MATERNAL HEALTH CARE UTILIZATION AND ITS SOCIO-ECONOMIC IMPLICATIONS IN TANZANIA:

A STUDY OF ILEMBO AND MASOKO WARDS IN MBEYA DISTRICT

By

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A Dissertation Submitted in Fulfillment of the Requirements for the Award of Degree of Master of Science in Project Planning and Management of Mzumbe University

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by Mzumbe University a dissertation entitled **Maternal Health Care Utilization and Its Socio-economic Implications in Tanzania: A study of Ilembo and Masoko wards in Mbeya District** in partial fulfillment of the requirements for the award of the Degree of Master of Science in Project Planning and Management

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I, Maguja Nestory, declare that this dissertation is my original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

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DEDICATION

I want to dedicate this work to my lovely parents, Mr. Nestory M. Imaja and Mrs. Maltrida N. Lutambi, for their determined parenthood, guidance, assistance, advice, encouragement, and support in every way during my study. From the bottom of my heart, I love them, and may Lord bless them abundantly.

LIST OF ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
FANC	Focused Antenatal Care
GDP	Gross domestic product
HIV	Human Immunodeficiency Virus
LBW	Low Birth Weight
MDGs	Millennium Development Goals
MHCS	Maternal Health Care Services
MHS	Maternal Health Services
MoHSW	Ministry of Health and Social Welfare
MNCHP	Maternal Newborn and Child Health Partnership
PHSDP	Primary Health Service Development Program,
PNC	Post Natal Care
SBA	Skilled Birth Attendants
SPSS	Statistical Package for Social Sciences
SSA	Sub Saharan Africa
TBA's	Traditional Birth Attendants
TDHS	Tanzania Demographic Health Survey
TZS	Tanzania shillings
UN	United Nations
URT	United Republic of Tanzania
USAID	United State Agency for International Development
WHO	World Health Organization

ABSTRACT

This study examined the socio-economic implications of Maternal Health Care in Tanzania using Masoko and Ilembo wards as a case study. The specific questions were (a) To what extent does maternal health care utilization affect household production in Tanzania? (b) To what degree does maternal health care utilization affect the healthy days of maternal mothers in Tanzania? (c)To what level does maternal health care utilization reduce vulnerability to diseases of maternal mothers in Tanzania? (d)To what extent does maternal health care utilization affect the health expenditure of the Tanzanians? The random probability sampling technique chose a sample size of 143 respondents. The findings show that most respondents (64%) made one to three antenatal Care visits, while 36% made the required number of four and above antenatal care clinic visits. Based on these data, it can be confirmed that the utilization is low. The findings also show that the maternal mother's age, distance, lack of education, and income level were reasons for the low utilization of maternal health services. On the socio-economic effects, the results showed that respondents with higher antenatal care visit majority 76.7% of them earned more than 500,000Tzs per year compared to 23.3% with lower antenatal care visits (p=0.0005). Furthermore, among respondents with higher antenatal care clinic visits, only 7.6% were unhealthy for more than 40 days per year compared to 92.4% with lower antenatal care clinic visits (p= 0.0005). In respondents with higher antenatal care clinic visits, only 17.9% were vulnerable to *hemorrhage, puerial-sepsis, eclampsia,* and *anemia* compared to 82.1% with lower antenatal care clinic visits (p=0.0005). 91.4% of respondents with lower antenatal care visits spent more than 100,000Tzs on health problems compared to only 8.6% with higher antenatal care visits (p=0.0005). Increase of health facilities Availability and provision of maternal health knowledge were some of the study's policy recommendations.

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CHAPTER ONE

BACKGROUND INFORMATION AND PROBLEM STATEMENT

1.1 Background Information

Improvement of Maternal Health Service (MHS) is one of the essential agendas in developing countries as they strive to reduce the number of maternal mortality in the continent (Say *et al.*, 2014). According to WHO (2014), it is reported that most maternal mortalities in developing countries result from complications during pregnancy and childbirth. Furthermore, it is estimated that pregnancy complications and childbirth problems claim 289 000 lives of pregnant women every year in the world, of which 62% (179,000) of these deaths occur in Africa, especially SSA. These data show that Africa is still the riskiest continent in the world for claiming the lives of pregnant women compared to other continents in the world. Say *et al.* (2014) argued that developing countries have the highest maternal mortality rate of 230 per live birth compared to only 16 deaths per 100,000 live births in developed countries. However, there is also a massive disparity between countries in the same continent, especially in Africa. There are few countries with a very high maternal mortality rate of around 1000 per 100 000 live births, while others have lower mortality rates (Say *et al*., 2014). Furthermore, disparities occur not only among countries but also within countries where women with high income are better off than women with low income. In addition, it is also claimed that women living in rural areas suffer more pregnancy and childbirth complications than those in urban areas (Say *et al*., 2014).

In Tanzania, the maternal mortality ratio shows an uneven trend from time to time (WHO, 2013). For example, TDHS (2010) reported a maternal mortality ratio of 790 deaths per live birth compared to 449 and 610 deaths per 100,000 live births in 2008 and 1990, respectively. Moreover, Tanzania improved in reducing the under-five deaths in 2010, only 26 deaths per 1,000 live births compared to 155 deaths per 1,000 live births

in 1990 (UN, 2011). Furthermore, Honorable Ummy A. Mwalimu, when presenting the budget for the Ministry of Health, Community Development, Gender, Elderly and Children 2016/2017, reported a decrease in mortality rate in Tanzania from 454 per 100,000 lives birth in 2010 to 398 per 100,000 live births in 2015 which is still far behind to reach and achieve the standards set by WHO of 300 deaths per 100,000 live births. This data is still lagging in achieving and meeting the goals set by the Health Sector Strategic Plan III target of 265 deaths per 100,000 live births by the end of 2015(WHO, 2013). The data above made maternal health care a substantial public health problem in Tanzania.

Taking into consideration that the significant percentage of maternal mortality rate and the child mortality rate is directly related to the health and well-being of the pregnant women and their babies brought the necessity for different international agencies to take a close look and initiatives to ensure that maternal health care is the primary target to be improved. One of the initiatives the United Nations took in collaboration with other international agencies was the Millenium Development Goals (MDGs), in which goals 4 and 5 were specifically established to address the problem of maternal and child health. Therefore, like other members of the UN through the Ministry of Health, Community Development, Gender, Elderly and Children, Tanzania formulated various policies and strategies to promote safe maternity and improve child survival (WHO, 2013). Some of the policies and plans developed by the government of Tanzania include Maternal Newborn and Child Health Partnership (MNCHP), The Primary Health Service Development Program 2007-2017, the Health Sector Support Program III in 2008, Health Sector Strategic Plan IV 2015-2020 and Sustainable Development Goals (SDGs) 2030 to addresses Maternal, Newborn and Child Health issues (WHO, 2013). Furthermore, the government of Tanzania abolished the user fees in public health facilities for maternal and children under five years to improve maternal and child health care services to increase their survival and well-being (WHO, 2013).

1.2 Problem Statement

Despite the efforts, utilization of maternal health care in Tanzania is low, as proved by the TDHS (2010), which reported that in the five previous years before the survey, 96% of pregnant women made only one antenatal care visit during the pregnancy period while only 43% of pregnant women whose last birth occurred in the five years before the survey made four or more ANC visits as suggested by WHO. This was the lowest number of antenatal care visits by pregnant mothers as required compared to WHO standards. Moreover, the report also showed that only 15% of pregnant women at least made an effort to seek the first ANC clinic visit before the fourth month of pregnancy. In contrast, about one-third of the women did not even take the trouble to look for ANC until their sixth month of pregnancy (TDHS, 2010).

Furthermore, not only the utilization of ANC in Tanzania was reported to be low, but also the TDHS (2010) report showed that 65% of women whose last live birth occurred in the past five years did not receive a postnatal check-up within 41 days after delivery while only 18% were examined within 4 hours of delivery, 7% within 4-23 hours, 5% within 24-48 hours and 4% within 3-41 days of delivery. In total, only 31 percent of births were examined within two days, as recommended by WHO. Therefore, the divergence between government strategies and maternal care services utilization by women in Tanzania brought many doubts that require intuitive answers.

However, in looking at this problem, most studies in Tanzania focused on determinants or causes of maternal health services utilization. While some of these studies are the ones carried out by Simfukwe (2008) in Kongwa, which aimed at investigating the factors behind home delivery as natural habits, traditional practices as well as distance and unsatisfactory maternal health care were the main reasons behind home delivery in the area. Furthermore, Samson (2012) revealed that women's education, distance, and

ANC clinic visits were positively associated with maternal health care utilization in Nkasi district in Lindi Region. In another study by Mukong (2013) on socio-economic determinants of maternal health care in Tanzania, the researcher found that distance, health awareness, husband's education, woman's education, and household income positively influenced the utilization of maternal health care.

Since most of the studies have dwelt on the determinants of utilization, looking at the causes or factors for it, none of them had focused on the implications for utilization of maternal health care. Hence, this research is interested in addressing this knowledge gap, and the question is, does maternal health care utilization affect the socio-economic welfare of the people?

From this understanding, the researcher is therefore interested in analyzing the utilization of maternal health care and its socio-economic implications in Tanzania using Ilembo and Masoko wards as a case study.

1.3 Research Questions

1.3.1 Main Research Question

What are the socio-economic implications of maternal health care utilization in Tanzania?

1.3.2 Specific research questions

(a) To what extent does maternal health care utilization affect household production in Tanzania?

(b) To what degree does maternal health care utilization affect the healthy days of maternal mothers in Tanzania?

(c) To what level does maternal health care utilization reduce vulnerability to diseases of the maternal mothers in Tanzania?

(d) To what extent does maternal health care utilization affect the health expenditure of the Tanzanians?

1.4 Research Objectives

1.4.1 General research objective

The general research objective of this study is to assess the socio-economic implications of maternal health care utilization in Tanzania using Masoko and Ilembo wards as a case study.

1.4.2 Specific research objectives

(a) To evaluate the contribution of maternal care utilization in household production of the Tanzanians

(b) To evaluate the effects of maternal health care utilization on healthy days of maternal mothers in Tanzania

(c) To examine the degree to which maternal health care utilization reduces vulnerability to diseases the Tanzanians

(d) To examine the scale to which maternal health care utilization affects the health expenditure of the Tanzanians

1.5 Scope of the Study

The study was carried out in Mbeya district in Mbeya region in Tanzania. The study covered two wards of Ilembo and Masoko in which eight villages were selected: Ilembo, Ilomba, Masoko, Italazya, Mumba, Mwakasita, and Shilanga, as well as Mwala. Time and resources constraints forced the researcher to select only these few villages to comply with the time and resources allocated to the researcher. Maternal health care utilization and its socio-economic implications for the welfare of the community members in terms of vulnerability to diseases, healthy days, health expenditure, and family income earned per year were the focus of this study.

1.6 Significance of the Study

Good health services provision is the primary target for the sustainability of any country. This is because healthier people have more time to engage in productive activities than unhealthy people. Maternal health care utilization is crucial in determining the direction of the future workforce as it directly touches the lives of maternal mothers and their babies, who are the future workforce in the country. The importance of the health sector, especially maternal health, was the main reason this study was undertaken.

Additionally, the findings from this study will assist in informing the policy makers and implementers to scale up the provision of health services, especially in the rural areas, which are the primary source of the workforce. Furthermore, improving the provision of health services in rural areas will help Tanzania achieve the targets set in Tanzania vision 2025, The Primary health services development program 2007-1017, The Health Sector Strategic Plan IV 2015-2020, and Sustainable Development Goals 2030. Moreover, the findings will provide up-to-date information for academicians and medical practitioners and contribute to the already presented body of knowledge regarding maternal health care utilization and its socio-economic implications. It will further explore the reasons for low maternal health services utilization and recommend the proper measures. Lastly, the successful completion of this study will enable the researcher to obtain a master's degree in Project Planning Management.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Definitions of key terms

(a) Maternal mortality is the death that occurs to the woman during pregnancy or after delivery for up to 42 days—the results from poor pregnancy management but not accidental or incidental causes **(**WHO, 2005).

(b) Maternal morbidity: refers to any health situation motivated by pregnancy and childbirth that harms the women's wellbeing but is not fundamentally lives to threaten, though it can have a significant impact on the quality of life (WHO, 2005)

(c) Antenatal care(ANC): refers to routine medical checkups and nursing care given to pregnant women during the pregnancy period to detect as well as treat potential health problems that may arise in a pregnant woman (WHO, 2005). Furthermore, pregnant women will receive critical information and advice about their health conditions, fetus development, and appropriate delivery places depending on their health condition.

(d) Postnatal Care (PNC): refers to all health services given to a maternal mother immediately after birth up to 41 days. During this period, a maternal mother has to receive a complete checkup or screening aiming at counseling, motivating, detecting as well as treating any complications resulting from pregnancy to a mother and child (WHO, 2013)

(e) Maternal Health Services (MHS): these refer to Basic essential obstetric care (BEOC) and Emergency obstetric care (EmOC). BEOC includes preventive services as well as medical interventions and procedures that can be provided by well-trained primary care physicians and non-physician providers. This includes ANC, with preventive interventions, early detection and treatment of common pregnancy problems,

and the ability to manage simple pregnancy problems and first aid for pregnancy complications and labor to minimize the need for emergency interventions. EmOC specifically covers lifesaving interventions of blood transfusion and surgery (WHO, 2013).

2.1.2 Components of MHS Utilization

2.1.2.1 Antenatal care (ANC)

Antenatal care involves routine medical checkups and nursing provided to pregnant women to detect, prevent, and treat any health problems that may arise during pregnancy. During ANC clinic visits, pregnant women can receive valuable information and advice from medical experts about their health condition, the development of the fetus, and the appropriate place of delivery depending on their health conditions (Bloom *et al.*, 1999). Furthermore, pregnancy-related problems such as malaria, anemia, and hypertension during ANC clinic visits can be monitored and treated before a pregnant woman's life and the unborn baby is affected (Bhatia & Cleland, 1995).

Since the pregnancy period is a critical period for the survival of both pregnant woman and unborn baby (Lincetto *et al.*, 2015), good quality ANC is required to ensure the safety of the expectant mother because inadequate care during this time can break a critical link in the range of care, and affects both women and babies (Lincetto *et al.*, 2015).

Due to its importance in any reproductive health care system, different models of ANC, such as a traditional model of prenatal care and focused ANC clinic visits, were developed and practiced in other countries. According to Shah and Say (2007), tradition's nature, historical, socio-cultural, human and financial resources available, and constraints were the main factors behind the development of these models. The

traditional model of prenatal care is widely used in most developed countries, whereby maximum numbers of ANC clinic visits ranging from 7 up to 10 visits are recommended to be made by the pregnant woman. In this model, pregnant women have to make monthly visits until the seventh month of pregnancy, and then after that, they should have to make weekly visits until the day of delivery (Say & Raine, 2007). The model helps the expected mother receive enough medical care, supervision from trained personnel, and emergency treatment if any complications arise.

Therefore, most developing countries developed their model known as Focused antenatal care (FANC) as customized medical care aiming at making pregnant women aware of their overall health, birth preparation, and readiness for foreseen pregnancy complications (Villar *et al.,* 2001). In this model, the clinic visits are focused on enabling the pregnant woman to make all visits recommended which are sequentially arranged whereby the first visits start during the first three months of pregnancy, followed by second visits in the sixth month of pregnancy, followed by the third visit in the eighth month of pregnancy and the last visits have to be made in the final month of pregnancy (Villar *et al.,* 2001). Inadequate health care resources, waiting time, transportation costs, and loss of working hours are common problems faced in most developing countries; hence the FANC model was designed to help reduce these problems (Birungi *et al.,* 2008).

2.1.2.2. Benefits of Antenatal care (ANC)

Antenatal care contributes to good pregnancy outcomes, and frequently benefits of antenatal care are dependent on the timing and quality of the care provided (WHO & UNICEF, 2003). Regular ANC is necessary to establish a relationship and confidence between the woman and her health care provider, individualize health promotion messages, and identify and manage maternal complications or risk factors (Hollander 1997). During these visits, essential services such as tetanus toxoid immunization, iron,

and folic acid tablets, and nutrition education are provided (Magadi *et al.,* 1999). Furthermore, lack of antenatal care has been identified as one of the risk factors for maternal mortality and other adverse pregnancy outcomes in developing countries (Anandalakshmy *et al.,* 1993; Fawcus *et al.,* 1996). Moreover, many studies have also demonstrated the association between lack of antenatal care and perinatal mortality, low birth weight, premature delivery, *pre-eclampsia*, and *anemia* (Ahmed & Das 1992; Coria-Soto *et al.,* 1996).

In addition, it is evidenced that intra uterine growth retardation, as well as birth weight, are positively related to ANC clinic visits as lack of ANC clinic visits results in higher intra uterine growth retardation as well as low birth weight and vice versa is accurate (Coria-Soto *et al.,* 1996; Ahmed & Das, 1992). Moreover, 160,000 more newborn lives will be saved in Africa if 90% of pregnant women will receive the recommended ANC clinic visits (WHO, 2013).

Furthermore, sexually transmitted diseases such as HIV infection, *syphilis*, *gonorrhea*, urinary tract infection (UTI), counseling, birth preparedness' education, and family planning education are all given attention during ANC clinic visits (Lincetto *et al.,* 2015). However, the significance of ANC clinic visits in improving maternal health care results can be reduced by the absence of a functioning health system where pregnant women can receive emergency obstetric care whenever needed (Coria-Soto *et al.,* 1996).

2.1.2.3 Postnatal Care (PNC)

This is the period from birth time until up to 42 days after birth (WHO, 2013). This is the most crucial period for both mother and her born baby, as it has been evidenced that 60% of maternal death in developing countries occurs during this time and the death of a mother exposes her newborn child to a high risk of morbidity and infant mortality, hence receiving postnatal care during this time is of very important as the life of both mother

and child depends on this care (Gill *et al.,* 2007). Postnatal care helps obtain important information on maternal and child nutrition, immunization, hygiene, sanitation, and prevention of infections, including HIV and other STIs (USAID, 2009). Despite the significance of postnatal care, most women in Tanzania do not utilize these services, as it was reported that only 31% of women accessed and received postnatal care immediately after birth (TDHS, 2010). Due to this situation, developing countries have a high maternal mortality rate, and the leading causes of these deaths are *hemorrhage,* infections, and hypertensive disorders. However, these conditions are technically treatable if detected early (Hauwa, 2011).

2.1.3. Effects of lack of MHC Utilization

2.1. 3.1 Effects of lack of ANC Utilization

Good quality care during pregnancy is significant for a mother's health and the unborn baby's growth (Lincetto *et al.,* 2015). However, pregnancy is critical to endorse healthy behaviors and parenting skills. ANC provides platforms for pregnant women and their families to access formal health education to increase the probability of getting supervision from trained personnel during delivery and contributes to better health through the life cycle. At the same time, the lack of care breaks a critical link in the care range, affecting both expected mothers and unborn babies (Warren *et al.,* 2008).

In addition, it is estimated that almost 900,000 expected newborn babies die as stillbirths during the last twelve weeks of pregnancy in SSA due to a lack of antenatal care visits and nursing (Warren *et al.,* 2008). Moreover, antepartum stillbirth accounts for two-thirds of all stillbirths in countries where the mortality rate is greater than 22 deaths per 1,000 live births in African countries (Lincetto *et al.,* 2015). Furthermore, maternal infections, especially *syphilis* and pregnancy complications, are the leading causes of antepartum stillbirths deaths, even though systematic global estimates of reasons are not available. Also, preterm birth, restricted fetal growth, congenital infections, and fetal

alcohol syndrome are the leading problems affecting newborn babies (Warren *et al.*, 2008).

It is also estimated that 25% of maternal deaths occur during pregnancy, with changeability between countries depending on the occurrence of unsafe abortion, violence, and disease in the area (Lincetto *et al.*, 2015). *Pre-eclampsia* and *post-eclampsia and hemorrhage* claim about a third and a half of maternal lives due to inadequate antenatal care during pregnancy. Moreover, the high prevalence of Malaria, HIV/AIDS infections, Anemia, and malnutrition claims about three out of five pregnant women in West African countries (Lincetto *et al.*, 2015).

2.1.3.2 Effects of lack of PNC Utilization

It is known that the postnatal period is significant to the health and survival of a mother and her newborn, especially immediately after delivery until the sixth week of delivery (WHO, 2013). However, the most susceptible time for both mother and baby is during the hours and days after birth. So, lack of care during this period may result in death and disability and hinder the opportunities to promote health behaviors affecting pregnant women, newborns and children ((Lincetto *et al.*, 2015).

It is estimated that half of all postnatal maternal deaths occur within 24 hours up to the first week after a new baby is born (Warren *et al.*, 2008). However, the leading cause of maternal mortality in Africa is hemorrhage which accounts for up to 34% of deaths. In comparison, *sepsis* and infection claim another 10% of maternal deaths; practically all occur during the postnatal period. Access to family planning in the early postnatal period is also essential, and lack of effective PNC contributes to frequent poorly spaced pregnancies; this is a stressful time for new mothers, so emotional and psychosocial support should be available to reduce the risk of depression (Warren *et al.*, 2008).

Effects on newborns: Studies show that SSA has the world's highest neonatal mortality rates and has led to the slowest progress in reducing newborn deaths, especially deaths in the first week of life (WHO, 2013). It is estimated that at least 1.16 million African babies die each year in the first 28 days of life, and 850,000 of these babies do not live pasts the week they were born (Warren *et al.,* 2008). There are various causes of these deaths; one of them is *asphyxia* which claims many babies during the first day, and the majority of deaths due to preterm birth occur during the first week (WHO, 2013). Infections, mainly after the first week of life, claim 38% of babies' lives in SSA, and the majority of these deaths are low birth weight babies, many of whom are preterm. In addition, long-term disability and poor development often originate from childbirth and the early postnatal period (Warren *et al.,* 2008).

Effects on children: In SSA, at least one in four child deaths occur during the first month of life (Warren *et al.,* 2008). These deaths often occur before child health care services begin to be offered in the first six weeks of the first immunization visit. Low coverage of care in the postnatal period negatively influences other maternal, newborn, and child health (MNCH) programs along the continuum of care. For example, the lack of support for healthy home behaviors such as breastfeeding can continue to affect child undernutrition. Additionally, newborns and mothers are frequently lost due to a lack of follow-up during the postnatal period (Warren *et al.,* 2008).

2.1.4 Theories on Maternal Health Care Utilization

Since it is difficult to identify which determinants are most significant in the decision to utilize health care, a range of different aspects ranging from culture, economics, access, perceptions, knowledge, belief in usefulness, age, gender roles, to social roles is believed to influence the choice to seek health care and the evaluation of which health care option to utilize for prevention and treatment of illness. So to understand why people decide to seek and use health care in their daily lives, the researcher looked at various theories and

models which explain and explored factors responsible for people seeking and utilizing health care from theoretical perspectives. These theories and models are Andersen's health behavior model, Choice making model, and Health Belief Model.

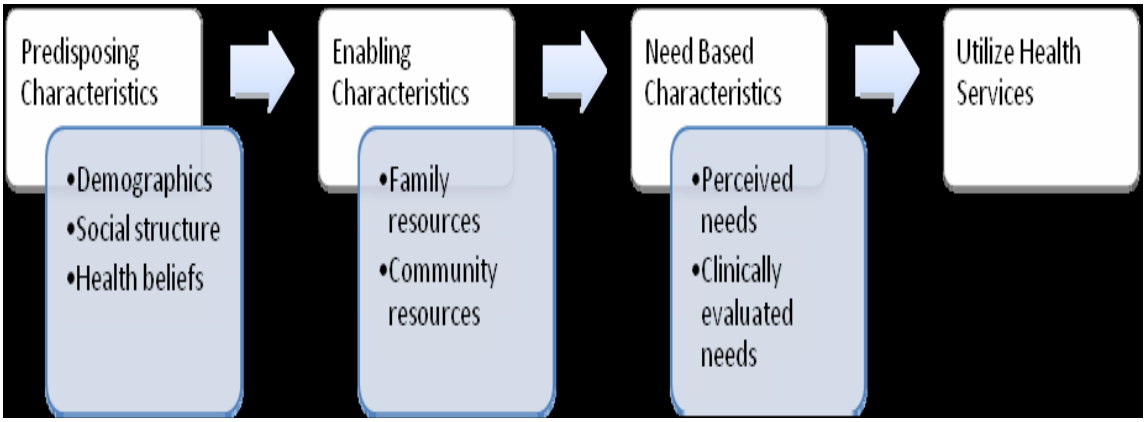
2.1.4.1 Andersen's health behavior model

Andersen developed Andersen's health behavior model in 1968, which looks at three categories of determinants (Rebhan, 2008). The first category is a Predisposing characteristic which represents the tendency to utilize health care services, and according to Andersen, an individual is more or less likely to use health services based on demographics, position within the social structure, and beliefs about health services benefits (Warren *et al.,* 2008). An individual who believes health services are helpful for treatment will likely utilize those services (Rebhan, 2008). The second category is enabling, which includes family and community resources. Family resources comprise economic status and the location of residence, while community resources incorporate access to health care facilities and the availability of persons for assistance; the third category is Need-based characteristics. This category includes the perception of the need for health services, whether individual, social or clinically evaluated perceptions of need (Rebhan, 2008).

Furthermore, the model was revised in the 1980s-1990s to form three components with a linear relationship. These three components are primary determinants, health behaviors, and health outcomes (Andersen, 1995). Primary determinants are noted as the direct cause of health behaviors. These determinants include characteristics of the population (demographics), the health care system (resources and organization), and the external environment (political, physical, and economic influences of utilization). In addition, the model explains that health behaviors determine health outcomes. Health behaviors include personal health practices (diet and exercise) and the use of health services. Lastly, the model indicates that health behaviors directly cause health outcomes. Health

outcomes include perceived health status, evaluated health status, and consumer satisfaction (Rebhan, 2008).

Figure 2.1: Andersen's Behavioral Model of Health Services Utilization



Source: Wolinsky, 1988b

Generally, the model assumes that predisposing characteristics, enabling characteristics, and need features always influence people to use the health service, especially the maternal health services in this case.

2.1.4.2 Choice-making model

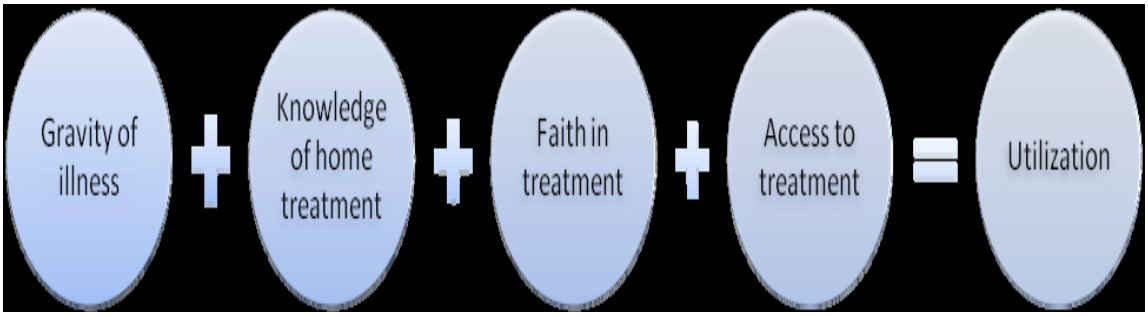
The choice-making model was proposed by Young (1981) in his ethnographic studies of health services utilization in Mexico. In his proposed model, Young includes four essential components to influence the individual's decision on health services utilization. These four components are perceptions of gravity, the knowledge of home treatment, the faith in the treatment, and the accessibility of the treatment (Rebhan, 2008).

A perception of gravity includes individuals' perceptions and their social network's consideration of illness severity. Individuals' perceptions of the illness severity will influence whether to seek medical treatment or not. Also, the social network is based on the assumption that the culture plays a part in classifying the severity of illnesses by an individual (Rebhan, 2008). The second component of the choice-making model is the knowledge of home treatment. This component emphasizes that a person is likely to use

home treatment if that person believes home treatment is efficient compared to the professional health care system (Wolinsky, 1988b).

The third component of the choice-making model is the faith in treatment which incorporates the individual's belief in the efficiency of treatment for the present illness. Individuals will not utilize the treatment if they do not believe it is effective. The last component of the choice-making model is the accessibility of treatment. The term accessibility includes the individuals' evaluation of the cost of health services provided and the availability of those services. According to Young, access may be the most important influence on health care utilization (Wolinsky, 1988b).

Figure 2.2: Choice-Making Model



Source: Young, 1981

In general, the Choice making model assumes that the gravity of the illness, knowledge of home treatment, faith in medicine, and access to treatment always influence people to utilize health services, especially the maternal health services in this case.

2.1.4.3 Health Belief Model

The Health Belief Model was developed by cognitive belief theorists, who believe that behavior depends on the significance that a person puts on a preferred result. That behavior will make that person achieve the most desired outcome (Bandura, 1977). Moreover, the Health Belief Model elaborates that health behaviors can be predicated based on the information from determinants such as perceived severity, perceived benefits/barriers, modifying factors, and susceptibility related to specific behavior. The

applicability of the Health Belief Model in this study has been explained based on the four determinants.

Perceived susceptibility: Perceived susceptibility refers to a person's decision on the danger of contracting a health problem. The possibility of looking for health interventions and care increases as the perceived susceptibility level increases (Rosenstock, 1974). For example, a pregnant woman is likely to look for medical intervention and care if she believes that she is susceptible to pregnancy complications during her pregnancy period or has faced difficulties during her pregnancy.

Perceived severity: This refers to a personal assessment of the probability that a problem or illness will have cruel consequences such as pain, handicap, or even death if contracted or left untreated (Backer & Maiman, 1977). The willingness of a pregnant woman to seek and utilize MHC depends on her assessment of the seriousness of the adverse effects related to pregnancy complications, for example, the risk of facing death to the pregnant woman and the death of the fetus.

Perceived benefits/barriers: Perceived benefits/barriers refer to an individual's selection of particular behavior depending on the perceived benefits and obstacles that person is likely to get and face by choosing specific behavior. An individual carries out a cost-benefit analysis to evaluate the expected use of particular behavior against perceived expenditure incurred by engaging in the behavior (Rosenstock, 1974). Furthermore, compliance with suggested healthcare-seeking behavior is hindered to the extent that perceived barriers outweigh perceived benefits that would result from engaging in health behavior (Rosenstock, 1974). For example, lack of knowledge about the benefits of MHC, distance to a health facility, inadequate resources, traditional practices, and long waiting time at the health facility would make the pregnant woman not utilize MHC.

Modifying factors: The decision to look for health care can also be influenced by socio-cultural factors as well as demographic factors such as educational attainment, age, religion, social values, beliefs, and practices, and from this aspect, the individual's decision to seek and utilize medical care depends on context surrounding that person (Chivonivoni *et al.*, 2008).

2.2 Empirical Literature Review

A review of the literature suggested that in developing countries, the use of modern health care, such as maternal health services, is the function of many factors such as socio-demographic factors, socio-economic factors, cultural factors, and individual behaviors and decision making as well as the accessibility of these services. The following are some of the studies done by researchers on maternal health care utilization.

Abor and Nkrumah (2013) in Ghana did a study to assess socio-economic determinants of maternal health care utilization in which three specific objectives were examined which were maternal health services current status, determinants of maternal health care and their predicted changes in utilization as well as factors responsible for changes by using a discrete choice model. The study revealed that antenatal visits are not a problem for most women as they made the recommended number of ANC clinic visits; however, prenatal care, delivery at a health facility, and postnatal care were utilization problems. Furthermore, The study also revealed that education, residence place, age, access to a health facility, ethnicity, and religion were critical socio-economic factors influencing utilization of maternal health services; these results are in line with previous studies done by (Mekonnen & Mekonnen, 2003; Gage, 2007). The study recommended that innovative strategies be developed to improve prenatal care, place of delivery, and postnatal care as their utilization rate is shallow.

A cross-sectional study was done by Jat *et al*. (2011) to investigate the factors affecting the use of maternal health services in Madhya Pradesh state of India, with the specific

objective of estimating the effects of individual, community, and district-level characteristics on the utilization of maternal health services in which three measures of maternal health care utilization namely ANC visits, PNC visits, and skilled birth attendants were examined by using Multilevel logistic regression analysis. The study's findings showed that 61.7% of the respondents used ANC at least once, 37.4% received PNC within two weeks of delivery, and 49.8% of mothers were assisted by skilled personnel during delivery. Furthermore, the study found a considerable variation of about 40% and 14% in the use of ANC, 29% and 8% in the use of skilled attendants at delivery, and 28% and 8.5% in the use of PNC at community and district levels respectively. The household socio-economic status and mother's education were the most critical factors associated with the help of ANC and skilled attendance at delivery, as was the case in the previous studies done by (Navneetham & Dharmalingam, 2002; Gertler *et al.,* 1993*;* Elo, 1992; Fosu, 1994; Babalola & Fatusi 2009). The main focus should be directed at an individual level as the strategy to increase utilization in the state.

Banda (2013) did a cross-sectional quantitative study in Malawi to investigate the barriers to utilization of FANC among pregnant women in Ntchisi district. The Pearson Chi-Square tests were used to examine various maternal health care utilization measures, namely knowledge, distance, age range, and seeking permission. The study revealed that long-distance, seeking permission to start and use FANC, range of maternal age, showing off the pregnancy perception, and fear associated with witch craft were positively related to low utilization of FANC. The study also found that 96% of pregnant women were aware of FANC and its importance as they received vaccines, supplements, and Malaria prophylaxis during FANC visits. A similar result was observed (Nisar & White, 2003). Furthermore, the study found that 94% of health workers were conversant with FANC guidelines and principles, and there was a positive perception of FANC among health workers.

Adamu (2011) did an analytical ecological study in Nigeria whereby the researcher explored the differential factors affecting utilization of maternal health services across the six geopolitical zones of Nigeria, four-measure of maternal health care utilization, namely antenatal care visits, skilled birth attendance, place of delivery and postnatal care utilization by using logistic regression were examined. The study found that the Utilization of MHCS varies across the regions of Nigeria. Furthermore, the study revealed that family wealth index, education, and residence place were strongly associated with MHC utilization in all areas. However, employment was significant in the northern region and not in the southern part, while the mother's age was influential in the southern region and not in the northern region. Generally, pregnant women in the southern region were more likely to utilize services than those in the north. These results were similar to the studies done by (Nwogu, 2009; Doctor et al., 2011), in which the main reason is higher demographic indices of women living in the south compared to those residing in the north.

Ngake *et al.* (2014) did a study in Uganda intending to explore the effect of demographic and socio-economic factors on the utilization of maternal health care services using the 2006 Uganda Demographic Health Survey. A furthermore binary logistic regression model was used to examine three measures of maternal health care services, namely visits to antenatal clinic, tetanus toxoid injection, and place of delivery, to see their relationship with the socio-demographic factors such as place of residence, educational attainment, birth order, religion, wealth index, marital status, and age. The study revealed that urban women were more likely to use antenatal care services, receive tetanus toxoid injections and deliver their babies in public health facilities than women from rural areas. Furthermore, the study revealed that women education and wealth index were both positively associated with antenatal care, place of delivery, and a tetanus injection. These results were compatible with other studies (Mekonnen & Mekonnen, 2003; Chakraborty *et al.*, 2003; Gage, 2007), which stressed that educated

women are more informed and aware of the availability of health care services and there were likely to utilize them compared to uneducated and poor women.

A study was done by Mukong (2013) to investigate the Socioeconomic determinants of Maternal Health Care Utilization in Tanzania and to explore the importance of socioeconomic factors in explaining the adequate utilization of maternal health care services by pregnant women and newborns mothers in Tanzania over the year 2004-2010. The logit model examined socio-economic and demographic factors to show their impacts on maternal health care utilization. The study revealed that household income, maternal education, paternal education, Health knowledge, and distance to the facility are positively associated with maternal health care utilization, which was compatible with other studies (Gage, 2007; Magadi *et al.,* 2000; Overbosch *et al.,* 2004). Furthermore, the study revealed that households with more children were less likely to utilize prenatal care services than households with few children. Moreover, married women were more likely to utilize postnatal care due to their partners' help in decisions regarding care-seeking.

A cross-sectional analytical study by Samson (2012) aimed to investigate the Utilization and Factors Affecting Delivery in Health facilities among Recent Delivered Women in Nkasi District. Using bivariate and multiple logistic regression, education, distance to a health facility, place of delivery, and antenatal care visits were regressed as the factors affecting maternal health care utilization in the study area. The study revealed that women's education, distance to health facilities, and antenatal care visits were significantly associated with maternal health care utilization in the study area. These findings were compatible with other studies (Anwar *et al.,* 2007; Yanagisawa, 2006; Mrisho *et al.,* 2007; Lwelamira, 2012; Wagle *et al.,* 2004). Delivery in a health facility increased with education and the number of antenatal care visits but decreased as the distance between the health facility and home increased.

A cross-sectional study was done by Simfukwe (2008) to investigate factors contributing to home delivery in Kongwa district whereby three measures of home delivery, namely accessibility of maternal health care, practicing TBA, the existence of beliefs, traditional practices, and reasons for home delivery were examined. The study revealed a high home delivery ratio of 65%. Natural habits, customary practices, and unsatisfactory maternal health care were the main reasons for home delivery in the study area. Furthermore, the existence of TBAs and distance to the health facility were also the other reasons contributing to home delivery in the area which were compatible with the study done in Nepal by Adhikari (2006). Community sensitization was recommended as the strategy to improve maternal health care utilization in the area.

A study by Mrisho et al. (2009) investigated antenatal and postnatal care use, perspectives, and experiences of women and health care providers in rural southern Tanzania. Various measures, namely information about the timing of antenatal and postnatal services, perceptions of the rationale and importance of antenatal and postnatal care, barriers to utilization, and suggestions for improvement, were examined using in-depth interviews with health care providers and village-based informants in villages of Lindi Rural and Tandahimba districts in southern Tanzania. The study generally found that women were positive about antenatal and postnatal care. Furthermore, the study found that fear of cesarean, late initiation of antenatal care visits, fear of encountering wild animals, lack of money to pay for transport, distance, and lack of privacy in attending ANC and PNC were found to be the main reasons hindering utilization of maternal health services in the area. Other studies found similar results *(*Dhaka *et al.*, 2007; Ndomugyenyi *et al.*, 1998; Myer, 2003).

All the above studies emphasized the socio-economic and demographic factors relating to the utilization of maternal health care services without explaining their implications

for the welfare of those societies; hence this study will focus on socio-economic implications for the welfare of the Ilembo and Masoko communities.

2.3 The Conceptual Model

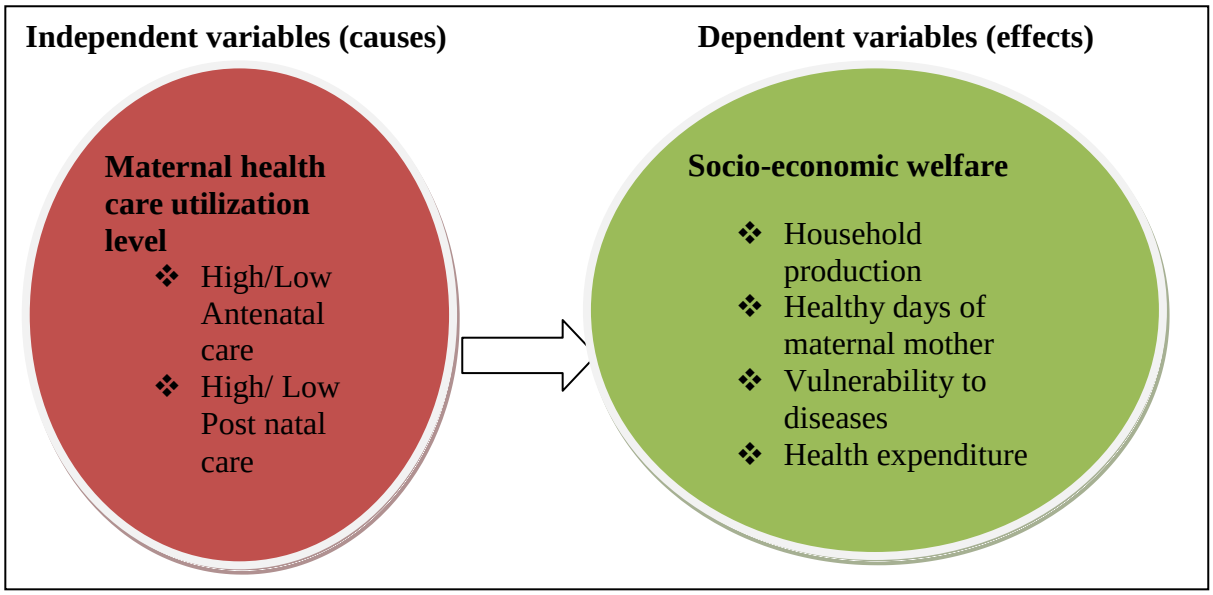
Figure 2.3 illustrates the hypothesized model for this study. The model assumed that low antenatal and post-natal care utilization has negative implications for the socio-economic welfare of the people in Tanzania. The model also thought that high antenatal and post-natal care utilization has positive implications for the socio-economic welfare of the people in Tanzania.

The model assumes that maternal health care utilization directly affects the socio-economic welfare of the people in terms of Household production of the people either positively or negatively. The model also assumed that the level of maternal health care utilization affects the healthy days of the maternal mothers. The model also believed that vulnerability to diseases in maternal mothers depended on the number of clinic visits made by maternal mothers.

Healthy days of maternal mothers and health expenditure depend on the level of maternal health care utilization among the people. The more people utilize maternal health care, and the more likely the maternal mother will be healthier. Also, the level of maternal health care utilization determines the number of expenditure people spends on treating diseases resulting from not utilizing the services during maternity.

Generally, the hypothesized model assumed that the socio-economic welfare of the people is the function of maternal health care utilization (antenatal care and post-natal care). The variables contained in this model and their measurements are indicated in Table 2.1.

Figure 2.3: Maternal health care utilization and its socio-economic welfare implications



Source: Researcher's construction 2016

Table 2.1: Variables and Their Measurements on Maternal Health Care Utilization

Variables	Measurements	Sources
Utilization	Antenatal care **1. ANC clinic visits** i. ANC clinic visits made during pregnancy are measured based on WHO standard **2. Tetanus toxoid (TT) vaccine** i. The number of tetanus vaccines received during pregnancy measured based on WHO standard Postnatal care **1. Checks up** i. Checkups for postpartum hemorrhage within 24 hours to 6 weeks after delivery ii. Checkups for puerial-sepsis within 48hours - 42 days after delivery iii. Checkups for eclampsia after delivery	Maternal mother
Household production	Income earned per year of the household members.	Head of the family and maternal mother
Healthy days of maternal mother	Numbers of days i. Number of unhealthy days of the mother during the maternal period	Maternal mother
Vulnerability to diseases	Disease contracted by maternal mother after delivery i. Postpartum hemorrhage ii. Eclampsia iii. Puerial sepsis iv. Anemia	Maternal mother
Health expenditure	i. Income spent on maternally related problems during delivery ii. Income spent on maternally related problems after delivery	Head of the family

Source: Researcher 2016

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

In doing research, different methodological approaches are used to ensure smooth completion and organization of the work. If that is the case, this chapter describes and explains the methodology used to design and conduct this research. The issue addressed in this chapter involves research design, study area, geographical area, target population, inclusion criteria, sample size, sampling techniques, data collection techniques, data processing and analysis techniques, reliability and validity, and ethical considerations.

3.2 Research Design

As the researcher was only interested to know the prevailing situation without observing the changes afterward in the area, the cross-sectional study design was the suitable research design employed by the researcher. Moreover, questionnaires and personal interviews were tools for acquiring data from the respondents, and they were ideal since they accommodated those with writing skills and those with no writing skills. Furthermore, a research design is the arrangement of conditions for collecting and analyzing data that combines research relevance with an economy in the procedure (Kothari, 200).

3.3 Study Area

This study was carried out in Tanzania, specifically in the Mbeya region, where Ilembo and Masoko wards in Mbeya district council were used as a case study to analyze the socio-economic implications of maternal health care utilization in Tanzania. The researcher's awareness of the area and easy accessibility of information were the reasons for selecting the scope of the study.

3.4 Target Population

The study population included maternal mothers who are residents of Ilembo and Masoko wards. The targeted population enabled the researcher to get complete information on maternal health services utilization and its socio-economic implication on the welfare of the community members in the study area.

3.4.1 Inclusion criteria

Maternal mother with babies of 0-5 years old who are residents of Masoko and Ilembo wards

3.5 Sample Size

The study's sample size was drawn from each ward's total population. According to (URT, 2012), the people of Ilembo and Masoko were 17391 and 7682, respectively. Generally, the sample size in this study was estimated from the below equation, as explained in detail by Rwegoshora (2006).

Whereby $n = \frac{N}{1 + (N * e^2)}$ ---------- (1)

n = Sample size

N= Total population in the area

e = Standard error (1-10%)

1= constant

In Ilembo ward, various values were used to compute the sample size as follows; N = 17391 and e = 10%, giving a sample size of 99 people. In Masoko ward, the values used were as follows; N = 7682 and e = 10%, giving the sample size of 44 people. So generally, the sample size in this study was 143 people.

3.6 Sampling Technique

This study employed random probability sampling. This technique has opted because everyone was selected and picked randomly and entirely by chance; hence, everyone had an equal opportunity to be selected during the sampling process.

Masoko and Ilembo wards comprised about thirteen villages; only eight villages were randomly selected by using the lottery method as follows, the village's name was written on a piece of identical paper, and one blinded person chose one piece of paper randomly, then opened the form and read the name of the village which appeared on the piece of paper. The process was repeated until all eight villages were randomly selected from thirteen villages. The villages picked and included in the study were Ilembo, Ilomba, Mwakasita, Masoko, Italazya, Mumba, Shilanga, and Mwala. Moreover, systematic random sampling was used to pick eighteen houses from each village. After four places, the researcher corrected the data, and each household provided one respondent until all the required number of respondents were obtained.

3.7 Data Collection Techniques

The researcher obtained data from mainly two sources, namely primary sources as well as secondary sources. The methodology in primary data collection included questionnaires and interviews, and the secondary data included detailed documentation/documentary review.

3.7.1 Primary Data

3.7.1.1 Questionnaires

In this study, a structured and open-ended questionnaire was employed, which provided the researcher with more recorded information for the problems and simplified data analysis. Furthermore, a questionnaire refers to several printed or typed questions in a specific arrangement on a form or set of conditions (Kothari, 2009). Moreover, a questionnaire can be mailed or presented manually to the respondents, who are expected

to read and write down the response after understanding what the researcher asks in the questions.

3.7.1.2 Interviews

Interviews as the primary data collection method covered different categories of respondents, including key informants' interviewees. These people were likely to provide the needed information on particular subjects. The interview was based on open-ended questions to simplify data analysis. Structured and unstructured interview with maternal mothers was employed. This was the appropriate method for data collection that allowed the researcher to probe diverse issues in a comfortable environment to obtain and record additional information.

3.7.2 Secondary data

3.7.2.1 Documentation/Documentary review

Documents from libraries and other research works were used for this study. It involved the activity of extracting the necessary information from the documents. These documents included books, journals, papers, articles, newspapers, and various research reports related to the study's problem.

These documents were found in the main library of Mzumbe University, Ilomba, Ilembo dispensaries and health centers, internet and journals, e-books, and International Health organization report. These helped provide the researcher with the required information for the problem.

3.8 Data Processing and Analysis Techniques

In this study, qualitative and quantitative approaches were used during data analysis. SPSS for classifying and tabulation of data was employed in data analysis. Data collected through the interviews were analyzed by comparing various answers that the respondents provided concerning their authenticity and terms of validity. The interview aimed to allow the researcher to understand a person's perspective. For the documentation consistency, validity, and reliability of the arguments provided from other

sources such as books, journals, and the internet concerning the problem at hand. Data were checked for accuracy and completeness before analysis. All questionnaires with inconsistent filling were rejected, and only wholly filled and clean questionnaires were coded and entered into a computer ready for analysis.

The estimation technique used was Cross tabulation for key variables with Chi-Square Tests, which enabled the analysis to be done per objective to identify the causal effects relationship (correlations of variables).

3.9 Reliability and Validity

3.9.1 Validity

According to Polit and Beck (2004), the term validity refers to whether there is evidence to support the statement that the methods used by the researcher are measuring the theoretical concepts intended. The researcher considered the validity issue by ensuring that the theories used in this study reflect the subject at hand, which is a maternal health service.

3.9.1.1 Internal validity

Burns and Grove (2005) defined internal validity as the extent to which the study findings accurately reflect reality rather than the results of irrelevant variables. The researcher made several efforts to ensure that unrelated variables in the study were reduced as much as possible to increase the study's internal validity with the use of random sampling techniques, the homogeneity of the selected group of maternal mothers making a sample, and blocking off some of the possible irrelevant variables by including and measuring them (such as demographic characteristics of respondents).

3.9.1.2 External validity

The researcher made purposeful efforts to ensure external validity is observed in this study. The researcher confirmed that the study's sample size represents the broader population; the study setting and experimental arrangements were in harmony with other environments. In this study, efforts to enhance external validity included the random

selection of a large sample, which made it more representative—a comparison of the findings with other studies found in the literature.

3.9.2 Reliability

A structured questionnaire was one of the methods used to improve reliability in this study. This was done to avoid asking questions with little relevance to the respondents or questions that made the respondents not clearly recall. This is supported by Kothari (2004), who states that reliability problems commonly result when the respondents do not understand the question or are asked about something they do not recall or have little relevance.

3.10 Ethical Considerations

The implementation of this research observed all known ethics. The research protocol was followed by obtaining a research permit from the Mzumbe University, which introduced the researcher to the Mbeya Regional Administrative Secretary. Then researcher received the research permit from the Mbeya Regional Administrative Secretary, who introduced the researcher to the Mbeya district Administrative Secretary and introduced the researcher to the Ilembo and Masoko WEOs by letter. Respondents were asked for voluntary participation in the study, and the researcher ensured that participants' privacy was not violated. The information obtained from the respondents was treated as confidential and used only for this study. Moreover, the researcher made sure that the names of the respondent were not included in the study

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF THE FINDINGS

4.1 Overview

This research analyzes the socio-economic implications of maternal health care utilization in Tanzania. Specifically, the study assessed the extent does maternal health care utilization affects household production in Tanzania; to what degree does maternal health care utilization affect the healthy days of maternal mothers in Tanzania; to what level does maternal health care utilization reduce vulnerability to diseases to the maternal mothers in Tanzania; and lastly to what extent does maternal health care utilization affect the health expenditure of the Tanzanians.

This chapter begins with presenting the results regarding the characteristics of the respondents, followed by observing the general research question, and then it explains the specific research questions. This is followed by the presentation of the results regarding socio-economic implications (effects) of maternal health care utilization based on household production, healthy days of the maternal mother, vulnerability to diseases, and health expenditure.

4.2 Sample Size and Characteristics of the Respondents

The study sample had 143 maternal mothers' respondents and their Socioeconomic characteristics assessed include sex, age, marital status, the level of education, relationship with the head of the family, occupation, place of delivery, health infrastructure availability in the area, and average income earned per year.

The results from the scenes indicate that most of the respondents were 31 and above years old, 38.5% presumably aged for active reproduction period and followed by 15-24 years old 32.9%, followed by 25-30 years old 28.7%. The results also indicate that the second majority of respondents were 15-24 years old, 32.9%, which showed the

existence of early marriage in the area because many respondents have either achieved primary education level or have never attended school (Table 4.1).

The majority, 69.2% of the respondents, are married, followed by single respondents 12.6%, while widow respondents were 10.5% and divorced respondents were 7.7% (Table 4.1). Most respondents had attained primary education 51.7%, followed by those who never attended primary education 38.5% and secondary education 9.8% (Table 4.1). Since many respondents had attained at least primary and secondary education, it creates a favorable environment for the respondents to quickly digest the questions asked by the researcher regarding their understanding of maternal health care services. The majority of the respondents were married, 69.2%. In comparison, 30.8% were heads of families, meaning they are single parents, divorced, widows, or separated parents and have to work hard to feed their families because they are the head of families (Table 4.1).

The primary economic activity of most of the respondents was farming 57.3%, which was claimed to earn between Tanzania Shillings 0-300,000TZS, followed by 21.7% who earned between 300,001-500,000TZS and 21.0% who earned more than 500,000TZS (Table 4.1). The findings implied that most respondents worked harder to earn a living. Similar results were observed by (Koening *et al.,* 2007). The majority of respondents have unavailability of healthy facilities as reported that 59.4% of respondents have no health facility in their area, and only 40.6% of respondents have health facilities in their place (Table 4.1). The type of occupation and the unavailability of health facilities provide difficulties for allowing one to have an opportunity to seek maternal health care services such as attending clinics.

Table 4.1: Respondents characteristics (n=143)

Variable	Category	Frequency	Percentage
Sex	Female	143	100
Age	15-24yrs	47	32.9
	25-30yrs	41	28.7
	31+ yrs	55	38.5
Education level	Never attended	55	38.5
	Primary school	74	51.7
	Secondary school	14	9.8
Marital status	Married	99	69.2
	Single	18	12.6
	Divorced	11	7.7
	Widow	15	10.5
Relation with the head of household	Wife	99	69.2
	Head of household	44	30.8
Economic activities	Farmer	143	100.0
Health infrastructure availability in the area	Yes	58	40.6
	No	85	59.4
Place of delivery	Hospital	58	40.6
	Home	85	59.4
Average income earned per year	0-300,000Tzs	82	57.3
	300,001-500,000Tzs	31	21.7
	>500,000Tzs	30	21.0

Source: Field data 2016

4.3 Level of Maternal Health Care Utilization

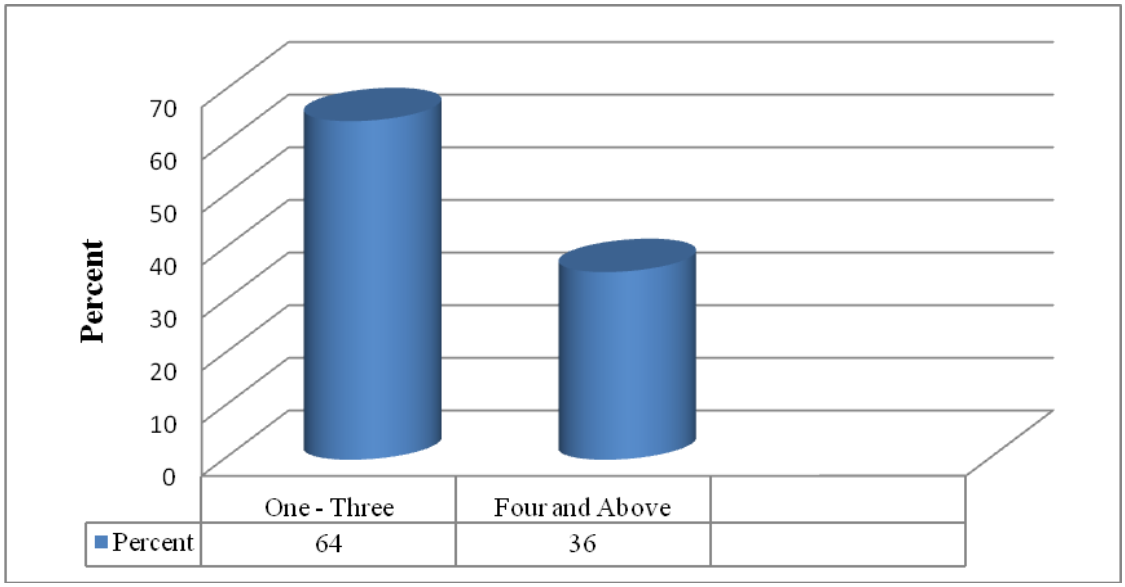
Maternal health care utilization was the independent variable in this research. The number of ANC clinic visits, Tetanus Toxoid vaccination, and medical checkups within

42 days after delivery was observed to determine its utilization level. The findings show that the only 36% of the respondents made the recommended ANC clinic visits during the pregnancy period (four and above) (Figure 4.1), while 39% of the respondents received the recommended number of Tetanus Toxoid vaccination, which is at least three and above during pregnancy (Figure 4.2). Lastly, only 41% of the respondents received medical checkups within 42 days of delivery (Figure 4.3). Similar results were obtained by (Ngake *et al.,* 2014) in Uganda. From these findings, we can conclude that the average level of maternal health services utilization in the study area is only 38.7% depicting low utilization of maternal health services in the area. Below are the points observed to determine the level of maternal health care utilization in the area.

(a) Number of clinic visits made during pregnancy

The number of clinic visits is essential in ensuring the mother's and child's welfare. From this understanding, it was in this research's interest to know how many visits mothers made so that we could determine whether these visits were adequate in guaranteeing their welfare. A total number of 143 maternal mothers were involved in the study, and their results indicated that only 36% of the respondents made four and above clinic visits during the pregnancy period as recommended by the FANC model, while majority 64% of the respondents made only one to three clinic visits during pregnancy period (Figure 4.1). Depicting that utilization is low in terms of ANC clinic visits since the majority of 64% did not make the recommended number of clinic visits, which is four and above visits during pregnancy. This finding is compatible with Banda (2013) in Malawi, who found that long distance to the health facility, late initiation of ANC visits, and seeking permission to start and use ANC visits was responsible for the lower utilization level in term of ANC clinic visits in the area.

Figure 4.1: Response to number of clinic visits made during pregnancy period (n=143)



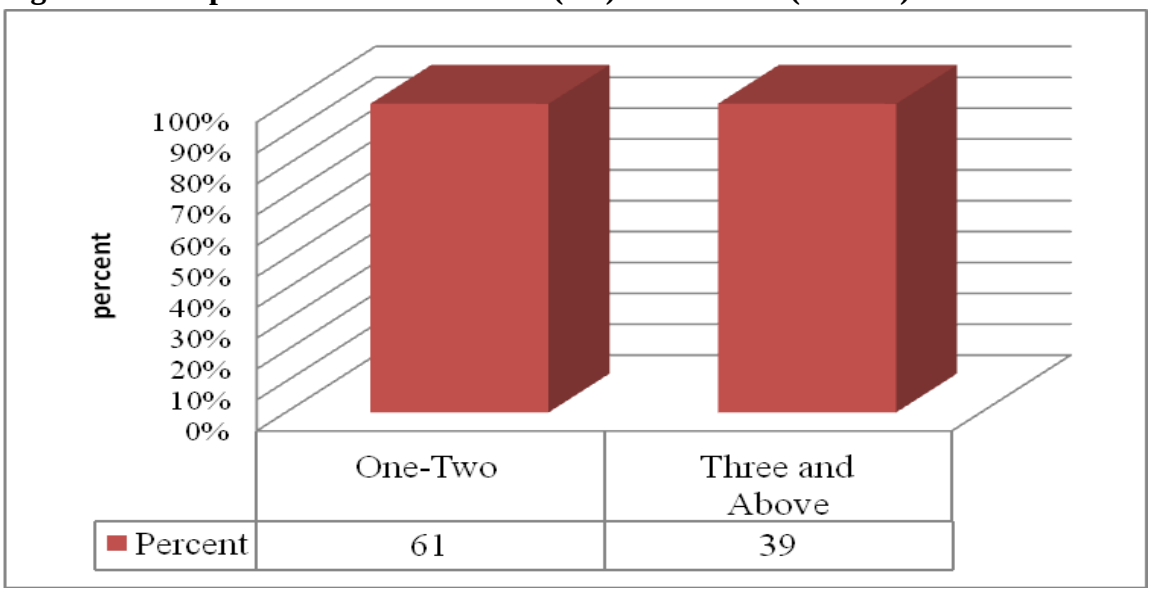
Source: Field data 2016

(b) Tetanus Toxoid (TT) vaccination and number of TT vaccines received during pregnancy

Receiving the Tetanus Toxoid vaccine is crucial in ensuring better health for both mother and unborn child. For this case, it was in this research's interest to know how many Tetanus Toxoid vaccines maternal mothers received so that we could determine whether these vaccines were adequate in guarding their welfare. A total of 143 maternal mothers were involved, and their results in Figure 4.2 showed that only 39% received three Tetanus Toxoid vaccines. In contrast, 61% of the respondents received one to two Tetanus Toxoid vaccines during pregnancy, depicting that majority of the respondents did not receive the recommended number of Tetanus Toxoid vaccines which is three and above, during the maternal period. The failure to obtain the recommended number of Tetanus Toxoid vaccines exposes the mother to Tetanus infections because their immunity to resist diseases during pregnancy tends to be weak. Ngake *et al.* (2014) obtained similar results that tetanus toxoid injection utilization was very low for women

living in rural areas and poorer women compared to women residing in the urban area, the main reason for these differences being the distance to a health facility, knowledge about MHC, late initiation to seek ANC visits as well as health facilities availability differences in the area.

Figure 4.2: Response to Tetanus Toxoid (TT) vaccination (n = 143)



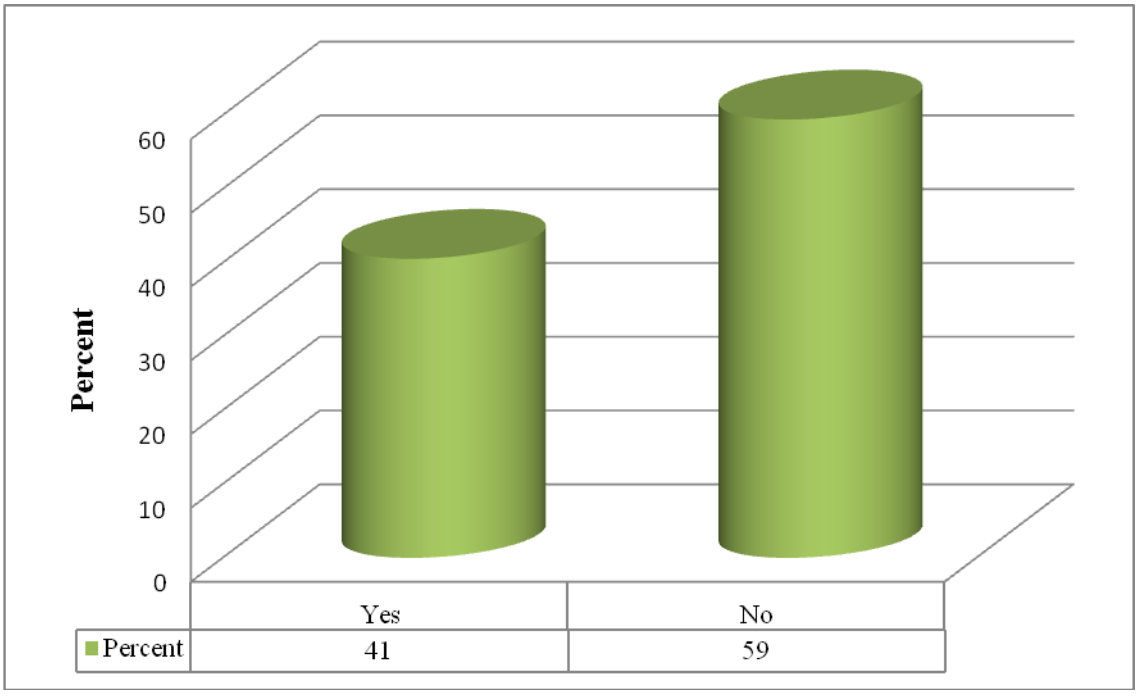
Source: Field data 2016

(c) Medical checkups for *postpartum hemorrhage, puerial-sepsis, eclampsia,* and *anemia* to maternal mothers within 48hours to 42 days after delivery

Medical checkups before and after birth are vital in determining any complications the mother and child will likely face. For this case, it was the interest of this research to know whether doing medical checkups helps improve the welfare of maternal mothers. A total number of 143 maternal mothers were included, and their results Figure 4.3 indicated that majority 59% of the respondents did not get medical checkups within 42 days after delivery as recommended by WHO, while only 41% of the respondent got medical checkups within 42 days after delivery as recommended by WHO. These findings are similar to other studies (Bloom *et al*., 1999; Bhatia & Cleland, 199; Mrisho

et al., 2007; Wagle *et al.*, 2004; Simfukwe, 2008). Furthermore, distance to a health facility, home delivery, the existence of TBAs, fear of encountering wild animals as well as unawareness of the date of delivery were the reasons for not getting medical checkups immediately after delivery in the area.

Figure 4.3: Response to medical checkups for *postpartum hemorrhage, puerial-sepsis, anemia,* and *eclampsia* in maternal mothers (n=143)



Source: Field data 2016

4.4 Reasons for Low Level of Maternal Health Care Utilization

Although the researcher aimed at analyzing maternal health care utilization and its socio-economic implications, since the findings showed a lower level of utilization of maternal health care in the study area, this brought interest to the researcher to want to know the factors responsible for the lower level in the utilization of maternal health care in the area of study. Age, education level, marital status, and family income were the

socio-economic factors examined in how these factors influence the utilization of maternal health services among respondents in the study.

4.4.1 Age

Maternal mother age is significant in determining utilization of maternal health care, and the assumption is that older women are less likely to utilize maternal health care compared to younger women. From this understanding, it was the interest of this research to know how age relates to utilization. To determine how utilization of maternal health care and the age pattern of the respondents influence each other, the cross-tabulation was done comparing the age pattern of the respondents against ANC clinic visits made during the pregnancy period, place of delivery, and reasons for the place of delivery.

(a) Age pattern in relation to the number of clinic visits made during the pregnancy period

The cross-tabulation was done to determine how the respondents' age patterns determined the decision to utilize maternal health care in the area.

Table 4.2: Age pattern in relation to number of clinic visits (n = 143)

Variable	Description	Number of clinic visits made during pregnancy period		P-values
		One-Three	Four and above	
Age of respondents	15-24 yrs	47.8%	5.9%	0.0005
	25-30 yrs	40.2%	7.8%	
	31+yrs	12.0%	86.3%	
Total		**100**	**100**	

Source: Field data 2016

Table 4.2 shows that except for the respondents with the age 31+years, maternal health services utilization is low, ranging from 5.9% to 7.8% if measured concerning the maternal mother's age pattern study. These results were inconsistent with the

assumptions that older women utilize less maternal health care than younger women. In this study, the results were vice versa though these findings were compatible with the studies (Reynolds *et al., 2006*; Mekonnen & Mekonnen, 2003). Furthermore, complications from pregnancy, confidence, higher household decision-making power, experience, and knowledge were the main reasons for older women to utilize more MHC than younger women, particularly adolescents.

(b) Age pattern in relation to place of delivery and reasons for a place of delivery

The place of delivery is essential to both the mother and child as it determines the safety of both the mother and child. The assumption is that younger women are more likely to deliver at the hospital than older women. From this understanding, it was the interest of this research to know how maternal age influences the place of delivery.

Table 4.3: Age pattern in relation to place of place of delivery (n = 143)

Variable	**Description**	**Place of delivery**		**Reasons behind a place of delivery**				**P-values**
		hospital	home	Safety of mother and unborn baby	Complications during previous pregnant	distance	unawareness of the date of delivery	
Age of respondents	15-24 yrs	22.4%	40.0%	32.6%	6.2%	17.0%	74.2%	0.0005
	25-30 yrs	22.4%	32.9%	27.9%	12.5%	41.5%	16.1%	
	31+yrs	55.2%	27.1%	39.5%	81.2%	41.5%	9.7%	
Total		**100**	**100**	**100**	**100**	**100**	**100**	

Source: Field data 2016

Results in Table 4.3 show that maternal mother below 31 years old was more likely to deliver at home ranging from 32.9% to 40% compared to pregnant women above 30 years old if measured concerning the age pattern of the respondents who participated in the study. These results were not consistent with the expectation that younger women

were more likely to deliver in hospital than older women, as in this study, older women were more likely to deliver in hospital than younger women, and this study was compatible with the study done by (Treffers *et al.*, 2001; Wall, 1998) whereby fear of being hated by the society was the main reasons for low utilization among young women in the rural area. Furthermore, results show that among the causes which influence the respondents to decide on where to deliver, respondents the aged between 15-24 years, unawareness of the date of delivery was the main reason for them to deliver at home as most of them it was their first pregnant while the respondents with age 31+ years complications they got from the previous pregnant were the main reason for them to deliver at a hospital.

4.4.2 Marital status

To determine how the marital status of the respondents influences the utilization of maternal health care, cross tabulation was done comparing the marital status of the respondents against ANC clinic visits made by the respondents during pregnancy and where they delivered their child.

(a) Marital status in relation to a number of clinic visits made during the pregnancy period

Marital status plays a significant role in determining the number of maternal mothers' ANC clinic visits. The expectation is that married women are more likely to utilize maternal health care compared to unmarried women. In this case, it was the interest of this research to know if this statement is true in the area. A cross-tabulation was done to determine how the respondent’s marital status influenced the decision to use maternal health care in the area.

Table 4.4: Marital status in relation to the number of clinic visits (N =143)

Variable	Description	Number of clinic visits made during pregnancy period		P-values
		One-Three	Four and above	
Marital status of respondents	Married	64.1%	78.4%	0.03
	Single	14.1%	9.8%	
	Divorced	12.0%	.0%	
	Widow	9.8%	11.8%	
Total		**100**	**100**	

Source: Field data 2016

Results in Table 4.4 indicate that except for married respondents, maternal health services utilization of the respondents is low, ranging from 0% to 11.8% if measured with respondent's marital status participated in the study. These results were consistent with the expectation that married women are more likely to utilize maternal health care than unmarried women. Furthermore, these results were compatible with the studies observed by (Mukong, 2013; Tann *et al.*, 2007), whereby joint decision-making made by both partners regarding care-seeking, knowledge, and experience were the main reasons for married women to utilize more MHC compared to single, separated and widow in the study area.

(b) Marital status in relation to place of delivery

Since delivery is a complicated process, the Place of delivery is very important for the survival of both the mother and child. The appropriate place of delivery will help both mother and child from any complications related to delivery. The assumption is that married women are more likely to deliver in hospital than unmarried women. From this case, it was in the interest of this research to know whether married women are more likely to deliver in hospital than unmarried women. Cross tabulation was done to

determine how respondents' marital status influences the decision taken by pregnant women regarding the place of delivery.

Table 4.5: Marital status in relation to place of delivery (n = 143)

Variable	Description	Place of delivery		P-values
		Hospital/health center	Home	
Marital status of respondents	Married	96.6%	50.6%	0.0005
	Single	1.7%	20.0%	
	Divorced	.0%	12.9%	
	Widow	1.7%	16.5%	
Total		**100**	**100**	

Source: Field data 2016

Results in Table 4.5 indicate that with exceptions for married respondents, maternal health services utilization of the respondents in terms of the place of delivery is low, ranging from 7.7% to 12.6% if measured with respondent's marital status participated in the study. These results were consistent with the assumption that married women are more likely to deliver in hospital than unmarried women. -Similar results were observed by (Mukong, 2013; Mrisho *et al.*, 2007) in Tanzania, whereby married women were more likely to utilize maternal health services than single/separated women because their partners helped them decide on healthcare-seeking. Furthermore, distance to the health facility, fear of encountering wild animals, and fear of being hated by society were the main reasons for younger women, single women, divorced women, and widows to deliver at home compared to married women.

4.4.3 Family income

To determine how the family income of the respondents influenced decision-making regarding maternal health care utilization cross tabulation was done comparing the family income of the respondents against ANC clinic visits made during pregnancy and delivery place and reasons for a place of delivery and maternal health education awareness.

(a) Family income in relation to the number of clinic visits made during the pregnancy period

Family income is significant in determining the utilization of maternal health care as the assumption is that wealthier families are more likely to utilize maternal health care than low-income families. From this case, it was the interest of this study to know whether this statement holds in the study area. Cross tabulation was done to determine how the family income of the respondents defines the ANC clinic visits made by respondents during the pregnancy period in the area.

Table 4.6: Family income in relation to ANC clinic visits (n = 143)

Variable	Description	ANC clinic visits		P-values
		One-Three	Four and above	
The family's average income per year	0-300,000Tzs	93.8%	11.1%	0.0005
	300,001-500,000Tzs	5.0%	42.9%	
	>500,000Tzs	1.2%	46.0%	
Total		**100**	**100**	

Source: Field data 2016

Results in Table 4.6 indicate that respondents with low income are more likely to make fewer clinic visits, with 93.8%of respondents making only one to three visits compared to respondents with more income, as evidenced by 46.0%% of them made four and above visits during the pregnancy period. These results were consistent with the expectation that wealthier families are more likely to make more ANC clinic visits than low-income families. A similar effect was observed by (Ngake *et al.,* 2014; Adamu, 2011; Koenig *et al.,* 2007), whereby family income has strongly influenced the utilization of maternal health care in terms of delivery place and antenatal visits. Furthermore, distance acted as a barrier for women from low-income households

because it brought additional costs in seeking maternal health care, hence low utilization, especially those small income earners, as is the case in this study.

(b) Family income in relation to delivery place and their reasons

Family income plays a significant role in determining the place of delivery. The assumption is that respondents from wealthier families are more likely to deliver in hospitals than those from low-income families. To determine the influence of family income on the utilization of maternal health care, cross-tabulation was done by comparing family income with the decision made by the respondents regarding where they delivered and what made them deliver in that place.

Table 4.7: Family income in relation to place of delivery and factors behind it (n=143)

Variable	Description	Place of delivery		Factors behind the place of delivery				P-values
		Hospital	Home	Safety of mother and unborn baby	Complications during previous pregnant	distance	unawareness of the date of delivery	
The family's average income per year	0-300,000Tzs	39.7%	69.4%	.0%	18.8%	94.3%	93.5%	0.005
	300,001-500,000Tzs	27.6%	17.6%	48.8%	37.5%	5.7%	3.2%	
	>500,000Tzs	32.8%	12.9%	51.2%	43.8%	.0%	3.2%	
Total		**100**	**100**	**100**	**100**	**100**	**100**	

Source: Field data 2016

Results in Table 4.7 indicate that respondents with less income were likely to deliver at home 69.4% compared to high-income earners 12.9%, if measured by the family income of the respondents who participated in the study. These results were consistent with the expectation that respondents from wealthier families are likely to deliver in hospital compared to respondents from low-income families. A similar result was observed by (Ngake *et al.*, 2014; Mrisho *et al.*, 2007; Koenig *et al.*, 2007), whereby family income is

positively associated with the place of delivery. Furthermore, for respondents with high income, distance was not the reason for them to deliver at home, while the respondents with less income were the main reason for them to deliver at home.

4.4.4 Education level

To determine how the education level of the respondents influenced maternal health care utilization, cross tabulation was done comparing the education level of the respondents against the number of clinic visits made during pregnancy and maternal health education awareness.

(a) Education level of the respondents in relation to the number of clinic visits made during the pregnancy period

Education attainment plays a significant role in influencing maternal health care utilization for mothers. The assumption is that more educated respondents are likelier to make more ANC clinic visits than less-educated respondents. From this case, it was the interest of this research to know the validity of this statement cross-tabulation was done to determine the education level of the respondent's influences on ANC clinic visits made by respondents during pregnancy in the area.

Table 4.8: Education level in relation to ANC clinic visits (n = 143)

Variable	Description	ANC clinic visits		P-values
		One - Three	Four and above	
Level of education	Never attended	42.4%	31.4%	0.025
	Primary school	52.2%	51.0%	
	Secondary school	5.4%	17.6%	
Total		**100**	**100**	

Source: Field data 2016

Results in Table 4.8 indicate that respondents who did not attend primary school utilize fewer maternal health services, 31.4% compared with respondents with primary school

education and above 51.0% if measured with education level. These results are consistent with the expectations that more educated women are more likely to make more ANC clinic visits than less educated women. A similar result was observed by (Samson, 2012), whereby there was a significant association between women's education with the frequency of antenatal care visits due to those women with high education levels were more aware and had a lot of information about the available maternal health care hence put them in a better position to utilize that information more effectively compared to uneducated women as it was the case in this study.

(b) Education level in relation to maternal health education awareness

The assumption is that more educated women are likely to have more maternal health knowledge than less educated women. From this case, it was the interest of this study to know whether this statement holds in the area. Cross tabulation was done to determine the education level income of the respondents determines maternal health education awareness in the area.

Table 4.9: Education level in relation to maternal health education awareness (n =143)

Variable	Description	Maternal health education awareness		P-values
		Yes	No	
Level of education	Never attended	19.8%	66.7%	0.01
	Primary school	64.0%	33.3%	
	Secondary school	16.3%	.0%	
Total		**100**	**100**	

Source: Field data 2016

Results in Table 4.9 indicate that respondents who did not attend primary school lacked maternal health education 66.7% compared to respondents with primary school education and above only 33.3% % if measured with the education level of the

respondents who participated in the study. These results were consistent with the expectation that more educated women have more information regarding maternal health care than less educated women. Also, these findings are compatible with other studies (Samson**,** 2012; Navneetham & Dharmalingam, 2002; Elo, 1992; Fosu, 1994; Babalola & Fatusi, 2009), whereby educated women had more information regarding the maternal health care and its benefits which enable them to use this information to the fullest to achieve and maintain their health goals.

4.5 Socio-Economic Implications of Maternal Health Care Utilization in Tanzania

This part analyzed the socio-economic implications of maternal health care utilization on the welfare of the community members in Tanzania by using Ilembo and Masoko wards in Mbeya district as a case study. This part explains these implications by looking at the specific questions, which include the following variables, household production, healthy days of the maternal mothers, vulnerability to diseases of the maternal mothers, and health expenditure of the household members.

4.5.1 Household production level

The number of clinic visits is essential in ensuring the mother's and child's welfare. For this case, it was the interest of this research to know how clinic visits made by respondents affect their household production level. The expectation is that inadequate clinic visits negatively affect household production. To determine how maternal health care utilization affects household production, cross-tabulation was done comparing the number of clinic visits made during pregnancy and the average income earned per year in the household.

Table 4.10: Number of clinic visits in relation to income level earned per year (n=143)

Variable	Description	Average Income Earned Per Year (Tzs)			P-values
		0- 300,0000	300,001-500,000	>500,000	
Number of Clinic Visits	One-three	91.5%	32.3%	23.3%	0.0005
	Four and Above	8.5%	67.7%	76.7%	
Total		**100**	**100**	**100**	

Source: Field data 2016

Results in Table 4.10 show that the number of clinic visits has a significant ($P < 0.05$) implication on household production per year as illustrated in the table that majority of 91.5% of respondents attended one to three clinic visits during the pregnancy period and earned between 0-300,000Tzs per year compared to high-income earners who earn above 500,000Tzs per year whose almost all 76.7% attend four and above clinic visits during pregnancy period if measured with average income per year. Results also show only 8.5% of the respondents made the recommended ANC clinic visits fall into the category of low-income earners of 0-300,000Tzs. As expected, the study's data confirmed that adequate clinic visits have positive implications on the welfare of the respondents in terms of income level. A similar result was observed by (Ngake *et al.,* 2014; Adamu, 2011; Koenig *et al.,* 2007), whereby those respondents who did not make the recommended ANC clinic visits earned less income because they were vulnerable to diseases that affected their production capacity per year compared to those respondents who completed the recommended number of ANC clinic visits.

4.5.2 Healthy days of maternal mother

Adequate clinic visits are important in ensuring the health of the mother and child. For this case, it was in this research's interest to know how the number of clinic visits made by respondents affects their welfare in terms of healthy days. The assumption is that

more clinic visits have positive implications on the healthy days of the maternal mother. Cross tabulation was done to determine how maternal health care utilization affects the healthy days of the maternal mother.

Table 4.11: Number of clinic visits in relation to Number of unhealthy days (n= 143)

Variable	Description	Unhealthy Days of Maternal Mother Per Year		P-values
		0-40 days	>40 days	
Number of Clinic Visits	One-three	29.7%	92.4%	0.0005
	Four and Above	70.3%	7.6%	
Total		**100**	**100**	

Source: Field data 2016

Results in Table 4.11 indicates that several clinic visits have significant ($P < 0.05$) implication on healthy days of maternal mother per year. As illustrated in the Table majority, 92.4% of respondents who attended one to three clinic visits during pregnancy were unhealthy for more than 40 days per year compared to only 7.6% of the respondents who made the recommended ANC clinic visits if measured with a number of sick days per year. As expected, the data from the study confirmed that an inadequate number of clinic visits have negative implications on the welfare of the people in terms of healthy days per year. Similar results were observed by other studies (Bhatia & Cleland, 1995; Bloom *et al.,* 1999), whereby lack of ANC clinic visits exposes pregnant women to diseases like *malaria and anemia,* among others which put at risk both the life of the pregnant women and unborn baby.

4.5.3 Vulnerability to diseases

The following four points were observed to determine how the lack of maternal health care utilization exposes pregnant women to different diseases: Eclampsia suffering, Puerial-sepsis suffering, hemorrhage, and Anemia suffering.

(a) Vulnerability to *postpartum hemorrhage*

Antenatal care visits play an important role in ensuring the mother's and child's welfare. The assumption is that an adequate number of clinic visits reduces maternal mothers' and children's vulnerability to diseases. For this case, it was the interest of this research to know whether this expectation is correct. The results in Table 4.12 indicated that a number of clinic visits have significant ($P < 0.05$) implications on vulnerability to *postpartum hemorrhage* suffering within 42 days after delivery. As illustrated in the table, most (94.1%) of respondents who attended one to three clinic visits during pregnancy were vulnerable to postpartum hemorrhage compared to only 5.9% of the respondents who made the recommended number of clinic visits. As expected, the data from the study confirmed that inadequate clinic visits have negative implications on the welfare of the people in terms of vulnerability to diseases such as *postpartum hemorrhage* in this case. A similar result was observed by (Bloom *et al.,* 1999), whereby lack of antenatal care visits exposes pregnant women to various diseases like *postpartum hemorrhage* and puts pregnant women and their unborn babies at risk of losing their lives. Absences of medical checkups during pregnancy for these pregnant women lead to late detection of the diseases.

Table 4.12: Number of clinic visits in relation to *postpartum hemorrhage* (n = 143)

Variable	**Description**	***postpartum Hemorrhage* Suffering Within 42 Days after Delivery**		**P-values**
		Yes	No	
Number of Clinic Visits	One-three	94.1%	20.7%	0.0005
	Four and Above	5.9%	79.3%	
Total		**100**	**100**	

Source: Field data 2016

(b) Vulnerability to *eclampsia*

Antenatal care visits play an important role in ensuring the mother's and child's welfare. The assumption is that an adequate number of clinic visits reduces maternal mothers' and children's vulnerability to diseases. For this case, it was the interest of this research to know whether this expectation holds. The results in Table 4.13 indicated that a number of clinic visits have no significant ($P > 0.05$) implication on vulnerability to *eclampsia* suffering within 42 days after delivery. As illustrated in the Table, the majority (64.7%) of respondents who attended one to three clinic visits during pregnancy were not vulnerable to eclampsia. In comparison, those who pay four and above visits (36.2%) were vulnerable to *eclampsia* suffering within 42 days after delivery. These data did not confirm that inadequate clinic visits have positive implications on the welfare of the people in terms of vulnerability to diseases which in this case is *eclampsia*. Also, this result was incompatible with the results observed by (Bhatia & Cleland, 1995), who attended that lack of ANC clinic visits exposes pregnant women to diseases such as *eclampsia*.

Table 4.13: Number of clinic visits in relation to *eclampsia* (n= 143)

Variable	**Description**	***eclampsia* suffering within 42 days after delivery**		**P-values**
		Yes	No	
Number of Clinic Visits	One-three	63.8%	64.7%	0.456
	Four and Above	36.2%	35.3%	
Total		**100**	**100**	

Source: Field data 2016

(c) Vulnerability to *puerial-sepsis*

Clinic visits play an important role in ensuring the mother's and child's welfare. The assumption is that an adequate number of clinic visits reduces maternal mothers' and children's vulnerability to diseases. For this case, it was the interest of this research to

know whether this expectation is correct. The results in Table 4.14 indicated that a number of clinic visits have significant ($P < 0.05$) implications on vulnerability to puerial-sepsis suffering within 42 days after delivery. As illustrated in the table majority of 79.4% of respondents who attended one to three clinic visits during the pregnancy period were vulnerable to *puerial-sepsis* while those who paid four and above visits, 20.6%, were vulnerable to puerial-sepsis suffering within 42 days after delivery. As expected, the data from the study confirmed that adequate clinic visits have positive implications on the welfare of the people in terms of vulnerability to *puerial-sepsis* in this case. A similar result was observed by (Bloom *et al.,* 1999), who observed that pregnant women were at risk of suffering from *puerial-sepsis* due to inadequate ANC clinic visits and lack of medical checkups during pregnancy.

Table 4.14: Number of clinic visits in relation to *puerial-sepsis (*n =143)

Variable	Description	*puerial-Sepsis* Suffering Within 42 Days after Delivery		P-values
		Yes	No	
Number of Clinic Visits	One-three	79.4%	26.8%	0.0005
	Four and Above	20.6%	73.2%	
Total		**100**	**100**	

Source: Field data 2016

(d) Vulnerability to *anemia*

Antenatal care visits play an important role in ensuring the mother's and child's welfare. The assumption is that an adequate number of clinic visits reduces maternal mothers' and children's vulnerability to diseases. For this case, it was the interest of this research to know whether this expectation is correct. The results in Table 4.15 indicated that a number of clinic visits have significant ($P < 0.05$) implications on vulnerability to *anemia* suffering within 42 days after delivery. As illustrated in the table that almost the

majority, 91.0% of respondents who attended one to three clinic visits during pregnancy were vulnerable to anemia compared to only 9.0% of respondents who made four and above visits. As expected, the data from this study confirmed that an adequate number of clinic visits reduces vulnerability to disease in the people and vice versa. Similar results were observed by other studies (Bhatia & Cleland, 1995; Bloom *et al.,* 1999), whereby lack of antenatal care visits exposes pregnant women to various diseases of which *anemia* puts them at risk for the life of pregnant women and their unborn baby.

Table 4.15: Number of clinic visits in relation to *anemia* (n = 143)

Variable	Description	*anemia* Suffering Within 42 Days After Delivery		P-values
		Yes	No	
Number of Clinic Visits	One-three	91.0%	40.8%	0.0005
	Four and Above	9.0%	59.2%	
Total		**100**	**100**	

Source: Field data 2016

4.5.4 Health expenditure

To determine the relationship between maternal health care utilization and health expenditure to the household members in Tanzania, the following four points were observed: cost spent on treating anemia, cost spent on treating eclampsia, cost spent on treating postpartum hemorrhage, and cost spent on treating *puerial-sepsis*.

(a) Expenditure spent on treating *anemia*

An adequate number of clinic visits is essential in ensuring the mother's and child's welfare. The assumption is that a sufficient number of clinic visits reduces health expenditure to be incurred by the maternal mothers. For this case, it was the interest of this research. It knows whether this expectation is correct. The results in Table 4.16

indicated that a number of clinic visits have significant (P < 0.05) implications on health expenditure spent on treating *anemia*. As illustrated in the table, almost the majority, 91.0% of respondents who attended one to three clinic visits during pregnancy, spent more than 100,000Tzs on treating *anemia.*

In contrast, for those who pay four and above visits, 9.0%of them spent more than100 000Tzs. As expected, the data from this study confirmed that an adequate number of clinic visits have positive implications on the welfare of the people. These results are compatible with the studies done by (Bhatia & Cleland, 1995; Bloom *et al.*, 1999), whereby lack of antenatal care visits exposes pregnant women to various diseases such as *anemia* which puts at risk both the life of pregnant women and their unborn baby and cause the expectant maternal mother and their families to incur more cost on treatment.

Table 4.16: Number of clinic visits in relation to Expenditure spent on *anemia*

(n =143)

Variable	Description	Expenditure spent on treating *anemia* (Tzs)		P-values
		0-100,000	>100,000	
Number of Clinic Visits	One-three	40.8%	91.0%	0.0005
	Four and Above	59.2%	9.0%	
Total		**100**	**100**	

Source: Field data 2016

(b) Health expenditure spent on treating *eclampsia*

An adequate number of clinic visits is essential in ensuring the mother's and child's welfare. The assumption is that a sufficient number of clinic visits reduces health expenditure to be incurred by the maternal mothers. For this case, it was the interest of this research to know whether this expectation is correct. The results in Table 4.17 indicated that a number of clinic visits have positive significant (P < 0.05) implications

on health expenditure spent on treating *eclampsia* as illustrated in the table that almost all majority, 87.9% of respondents attended one to three clinic visits during pregnancy and spent more than 100,000Tzs on treating eclampsia. In contrast, only 12.1% of the respondents made four and above stops more than 100,000Tzs. These data confirm that an inadequate number of clinic visits negatively affect the welfare of the people in terms of expenditure incurred to treat the health-related problems. These results are compatible with the study done by (Bhatia & Cleland, 1995), who observed that a lack of ANC clinic visits exposes pregnant women to diseases such as *eclampsia* and leads these maternal mothers to incur a lot of costs for treatment due to late detection of the disease.

Table 4.17: Number of clinic visits in relation to Expenditure spent on *eclampsia*

(n = 143)

Variable	Description	Expenditure spent on treating *eclampsia* (Tzs)			P-values
		0-50,000	50,001-100,000	>100,000	
Number of Clinic Visits	One-three	52.2%	80.0%	87.9%	0.0005
	Four and Above	47.8%	20.0%	12.1%	
Total		**100**	**100**	**100**	

Source: Field data 2016

(c) Expenditure spent on treating *postpartum hemorrhage*

An adequate number of clinic visits is essential in ensuring the mother's and child's welfare. The assumption is that a sufficient number of clinic visits reduces health expenditure to be incurred by the maternal mothers. For this case, it was the interest of this research to know whether this expectation is correct. The results in Table 4.18 indicated that a number of clinic visits have positive significant ($P < 0.05$) implications on health expenditure spent on treating *postpartum hemorrhage*. As illustrated in the table, almost 94.6% of respondents attended one to three clinic visits during pregnancy and spent more than 100,000Tzs on treatment, while for those who made four and above

stops, only 5.6% of them paid more than 100,000Tzs. These data confirm that an adequate number of clinic visits have positive implications in terms of health expenditure to be incurred by the maternal mother. Bloom *et al.* (1999) observed the similar results that lack of antenatal care visits exposes pregnant women to various diseases like *postpartum hemorrhage* and putting pregnant women and their unborn babies at risk of losing their lives because most of them do not have enough money to incur the higher cost for *postpartum hemorrhage* treat

Table 4.18: Number of clinic visits in relation to expenditure spent on *postpartum hemorrhage* (n = 143)

Variable	Description	Expenditure spent on *postpartum hemorrhage* (Tzs)			P-values
		0-50,000	50,001-100,000	>100,000	
Number of Clinic Visits	One-three	43.9%	59.4%	94.6%	0.0005
	Four and Above	56.1%	40.6%	5.4%	
Total		**100**	**100**	**100**	

Source: Field data 2016

(d) Expenditure spent on treating *puerial-sepsis*

An adequate number of clinic visits is vital in ensuring the mother's and child's welfare. The assumption is that a sufficient number of clinic visits reduces health expenditure to be incurred by the maternal mothers. For this case, it was the interest of this research to know whether this expectation is correct. The results in Table 4.19 indicated that a number of clinic visits have positive significant ($P < 0.05$) implications on health expenditure spent on treating *puerial-sepsis*. As illustrated in the table, almost all majority 92.0% of respondents attended one to three clinic visits during pregnancy and spent more than 100,000Tzs on treating *puerial-sepsis*.

In comparison, of those who made four and above visits, only 8% spent more than 100,000Tzs. These data confirm that an adequate number of clinic visits have positive

implications for reducing health expenditure in treating health-related problems. Bloom *et al.* (1999) observed similar results that lack of antenatal care visits exposes pregnant women to diseases like puerial-sepsis and puts their mother and baby at risk of losing their lives because most of them do not have enough money to incur the higher cost for *puerial-sepsis* treatment.

Table 4.19: Number of clinic visits in relation to expenditure spent on *puerial-sepsis* (n= 143)

Variable	Description	Expenditure spent on *puerial-sepsis* (Tzs)			P-values
		0-50,000	50,001-100,000	>100,000	
Number of Clinic Visits	One-three	27.4%	92.9%	92.0%	0.0005
	Four and Above	72.6%	7.1%	8.0%	
Total		**100**	**100**	**100**	

Source: Field data 2016

CHAPTER FIVE

SUMMARY, CONCLUSION, AND POLICY IMPLICATIONS

5.1 Summary

This study analyzed maternal health care utilization and its socio-economic implications in Mbeya district in Mbeya region, Tanzania. The study was mainly conducted in Ilembo and Masoko wards. The main research question was what are the socio-economic implications of maternal health care utilization in Tanzania? The specific questions were (a) To what extent does maternal health care utilization affect household production in Tanzania? (b) To what degree does maternal health care utilization affect the healthy days of maternal mothers in Tanzania? (c)To what level does maternal health care utilization reduce vulnerability to diseases of maternal mothers in Tanzania? (d)To what extent does maternal health care utilization affect the health expenditure of the Tanzanians? The results for the main research questions revealed that ANC clinic visits in the study were very low, whereby only 36% of the respondents who participated in this study made four and above ANC clinic visits as recommended by WHO, while only 39% of the respondents received the required number of Tetanus Toxoid vaccination, as well as only 41% of the respondents, received medical checkups within 42 days after delivery. Generally, we can conclude that utilization of maternal health care in the area was low.

For the first specific question, the data indicated that among respondents with higher ANC visits, the majority, 76.7% of them, earned more than 500,000Tzs per year compared to 23.3% of the respondents with lower ANC visits. For the second specific research question, data revealed that among respondents with higher ANC clinic visits, only 7.6% were unhealthy for more than 40 days per year compared to 92.4% of the respondents with lower ANC clinic visits. For the third specific question, the study indicated that among respondents with higher ANC clinic visits, only 17.9% were vulnerable to hemorrhage, puerial-sepsis, eclampsia, and anemia compared to 82.1% of

respondents with lower ANC clinic visits. For the fourth specific research question, the data revealed that 91.4% of respondents with lower ANC visits spent more than 100,000Tzs on health problems compared to only 8.6% with higher ANC visits. The study also revealed that these socio-economic factors have a strong association with the decision taken by the respondents regarding the utilization of maternal health care. The study showed that women aged above 30 years old were more likely to make more ANC clinic visits compared to the women aged below 30 years old as mistimed pregnancy, fear of being hated by the society, inexperience, and lack of decision-making autonomy and power were primary reasons for younger women to have late and irregular ANC clinic visits which resulted in low utilization of maternal health care for them.

Married women were more likely to deliver at the hospital and made more ANC clinic visits than single/ separated, widowed, and divorced women. Joint decision-making regarding health care sought by both partners was the main reason for married women to have more ANC clinic visits and deliveries at the hospital. The respondents' education attainment was strongly associated with maternal health care utilization. The study revealed that respondents with primary and secondary education were more likely to utilize maternal health care than respondents with no education or who never attended school. Furthermore, family income positively influenced maternal health care utilization as it was found that high-income earners were more likely to deliver at the hospital and have more ANC clinic visits compared to small-income earners.

5.2 Conclusions

Conclusively, the study revealed that maternal health care utilization has implications for the welfare of the community members in the study area. As evidenced in this study, high utilization of maternal health care has positive implications for the welfare of the community members. In contrast, low utilization of maternal health care has negative implications on the interest of the community members. The study revealed that respondents who made more ANC clinic visits, were delivered to the hospital, received

the required number of Tetanus Toxoid vaccine, got medical checkups within 42 days after delivery was likely to produce more and earn more income per year, incurred less health expenditure per year, was less vulnerable to diseases and had more healthy days compared to those respondents who had less ANC clinic visits, delivered at home, received inadequate Tetanus Toxoid vaccination, as well as did not get medical checkups after delivery.

Lack of maternal health knowledge, distance to the health facility, traditional beliefs and practices, lack of health facilities, lack of human resources (doctors and nurses), lack of health equipment in the available dispensaries and health centers, poor infrastructures, especially roads were the main concerns in the study area faced by the health sector in the area. However, the findings of this study reflect the situation in the rural area with only the government as the sole provider of health facilities and may not be generalized to other settings.

5.3 Policy Implications

Like many other countries, Tanzania was determined to attain the 2015 Millennium Development Goal (MDGs), mostly numbers 4, 5 and 6 which relate to health that was not achieved in Tanzania. In this regard, with the failure to meet the 2015 MDGs goals, especially goals number 4, 5, and 6, various national commitments are being enforced to ensure the improvement of the health sector in Tanzania, including Tanzania vision 2025, the Five Years Development Plan 2016/17-2020/21, the Primary Health Services Development Program (PHSDP 2007-2017) and Health Sector Strategic Plan IV 2015-2020) among others.

Since maternal health services are of very importance to reduce Maternal deaths and improve the survival of the infants' children, Thus enhancing access to quality health services for mothers requires joint efforts from both stakeholders in the health sector to ensure that policies, strategies, and interventions formulated should be relevant to the

actual situation exist in the rural areas and setting especially in developing countries Tanzania included. The followings are the recommendations suggested by the researcher to improve the health sector in the area.

i. More resource allocation in the health sector

Health sector financing in Tanzania is still low compared to the importance of this sector to the well-being of the people. Any nation's prosperity depends on how well the health sector performs, as no one will be able to engage in production while they are not healthier. As data shows that total government expenditure on health is relatively low though the government has been increasing the budget on health; for example, for the financial year of 2016/17, the health budget was approved to be 845billion compared to 769billion in the 2009/10 financial year. The researcher recommends that there should be more efforts from the government to finance the health sector, training more manpower and collaborating with the private sector to help provide health services in the area.

Also, the people themselves should make initiatives to ensure availability of those health facilities by contributing their resources such as land and material support instead of waiting for the government to do everything for them. These will help reduce the health facility unavailability problem in most areas, especially in rural areas.

ii. Maternal health knowledge accessibility

Since the study found a lack of maternal health knowledge in the area, the researcher recommends that the government, through the Ministry of Health, Community Development, Gender, Elderly and Children, and another stakeholder, formulate and design programs to solve health problems faced by rural communities. More people should be trained in the health sector to ensure that each village has health expertise. Also, various programs aiming at community sensitization should be designed and spread out through mass media such as radio, Television and organizing public seminars to ensure that the health education reaches more people. Also, the government can use

community development officers (CDOs) who are many and are employed at least in each ward to provide primary health education, especially to the younger people aged 15-24 years, as the study revealed that most of them lack maternal health care education.

iii. Improvement of infrastructures

The presence of dry weather roads was the problem in the area as respondents failed to seek health care during rainy seasons. The researcher recommends that the government ensures the accessibility of all-weather roads in the area to enable the people to pursue and access the health services in the area; also, this will help reduce high transportation costs incurred by the people in seeking health services in the area.

5.4 Limitation of the Study

This study was limited only to a small number of respondents from two wards. Still, unfortunately, its results were generalized to all maternal mothers in Mbeya district though they were not involved in this study. Moreover, the rainy season was a problem during data collection for the researcher as it was difficult to obtain and reach some of the key informants in the area as they were busy with agriculture activities. Although the researcher tried to put more effort into ensuring the data required were obtained.

Records keeping was also among the problems faced by the researcher. Researchers experienced that most of the pregnant women in the area had no attendance of keeping records regarding maternal health utilization as many of them did not even remember how often they took the trouble to seek ANC clinic visits. They did not recognize the amount of Tetanus Toxoid vaccination received and even when was the last time they get medical checkups. This may lead to the likelihood of providing inaccurate information. However, the researcher was more careful to ensure that the research results were not affected. The information obtained from the respondents was beneficial in providing the purpose of this study.

The cross-sectional design was employed in this study which provided the results based on the current situation prevailing in the area; hence the study failed to observe changes afterward in the area regarding the utilization of maternal health care as well as the role played by husband's regarding utilization of maternal health care were neglected in this study.

5.5 Recommendation for Further Studies

The research was limited to only two wards. Still, the researcher suggests that more studies should be broadened to cover the whole nation, given that resources are available to finance these studies on maternal health care utilization and its socio-economic implications since it will help to reveal the actual situation in different regions with different features rather than limit the study in a small area with a limited number of respondents.

Since this study considered only four variables, namely household production, vulnerability to diseases, healthy days, and health expenditure, the researcher recommends that other research should consider more variables, including traditions and norms, quality of the services provided, and family support. Moreover, this study used cross-sectional data, so other investigations should consider using a different design, such as the longitudinal data.

REFERENCES

Abor, P. A., Nkrumah, A. (2013). The Socioeconomic Determinants of Maternal Health Care Utilization in Ghana, paper presented to Department of Public Administration and Health Services Management University of Ghana Business School Legon

Addai, I. (2000). Determinants of Use of Maternal Child Health Services in Rural Ghana. *J. bioscope Sci.32*, 1-15

Adhikari I. (2006). Maternal Mortality at an alarming level in Nepal would disaster report

Ahmed, F.U., Das, A.M. (1992). *Beneficial effects.* Three ANC visits might be the divergent point in lowering low birth weight babies in *Bangladesh. Integration, 33:50–53.*

Anandalakshmy, P.N., Talwar, P.P., & Buckshee, K. (1993). Demographic, Socio-economic and Medical Factors Affecting Maternal Mortality. An Indian Experience. *The Journal of Family Welfare.39 (3): 1-4.*

Andersen, R. M., Newman, J. F. (1973). Social and Individual Determinants of Medical Care Utilization in the United States. *Milbank Memorial Quarterly*, 51, 95–124

Andersen, R., Newman, J. F. (2005). Societal and Individual Determinants of Medical Care Utilization in the United States. *The Milbank Quarterly, 83(4), pp 1-28*

Anwar et al. (2007). *Inequity in maternal health services*: Evidence from home-based skilled birth attendant programs in Bangladesh

Babalola, S., Fatusi, A. (2009)**.** Determinants of maternal health services use in Nigeria: looking beyond individual and household factors. *BMC Pregnancy and Child Birth*, 9:43

Banda, C. L. (2013). Barriers to Utilizing Focused Antenatal Care among Pregnant Women in Ntchisi District in Malawi. Paper presented to

Tampere School of Health Sciences/Public Health, University of Tampere

Bandura, A. (1977). Self-efficacy Toward a Unifying Theory of Behaviour Change. *Psychological Review*, (*Vol. 84, No.2, pp191-215*). Stanford University.

Becker, M.H., Maiman, L.A. (1974). The Health Belief Model: Origins and correlates in Psychological Theory. *Health Education Behav*, (*vol. 2 no. 4 pp336-353*).

Bhatia, J. C., Cleland, J. (1995). Determinants of Maternal Care in a Region of South India. *Health Transition Review, (vol. 5 no, pp 127-142).*

Birungi, H., Stephanie, J., & Hughes, A. (2008). Adapting Focused Antenatal Care: Lessons from Three African Countries. *FRONTIERS in Reproductive Health Programme brief no.11*. Washington, DC.

Bloom, S., Lippeveld, T., &Wypij, D. (1999). Does antenatal care make a difference to safe delivery? A study in urban Uttar Pradesh, India. *Health Policy and Planning*, (*vol. 14 pp38–48)*

Burns, N., Grove, S. K. (2005). *The Practice of Nursing Research*: Conduct, Critique, and Utilization (5th Ed.). St. Louis, Elsevier Saunders

Chakraborty, N., Islam, M. A., Chowdhury, R. I., Bari, W. & Akhter, H. H. (2003). Determinants of the Use of Maternal Health Services in Rural Bangladesh, *Health Promotion International, (vol.18no 4 pp 327 – 337)*

Chivonivoni, C., Ehlers, V.J. & Roos, J. H. (2008). Mothers' Attitudes towards using Services Preventing Mother-to-Child HIV/AIDS Transmission in Zimbabwe*:* An Interview Survey. *International Journal of Nursing Studies, (Vol 45 no. 11: pp 1618–1624)*

Coria-Soto, I. L., Bobadilla, J. L. & Notzon, F. (1996). The effectiveness of antenatal care prevents intrauterine growth retardation and low birth weight due to preterm delivery. *International Journal for Quality in Health Care (vol. 8: pp 13–20).*

Doctor, H.V., Bairagi, I., Findley, S. E., Helleringer, S. & Dahiru, T. (2011). Northern Nigeria, Maternal, Newborn and Child Health Programme: Selected Analysis from Population-Based Baseline Survey'. *The Open Demography Journal, (vol.4, pp 11*-21)

Dhakal, S., Chapman, G. N., Simkhada, P. P., van Teijlingen, E. R., Stephens, J. & Raja, A. E. (2007). Utilization of postnatal care among rural women in Nepal. *BMC Pregnancy and Childbirth (vol.**7:**19)*

Elo, T. I. (1992). Utilization of maternal health care services in Peru. The role of women's education. *Health Transition Review (Vol 2, pp 49-69).*

Fawcus, S., Mbizvo, M. & Landmark, G. (1996). A Community-based Investigation of Avoidable Factors for Maternal Mortality in Zimbabwe. *Studies in Family Planning (Vol. 27, no. 6 pp. 319-327).*

Fiscella, K. (1995). Does prenatal care improve birth outcomes? *A critical review Obstetrics and Gynecology*; *(vol. 85 no 3: pp 468-479).*

Fosu, G. B. (1994). Childhood morbidity and health services utilization: cross-national comparisons of user-related factors from DHS data. *Social Science and Medicine, (vol. 38: pp1209-1220*)

Gage, A. J. (2007). Barriers to the Utilization of Maternal Health Care in Rural Mali. *Social Science and Medicine, (vol. 65no 8 pp 1666-1682).*

Gertler, P., Rahman, O., Feifer, C., & Ashley, D. (1993). Determinants of pregnancy outcomes and targeting of maternal health services in Jamaica. *Social Science and Medicine, (vol. 37 pp199-211)*

Gwamaka, S. (2012). Utilization and Factors Affecting Delivery in Health Facility among Recent Delivered Women in Nkasi District. *The* Muhimbili University of Health and Allied Sciences

Hauwa, S. A. (2011). Utilization of maternal health care services in Nigeria: An analysis of regional differences in the patterns and determinants of maternal health care use. Dissertation, University of Liverpool.

Hollander, D. (1997). Prenatal benefits improve birth outcomes among working Mexican women. *International Family Planning Perspective, (vol.23no2pp 94-95).*

International Classification of Diseases [ICD] (2004). *International Classification of Diseases*. 10th Revision, Geneva, World Health Organization, 2004

Jat *et al.* (2011). Factors affecting the use of maternal health services in Madhya Pradesh state of India: a multilevel analysis *International Journal for Equity in Health 2011, pp 10:59*

Koenig, M.A., Jamil, K., Streatfield, P. K., Saha, T., Al-Sabir, A., Arifeen, S., Hill, K. & Haque, Y. (2007). Maternal Health and Care-Seeking Behavior in Bangladesh: Findings from a National Survey. *International Family Planning Perspectives, (*Vol. 33, No. 2 pp. 75-82)

Kothari, C. R. (2009). *Research Methodology*: Methods and Techniques 2nd revised edition. Delhi: New Age International Publishers.

Kothari, C.R. (2004). *Research Methodology*: Methods and techniques (2nd Ed*).* New Delhi: New Age International Ltd.

Lincetto, O. Mothebesoane, A. S., Gomez, P. & Munjanja, S. (2015). Antenatal Care Available from:http://www.who.int/pmnch/media/ publications/aonsectionIII_2.pdf. Accessed July 30, 2015

Lweramila, J. & Safari (2012). *Choice of place for childbirth*: Prevalence and determinants of health facility delivery among women in Bahi district, Central Tanzania

Magadi, M. A., Madise, N. J. & Rodrigues, R. N. (1999). Variations in antenatal care between women of different communities in Kenya.

Mekonnen, Y. & Mekonnen, A. (2003). Factors Influencing the Use of Maternal Healthcare Services in Ethiopia. *Journal of Health, Population, and Nutrition, (vol. 21 no 4 pp 374-382)*

Mrisho *et al*. (2009). The antenatal and postnatal care use: Perspectives and experiences of women and health care providers in rural southern Tanzania. *BMC Pregnancy and Childbirth, (vol. 9 no 1p 10).*

Simfukwe, E. M. (2008). The Dar-es-salaam Medical Students. *Health Transition Review (vol. 2 no 1pp 49- 69).* DMSJ October 2011

Myer, L., Harrison, A. (2003). Why do Women Seek Antenatal Care Late? Perspective from Rural South Africa. *Journal of Midwifery & Women's Health,*

Navneetham, K., Dharmalingam, A. (2002). Utilization of maternal health care services in Southern India. *Social Science and Medicine, (vol. 55 pp1849-69)*

Nisar, N., White, F. (2003). Factors affecting utilization of antenatal care among reproductive age group women (15–49 years) in an urban squatter settlement of Karachi. *JPMA Journal of the Pakistan Medical Association. (Vol.53* no 2 pp 47–53).

Ndyomugyenyi, R., Neema, S. & Magnussen, P. (1998). The use of formal and informal services for antenatal care and malaria treatment in rural Uganda. *Health Policy and Planning (vol.13 no 1pp 94-102*).

Nwogu, E. C. (2009). Utilization of Maternity Care in Nigeria. *Global Journal of Pure and Applied Sciences* (Vol 15, No. 3 p 439)

Overbosch, G., Nsowah-Nuamah, N., Van den Boom, G. & Damnyag, L. (2004) Determinants of antenatal care use in Ghana. *Journal of African Economies, (vol. 13 no 2 pp 277-30).*

Polit, D. F. & Beck, C. T. (2004) *Nursing research*: Appraising evidence for nursing practice (7th Edition) Philadelphia: Wolters Klower/ Lippincott Williams & Wilkins

Rebhan, P. D. (2008) *Health Care Utilization:* Understanding and applying theories and models of healthcare-seeking behavior Case. Western Reserve University

Reynolds, H.W., Wong, E. L. &Tucker, H. (2006). Adolescents' Use of Maternal and Child Health Services in Developing Countries. *International Family Planning Perspectives (vol. 32 no1 pp 6–16).*

Rosenstock, I. M. (1974). The Health Belief Model and Preventive Health Behaviour. *Health Educ Behav (*vol. 2 no. 4 pp 354-386).

Rwegoshora, H.M. (2006). *A guide to Social Science Research.* Institute of Social Work Dar es Salaam.

Say *et al*. (2014). Global Causes of Maternal Death: A WHO Systematic Analysis. Lancet

Say, L. & Raine, R. (2007). A systematic review of inequalities in the use of maternal health care in developing countries: examining the scale of the problem and the importance of context. *Bull World Health Organ, (vol. 85: pp 812-819).*

Shah, I. & Say, L. (2007). Maternal mortality and maternity care from 1990–2005: uneven but important gains. *Reproductive health matter, (vol.15 pp17–27).*

Tann, C. J., Kizza, M., Morison, L., Mabey, D., Muwanga, M., Grosskurth, H. & Elliott A. M. (2007). A community survey of antenatal services and delivery care in Entebbe, Uganda, is used. *BMC pregnancy and childbirth, (vol.7, p.23)*

Treffers, P. E., Olukoya, O.O., Ferguson, B. J. & Liljestrand, J. (2001). Care for adolescent pregnancy and childbirth. *Int J Gynaecol Obstet, (vol.75 no*2 pp 111-21)

United Republic of Tanzania (URT), (2013b). Ministry of Finance: *National Bureau of Statistics Census General Report of 2012*. Dar es Salaam, Tanzania.

United Republic of Tanzania (URT), (2014). Basic Demographic and Socio-economic Profile: *2012 Population and Housing Census.* Dar es Salaam, Tanzania.

Villar, J., Ba'aqeel. H., Piaggio, G., Lumbiganon, P., Miguel, B. J., Farnot, U. & Al-Mazrou, Y. *et al.* (2001). Antenatal care randomized trial for the evaluation of a new model of routine antenatal care. *The Lancet*. pp 1551–1564.

Wagle, R. R., Sabroe, S. & Nielsen, B. B. (2004). Socioeconomic and physical distance to the maternity hospital as predictors for a place of delivery: an observation study from Nepal. *BMC Pregnancy and Childbirth 4, 8*

Wall, L.L. (1998). *Dead mothers and injured wives*: the social context of maternal morbidity and mortality among the Hausa of northern Nigeria. *Stud Family Planning*. (vol. 29 no 4 pp 341-59)

Warren, C., Daly, P., Toure, L. & Mongi, P. (2008). Postnatal care. Chapter 4, section 111.*Opportunities for Africa's Newborns*. Available at: http://www.prb.org/pdf07/SNL_ PNC Brief Final.pdf (Accessed 30 July 2015)

Wolinsky, F. (1988b). Seeking and Using Health Services. *In The Sociology of Health* (2nd ed. *pp117-144*). Belmont, CA: Wadsworth.

World Health Organization [Internet] The International Classification of Diseases 11th Revision is due by 2015. Geneva: WHO; 2013. Available from: http://www.who.int/classifications/icd/revision/en/ [accessed July 2015].

World Health Report (2005): Make every mother and child count. Geneva, Switzerland: World Health Organization.

WHO & UNICEF. (2003). *Antenatal Care in Developing Countries*: Promises, Achievements, and Missed Opportunities: An Analysis of Trends, Levels, and Differentials: 1990– 2001. Geneva, New York,

World Health Organization (2014). *World Health Statistics 2014*. Geneva,

Yanagisawa *et al*. (2006). Determinants of skilled birth attendance in rural Cambodia

Young, J. C. (1981). *Medical Choice in a Mexican Village*. New Brunswick, NJ: Rutgers University Press.

APPENDICES

1. Questionnaire

Dear Madam/ Sir

I am Maguja Nestory, a student from Mzumbe University pursuing a master's degree in Project Planning Management. As a requirement for the achievement of this program, I am required to carry out a study on maternal health care utilization and its socio-economic implications in Mbeya district, specifically in Ilembo and Masoko wards.

As a result, I kindly request you to participate in this study. I promise your opinions will be of valuable use in completing this study. I assure you that your views and answers will remain confidential and only be used for this study. I am kindly thanking you in advance for your cooperation.

PART A PERSONAL DETAILS FOR MALE/FEMALE

A1 SEX

(i.) Me ( )

(ii.) Female ( )

A 2 respondent's age

i. 15-24 years. ( )

ii. 25-30 years. ( )

iii. 31+ years ( )

A 3 Education level

(i.) Never attended school ( )

(ii.) Primary education ( )

(iii.) Secondary education ( )

(iv.) University/ college education ( )

A 5 Respondent's marital status

(i.) Married ( )

(ii.) Single ( )

(iii.) Separated/divorced ( )

(iv.) Widow ( )

A6 Relationship with head of household

i) Wife ( )

ii) Husband ( )

iii) Child ( )

iv) Head of household ( )

v) Others ( )

A7 Economic activities

i. Farmer ( )

ii. Employed ( )

iii. Business person ( )

iv. Others (specify) ……

PART B Maternal health care utilization

B 1 Are there any health infrastructures in this area?

i. Yes ( )

ii. No ( )

B 2 How often are you supposed to attend clinic during pregnancy?

i. None ( )

ii. One to three ( )

iii. Four and above ( )

B 3 how many visits did you make during your pregnancy period?

i. None ( )

ii. One to three ( )

iii. Four and above ( )

B 4 How many visits did you make before the fourth to sixth month of pregnancy?

i) None ( )

ii) one to two ( )

iii) three ( )

B5: Give reasons for your observation in B4

……

……

B 6 Did you get any tests on these diseases below in the table during the pregnancy period?

No	diseases	Test √
1	HIV test	
2	STIs test	
3	Malaria	
4	Others	

B 7 Did you receive the Tetanus toxoid (TT) vaccine during pregnancy?

i. Yes

ii. No

B 8 If Yes, in the question above, how many times did you receive the vaccine?

i. One to two ( )

ii. Three and above ( )

B 9 If NO in the question B 8 above, gives reasons

……

……

……

B 10 Did you get checks up within 48 hours after delivery?

i) Yes ( )

ii) No ( )

B 11 If No in B10 above, why?

……

……

……

B12 Did you get checks up within 48 to 42 days after delivery?

i) Yes ( )

ii) No ( )

B 13 Did you suffer from the following diseases after delivery?

No	Diseases	Put √
1	Postpartum hemorrhage within 42 days)	
2	Post Eclampsia within 42 days	
3	Puerial-sepsis within 42 days	
4	Anemia	
	Others	

PART C: PLACE OF DELIVERY AND ATTENDANTS

C 1. Where did you deliver your children?

i. hospital

ii. home

C 2. Why did you give birth in the place you mentioned in the above question?

.....

.....

.....

C 3 Who assisted you during delivery?

i) health professionals attendant (doctors, nurses, midwives, clinical officers, etc

ii) Trained and traditional birth attendant (wakunga wa Jadi)

iii) untrained people

iv) delivered without assistance

PART D: HEALTHY DAYS OF MATERNAL MOTHERS

D1 how many days did you get sick during the maternity period?

i. 0-40 days

ii. Above 40 days

PART E: HOUSEHOLD PRODUCTION

E1 what is the level of production in your family per year?

i. 0-300,000 Tzs
ii. 300,001 – 500,000 Tzs
iii. Above 500,000Tzs

E2 are you satisfied with your level of production?

i. Yes
ii. No

PART F: VULNERABILITY TO DISEASES AND HEALTH EXPENDITURE

Health problems after birth	Expenses incurred for treatment

Thank you for your time