ASSESSMENT OF UTILIZATION OF MATERNAL HEALTH SERVICES AND ASSOCIATED FACTORS FOR WOMEN WITH INFANTS IN RURAL MOROGORO DISTRICT COUNCIL

By

Eligius Ndunguru

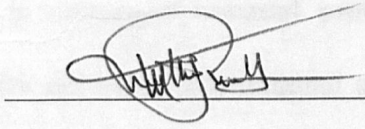
A Dissertation Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences

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October, 2007

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitled **Assessment of Utilization of Maternal Health Services and Associated Factors for Women with Infants in Rural Morogoro District Council**, in fulfilment of the requirements for the degree of Mater of Public Health of the Muhimbili University of Health and Allied Sciences.



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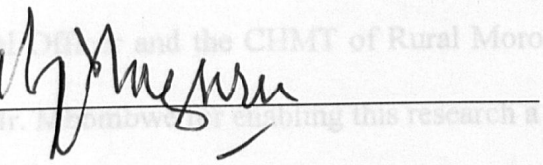
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DECLARATION

AND

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Lastly my thanks go to almighty God for his blessings, protection and guidance throughout the study.

DEDICATION

This work is dedicated to my father Sigsmund Hemenegrild and my beloved mother Theresia Adam. Special dedications to my beloved wife Tabu Omary, my sons Adam Maseleka Sokisi, Hemenegrild Kaheneko and my daughter Halima Uhajabwaka. I thank them all for their encouragement extended to me and tolerance displayed during my absence at home.

God bless you all, Amen.

ABSTRACT

The morbidity and mortality among women and children in developing countries is higher than in the industrialized / developed countries. This is mainly due to poor utilization and unavailability of modern health services. The poor utilization of antenatal services, delivery services and postnatal services by women and children in developing countries denies them from vaccinations against preventable communicable diseases, which causes morbidities and mortalities. The immunizable and preventable diseases causing morbidities and mortalities among women and children in developing world are polio, measles, diphtheria, whooping cough and hepatitis B and tuberculosis. This forms among the most important public health problems in the developing or underdeveloped world. Sub-Saharan Africa is among the most affected countries, Tanzania being one of them.

Regular and continuous use of maternal health services has a positive influence on women, children, family life, the community and the nation at large. This has been seen in the safe motherhood initiatives, which was initiated in 1987. The five major causes of morbidity and mortality for mothers are pregnancy related conditions which are antepartum and postpartum haemorrhage, infections, unsafe abortions, obstructed labour and complicated disorders related to pregnancy like hypertensive diseases in pregnancy.

In Tanzania all maternal and child health services are provided freely with a major aim of reducing maternal and child morbidity and mortality. These free services include antenatal clinic attendance, delivery services, postnatal services and provision of family planning activities. This is in support of Millennium development goals which needs countries to increase there efforts for reduction of maternal and child mortalities.

A cross sectional study was done between 19th June and 5th July, 2007 to assess the utilization of maternal health services and associated factors for women with infants in Rural Morogoro District Council in Morogoro region, Tanzania.

The focus was on mothers with infants rather than pregnant mothers because given the short duration of carrying the study it could have been not possible for the long duration follow up.

Quantitative methods were used targeting 168 randomly selected mothers with infants from seven villages and six streets were interviewed. Questions focussed on there utilization of MCH services specifically, antenatal clinic attendance, place of delivery and use of postnatal clinics services. Lastly, all mothers were interviewed on ownership of assets in order to get the proxy measurements of socio-economic status that was categorized into low, medium or high.

Two hundred and six respondents responded to the semi structured interviews. Their age ranged from 14 years to 49 years. On the religious denomination majority of the mothers were Moslems 66.3% followed by Roman Catholics 29.3%, Protestants 1.5% and without denomination 2.9%.

Utilization of MCH services included 99.5% had attended antenatal clinic, 80.1% delivered at health facilities and 90.8% of women attended postnatal clinic. On knowledge of types of services provided at the health facilities, the majority (more than 90%) cited correctly types of services provided. However, only 53.0% of respondents mentioned HIV/AIDS prevention services.

With socio-economic status, 12.1%, 44.7% and 43.2% mothers were categorized to be in low, medium and high socio-economic levels respectively. It was found that utilization of maternal health services was not statistically associated with socio-economic status. Nevertheless, the level of socio-economic status increased with increased proportion of women delivering at health facilities or assisted by a skilled health attendant.

Although utilization of MCH services by mothers with infants in Rural Morogoro District Council was generally high, proportion of mothers delivering at the health facilities was lower than the proportion of ANC attendance.

Some of the possible reasons for low utilization of delivery services at health facilities included transport problems because the majority of the mothers traveled to the health facilities on foot and worse, some of the mothers used cart to reach the health facilities. Furthermore, results indicated that male involvement was low as majority of the mothers were not escorted to the health facilities by their spouses.

It is not evident why few mothers knew that some of the services rendered at the health facility included HIV/AIDS prevention.

The study suggests that there is need to find out socio-cultural barriers that inhibit women from delivering at health facilities. A qualitative study design may be more appropriate.

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ABBREVIATIONS

AMMP	Adult Morbidity and Mortality Project
ANC	Antenatal Clinic
CCHP	Council Comprehensive Health Plan
DED	District Executive Director
DMO	District Medical Officer
EMOC	Emergency Obstetric Care
HSSP	Health Sector Strategic Plan
IPT	Intermittent Presumptive Treatment
ICPD	International Conference on Population and Development
ITN	Insecticide Treated Nets
MoH/SW	Ministry of Health and Social Welfare
MPH	Master of Public Health
NHP	National Health Policy
PMTCT	Prevention of Mother to Child Transmission
SES	Socio-economic status
SMI	Safe Motherhood Initiative
TDHS	Tanzania Demographic and Health Survey
TEHIP	Tanzania Essential Health Interventions Package
TRCHS	Tanzania Reproductive and Child Health Survey

TT	Tetanus Toxoid
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

Background information

The service package of maternal health services (MCH) includes antenatal clinic, delivery and postnatal care, which include family planning services. Utilization of these services has encountered several problems in the world especially in the developing countries (Nigussie *et al.*, 2004).

The attendance of mothers with their children to these services is 33.7% for skilled delivery in developing countries compared to 99.1% in the industrialized countries (WHO, 2006). From the time back in 1987, many efforts have been directed on mobilizing resources useful in the reduction of the burden of maternal and infant morbidity and mortality (WHO, 1987). It should be underscored that antenatal care, delivery and postnatal services are of vital importance in reducing the peril of maternal morbidity and mortality (Carroli *et al.*, 2001)

The roles and advantages of maternal health services are geared towards screening for obstetric and medical problems during pregnancy and after delivery. Early detection of

ailments affecting the clients, which can cause undesired effects to the mother and the fetus, hence increasing well being of both mother and the baby, are the outcomes of proper and effective use of MCH services.

Safe Motherhood means ensuring that all women receive the care they need to be safe and healthy throughout pregnancy and childbirth (Safe motherhood, 2002). The safe Motherhood Initiative promotes antenatal care, skilled birth assistance. Its strategies promotes counseling of clients on danger signs birth plan preparedness, birth plan, pregnant mothers and their relatives are encouraged to arrange transport, money and companion before onset of labor (van Eijk, *et al.*, 2006). When this program is implemented according to the set interventions, maternal and infant morbidity and mortality ratios decreases hence leading a happier life.

Major causes of maternal morbidity and mortality include severe bleeding (hemorrhage), infection, unsafe abortion, obstructed labor, dystocia, sepsis and infections such as tuberculosis and HIV, and hypertensive disorders of pregnancy (PIH- Pregnancy Induced Hypertension) like eclampsia (van Eijk, *et al.*, 2006).

The proportion attendance of the mothers at the antenatal clinic (ANC) worldwide ranges from 63% in Africa to 97% in European countries, while the proportion of deliveries with skilled attendance range from 46.7% in Africa to 99% in Europe (WHO,

2006). There are variations between sub-Saharan countries and industrialized countries in utilization of maternal and child services (antenatal clinic, delivery services, and postnatal clinic). Such variations are reflected in the high magnitudes of morbidity and mortality of mothers and infants within sub-Saharan countries as compared to low levels in industrialized countries (WHO, 2006). The main pillars of MCH services are, antenatal care, labor and delivery, immediate newborn care and postpartum care for both mothers and newborns (see diagram: 1).

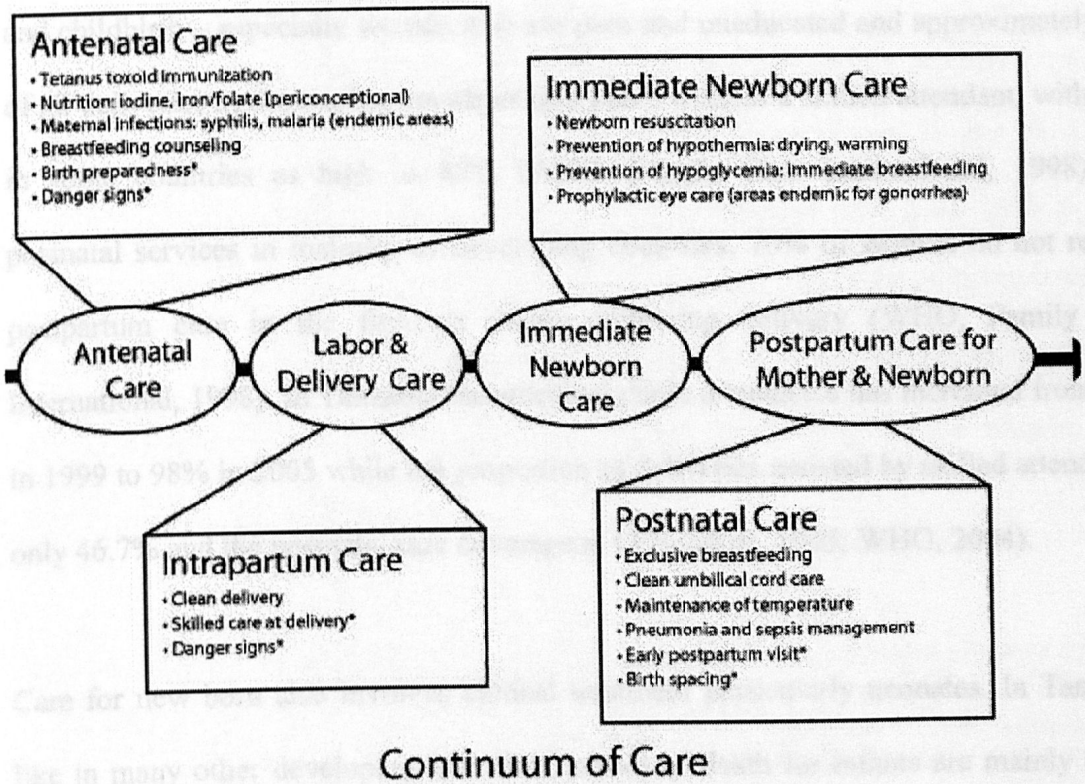
In view of this the Tanzania's Ministry of Health (MoH) has developed the National Package of Reproductive and child Health (RCH) interventions to strengthen the quality of RCH services divided into seven components, focused antenatal care, care during child birth, care of obstetric emergencies, newborn care, postpartum care, post abortion care and family planning, HIV/AIDS and STD diagnosis and management, Prevention and management of childhood of illness., prevention of immunizable diseases and nutritional care.

The goal of RCHS of the MoH is to reduce morbidity and mortality among men, women, adolescent's and children resulting from reproductive and child health problems by provision of quality RCH interventions at all levels of service delivery. Such services include obstetric and gynecological care, treatment and prevention of STIs and HIV, family planning, IMCI, immunization, prevention and treatment of nutritional

deficiencies. The general objectives are to improved antenatal services, increased use of family planning, improved vaccinations and nutritional status among pregnant women and children and to improve maternal health during prenatal, intrapartum and post partum periods (TDHS, 2004.)

Among the services emphasized include all pregnant women should have at least four antenatal care (ANC) visits and assessment of their status done by skilled health worker. These should, as a minimum, include all the interventions outlined in the model in figure 1. The antenatal care model needs mothers to have regular spaced visits to the antenatal clinic starting as early as possible in the first trimester.

Fig 1: The illustrative diagram for pillars of maternal and childhood services.



Source: Babinard, 2006.

The major aim of ANC is to prevent, alleviate health problems including preventing diseases that are known to have an unfavorable outcome on pregnancy, and to provide women and their families/partners with appropriate information and advice for a healthy pregnancy, childbirth and postnatal recovery, including care of the newborn, promotion of early exclusive breastfeeding and assistance with deciding on future pregnancies in order to improve pregnancy outcomes (National Health Policy, 2003).

Millions of women do not have access to good quality health services during pregnancy and childbirth – especially women who are poor and uneducated and approximately half of all deliveries in developing countries take place without a skilled attendant, with rates in some countries as high as 85% (WHO, Family Care International, 1998). For postnatal services in majority of developing countries, 70% of women do not receive postpartum care in the first six weeks following delivery (WHO, Family Care International, 1998). In Tanzania the antenatal clinic attendance has increased from 96% in 1999 to 98% in 2005 while the proportion of deliveries assisted by skilled attendant is only 46.7% and the postnatal care coverage is 13% (MoH, 2005; WHO, 2004).

Care for new born also involves clinical treatment particularly neonates. In Tanzania, like in many other developing countries, causes of death for infants are mainly due to birth asphyxia and prematurity. Although causes of neonatal death in Tanzania mainland from the year 2000-2004 are birth asphyxia, hypothermia, low birth weight, prematurity, tetanus, infection septicemia and congenital abnormality (MoH, 2004), health facilities in Morogoro region are least likely to report death due to asphyxia, prematurity and low birth weight.

Problem statement

Low utilization of maternal and child health services such as low antenatal care, low health facilities deliveries and postnatal care is a big problem in the developing countries. For example in rural Tanzania, 84% of women who gave birth at home intended to deliver at health facilities, but could not manage because of distance and lack of transport. Other problems which contributed to failure to use the health facilities for deliveries were cost for transport and drugs, food and lodging for the woman or her family (*Yared et al., 2003*).

In Tanzania although the pregnant mothers attendance to the antenatal clinic is 98%, the deliveries at the health facility is 46.7%, while that of postnatal clinic attendance is much lower about 13% only. Though some regions in the country have shown an improved utilization rate of maternal health services during the past decade, for example, in Morogoro birth assisted by skilled personnel is 68.8% where as the national figure is 46.7%, however it is still lower than the national target of 80% (TDHS, 2004; DED / DMO, 2005).

The high level of maternal mortality in developing countries has been attributed partly to non-availability of services and poor utilization of these services when they are available. Access to quality care during pregnancy and especially at delivery seems to be

the crucial factor in explaining the disparity in maternal mortality and morbidity between the developing and the industrialized world (Urassa, *et. al.*, 1997).

Childbirth is a risk-producing event, and timely adequate medical care for women who experience obstetric complications is an option for mitigating the risk. This has been well illustrated in a historical case of a religious sect in the U.S., whose female members refuse to utilize modern obstetric care. Although socio-economically privileged compared to the women in developing countries, this group experiences a maternal mortality ratio similar to that of developing countries, 872 per 100,000 live births (Wagle, *et. al.*, 2004).

Data from the Demographic and Health Survey demonstrates that the rate of caesarean sections in the country is also low indicating that Tanzanian mothers have insufficient access to essential maternal obstetric care (EMoC) services specifically for complicated deliveries. A research conducted in Rufiji on the patients who died on the way to the hospital and the ones who delivered at home or on the way to the hospital concluded that all maternal deaths which occurred in the study was attributed to lack of transport and/or inability to pay for hospital care (Urassa *et. al.*, 2005).

Though few studies have been done to show some factors that have influenced utilization of maternal health services there is a still a need to further uncover other factors, which may contribute to this low utilization.

Rationale

The purpose of this study is to understand the current status of utilization of maternal health services in Rural Morogoro District Council by elucidating factors influencing the use of these services in the district. It is hoped that the results of the study will improve policymakers' understanding of the determinants of maternal and child mortality and morbidity in the country and serve as an important tool for any possible intervention aimed at improving the utilization of MCH health services.

The study will also provide benchmark on how best to sensitize pregnant mothers and their spouses on the importance of attending maternal health services on regular basis.

Despite the fact that maternal health care utilization is essential for further improvement of maternal and child health little is known about the current magnitude of use and factors influencing the use of these services in Rural Morogoro District Council. This dissertation therefore aims to fill this gap.

Research Questions

What are the proportions of mothers with infants utilize maternal health services in Rural Morogoro District Council?

What are the factors associated with the utilization of maternal health services among women with infants in Rural Morogoro District Council?

OBJECTIVES

Broad Objective

To determine utilization of maternity health care services and associated factors among mothers with infants in Rural Morogoro District Council.

Specific Objectives

1. To determine the proportion of women with infants who attended ANC in the Health Facilities.
2. To determine the proportion of mothers with infants who attended delivery at H/F.
3. To determine the proportion of mothers with infants attending postnatal care in RMCH clinics.
4. To determine the reasons of women with infants why they are not attending ANC.
5. To determine the reasons given by mothers with infants why they are not attending H/F for delivery.
6. To determine reasons of mothers with infants as what causes them not to attend postnatal care.
7. To determine the relationship between household socio-economic and with utilization of antenatal clinics, delivery services/postnatal care.
8. To determine the relationship between demographic characteristics with utilization of antenatal clinics, delivery services/postnatal care.

CHAPTER TWO

Review of literature

Each year, some eight million of the estimated 210 million women who become pregnant, suffer life-threatening complications related to pregnancy, many experiencing long-term morbidities and disabilities. In 2000 an estimated 529 000 women died during pregnancy and childbirth from largely preventable causes. Globally the maternal mortality stands at 430/100,000live births. The leading affected countries in maternal mortality ratio in the Sub-Saharan African countries are Angola 1700 per 100,000, DRC 990 Ethiopia 850, Nigeria 800, and Kenya 1000 per 100,000 (WHO, 2004).

The low level of utilization of maternal and a child health service in developing countries has been attributed to the non-availability of services and partly to the poor utilization of these services whenever they are available ((Wagle, *et. al.*, 2004). The causes of this problem vary from one country to another and even within the same country variations do exist. In Tanzania the proportion of delivery at the health facility is 46.7% and for Rural Morogoro District Council is 68.8% higher than the national figure but lower than Millennium Development Goals target of 2005 about 80% for the year of 2005, 85% for 2010 and 90% in 2015 (WHO, 2004; Tanzania NRSGRP, 2005).

Although there has been some significant improvement on most health indicators over the last five years in Tanzania, maternal mortality ratio (MMR) has increased from 529 per 100,000 (2002) to 578 per 100,000 live births nationwide (WHO, 1999; TDHS, 2004/5).

The MMR in Rural Morogoro District Council is 730 per 100,000 live births; this figure is higher than the national figure of 578 per 100,000. The possible causes may be partly due to low utilization of maternal and child health services. In Rural Morogoro District Council the proportion of pregnant mothers with skilled health provider delivery is 68.8% which is higher than the national proportion of 46.7% but lower than the national required target of 80% but higher than the MDG proportion of 57.4 (WHO, 2006). The following might be the contributory factors; unevenly/sparsely distributed health facilities which necessitate walking long distances to reach them, geographical barriers such as rivers, mountainous areas which becomes obstacles for cars to reach the needy, lack of cars in the villages and low socio-economic status of the communities. Facilities are typically far away from where poor live and are difficult and hard to reach (TDHS, 2004/5, DED/DMO, 2005, Women Dignity Project, 2003).

A study done in Rural Morogoro District Council by joint venture between Morogoro and JICA on the utilization of maternal health services had revealed that majority of the women with pregnancy attended well at antenatal clinic, but delivery was conducted by

unskilled health workers either at home or Traditional Birth Attendant. Reasons for home delivery as reported by respondents were multiple, like TBAs were helpful, the health facilities were far, labor occurred at night and relatives decisions and lack of knowledge about TBA's roles mislead their decision on where to deliver (JICA-Morogoro, 2005).

Reproductive and child health services are among the many services being provided by health facilities in Rural Morogoro District Council. The services are provided free to expectant mothers and children. Since the inception of RCH services, it was intended that pregnant women should be attended by skilled health provider before, during and after delivery. The major reasons for attendance by skilled health personnel was to enable them to detect risk factors and management prompted timely to avoid long lasting sequale like disabling disabilities like vesico-vaginal fistula for obstructed labor and death.

In 1999, about 95% of health facilities were equipped with antenatal and delivery equipment and supplies while in the year 2000 a substantial number of trained health workers were employed in order to manage the available health facilities. This was aimed at strengthening the RCH services with consequences of improved maternal and child health. Unfortunately, according to HMIS report of 2003, only 58% of pregnant

women who attended antenatal clinics had skilled health worker delivery assistance (Tanzania –JICA Morogoro Health Project, 2005).

A study was done to find out the utilization of maternal health services by lactating women and the findings were 246 (98.4%) attended at the he antenatal clinic while deliveries at health facilities was 64.8% an increase of about 6.8% from the year 2003 study (Tanzania –JICA Morogoro Health Project, 2005).

Reasons for choices of place of delivery as indicated by the respondents followed the same trend as those found in Kathmandu valley study. The reasons pointed out were, looking for better services, had risk factors, nurses taught them about risks of home delivery, lack of income to pay at the health facility, labor occurred late at night, they thought TBAs will help, too far to the health facility, relative decisions and unavailability of staff at the facility (Tanzania-JICA Health Project, 2005).

Another study done in Dar es Salaam on factors contributing to MMR revealed that decision making was a problem, decision on whether a pregnant mother should go for medical consultation was made either by husband, 29%, or the mother, 31%, during complications. Other contributing factors like lack of transport also caused delays at home. Also when already at the health facilities there were marked referral delays from the primary health facilities to the district hospital (Urassa. *et. al.*, 1997).

In a study done in Kathmandu, Nepal, on factors associated with place of delivery, results indicated that low level of education and multiparty favored delivering at home (Bolam *et. al.*, 1998).

Another study that was also conducted in Nepal and its surrounding areas reported socio-economic status and multiparty to be strong predictors for the place of delivery (Wagle, *et al.*, 2004). The reasons for planned home deliveries were related to 'preference' for home delivery and perception of home deliveries as 'easy' and 'convenient' and experience of previous home deliveries. For unplanned home deliveries the reasons cited were 'precipitate labor' and 'lack of transport' and 'lack of escort' during labor (Sreeramareddy, *et al.*, 2006).

In Kausani, a group of villages in Kano State, Northwestern Nigeria, most women deliver at home, and few receive antenatal care. To understand the reasons for this, a trained midwife interviewed 107 pregnant women in the community using a structured questionnaire. The majority (88%) of women was not receiving antenatal care, and (96%) had previously delivered at home. The three most common reasons given for non-use of antenatal care were limited financial resources (46%), God's will (17.2%), and husband's denial (17.2%).

In order to improve utilization of antenatal care services, efforts to relieve poverty and empower women economically are needed. Any programs must take into consideration the specific socio-cultural context of the population (Adam, *et al*., 2002).

A report on care after childbirth in Tanzania postnatal care shows that a large proportion of women whose last live birth occurred outside a health facility 83% did not receive a postnatal checkup while only 13% percent were examined within 2 days of delivering, as recommended (TDHS, 2004/5).

In Tanzania, many women (about 94%) who gave birth in the five years preceding the survey received antenatal care (ANC) from a health professional at least once. About 62% of women received the recommended minimum of four ANC visits, and only 14% received their first ANC visit during the first trimester of pregnancy.

The proportion of underweight children fell from 29% to22% between 1999 and 2004, while the infant mortality ratio decreased from 99 per 1000 births to 68 per 1000 births over the same period (TDHS, 2004/5; DFID, 2005).

A skilled attendant at birth with the proper equipment and environment can reduce the incidence and severity of obstetric and newborn complications. The percentage of skilled health workers assistance/attendance worldwide was 61.5%, 99.1% for less

developed regions and 57.4% less developed countries. The percentage of skilled health delivery in Africa is estimated to be 46.7%, Asia 58.3% and Europe 99.1% (WHO, 2006).

In the 2004-05 TDHS, 47% of births occur in health facilities, compared with 44% in the 1999 (TRHS, 1999). Almost half of births (46%) are assisted by health professionals. Nurses and midwives are the most common birth attendants, assisting 37% of births. Doctors and AMOs attend only 4% of births. Nineteen percent of births are assisted by trained or traditional birth attendants, and 30% of births are attended by relatives or other untrained people. Three percentages of births were delivered by caesarean section, roughly the same percentage was found in a study done in Rufiji on the use of EMoC caesarian section rate was below 5% (4.1%) which means that there was under utilization of the life saving procedure (TRHS, 1999; Urassa, *et al.*, 2005).

The model of utilization of maternal health services is based on the conceptual framework of health-seeking behavior developed by Anderson and Newman. This behavioral model proposed that the use of health care services is a function of three sets of individual characteristics: (i) predisposing characteristics, e.g. age, household size, education, number of previous pregnancies, health-related attitude; (ii) enabling characteristics, i.e. income, characteristics of health care system and accesses, and availability of health facilities; and (iii) need characteristics, i.e. characteristics of illness,

perceived health status, and expected benefit from treatments. Fosu (1994) argues that the predisposing factors reflect the fact that families with different characteristics have a different tendency to use health care services, while the enabling factors reflect the fact that some families, even if predisposed to use health services, must have some means to obtain them, i.e. income, access, and availability of health services (Thaddeus, *et al.*, 1994).

Another study done in Ethiopia revealed that a total of 13.5% of mothers gave birth to their last babies in health facilities. Only about 25% of the rural women gave birth in the health institutions. Untrained traditional birth attendants and relatives attended 76.4% of the deliveries. The reported reasons were: absence of health problems, short duration of labor, preferring the attention of relatives and trust in traditional birth attendants.

Educational status of the mothers, place of residence, access to radio, monthly income, prenatal care, history of intrapartum complications and other selected obstetric behaviors of the respondents showed statistically significant association with the utilization of safe delivery services. In general, this study revealed that the proportion of births delivered in health facilities was low in the area due to demographic and socio-cultural barriers to the utilization of safe delivery services (Nigussie, *et al.*, 2004).

Further studies which involved review of six countries' demographic and health surveys on factors which influence mothers to seek care revealed demographic, socioeconomic, community beliefs and norms have great impact on individual to make decision. Level of economic development may influence health directly through an association between deprivation and poor health and indirectly through access to health services and social support systems. Economic development is positively related to health through its relationship with increased decision making power, an increased likelihood of positive attitude towards health services use (Stevenson, *et al.*, 2006)

A study conducted in Rural Kenya on mother's utilization of maternal health services, it was realized that attendance at the antenatal clinic paying at least 4 visits was 90%, while more than half (64%) of the mothers visited at the clinic during their third trimester (van Eijk, *et al.*, 2006). Lack of clinic visiting by mothers was found to be associated low education and low socio-economic status.

In the same study it was learned that provision of services some were highly provided and others lowly provided. The services which were highly provided were abdominal examination, TT vaccination, weight measurement and taking of blood pressure while lowly provided services were malaria prevention, iron , folate supplementation, syphilis testing and health talks.

The proportion of health facility delivery in this study was 20% while more than three quarters of the mothers (80%) had unskilled deliveries outside health facilities. The factors which were identified to be associated with unskilled deliveries ranged from age more than 30 years, low education, parity more than five, low socioeconomic status, too long walking distance (van Eijk, *et al.*, 2006).

CHAPTER THREE

METHODOLOGY

Study design and settings

Study design

This was a cross-sectional descriptive community based study that was conducted in Rural Morogoro District Council, Morogoro region.

Selection of the study area

This study was conducted in Rural Morogoro District Council, Morogoro region. The region was chosen because of the position it stands as far as maternal mortalities of 750/100,000 was higher compared to the national figure of 578/100,000 (CCHP Morogoro, 2005; TDHS, 2005). The region was picked on convenience basis. Rural Morogoro district council was randomly selected from the three districts by simple random procedure.

Rural Morogoro district council covers an area of 19,250 square kilometers and is one of the districts of Morogoro region which is situated in the eastern part of Tanzania. Rural Morogoro District Council is located between latitudes 8 and 10 degrees North and South of the Equator between longitudes 32° and 38° East. To the East is bounded by

Bagamoyo district, to the South East by Rufiji district while to the South East, Ulanga, Kilombero to the West and Mvomero district to the north.

According to 2002 population and housing census, the district had 290,316 people. Women of childbearing age were 58,063 (20%). Most of the residents are peasant. Other occupations include civil servants mostly teachers and health personnel. Most of the residents belong to the Luguru tribe. The district has six divisions, 25 wards, 133 villages with 697 hamlets. The council has 51 health facilities.

Target and study populations

The target population of the study was women with infants and study population included women of reproductive age who have infants. Study population consisted of women with infants in rural Morogoro district council women of the age 14 – 49 years.

Sample size determination

The major focus of the study was to determine the rate of maternal health service utilization and associated factors among women with infants, hence the proportion of women with infants therefore the parameter used in sample size estimation. The following formula was used:

$$n = \frac{z^2 p(100-p)}{\varepsilon^2}$$

z = the percentage point of the normal distribution corresponding to the (two sided) significance level of 5% = 1.96

p = the estimated proportion of MCH utilization (68.8%) from previous study done by JICA – Morogoro joint venture of 2005.

ε = margin or bound of error on estimate set to be about 5%

Therefore, the minimum sample size came to be at least 168 mothers.

Sampling procedure

Due to a large area of the targeted study area, multistage sampling technique was employed to select the sample units from the sample population as follows:

1. List of 6 divisions forming the framework.
2. From the six divisions two divisions were randomly selected. The selected divisions were Mikese and Ngerengere. In the next stage two wards from each division were randomly also selected.

The selected wards were as follows,

1. Mikese – Mkambalani and Mikese.
2. Ngerengere – Ngerengere and Kidughalo.
3. List of villages of each ward was developed.
4. From the list the following villages were selected as,

Mkambalani: Mkambalani, Pangawe and Newland.

Mikese; Koo, Engelo and Magema.

Ngerengere: Ngerengere Streets, North Ngerengere Street and South Ngerengere Street.

Kidughalo: Kidughalo, Visaraka and Plambili.

Mother's with infants were interviewed in the selected villages / streets t their homes.

Recruiting and training of research assistants

Six research assistants were recruited and trained for data collection assistance. The training was conducted in two days one day at Mikese and the second day in Ngerengere. The research assistants were medical assistants and one nursing officer with previous experience in similar researches like the AMMP who were working in the MCH clinics and maternity wards.

Data Collection

The research assistants and the author did data collection for two weeks. Structured Interviews with open and closed ended options were used. All questions were asked in Swahili language and pre-testing was done at Morogoro Municipal Council. Data collection started after getting permission from the District authorities and the Regional Medical Officer. The selected villages were visited one day before the interview to meet the village leaders, explain about the purpose of the study and set appointments. The interview took place following obtaining a consent to participate in the study without coercion and they were free to withdraw at any stage of the interview. A total of two hundred and six mothers with infants were interviewed.

The following were the information collected for socio-demographic characteristics, ANC attendance, delivery at health facility, untrained and trained traditional birth attendants, deliveries, deliveries on the way to the health facility, reasons for not attending ANC, delivering in the health facilities, attending postnatal clinics and socio-economic status. During the fieldwork the author supervised and counterchecked the accuracy and completeness of the questionnaire form filling. All the completed questionnaires were given identity numbers on the same day after completing the work of the day.

Data analysis and management

The responses to both the open and closed ended questions were coded and entered into the computer using EPI Data and EPI info version 6.

The dependent variables were cross-tabled with independent variables. Data frequency table were used to summarize the analyzed data. Association between independent variables was considered significant if p values were < 0.05.

Study variables

Dependent variables were level of utilization of maternal health services. These services were antenatal clinic attendance, utilization of delivery services and postnatal clinic services.

Independent variables for the study included the socio-demographic characteristics (age, marital status, religion, occupation, level of education and distance to the nearest heath facility). Other independent variables were parity, marital status and SES.The dependent variables were ANC attendance, delivery at health facility, postnatal clinic attendance, and distance from home to health facility, reasons for not attending ANC, reasons for delivery outside health facility and reasons for not attending postnatal clinic.

Socio-economic status

In this study 206 households were categorized into three levels of SES according to the following inputs of socio-economic status by using EPI info 6.

SES input variable	Low = 1	Medium = 2	High = 3
No. of sleeping rooms	One	Two – three	More than 3
Wall structure	Grass and bamboo, others.	Mud and sticks, Timber	Bricks, stones
Water source	Unprotected well, Not protected spring, rainwater and others.	Community tap, protected well, water sellers.	1.Piped water within the house, at the neighbor.
Light source	Firewood	Hurricane Lamp, oil lantern	Electricity
Toilet	Bush	Pit latrine/VIP	Flush toilet
No of meals/day	None, One	Two	Three and more
Meat taken previous	Once	Two	Three or more
Milk/week	0 – 1	2	3 or more
Acres owned	0 – 5	6 - 10	>10
Hhold income	Relatives contribution, small business, fishing	Selling food crops, animals, animal products	Selling cash crops, Business, Salary
Asset ownership	Hurricane lamp,	Table clock, table	Bicycle and Table clock, furniture, iron, radio.

By aggregating inputs of the above variables, a single score was obtained from which socio-economic status levels were categorized as follows;

Low SES score 1 = low – 20, Medium SES score 2 = 21 – 24, High SES score 3 = >24. So those households with score of less than 20 were graded as low SES, scores of 21 – 24 as medium SES and above 24 score as high socio-economic status. Next the SES status was associated with utilization of maternal health services. Finally using EPI6 info SES status was cross tabled with maternal health services (MOH and UK DFID, 2003).

Appendix 1 shows inputs of socio-economic status in Rural Morogoro District Council. Respondents were categorized into low, medium and high socio-economic status (SES) according to thirteen elements they possessed. These elements ranked from number of rooms in their big house, materials used in its construction, source of water used in the house hold, type of toilet, light for the household used, and number of meals per day. Other elements in the list were whether the family used meat, milk during the previous week, farm ownership, and source of income for the household, and property ownership.

Study procedure

Structured interviews were used to collect information from respondents; both open and closed ended questions were used to collect qualitative and quantitative information.

Definitions

Antenatal Care Coverage: Percent of mothers with infants during the survey for which a woman received at least one antenatal care consultation from a medically trained person,

defined as a doctor, nurse or nurse-midwife/health facility, two - three antenatal care consultations from a medically trained person (health facility), and four or more consultation from a health facility.

Delivery Attendance

Percentage of mothers with infants prior to the survey who had delivery at the health facility or at trained TBAs. For descriptive purposes, the WHO, defines Antenatal care as a dichotomous variable, having one or more visits with a trained person during the pregnancy or none.

However, it can be taken to mean only the care that is routinely provided for all the pregnant women at the primary care level, or every aspect of care from screening to intensive life support provided to any women while pregnant and up to delivery.

Postnatal attendance

Percent of mothers with infants who attended postnatal care after the first two days and within 42 days of puerperium.

Infant mortality ratio

The number of child who die before one year of age in a given year divided by the number of live births in the same year (WHO,2006;United Nations Children Fund,2006).

Maternal mortality ratio

Annual number of maternal deaths per 100,000 live births (WHO, UNICEF, UNFPA, Geneva, 2000)

Ethical clearance

Ethical clearance for the study was sought from MUCHS directorate of Research and Publications Committee. In each administrative level the entire respective leadership was informed and permission for conducting the study in their respective areas obtained both in writing and orally. The participants were asked for their willingness to participate in the study after they were informed the purpose of the study.

Prospective respondents were assured of confidentiality as they participate in the study. Everybody was informed that no names or direct identification will be made to the questionnaire, except the numeric identification number to be used in case of follow-up. Participation of respondents in this study was completely on voluntarily basis.

Consent

Before interviews, potential study respondents were requested to participate voluntarily without coercion and they were assured of confidentiality. Respondents were also told on the benefits of the study as it was intended to improve their services provision from the health facilities. Respondents were also informed that no harm will happen during the study.

Pre testing of the instrument

The research instruments were pre-tested in the Municipal of Morogoro at the government Hospital MCH clinic. There were no major corrections and adjustments.

CHAPTER FOUR

RESULTS

Demographic and socio-economic characteristics of the respondents

This study was carried out in two randomly selected divisions, Mikese and Ngerengere of Rural Morogoro District Council in Morogoro Region. A total of 206 women with infants from four wards were recruited to participate.

Table 1 shows the distribution of the study respondents by origin (division, ward and village). Mothers were almost equally distributed among the four (Mkambalani, Mikese, Kidughalo and Ngerengere) wards. The mean age of these mothers was 25.6 years (SD = 6.9) ranging from 14 to 49 years. The majority, 139 (67.5%), of respondents were mothers aged between 20 to 34 years. While mothers aged below 20 years were 38 (18.4%), those above 34 years of age were 29 (14.1%).

Mothers of parity between 2 and 4 were 123 (59.7%) while mothers of parity 1 were 51 (24.8%) and mothers of the parity of five and above were 32 (15.5%). (See table 2).

Table 1: Distribution of study population by divisions, wards and villages

Division	Ward and villages	Number of respondents (%)
Mikese	**Mkambalani**	**53 (25.7)**
	Pangawe	18 (8.7)
	Newland	16 (7.8)
	Mkambalani	19 (9.2)
	Mikese	**53 (25.7)**
	Koo	27 (13.1)
	Engelo-Magma	13 (6.3)
	Mikese	13 (6.3)
Ngerengere	**Kidughalo**	**50 (24.3)**
	Visaraka	12 (5.8)
	Plambili	18 (8.7)
	Kidughalo	20 (9.7)
	Ngerengere	**50 (24.3)**
	North Ngerengere	17 (8.3)
	South Ngerengere	17 (8.3)
	Ngerengere Streets	16 (7.8)

The large proportion, 144 (69.9%) of respondents had primary school education as compared to 134 (65%) for partner's education. Fewer respondents and their partners reported to have secondary school education, 8 (3.9%) and 26 (12.7%) respectively with 1 (0.5%) having tertiary education (see Table 2).

Table 2: Distribution of respondents by socio-demographic characteristics

Characteristics	Number (%)
Age group (years)	
Below 20	38 (18.4)
20 – 34	139 (67.5)
Above 34	29 (14.1)
Parity	
1	51 (24.8)
2 – 4	123 (59.7)
Above 4	32 (15.5)
Respondent's education	
None	54 (26.2)
Formal (Primary)	144 (69.9)
Formal (Secondary)	8 (3.9)
Spouse's education	
None	46 (22.3)
Formal (Primary)	134 (65.0)
Formal (Secondary)	26 (12.7)

Table 2: Distribution of respondents by socio-demographic characteristics (Ctd)

Characteristics	Number (%)
Respondent's occupation	
Peasants	179 (86.9)
Business registries	15 (7.3)
Petty businesses	8 (3.9)
Private employee	4 (1.9)
Spouse's occupation	
Peasants	146 (70.9)
Business registries	5 (2.4)
Petty businesses	19 (9.2)
Private employee	20 (9.7)
Government	16 (7.8)
Marital status	
Single	46 (22.3)
Married	125 (60.7)
Cohabiting	27 (13.1)
Separated / divorced	5 (2.4)
Widow	3 (1.4)
Religion denomination	
None/others	3 (1.5%)
Moslems	137 (66.5%)
Christians	60 (29.1%)
Protestants	6 (2.9%)

The majority of respondents reported to be peasants, 179 (86.9%) and few reported to be privately employed, 4 (1.9%). With partner's occupation, 146 (70.9%) reported to be peasants, 19 (9.2%) were engaged in petty businesses, 20 (9.7%) private employees, 16 (7.8%) government employees and 5 (2.4%) in business registries.

Regarding marital status majority of the respondents were married, 125 (60.7%), 73 (35.4%) were either single or cohabiting at the time of the study. Less than 5% were separated, divorced or widow (see table 2).

Regarding the duration of marriage or cohabiting, the majority 68 (44.7 %) reported a longest duration of more than 10 years and 58 (37.9%) less than 5 years and the remaining 26 (17.1%) between 6 and 9 years. With religion more than half of the mothers with infants were Moslems forming 137 (66.5%) while Roman Catholics were 60 (29.3%), Protestants were 8 (3.9%) and one respondent had no religious denomination.

Utilization of MCH services

Antenatal clinic attendance

Among the 206 respondents 205 (99.5%) had attended ANC at least once. These mothers presented the antenatal cards at the time of interviews at home. The gestational age at the first ANC attendance had a range from 0 months to 36 weeks with median of 16 weeks. About half of mothers, 102 (49.5 %), attended ANC at least four visits (Table 3).

Table 3: Antenatal clinic attendance

Number of visits	Number	Percentage
None	1	0.5
1	10	4.9
2 – 3	93	45.1
4	83	40.3
More than 4	19	9.2
Total	206	100.0

Of the 206 mothers, 165 (80.1%) had skilled health worker delivery at health facilities and TBAs, while 41 (19.9%) were deliveries conducted by unskilled personnel (Figure 1). The proportion of mothers who delivered with assistance of skilled health provider was (80.1%). About 20% of mothers delivered with assistance of unskilled personnel occurring at home, on the way to the health facility or by untrained traditional birth attendants.

The number of mothers who secured escort to the health facility was 58 (28.2%). Male involvement to accompany their partners to the delivery health facility was reported in 19 (32.8%), while 17 (29.3%) by mothers in-law, 3 (5.2%) by TBAs and other family members/friends in 19 (32.8%) of all respondents.

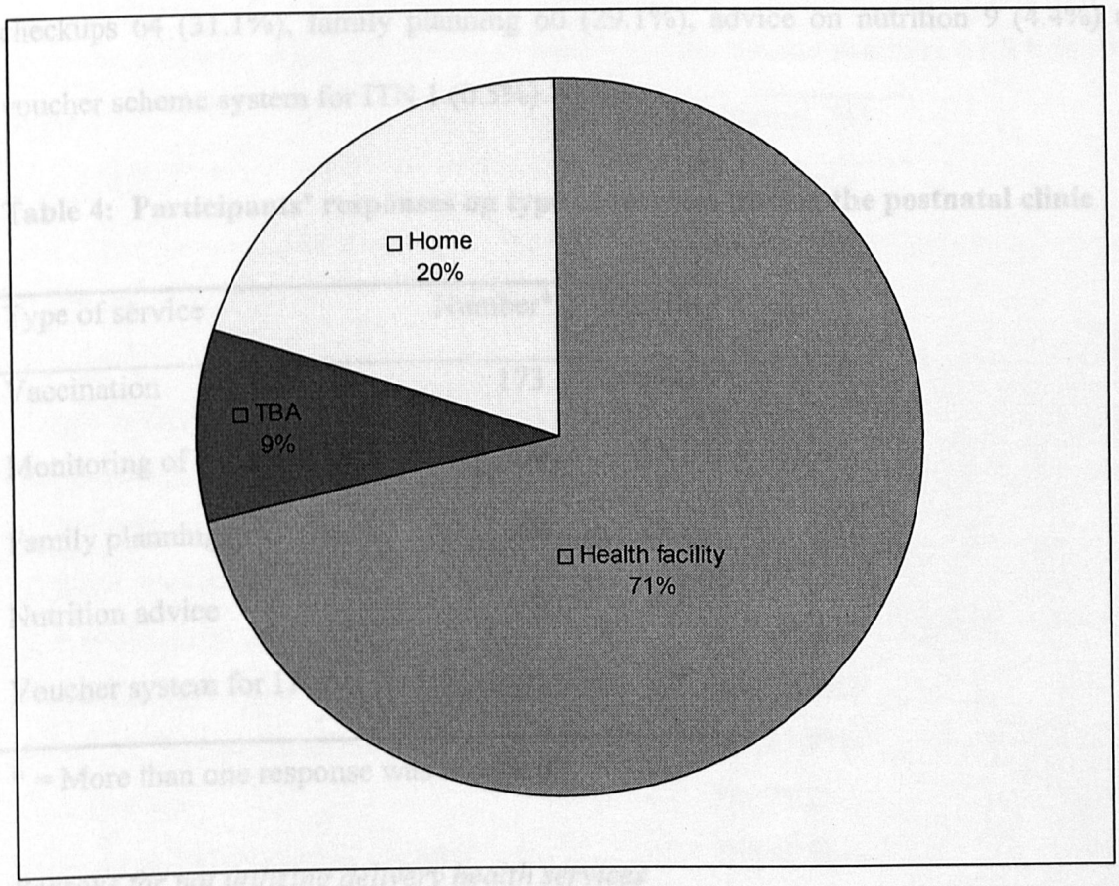


Figure 2: Distribution of women with infants by places of delivery

Postnatal attendance

Of the 206 respondents, 187 (90.8%) reported to have attended postnatal clinic. Respondents were required to enumerate or mention five main components or services which they were getting from the health facilities. Table 4 shows reported services at postnatal clinic. The majority 173 (84.0%) mentioned vaccination, mother and child

checkups 64 (31.1%), family planning 60 (29.1%), advice on nutrition 9 (4.4%) and voucher scheme system for ITN 1 (0.5%).

Table 4: Participants' responses on type of services during the postnatal clinic

Type of service	Number*	Percent
Vaccination	173	84.0
Monitoring of child health	64	31.1
Family planning	60	29.1
Nutrition advice	9	4.4
Voucher system for ITN	1	0.5

* = More than one response was accepted

Reasons for not utilizing delivery health services

Reasons given by respondents 41(19.9%) as to why they did not use delivery services were as follows, relative or partner restriction 34 (82.9%), poor service at health facility 33 (80.5%), not given an opportunity to choose midwife 34 (82.9%), undesired delivery positioning (while lying) 33 (80.5%), younger midwife 34 (82.9), lack of essential drugs 34 (82.9) and preference to home delivery 33 (80.5%). Other reasons are as indicated in table 5.

Table 5: Reasons of not delivering at health facility among mothers with infants

Reason	Number (%)
Sudden labor	30 (73.2%)
Relatives / partners restriction	34 (82.9%)
Health facility too far	15 (36.6%)
Poor services	33 (80.5%)
Long waiting time due to queues	33 (80.5%)
Not given opportunity to choose midwife	34 (82.9%)
Delivery while lying	33 (80.5%)
Midwife younger	34 (82.9%)
Lack of essential drugs	34 (82.9%)
Home delivery is safe	33 (80.5%)
Afraid of neighbors who assist delivery	18 (43.9%)
Lack of escort	30 (73.2%)
Labor pains before date of delivery	17 (41.5%)
Home delivery preference	32 (78.0%)

Reasons for not attending postnatal services

There were 19 (9.2%) mothers with infants in this study who didn't attend postnatal services and the reasons given were being restricted by relatives, long walking distance to the health facilities and lack of drugs and poor quality of services. Only 3 (1.5%) out 206 mothers reported that attendance at the postnatal clinic was not possible as there were taboos which do not allow postnatal clinic attendance but when asked them to mention these taboos, all respondents were reluctant to do so. Furthermore, mothers had

reported presence of customs and taboos restricting them from attending postnatal services were 3 (1.5 %,) but details for such taboos were not given.

Socio-economic-demographic factors and utilization of MCH services

Based on their SES criteria, 25(12.1%) respondents were categorized to low SES, 92(44.7%) medium and 89 (43.2%) to high SES.

Socio-economic status and ANC attendance

All mothers in low and in high SES attended ANC (25 and 89 respectively) whereas 91(98.9%) of the medium group attended the antenatal clinic. For this matter, ANC attendance was not found to be significantly associated with socio-economic status of the family (see Table 6).

Table 6: Utilization of MCH services and socio-economic status

Level of socio-economic status	Type of MCH utilization		
	Attended ANC	Delivered by skilled staff	Attended post-natal clinic
Low	25 (100.0)	19 (76.0)	21 (84.0)
Medium	91 (98.9)	71 (77.2)	84 (91.3)
High	89 (100.0)	75 (84.3)	82 (92.1)
X^2 (p-value)	1.2 (0.5)	1.7 (0.4)	2.8 (0.2)

Socio-economic status and place of delivery

Among 206 participants 25 categorized as low socio-economic status, 19(76.0%) delivered at health facility or at trained traditional birth attendant. Seventy one women (77.2%) and 75(84.3%) of medium and of the high SES respectively, delivered by skilled assisted personnel (at health facility or trained TBA). Although these figures do not show any statistical significant relationship between socio-economic status and place of delivery, there is a moderate indication of increasing proportion of women delivering assisted by skilled staff by increasing level of socio-economic status (table 6).

Socio-economic status and post-natal clinic attendance

Some women attended post-natal clinic and some did not. Of those who attended, 21 (84%) were of low SES, 84 (94.4%) medium SES and 82 (92.1%) high SES. Post-natal attendance is not statistically associated with the level of socio-economic status. Nevertheless, the proportion of women attending post-natal clinic is increasing with increased level of socio-economic status (table 6).

Socio-demographic factors and antenatal clinic attendance

Since almost all mothers 205 (99.5%) attended ANC, examining the relationship between ANC attendance and socio-demographic factors would be redundant.

Socio-demographic factors and place of delivery

Although place of delivery was not statistically associated with place of delivery, the proportion of women delivering at health facility or assisted by trained midwife decreased with increasing age (table 7). Marital status, parity, religion of respondent and distance to health facility were not significantly associated with place of delivery. Education of respondent was highly associated with place of delivery whereby, women with formal education tended to deliver at health facility or by trained staff as compared to women with informal or no education (table 7).

Table 7: Place of delivery and socio-demographic factors

Characteristics	n	Number* (%)	X^2 (p-value)
Respondents age (years)			
14 – 19	38	33 (86.8)	
20 - 34	139	112 (80.6)	3.36 (0.2)
Above 34	29	20 (69.0)	
Marital status			
Married	125	100 (80.0)	
Others	81	65 (80.2)	0.0 (0.96)
Parity			
1	51	45 (88.2)	
2 – 4	123	94 (76.4)	3.19 (0.2)
Above 4	32	26 (81.3)	
Maternal education level			
Formal	152	124 (81.5)	
None	54	41 (75.9)	77.6 (< 0.01)
Religion			
Moslem	137	110 (80.3)	
Others	69	55 (79.7)	0.01 (0.9)
Distance to health facility			
0 – 5 Km	185	147 (79.5)	
Over 5 Km	21	18 (85.7)	0.46 (0.5)

* Number delivering at health facility or by assisted by trained midwife

Socio-demographic factors and post-natal care

Respondent's age and marital status were significantly associated with women seeking post-natal care (table 8). Other non significant factors are as indicated in table 8.

Table 8: Post-natal care and socio-demographic factors

Characteristics	n	Number attending (%)	X^2 (p-value)
Respondents age (years)			
14 – 19	38	30 (78.9)	
20 - 34	139	130 (93.5)	7.8 (0.02)
Above 34	29	27 (93.1)	
Marital status			
Married	125	114 (91.2)	
Others	81	51 (62.0)	25.6(< 0.01)
Parity			
1	51	45 (88.2)	
2 – 4	123	111 (90.2)	1.86 (0.4)
Above 4	32	31 (96.9)	
Education level			
Formal	152	140 (92.1)	
None	54	47 (87.0)	1.22 (0.3)
Religion			
Moslem	137	125 (91.2)	
Others	69	62 (89.9)	0.11 (0.7)
Distance to health facility			
0 – 5 Km	185	168 (90.8)	
Over 5 Km	21	19 (90.5)	0.0 (0.96)

CHAPTER FIVE

DISCUSSION

Utilization of maternal health services in this study included women attending antenatal clinic, delivery at the health facility or assisted by a trained traditional birth attendant and utilization of postnatal clinic services. Furthermore, the study investigated on factors that influenced utilization of these services.

The results in this study revealed that there was high utilization of maternal health services. All respondents except one attended 205 (99.5%) antenatal care clinic. For delivery services majority had their deliveries under either skilled health worker or trained TBAs. With postnatal clinic attendance 90.8% reported to have attended it. When association between maternal health service utilization with socio-economic status was sought, it was revealed that there was no direct association among them but the proportion of deliveries and postnatal clinic attendance increased with increasing SES status. Lack of direct association may be due to inadequate sample. Furthermore level of education and increasing age showed positive statistical association with maternal health utilization.

The proportion of mothers attending antenatal care services

The ANC attendance by expectant mothers is of vital importance as this provides health workers with the opportunities of early detection of maternal health problems among pregnant women and corrective measures taken promptly in order to get rid of them and hence better achievement for the benefit of both the fetus and mother. In this study 205 (99.5%) among 206 respondents attended ANC at least once. This proportion was higher than the national estimate of 94% from the Demographic health survey but was in line with the findings from the reproductive health survey of 2005 (TDHS,2005). More than half of the respondents, 113 (56.5%) visited the clinic within the first 16 weeks of gestational age.

In this study 44 (21.8%) attended ANC during the first trimester of pregnancy a figure which is higher than national figure of 14 percent (TDHS, 2005). This increase might be due to various reasons, one the services have attracted more respondents as there were provided freely, secondly in rural Morogoro district council special programs operated in the district such as cascade supervision and TEHIP all sensitize mothers and spouses on the importance utilization of MCH services. Furthermore, previously during the year 2000, the council has equipped the health facilities with equipments for improving maternal and child health services and they also had employed medical providers to manage these facilities. For these reasons it can be seen that there was high percentage

of early initiation of antenatal clinic attendance during the first trimester compared to the national figure.

Place of delivery

In this study among the 206 respondents, 165 (80.1%) mothers had their delivery at the health facility or assisted by trained traditional birth attendant. These figures are higher than the WHO estimates for Africa and also different from the national estimates of 47% (MOH, 2005; WHO, 2006). There are no possible explanations for these high variations. However, there is no direct indication that there are possible biases that could have elevated this estimate. Therefore, rural Morogoro District Council may have high proportion of women delivering at health facility than the national figure.

Home deliveries were 41 (19.9%) which was not very high as compared to Ethiopian estimates 86.5% (Nigussie *et al.*, 2004). Furthermore in the Ethiopian study, only 25% of the rural women gave birth in the health institutions, in these areas untrained Traditional Birth Attendants/relatives attended 76.4% of the deliveries. Whereas 41 (19.9%) unskilled deliveries in this study were attended either at home or at untrained Traditional Birth Attendants due to reasons like lack of transport, delivery took place on the way to the health facilities.

The reported reasons in this study were absence of health problems, short duration of labor, preferring the attention of relatives and trust in traditional birth attendants. Educational status of the mothers was the only socio-demographic characteristic of mothers that showed statistically significant association with the utilization of safe delivery services. Similar findings have been documented in the Ethiopian study (Nigussie *et al.*, 2004). In this study, more than 25% of the study participants had no formal education. This calls for the attention to invest in females' education so as increase the proportion of women delivering at a safer place.

In this study, factors associated with utilization of maternal health services included maternal age and education and marital status. Also, long distance to the health facility, health provider being younger, and some mothers just preferred home delivery because all other previous deliveries that were home-based had no problems. These reasons are in line with those cited in Ethiopian study (Nigussie *et al.*, 2004).

Another study on reasons for choices of place of delivery conducted y a health project reported women looking for better services to prefer for home delivery because of unavailability of staff at the facility, and also long distances to the health clinic (Tanzania-JICA Health Project, 2005). Similar reasons were recorded in this study.

A study was done to find out the utilization of maternal health services by lactating women in the same district it was found tat the antenatal clinic attendance 246 (98.4%) while deliveries at health facilities was 64.8 (Tanzania –JICA Morogoro Health Project, 2005). These figures are slightly lower than the ones in the current study.

In another study done in rural Kenya on maternal health utilization, it was found that majority of the women 80% had unskilled deliveries by layperson (36%), by TBAs (42%), 2% delivered without assistance and only 20% had skilled health assisted delivery at the health facilities (van Eijk et al., 2006). Although among the factors for low utilization of MCH services in this area was low socio-economic status, in the case of the Rural Morogoro study low education and socio-economic status had no influence on the MCH services.

Delivery is life threatening event which needs closer follow up by both the health personnel and the family members especially the spouses. In this study, male involvement was very low, which was not good especially during invasive deliveries which at times demands relatives contribution for a successful and peaceful achievements.

A research conducted in Rufiji on the patients who died on the way to the hospital and the ones who delivered at home or on the way to the hospital concluded that all maternal

deaths which occurred in the study was attributed to lack of transport and/or inability to pay for hospital care (Urassa *et al.,* 2005). In this study there were 41 (19.9%) home deliveries possibly due to lack of transport to some of these mothers.

Postnatal care utilization

Postnatal care is of pre-requisite for the better health of the mother and the child as it is during this period when maternal deaths and high rates of children mortality occurs. Utilization of postnatal services in this study was as high as 187(90.8%) compared to the national figure of 13%. Likewise, possible explanations for high utilization of postnatal care services in this area have been established by this study.

Results of the services which the respondents indicated when they were asked to mark for services they got at their health facilities, responses on the services they were provided with at the health facilities all of them were scored highly as far as 100% for activities like immunization, child health monitoring, personal treatment, malaria and abdominal palpation and the responses for delivery was 95.1%. There was only one activity which had scored low 110 (53.4%) that HIV/AIDS which showed that there was low awareness as the national figures were higher up to 93% among mothers (THDS, 2005).

In this study it was noted that transport was a very big problem as mothers 159 (79.1%) had to walk when seeking health services. The proportion of mothers traveling more than 10 km to health facilities was 42 (20.9%) but surprisingly only 1 (2.3%) did not attend at the clinic due to distance problem and lack of transport. It can be seen that ANC attendance (99.5%) was very high compared to that of skilled delivery of 80.1%. this may be due to transport problem during labor.

Education In many studies, for example in Northern Kenya and in Ethiopia, maternal education has been associated with utilization of MCH services (van Eijik, *et al.*, 2006; Nigussie, *et al.*, 2004). In this study such association was also observed. The other finding was that all those with secondary school education had delivery under skilled birth attendant (table not indicated).

Study limitations

There is a possibility of recall bias in this study. Some of the respondents were unable to recall well the various information on the ANC, delivery and postnatal attendance hence the MCH card were used to get the necessary needed. Only one respondent had no card so information depended on her recall memory.

The study instruments were administered by health workers in this area. There may be some chances of reporting data in order to please the researcher. The magnitude of these chances and the direction of possible biases could not be directly and easily established.

CHAPTER SIX

CONCLUSIONS

Utilization of maternal health services by mothers with infants in Rural Morogoro District Council is high starting with antenatal clinic 205(99.5%), delivery services (80.1%) and postnatal services (90.8%). There are problems of minority of the mothers of on transport; there is a need for the council to strengthen transport for these mothers by introducing ambulatory services and communication services in order to reduce the morbidity and mortality among the mothers and children. It was quite vivid that mothers in labor had to walk the whole way to the health facilities. Since the distances to the health facilities was within 10 km, transport should readily be available especially for those who live far away and even those who are within as it is no secrete that walking during labor is every difficult exercise as it has been evidenced in this study some of the mothers had unskilled deliveries while on their way to the health facility.

Postnatal attendance was 187 (90.8%) and 19 (9.2%) didn't attend this clinic, it is important for the council to raise efforts that all mothers with infants should attend postnatal services.

Male involvement was not much so it is important for the council to sensitize male involvement in maternal health services as this is enabling factor for better achievement. Water is also problem for people in this council, the water they use is unsafe and the sources are unreliable, there is a need to secure safe and clean water for them in order to reduce water related problems.

On the HIV/AIDS the percentage of mothers who knew about service provision of HIV/AIDS were less than the National estimates, in this connection the council has to increase its efforts in order to reach all the beneficiaries as this is a National disaster. Concerning socio-economic of the household of this council majority were of the low socio-economic status there is a need to look ways how to raise the socio-economic status of these households. It was evidently seen that majority of the households had houses of low socio-economic status and also very few households were able to afford eating meat or taking milk. On the other hand even their sizes of farms for those who had them were of few acres hence poor income earning.

Maternal health services are still not utilized by all of them in need of the services, there is still a need to continuously to sensitize the community so that in the end analysis all pregnant women attend ANC, deliveries take place under skilled health assistance and lastly all mothers with infants and children should attend postnatal services.

RECOMMENDATIONS

Community sensitization on the utilization of maternal health services should be reinforced to enable the district council to reduce the high maternal mortality ratio of 750/100,000.

In this study it was noted that only 53% of the respondents were aware of HIV/AIDS services being provided from their health facilities with this there is a need for HIV/AIDS lessons given weight during health talks to the whole community in order to enable all of them to take keen measures against contacting this deadly pandemic illness.

Health facilities have to be continuously improved so as to attract the users, in order to increase the usability of these facilities by the whole community with special attention attached for the services of vulnerable groups' especially pregnant women and children.

An emergency transport system mechanism is an added necessity to take care those who'll be in need of the services. In Morogoro as they have cascade supervision and each in charge of the zone has been provided with a transport, this has to be strengthened such that it can be used as ambulances when emergencies occurs.

The district should strengthen cost sharing schemes especially the Community Health Fund, National Health Insurance Fund and user fees to enable it run the services like ambulance and buying the necessary drugs to keep enough stocks at the health facilities to avoid clients missing essential drugs needed during emergency and normal cases.

Results have indicated that the level of education is directly related to utilization of MCH services, specifically, using modern health facilities or trained birth attendants during delivery. Targeted education to women and women empowerments are among issues to consider in the study area.

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