sold to avert under-five death. Put √ in the appropriate box (RA)					
S/N	Selling of resources to avoid under-five mortality	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	Farm					
2	Cows					
3	Goats					
4	Chickens and eggs					
5	Plots					
6	Sheep					
7	Duck					
8	Donkey					
9	Others (Specify).....					

G: Health seeking behaviour and under-five mortality

33.	In the following table, please indicate where you used to send your children for treatment. Put √ in the appropriate answer. (HSB)					
S/N	Sending children to health facilities for treatments	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	District hospital					
2	Traditional healers					
3	Village health centre					
4	Private hospital					
5	Chemist/pharmacy					
6	Antenatal Care (ANC)					
7	Others Specify).....					
34.	If you are not sending children to any health facility for treatment, please give reasons (HSB)	1. Could not afford expenses 2. The illness was not serious 3. The service is too far 4. Others.....Specify				() () () ()
35.	Have you ever gone for traditional treatment? (HSB)	1. Yes 2. No				() ()
36.	If the answer for question 35 above is yes, what is the average times per year?	.....			
37.	3. Amongst the two formal and traditional health facilities, where do you most attend for treatment/ health services?	1. Formal health facility 2. Traditional health facilities				() ()

38.	Indicate the level of agreement with the following statements with regard to formal health facilities (HSB)					
S/N	Formal health facilities	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	In formal health facilities doctors are available all the time					
2	Informal health facilities medicines are available all the time					
3	In formal health facilities there are laboratories to help in identification of health problem					
4	There is high accessibility of formal health facilities					
5	There is good care from formal health facility attendants					
7	My child got well every time I got medicine from formal health facilities					

39.	Indicate level of agreement to the following statement with regard to informal/traditional health facilities (HSB)					
S/N	Informal/traditional health facilities	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	Traditional means of identifying health problems which are reliable					
2	Traditional healers are every time ready to attend their patients					
3	Traditional medicines from informal health facilities are readily available compared to modern medicines from formal health facilities					
4	Medicines from informal health facilities are natural and safe compared to modern medicine from formal health facilities					
6	Informal health facilities offer culturally inherited medicines compared to formal health facilities					

7	Our ancestors used natural medicines from informal/traditional facilities					
8	Medicines obtained from informal/traditional health facilities are recommended by cultural elders					
9	Treatment costs from traditional health facilities are cheaper compared to formal health facilities					

H: Availability and accessibility of health facilities

40	How do you go to the health facility?	1. On foot 2. By bicycle 3. By motorcycle 4. Bus/daladala 5. Others.....(Specify)	() () () () ()
41	How long does it take from home to the health facility? (Answer in km)	.....
42	Are the means of public transport to health facilities reliable?	1. Yes 2. No	() ()
43	Do you incur transport costs to and from the health facility?	1. Yes 4. No	() ()
44	If yes to question 43 above, how much does it cost for a round trip?	.....
45	Are roads passable throughout the year?	1. Yes 2. No	() ()

I: Incidence of under-five mortality

46.	Are all children who have been born in your household alive?	1. Yes 2. No	() ()
47.	If the answer to question 46 above is no, at what age did any of your children pass away?	1. 0-5 years 2. > 5 years	() ()
48.	How many deaths children aged between 0-5 years have happened in your household?	.....

49	How do you consider the following statement as causes of death for under-five children (0-5 years) in a household					
S/N	Causes of death for under - five children (0-5 years)	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5

1	Differences in resources ownership between male and female					
2	Religious beliefs					
3	Differences in decision making between male and female household heads					
4	Use of HH resources on other issues away from health matters					
5	Delay in using appropriate health services					

50.	Where did the birth and death of the baby happen? 1=Yes, 2=No		
S/N	Place	Birth	Death
1	District hospital		
2	Village Health Centre		
3	Traditional birth attendants		
4	Chemist/Pharmacy		
5	At home		
7	Traditional healers		
8	Antenatal Care (ANC)		
9	Private hospital		
10	Clinic		

51.	At the time of baby's death, how many children were under-five years in your family?	.....
52.	How long did the dead baby feed on mothers breast?	.....
53.	What was the sex of the dead baby	1. Male 2. Female	() ()
54.	What was the dead baby birth order?	1. First birth 2. Second birth 3. Third birth 4. Fourth birth 5. Fifth birth 6. Six birth 7. Others..... (Specify)	() () () () () () ()
55.	What was the dead baby birth interval?	1. One year 2. Two years 3. Three years 4. Four years 5. Others.....(Specify)	() () () () ()
56.	Did the dead baby get all recommended immunisations?	1.Yes 2.No	() ()
57.	What was the age of mother when the child was born?	

58.	How old was the baby when died
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59.	How do you rate your application to the following measures throughout the efforts to avoid the baby's death? Put \checkmark in the appropriate box					
S/ N	Measures taken by household to avoid under-five mortality	Strongly disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly agree 5
1	Ensure traditional protection to children					
2	Sending children to traditional healers					
3	Following traditional means to identify source of health problems					
4	Making follow up of vaccination					
5	Ensuring adequate nutrition					
6	Ensuring safe water and food					
7	Direct earnings from selling of household resources towards solving health problems					
8	Following formal medical check-ups					
9	Apply traditional preventive mechanisms					
10	Attended counselling and prayers					
60.	What is your opinion on the occurrence of under-five mortality in your village?				1. Very Low 2. Low 3. Normal 4. High 5. Very high	() () () () ()
61.	Have you ever experienced under-five mortality in your household for the past 12 months prior the survey?				1. Yes 2. No	() ()
62.	How many incidents of under-five mortality can you remember that had occurred in your village for the past 12 months prior to the survey?				.....

THANK YOU FOR YOUR COOPERATION