FACTORS ASSOCIATED WITH UTILISATION OF HEALTH UNIT MATERNITY SERVICES AMONG WOMEN WHO ATTEND ANTE-NATAL CARE IN TORORO DISTRICT

BY

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INSTITUTE OF PUBLIC HEALTH
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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF PUBLIC HEALTH, OF MAKERERE UNIVERSITY.

June, 2001
DECLARATION

I declare that to the best of my knowledge this dissertation is original. It has not been presented to any University or institution for any award. Neither has it been presented for publication.

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DEDICATION

This dissertation is dedicated to my parents and to the entire members of my family for the support they gave me during the course. To my family particularly the children for the care they missed.
ACKNOWLEDGEMENT

I am indebted to my supervisors Dr George Pariyo and Mr Nazarius Mbona Tumwesigye for the extreme critique and guidance they unswervingly gave me as I sailed through this work.

I wish to thank the staff of the Institute of Public Health for the dedication and tireless efforts they provided to shape my career.

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I further extend appreciation to the District Director of Health Services and the District Health Team, Tororo District for their resounding support. My interviewers, health unit staff, the respondents and Local Council members from the areas I conducted research are particularly remembered. Their valuable time spent made it possible for data collection.

I acknowledge the work done by my referees, Drs Edward Naddumba, Edie Mworazi and Doe Sekimpi for having spent their valuable time to recommend me for the course.

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<tr>
<td>ANC</td>
<td>Antenatal Care</td>
</tr>
<tr>
<td>CUAMM</td>
<td>International College for Health Co-operation in Developing Countries</td>
</tr>
<tr>
<td>DDHS</td>
<td>District Director of Health Services</td>
</tr>
<tr>
<td>DHMT</td>
<td>District Health Management Team</td>
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<tr>
<td>DHT</td>
<td>District Health Team</td>
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<tr>
<td>DPU</td>
<td>Tororo District Planning Unit</td>
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<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<tr>
<td>HC</td>
<td>Health Centre</td>
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<td>H/E</td>
<td>Health Education</td>
</tr>
<tr>
<td>HU</td>
<td>Health Unit</td>
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<tr>
<td>ICPD</td>
<td>International Conference on Population Development</td>
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<td>Ki</td>
<td>Key Informants</td>
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<td>KM</td>
<td>Kilometre</td>
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<td>LC</td>
<td>Local Council</td>
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<tr>
<td>MMR</td>
<td>Maternal Mortality Ratio</td>
</tr>
<tr>
<td>MoFEP</td>
<td>Ministry of Finance and Economic Planning</td>
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<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>SES</td>
<td>Socio-economic Status</td>
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<tr>
<td>TBA</td>
<td>Traditional Birth Attendant</td>
</tr>
<tr>
<td>TMC</td>
<td>Tororo Municipal Council</td>
</tr>
<tr>
<td>UDHS</td>
<td>Uganda Demographic and Health Survey</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>WBN</td>
<td>West Budama North County</td>
</tr>
<tr>
<td>WBS</td>
<td>West Budama South County</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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### DEFINITIONS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Access to services</td>
<td>A dimension of quality of care that relates to health care services that are unrestricted by geographical, economic, social, cultural, organisational or linguistic barriers.</td>
</tr>
<tr>
<td>Assisted delivery</td>
<td>Maternal delivery attended to by a professionally trained health worker or by a traditional birth attendant.</td>
</tr>
<tr>
<td>Dai</td>
<td>Traditional Birth Attendant in India.</td>
</tr>
<tr>
<td>Full term</td>
<td>Pregnancy carried up to thirty six to forty weeks of gestation.</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>A dimension of quality of care which refers to the interaction between providers (the health team) and the clients (the community).</td>
</tr>
<tr>
<td>Maternity services</td>
<td>Refers to services offered to mothers during the time of child delivery.</td>
</tr>
<tr>
<td>Safety</td>
<td>A dimension of quality of care that relates to minimising the risks of injury, infection, harmful side effects or other dangers related to the service delivery.</td>
</tr>
<tr>
<td>Traditional Birth Attendant</td>
<td>A person from the community without formal training but has acquired skills through apprenticeship by working with predecessor TBA. He or She attends to women in childbirth and advises and treats in matters of family health.</td>
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ABSTRACT

Introduction
The MMR for Tororo is estimated at 1,200/100,000 live births compared to national figure of 506/100,000. Low utilisation of delivery services hadn’t been well documented.

Objective
To determine factors that are associated with utilisation of health unit maternity services among mothers who attend antenatal care in order to generate information to be used in the design of interventions to improve maternity services in Tororo District.

Methods
This was an unmatched case-control health facility based study involving 180 cases and 180 controls attending ANC in Tororo District who had at least one delivery prior to the current pregnancy regardless of the outcome.

Results
Utilisation of health unit maternity services was associated with higher education level (OR = 1.12, CI = 1.11 - 1.13), socio-economic status (OR = 3.0, CI = 1.8 - 5.3) and positive perception about interpersonal relations (2.07, CI = 1.11 - 3.84). Rural residence (OR = 0.45, CI = 0.27 - 0.77) and longer travel time (OR = 0.23, CI = 0.08 - 0.64) were associated with low utilisation of health unit maternity services.

Conclusion
Socio-economic status, distance / travel time and interpersonal relations with health staff are the main factors influencing utilisation of health unit maternity services in Tororo District. Enhancement of girl-child education by the District Council and training of health staff in communication and counselling skills by the District Health Team are recommended. Identification of income generating activities for mothers by both the District Council and District Health Team is further recommended to improve utilisation of health unit maternity services aimed at reducing Maternal Mortality Rate in Tororo District. Strengthening lower health units could reduce distance and provide services to the rural communities and may reduce the high MMR in Tororo.
CHAPTER 1

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

Every year, more than 150 million women become pregnant in developing countries. Almost 580,000 of them die due to pregnancy-related causes and 50 million suffer a significant complication. The risk of death in pregnancy and childbirth in Sub-Saharan Africa may be high partly due to the poor health services in the developing countries. These poor health services increase the lifetime risk of a mother dying due to pregnancy related causes (MOH, Uganda, 2000). The Cairo International Conference on Population and Development (ICPD) Plan of Action (Maria, 1994) promoted the implementation of the four pillars of safe motherhood namely Family Planning, Antenatal care, Safe delivery and Postnatal care.

The maternal mortality ratio in most districts in Uganda ranges between 500 – 600 deaths per 100,000 live births. For Tororo District, the maternal mortality ratio stands at 1,200/100,000 live births (DPU, 1999), double the national average of 506/100,000 according to UDHS, 1995 (Statistics Department, MoFEP, 1998). This is high contrasted to 90/100,000 in Sri Lanka, 10/100,000 in Sweden (Rao, 1989) and 9.1 per 100,000 live births in U.S (Li, et al, 1996). According to the Safe Motherhood Newsletter (Anonymous, 1997), this problem is not confined to the health of mothers alone but has major impact on the survival and quality of life of the new born babies.

The percentage of women attended to at delivery by a trained health person is 38% though antenatal care attendance (of at least one visit) stands at 92% (MOH, 2000).
The choice of a mother to deliver in one place or the other depends on factors within her control and beyond (Bellamy, 1996). The WHO 10-year Reproductive Health Strategic Plan for Africa aims at reducing maternal mortality ratio by 30% in countries with average MMR of 300 – 600/100,000 live births. Following this, the Ugandan MOH, in its 5-year strategic work plan, intends to reduce the MMR from 506 to 354/100,000 live births and increase the percentage of supervised delivery from 38% to 50% by 2004.

1.2 Background

Women’s reproductive health status is increasingly being seen as a measure of gender equity, because men have a major role to play in making pregnancy safe. To date, the campaign for safe motherhood has not succeeded in reducing maternal mortality and morbidity in developing countries because partly, it has not targeted men who, in these settings, customarily make decisions about family size and utilisation of health care. In Sub-Saharan Africa, approximately 25% of the mortality suffered by those aged 20-34 years are related to pregnancy and reproduction. It is vital to incorporate men in all safe motherhood campaigns in order to change male attitudes and behaviour. Men should be encouraged to support women during pregnancy, childbirth and postpartum period and to be equal partners in childcare. Specially, men should accompany their wives to prenatal clinics so that they are taught about importance of proper diet and rest during pregnancy and about danger signs of pregnancy.

In a study on maternal health in Bunyole County, Tororo District (Kaharuza et al, 1997) found out that 20.7% of the pregnancies occurred below 20 years of age and the antenatal attendance decreased with increased gestation age. In another study on
adolescent pregnancies in neighbouring Nagongera, antenatal attendance was 84.5% with only 22.7% deliveries taking place in a health unit while the other deliveries took place at home where men have a greater influence and control on the households (Arinaitwe, 2000).
CHAPTER 2

2.0 LITERATURE REVIEW

2.1. Maternal mortality

The WHO estimates that there are over a half million maternal deaths each year worldwide, 99% of which occur in the developing countries, more than a third of them in Africa. These estimates indicate 85,000 deaths more than had been earlier estimated (Anonymous, 2000). The most neglected problem in the health care delivery system of most developing countries is maternity services (Hoesternum, 1996). It is indicated in the safe motherhood newsletter of 1997, that though birth is a time of joy and celebration, a time for congratulations, good wishes and gifts, sadly not all births are happy occasions.

Another fact thought to increase the risk of maternal mortality is short birth interval though literature search reveals no empirical confirmation of such an association (Ronmans & Campbell, 1998). The primigravidity and the extreme ends of the maternal age (15-19 and 30 years and older) were the only significant risk factors for maternal deaths. Although these findings suggest that promotion of sufficiently long birth interval is unlikely to reduce maternal mortality, this strategy should not be abandoned because of the beneficial impact on infant and child health (Ronmans & Campbell, 1998).

There was an empirical association between maternal mortality rates and infant mortality rates and the proportion of births attended by trained persons in Madhya,
Pradesh, India. Appropriate medical care was the most important factor, the underlying causes being poverty, illiteracy, and social segregation of females, economic dependence on husbands, cultural orthodoxy, and preference of traditional over modern systems of care and attention (Ranjan, 1998).

On the World Health Day, 1998, while launching the safe motherhood campaign Worldwide to improve maternal health, Hillary Clinton pointed out the shocking fact; that every minute a woman dies, 110 women experience a pregnancy related injury and 190 women face an unplanned or unwanted pregnancy. This is because the political will does not exist to remedy the situation (WHO, 1998). A year long campaign was launched to promote awareness of what must be done to reduce maternal mortality and gain commitments for implementing the affordable measures needed to prevent most of the nearly 600,000 annual maternal deaths. The results of the 10-year research on safe motherhood, released in preparation for a "Year on safe motherhood", revealed that maternal deaths could be reduced drastically by provision of routine perinatal care; emergency care for life-threatening obstetric complications. Other services recommended included; preventing and managing the complications of unsafe abortion; family planning to prevent unwanted pregnancies; health education and services for adolescents; and community education for women, their families, and decision-makers (WHO, 1998).

The overall level of maternal mortality, in Sub-Saharan Africa is twice as high as it is in all low-income developing countries and is six times higher than in the middle income
developing countries. The causes of maternal deaths in Sub-Saharan Africa are haemorrhage, sepsis, obstructed labour, and raptured uterus (Boerma, 1988) and this is in agreement with the CUAM (1997) findings. As such maternal health services can play an important role in improving reproductive health of the continent. Access to skilled assistance and well-equipped health institutions during delivery can reduce levels of maternal mortality and reproductive morbidity. This will also improve pregnancy outcomes, while care during pregnancy, delivery and the postnatal period can improve the overall maternal and infant mortality. The use of maternal health services tends to be shaped mainly by the level of education, place of residence, region of residence, occupation and religion (Addai, 1998).

2.2 Utilisation of maternal delivery services
Recent trials indicate, while less routine visits for low-risk women do not jeopardise a positive pregnancy outcome, patients may be less satisfied with the service. None of the risk factors that can cause bleeding during pregnancy can be eliminated through antenatal attendance, although they can be identified through history taking. Counselling on what to do is the option. Where obstructed labor can be anticipated in multipara based upon obstetric history, hospital delivery should be secured (Villar & Bersjo, 1997).
A smaller percentage of women in urban Bangladesh use government maternal services than they do in urban areas of other Southern Asian Countries. This low use is often attributed to cultural rather than economic reasons because most government services are free except for small registration fee (Nahar & Costello, 1998).
In Indonesia, the use of public services (free health services) was greater among women with less education, households with dirty floors, and households with lower average monthly expenditures. Giving birth in public facility, where services were free, was greater among women living in rural areas, in poorer household structures and with lower household expenditures. Most births occurred at home, but varied widely by region. The odds of using hospital facilities, where services were paid for, were greater among young women, urban women and women with more education (Diman & Kantner, 1998).

In a study on qualitative research on pre- and postnatal care in Moldova, women were dissatisfied with the quality of care and complained of impartial treatment. The women were not prepared for labour, child delivery and the care of the new-born. Every one agreed that the hospital conditions were poor and the staffs were key decision-makers (Mihailov & Bogush, 1998). In developing countries such as Bangladesh, neonatal mortality is closely related to the quality of care offered during delivery and immediately after birth (Ahmed, 1997). In Mysore, India, 78% of women had given birth to their last child at home, but 55% of these women had utilised the services of a trained dai (Lingaraju, 1998).

2.3 The role of traditional birth attendants

In a study on socio-cultural factors on maternal morbidity in Nigeria, traditional birth attendants viewed themselves as skilled and capable of handling all conditions, and were unwilling to refer patients to modern health facility (Okolocha, 1998).
Another study in Ghana on the impact of TBA training on health of mothers and newborn, found out that TBA, attend a high proportion of deliveries. A national two-weeks, TBA training programme was introduced in Ghana with the objective of influencing TBA's knowledge, attitudes, and practice and to improve their links with health providers. The training was significantly associated with reduction in postnatal fever, while the rates of retained placenta and labour exceeding 18 hours were actually significantly increased in deliveries assisted by trained TBA. There were no significant differences between trained and untrained TBAs on all other maternal and infant outcomes, including excessive bleeding, postpartum, family planning usage, infant mortality and birth weight. This was unexpected and may reflect the fact that TBAs tend to serve low-risk populations. It is recommended that potential benefit of TBA training should be weighed against other health investments (Smith et al, 1997). In Morocco, 63% of the births occurred at home, 55% of the mothers did not receive prenatal care and TBA assisted 41% of the deliveries (Althaus, 1997).

2.4 Economic disparity

Since 1950, the gap between the richest and the poorest countries in the World has increased from 8-fold to 30-fold. The impact of Nigeria's poverty on maternal mortality can be seen by the fact that, in Nigeria, a 400-fold increase in maternal deaths accompanies a 66-fold disadvantage in gross national produce per capita as compared to Singer Pore. Most hospital maternal deaths in Nigeria occur after emergency hospitalisation of women who received no prenatal care and or were neglected in labor
and during postpartum period. Most of these women suffer from simultaneous morbidity, which increase risk to themselves and their babies (Harrison, 1997).

2.5 Utilisation in Uganda

In the study on the use of formal and informal services for antenatal care and malaria treatment in rural Uganda, Ndyomugyenyi et al (1998) found out that parity significantly influenced antenatal attendance, but level of education, religion, and marital status did not. Fifty five percent (55%) of the women reported having delivered outside the formal health delivery system despite antenatal attendance, while all women in their second pregnancy delivered their first child in the village, despite TBA training to the contrary (Ndyomugyenyi et al 1998). Ebanyat & Okongo (1993) argued that distance and education were the main factors leading to low utilisation of health unit delivery services. This argument, however, run short of explaining why mothers with high education covered the same distance to attend ANC but failed to deliver in health units. There were other inherent factors or salient reasons that needed to be explored.

In Hoima, husbands were reluctant to send their wives to health units because they feared the poorly motivated health workers would harass them. This hindered women from using health services and was the most likely reason for an increasing trend in maternal deaths. Another factor was the negative perception about health services and preference for TBAs because of a small cost and kindness (Mayanja, 1999).

In Jinja, low utilisation of health unit maternity services was due to inadequate interaction between midwives and mothers. The resulting experience due to the
negative attitudes of health workers created a communication gap and discouraged utilisation. Delivery at health units declined as parity increased but increased with parity at TBA and home (Lukwago, 1998). In Rakai, education level of the mother, her partner and family, occupation of the spouse, distance to health unit and family size significantly influenced choice of site of delivery (Bwera, 1997).

By 1995, ten percent (10%) of Ugandan mothers were receiving prenatal care from a doctor, 82% from a nurse or a trained midwife, less than 1% from TBA while 8% did not receive any such care. More than half of the pregnant mothers (53.7%) received two tetanus toxoid injections during pregnancy while 26% received one dose and 20% did not receive any tetanus toxoid injection. On the other hand, fewer women (38%) received assistance during delivery, from trained medical personnel. About half of the women (49%) live within 5km of health facility providing prenatal, delivery and immunisation services (Statistics Department, MoFEP, 1996).

Almost two thirds (64%) of the deliveries in Uganda take place at home while about a third (35%) take place in health facilities. A child born in rural areas is three times more likely be delivered at home than an urban area child (Statistics Department, MoFEP 1996).

2.6 Accessibility

Accessibility to basic health care services measured as population living within 5km of a health facility is estimated to be 49% countrywide while 75% live within 10km. The access factor is the same in Tororo District (DPU, 1999). Only 42.7% of the parishes have any type of a health facility with wide variation between rural and urban areas as
well as between different districts. The sexual reproductive health and rights aims at increasing access to emergency obstetric care and strengthen the referral services (MOH, 2000).

Dependable ambulance services do not exist throughout most of Uganda. These transportation difficulties are a major factor contributing to the low level of institutional deliveries and the high rates of maternal deaths in Uganda, where 39% of deliveries take place in the health centres. In most districts in Uganda, the mainstay of transport is by bicycle ambulance, emergency transport teams equipped with a stretcher, and a three-wheeled motorised rickshaw to provide emergency medical evacuation (Njie, 1998).

2.7 Maternal health status in Tororo District

In Tororo, even after the training, 40% of the TBAs resort to use of herbs to speed labor (Kaharuza, 1997). In a study (CUAMM, 1997) on maternal mortality rate in the districts of Arua, Iganga and Tororo, it was found out that 50.6% of all deaths in the three districts occurred at home. A significant number of those who died in a health facility occurred within 24 hours of admission due to haemorrhage and sepsis. The majority of this death occurred after delivery 53.3% in Arua, 67.5% in Iganga and 51.9% in Tororo. However the maternal mortality rates in the three districts were lower than the national figure of 506/100,000 live births (Statistics Department, MoFEP, 1996). The rate was 373 in Arua, 219 in Iganga and 315 in Tororo (CUAMM, 1997) as compared to the current reported figure of 1,200/100,000 live births for Tororo District (DPU, 1999). In the same study by CUAMM, among the women who delivered at home, 55% were
within 5 km of the health facility. Most maternal deaths are due to failure by mothers to utilise facilities supervised by medical personnel. These deaths would be prevented if women had better access to antenatal and post-natal care, and were delivered in hygienic conditions, whether at home with trained TBAs or in health units (Adinkinsson, 1989).

2.8 Quality of care

In recent years several studies have focused on service quality, revealing widespread deficiencies in health care services and management systems in low developed countries. Few of these studies and programmes have emphasised the quality or process of service delivery. Further, systematic efforts to improve quality based on findings about the delivery process have been extremely rare (Brown, 1998).

To the client the impression on quality of health care is made on the first contact with the service. The meaning of quality is often misunderstood. In some peoples' mind, the word “quality” conjures up images of wealth, modern facilities with impeccably clothed staff and the highest and newest technologies, rather than evoking the experience of clients, the care they receive, and the human consideration extended to them (Bruce, 1998).

Quality, as Donabedian, one of the seminal thinkers on the subject notes, is a dimension that all programs have. All services have quality whether high or low, quality is a matter of judgement and perspective. The quality of care broadly breaks into technical and interpersonal aspects. The adequacy of each of these is best judged locally. Clients in general, more easily judge the quality of interpersonal care than the
technical aspects, which they have to gauge indirectly as they prepare for the pain of the procedures. Good interpersonal care is essential in all types of health care but especially in reproductive health care (Bruce, 1998).

Quality has been simply defined as "doing the right thing right, right away" by the advocates of total quality management (Brown et al, 1998). On the other hand, Donabedian (1980) defines quality thus "The quality of technical care consists in the application of medical science and technology in a way that maximises its benefits to health without correspondingly increasing its risks". The degree of quality, is therefore, the extent to which the care provided is expected to achieve the most favourable balance of risks and benefits.

Quality has eight dimensions and these include technical competence, access to service, effectiveness, interpersonal relations, efficiency, continuity, safety and amenities (Brown, 1998).
CHAPTER 3

3.0 PROBLEM STATEMENT, JUSTIFICATION, CONCEPTUAL FRAMEWORK, RESEARCH QUESTIONS AND OBJECTIVES

3.1 Problem statement

The Majority of the mothers in Tororo District despite attending ANC at health units do not deliver from the same facilities. For instance, in Nagongera Sub-County Tororo District, where records were reviewed, ANC attendance of at least one visit, was at 84.5% but only 22.7% had delivered in a health unit (Arinaitwe, 2000). According to Tororo hospital records compiled from January 1st to July 31st 2000, so far out of 9213 mothers (4015 new and 5198 re-attendance) who attended ANC, only 777 (8.4%) mothers delivered at the hospital. The maternal mortality rate in Tororo is estimated at 1,200/100,000 live births (DPU, 1999). The national reported average for Uganda is 506/100,000 (Statistics department, MoFEP, 1996)

The major problem was though mothers in Tororo District attended ANC, they did not deliver in health units. Yet in Tororo 55.5% of the maternal deaths occurred among mothers who delivered at home compared to 32.7% that occurred among those who delivered in the health facility (CUAMM et al, 1997).

Low utilisation of health unit maternal delivery services persisted despite the introduction of the Health Sub-Districts amongst whose objective was to reduce distance and provide an ambulance system aimed at increasing utilisation and reducing
MMR. Low utilisation of health unit maternal delivery services would not have been of much concern if mothers were getting safe deliveries elsewhere.

3.2 Justification

In Tororo district, reasons for low utilisation of health unit maternity services had not been studied or well documented. Lack of documentation of reasons for low utilisation of health unit maternity services despite having attended ANC, coupled with the concerns of the DHT, civic & political leaders about low utilisation of these services and the high MMR, justified the need for the study in Tororo District.

The District local councils, who devote resources to health unit maternity services, are expected to utilise the results of the study. The study was done to contribute in a meaningful manner to the MOH effort to increase percentage of supervised delivery from 38% to 50% by the year 2004.
3.3 Conceptual Framework

Utilisation of health unit maternity services is influenced by interplay of several factors (Figure 3-1). Age, marital status, area of residence, education, ethnicity and religion may have an influence on family size and the converse is also possible. Early marriage and early age at first delivery may subsequently result into many children. This means a mother who starts her delivery career early is likely to have a bigger family. Mothers residing in rural areas may have bigger families than the urban residents. Educated mothers are likely to understand health messages and also practice family planning. Different cultural norms may have an influence on family size and health care seeking behaviour. Some ethnic groups may need children for family ‘security’. Some religions discourage family planning and may hence influence family size. A big family size will lead to increase in financial requirements to cover feeding, clothing and health costs, provision of adequate shelter and other social amenities like having a radio and a bicycle in the home. Partners’ education and occupation may influence health care seeking. Male partners may play a leading role in deciding where a mother gets health care.

Older mothers may feel they have experience in delivery and deliver at home with the use of traditional herbs or they may have had complications during previous deliveries and may therefore opt to deliver in health units. Young mothers may feel shy to go to health units. The perception mothers have about health unit staff and the safety measures may probably be the main factors influencing utilisation. Distance to health unit, travel time, cost of delivery and area of residence may have a direct influence on utilisation of health maternity services.
Figure 3-1: Conceptual Framework

Predisposing factors

Socio-demographic Factors
- Age
- Marital status
- Place of residence
- Education
- Ethnicity
- Religion

Enabling factors

Maternal Factors
- Parity
- Perception
- Use of traditional herbs
- Past complications

Access Factors
- Distance
- Travel time
- Cost of delivery

Family factors
- Socio-economic Status Index
- Decision making

Utilisation of health unit maternity services
3.4 Research Questions

The major research question was why do mothers attend ANC but fail to deliver in health units?
The subsets of deriving from this question were;

- Are there differences in the Socio-demographic characteristics between mothers who deliver in health units and those who deliver from outside health units?
- Is there an influence of the family’s socio-economic status on utilisation of maternity services?
- What are the mothers’ perceptions about quality of care offered by health unit maternity services?
- How can utilisation of health unit maternity services be improved in Tororo District?

3.5 Objectives

3.5.1 General Objective

To determine factors that are associated with utilisation of health unit maternity services among mothers who attend antenatal care in order to generate information to be used in the design of interventions to improve maternity services in Tororo District.

3.5.2 Specific Objectives

1. To identify the Socio-demographic factors that are associated with utilisation of health unit maternity services in Tororo District.

2. To establish access to maternity services by mothers who attend antenatal care in Tororo District.
3. To assess the perception of mothers attending antenatal care about interpersonal relations with health unit staff in the maternity services in Tororo District.

4. To establish the perceptions of mothers attending antenatal care about safety of the health practices in the health unit maternity services in Tororo District.
CHAPTER 4

4.0 Methodology

4.1 Study setting:
The study was carried out in Tororo District found in Eastern Uganda (Appendix 5). The district had an estimated total population of about 525,500 people of whom 120,900 were females in the reproductive age group 15 – 49 years (200 projections from 1991 Census). The estimated population of pregnant mothers being 5%, in demographic studies, was estimated to be 6,300 in Tororo District (Okumu, 2000). The average population density was 238 people per Km² with 11.46% in urban areas. This population was composed of diverse tribes with different cultures and customs. The doctor-population ratio was 1:37,500 while doctor-female population ratio was 1:8600 compared to the midwife-female population ratio of 1:2700 (Okumu, 2000).
The total fertility rate was 6.78 and the population had a growth rate of 2.7% per annum. The infant mortality rate was at 122 deaths per 1,000 live births while the maternal mortality rate, as indicated earlier, was 1200 deaths per 100,000 live births. The contraceptive prevalence rate was 6% compared to the national figure of 15% (Statistics Department, MoFEP, 1996).

There are three hospitals in Tororo District namely Tororo main hospital, Busolwe and St Anthony Hospital. There are 33 functional health units both private and government, the major hospitals inclusive. Among the 33 functional health units are five Health Sub-District units which include the two major government hospitals and three-health centre grade four. Each Health Sub-District serves a county and acts as a referral centre for all the lower health units in the county (Appendix 6). The Health Sub-District operates like...
a mini hospital and offers emergency obstetric services including operations and has a community department responsible for preventive health.

The major economic activity in the district was farming which accounts for 80% of the district economic activity. The overall literacy rate for Tororo District was 52.6% with few literate females (41.7%) than males (64.1%). The national literacy rate of 54% was slightly above that of Tororo District. The district has 4 counties, 21 sub-counties, 72 parishes and 734 villages that are well served by Murrum roads.

The major religious groups were Protestants, Catholics, Moslems and the various Pentecostal sects. The district is mainly made up of the plains and grasslands interspersed by expanse of marsh / swamps and rivers. The average rainfall ranges from 1495 to 1514 mm with a bimodal pattern. The wet seasons are between March – June and September – November.

4.2 Study design:

This was an unmatched case-control health facility based study involving mothers attending ANC in Tororo District.

- A case was a mother attending ANC who delivered the last immediate child prior to the current pregnancy outside a health unit in the last two years.
- A control was a mother attending ANC who delivered the last immediate child prior to the current pregnancy in a health unit in the last two years.

The study compared factors associated with utilisation of health unit maternity services in Tororo District on the basis of having delivered in or out of a health unit with the aim of improving utilisation of health unit maternity services.
4.3 Study population

The study population comprised of pregnant women attending ANC, who had at least one delivery prior to the current pregnancy at the time of the study, irrespective of the outcome of the delivery.

4.4 Inclusion / Exclusion criteria

4.4.1 Cases

Inclusion
• Mothers who were attending ANC and had their last immediate delivery prior to the current pregnancy, irrespective of the outcome, outside the health unit were included.

Exclusion
• Primigravida were excluded since they had no experience of delivery.
• Mothers whose deliveries occurred on the way to hospital.
• Mothers who had the last / previous delivery outside Tororo District.
• Mothers who failed to consent to participate in the study.

4.4.2 Controls

Inclusion
• Mothers who were attending ANC and had their last immediate delivery prior to the current pregnancy at the time of the study, irrespective of the outcome, in a health unit were included.
• Mothers who were attending ANC and had their last immediate delivery prior to the current pregnancy, irrespective of the outcome, in a health unit after having been referred from lower health units were included.
Exclusion
- Primigravida were excluded since they had no experience of delivery.
- Mothers whose deliveries occurred on the way to hospital.
- Mothers who had the last/previous delivery outside Tororo District.
- Mothers who failed to consent to participate in the study.

4.5 Study variables

4.5.1 Dependent variable:
- Utilisation of health unit maternity services; Yes / No.

4.5.2 Independent Variables:
1. Socio-demographic factors: Socio-demographic characteristics: age, marital status, place of residence, ethnicity, education, religion, income and parity, history of past complications and decision making.
2. Access factors;
- Family factors; index of Socio-economic status; {level of education of spouse, occupation of the spouse, age of spouse, financial status, presence of radio, bicycle, nature of house}.
- Other access factors; distance from home to health unit (≤ 5km or more than 5km), travel time (≤ 2 or beyond 2 hours), cost of delivery (≤ 5000 or > 5000 Uganda Shillings).
3. Perception of maternity services; interpersonal relations and safety (positive/negative)
4.6 Sample size:

The formula, modified by Schelesselman (1982) was used to calculate the sample size.

\[ n = \frac{2 \cdot \bar{p} \cdot \bar{q} \cdot (Z_a + Z_p)^2}{(p_1 - p_2)^2} \]

Where:

\[ n = \text{Sample size} \]

\[ \bar{p} = \frac{1}{2} (p_1 + p_2) \quad \text{and} \quad \bar{q} = (1 - \bar{p}) \]

\[ Z_a = \text{Z value at 5% level of confidence in this case} = 1.96 \]

\[ Z_p = \text{Z value corresponding to the desired power of the study in this case at 90%} = 1.28 \]

\[ p_1 = \text{proportion of mothers who perceived health unit maternity care as} \quad \text{poor among those who delivered out side the health unit.} \]

Since \( p_1 \) was not known, it was obtained from;

\[ p_1 = p_2 R/ [1 + p_2 (R-1)] \]

\( p_2 = \text{Proportion of mothers who perceived health unit maternity care as poor among those who delivered in health units. Since no similar study had been done, p_2 was assumed to be } 50\% \quad (\text{maximum variability}). \]

\( R = \text{Hypothesised odds ratio of perception of health unit maternity care associated with utilisation, worth detecting as significant, in this case 2} \]

Then;

\[ p_1 = p_2 R/ [1 + p_2 (R-1)] = 0.5 \times 2/[1 + 0.5 (2-1)] = 1/1.5 = 0.67 \]

Thus;

\[ p_1 = 0.67 \text{ and } q_1 = 1 - 0.67 = 0.33 \]

Substituting these values in the formula above;

\[ n = \frac{2(0.585 \times 0.415) \times (1.96 + 1.28)^2}{(0.67 - 0.5)^2} = 177 \]

The sample size was 354 comprising of 177 mothers in each group.

The sample size was raised to 360 comprising of 180 cases and controls after applying the sampling technique (see section 4.7.1).
4.7 Sampling procedure:

The study focused on health units heading the five Health Sub-Districts. They are uniformly distributed throughout the district and were therefore assumed to be representative. The five Health Sub-District units namely Tororo and Busolwe hospitals, Nagongera, Mulanda and Mukuju health centre IVs were purposively sampled. They were the health units that offered delivery services to most mothers in Tororo District. The Health Sub-District covered a county and had more skilled personnel, expected to keep better records and was central point for location of an ambulance. Each health unit at the Sub-District provided maternal health services, which included family planning, antenatal, safe delivery and postnatal care services.

4.7.1 Quantitative data collection

Exit poll interviews involving women attending ANC were conducted using systematic sampling. Each of the five health units included in the study ran an antenatal clinic once a week. The study was carried out over a four-week period. Thus four clinics were covered per health unit during the course of the study. A total of twenty clinics (4 x 5) were covered. This implied eighteen mothers (354 the total sample size divided by 20 the total clinics conducted) after rounding off were interviewed from each clinic giving a total of 360 mothers. The average antenatal attendance per clinic in Tororo District was fifty mothers from review of records at the health units at the Health Sub-District. The sampling interval was three, obtained by dividing the daily antenatal attendance with the sample size per clinic (50 daily attendance divided by 18, the sample size per clinic). Therefore, every third mother was interviewed and the actual number interviewed from
each clinic depended on the clinic attendance rate. This gave a sample proportionate to size per clinic. Semi-structured, pre-coded interviewer administered questionnaires, were used to collect quantitative data (Appendix 2).

4.7.2 Qualitative data collection

Purposive sampling was done for KI and FGDs with the help of Local Council members. Key-Informants included Chairperson LC III women council, Secretary for women affairs / gender LC III, Secretary for women Council at sub-county level as they were central and dealt with mothers directly, and a traditional birth attendant. Four KI per Health Sub-District were interviewed, giving a total of 20.

Two focus group discussions were conducted per Health Sub-District. Therefore 10 FGDs were conducted in total. There was one FGD for mothers who delivered their last child in a health unit and one for mothers who delivered outside. The members of these groups were mothers whose children were in same age range as the children of the mothers in the quantitative sample. The FGDs were conducted in a quiet, private environment to avoid distraction and the preference was under a tree. The discussions lasted one to one and a half-hours and comprised of 8 – 12 members. The team conducting FGDs included a moderator and an assistant. The team was selected in such a way that they had good command of both English and the local language.

Both the Key-Informants and FGD members were mothers who had not participated as respondents for quantitative data. FGDs and KI question guides were used to get data for all objectives (Appendix 3 and 4 respectively).
4.8 Quality control

The following measures were put in place to ensure quality control;

1. There was a meeting of the research team every evening after the field to handle any issues that could have hampered collection of good data and cleared any queries and corrected errors.

2. Field supervision of interviewers to correct any errors or clarify any issues on spot was carried out.

4.9 Data management and analysis

4.9.1 Hypothesis testing

The following Null hypotheses were tested to find out if the observations or associations seen were due to chance alone;

1. There is a difference in socio-economic status between mothers attending antenatal who had the previous delivery in health units and those who had the previous delivery outside health units in Tororo District.

2. There are differences in perception about health unit maternity services between mothers attending antenatal who had the previous delivery in health units and those who had the previous delivery outside health units in Tororo District.

4.9.2 Quantitative data

Data was collected, cleaned, coded and entered into a computer using Epi-Info software version 6.04. The scoring method was used to grade the perception of mothers. There were 6 questions (3 on interpersonal relations and 3 on safety measures) as indicated
in the questionnaire to grade mothers perception. Each question had the following options very good, good, fair and bad with scores 4, 3, 2 and 1 respectively. The total maximum score was 12 and the minimal was 3 for each of the above two aspects of quality of care. Scores from all questions measuring perception were added to produce one measure of the perception for each aspect and then for the overall perception about health unit maternity services. Fifty percent (50%) and beyond of the maximum score was taken as positive and below as negative.

The data from the scores was analysed as categorical and quantitative. The total scores were then compared in both groups. As quantitative data, tests of normality were carried out so as to determine whether to use parametric or non-parametric tests of significance. After tests of normality t-test was used to test the significance of perception on utilisation of health unit maternity services. This helped to test the differences between cases and controls.

As categorical data OR and 95% confidence intervals were used to test the strength of the association between perception and utilisation of health unit maternity services.

Likewise the Socio-economic factors had options which were given scores ranging from 1 to 4 depending on whether they were considered to influence the socio-economic status. The socio-economic factors included;

- Level of education of the spouse.
- Occupation of the spouse with options none, agriculture, trade and employed.
- Nature of house with options grass hut, mud walls and grass roof, mud wall with iron sheet roof and brick wall with iron sheet or tiled roof.
- Presence or absence of a radio and presence or absence of a bicycle in the home.
These scores were used to construct a socio-economic status (SES) Index comprising of the above factors. Fifty percent (50%) and beyond of the total score was taken as a high / good SES index and below as low / poor index. The data was treated similarly as for perception.

All the independent variables were tested to find out if they were correlated with the dependant variables. The variables found correlated with the outcome variables were further analysed using logistic regression model. Logistics regression analysis techniques were used for multivariate analysis since the outcome variable was binary. Epi-Info version 6.04b was used for data entry and analysis of 2 x 2 tables, Excel for graphs and SPSS version 10.01 for multivariate analysis. Microsoft Word version 7 was used for report writing. Comparisons between the two groups were done for all variables and the strengths of the association were mainly by use of Odds Ratios and 95% confidence intervals.

4.9.3 Qualitative data

Qualitative data was analysed manually for main themes and patterns that emerged and supplemented quantitative data. Data was transcribed, the differences compared and concise notes recorded and presented on a master sheet.

4.10 Ethical considerations

Clearance to conduct the study was obtained from the National Council of Science and Technology through the Institute of Public Health, Makerere University. The letters of introduction to the health institutions and the communities were obtained from the Chief
Administrative Officer Tororo through District Director of Health Services. Informed consent was obtained after explaining the purpose of the study to the respondents before they took part (Appendix 1).

4.11 Dissemination of results

The results of the study shall be communicated to the DHT, DHMT, and the civic & political leaders for policy formulation to improve utilisation of maternity services in Tororo District. The results shall also be submitted for publication in relevant journals.

4.12 Limitations of the study

1. Selection bias since the study was health centre based. Also being a case-control study, a sizeable proportion of potential subjects could have been left out.

2. Some mothers could not recall all the information about their last delivery and this could have affected the study.

3. Some mothers did not know their spouses' level of education and age and this could have affected results for such information would have been vital in the study.

4. Conditions and perception of mothers could have changed with time and may not have given a true reflection at the time of last pregnancy.

5. Self-reported information on cost of delivery and delivery items may have been subjective and could have influenced the results.

6. The results of the study may not be generalised since the focus was on ANC mothers. However since over 90% of pregnant mothers attend antenatal care the results may be a reflection of a true situation.
CHAPTER 5

5.0 RESULTS

A total number of 360 respondents comprising of 180 cases and 180 controls were interviewed. A case was a mother attending ANC who delivered the last immediate child prior to the current pregnancy outside a health unit. A control was a mother attending ANC who delivered the last immediate child prior to the current pregnancy in a health unit. The largest numbers of respondents were from Bunyole and Tororo Municipal Council (TMC) Health Sub-Districts 220/360 (61.2%). The number of respondents from each Health Sub-District was proportionate to the clinic size or attendance. There were 20 Key Informants, four from each HSD and 10 Focus Group Discussions, 2 in each of the five Health Sub-Districts in Tororo District.

Table 5-1: Distribution of the respondents by Health Sub-District.

<table>
<thead>
<tr>
<th>Health Sub-District</th>
<th>Cases</th>
<th>Controls</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunyole County*</td>
<td>55</td>
<td>55</td>
<td>110</td>
<td>30.6</td>
</tr>
<tr>
<td>Tororo County</td>
<td>20</td>
<td>20</td>
<td>40</td>
<td>11.1</td>
</tr>
<tr>
<td>West Budama South</td>
<td>30</td>
<td>30</td>
<td>60</td>
<td>16.7</td>
</tr>
<tr>
<td>West Budama North</td>
<td>20</td>
<td>20</td>
<td>40</td>
<td>11.1</td>
</tr>
<tr>
<td>Tororo Municipality*</td>
<td>55</td>
<td>55</td>
<td>110</td>
<td>30.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>180</td>
<td>180</td>
<td>360</td>
<td>100</td>
</tr>
</tbody>
</table>

* Most of the respondents were from Bunyole County and Tororo Municipality Health Sub-Districts
5.1 Socio-demographic characteristics

The age range among cases was 17 – 42 years while among the controls the range was 17 – 45 years (see figure 5-1). The mean age for cases was 25.7 ± 5.08 while that for controls was 26.3 ± 5.36 years. There was no significant difference in mean age between cases and controls \((t=1.19, p\text{-value} = 0.23)\).

Figure 5-1: Distribution of cases and controls by age group

Cases and controls were comparable in all age groups.
Cases 114/182 (62.6%) constituted the majority of mothers who had no education or had education level below primary four (see table 5-2). Controls 112/178 (62.9%) had an education level that was above primary four. Before adjustment for all variables positively correlated with the outcome variable, there was a significant difference in education, tribe and place of residence between cases and controls. The difference was not reflected through all the Health Sub-Districts. In Bunyole and Tororo Municipal Council these factors were significant but not in West Budama South, Tororo County and West Budama North.

When both cases and controls were asked about the marital status, all had been in marital union except one control who had never been married. Forty-one out of eighty six (47.7%) cases and forty-five out of eighty six (52.3%) controls were from polygamous families. One case had never married and the other had divorced. The mean number of wives per partner among the cases was 2.29 ± 0.72 and among controls was 2.2 ± 0.51. This was not significantly different between the two groups (t =0.70, p-value = 0.49). There was no statistically significant difference among cases and controls as far as religion, tribe, occupation, marital status were concerned. Also parity, number of pregnancies carried and current number of children did not differ in both groups (see table 5-3).
Table 5-2: Socio-demographic characteristics for cases and controls

<table>
<thead>
<tr>
<th>Variable</th>
<th>Case N=180 (%)</th>
<th>Controls N=180 (%)</th>
<th>TOTAL N=360 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (Years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>25.67</td>
<td>26.34</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil or below P-4</td>
<td>114 (62.6)</td>
<td>68 (37.4)</td>
<td>182 (50.6)</td>
</tr>
<tr>
<td>P-5 and above</td>
<td>66 (37.1)</td>
<td>112 (62.9)</td>
<td>178 (49.4)</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anglican</td>
<td>58 (50.9)</td>
<td>56 (49.1)</td>
<td>114 (31.7)</td>
</tr>
<tr>
<td>Catholic</td>
<td>86 (56.6)</td>
<td>66 (43.4)</td>
<td>152 (42.2)</td>
</tr>
<tr>
<td>Moslem</td>
<td>23 (38.3)</td>
<td>37 (61.7)</td>
<td>60 (16.7)</td>
</tr>
<tr>
<td>Pentecostal</td>
<td>13 (38.2)</td>
<td>21 (61.8)</td>
<td>34 (9.4)</td>
</tr>
<tr>
<td><strong>Tribe</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iteso</td>
<td>35 (55.6)</td>
<td>28 (44.4)</td>
<td>63 (17.5)</td>
</tr>
<tr>
<td>Japhadhola</td>
<td>95 (53.4)</td>
<td>83 (46.6)</td>
<td>178 (49.4)</td>
</tr>
<tr>
<td>Munyole</td>
<td>36 (48.6)</td>
<td>38 (51.4)</td>
<td>74 (20.6)</td>
</tr>
<tr>
<td>Others</td>
<td>14 (31.1)</td>
<td>31 (68.9)</td>
<td>45 (12.5)</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependant</td>
<td>69 (47.6)</td>
<td>76 (52.4)</td>
<td>145 (40.3)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>89 (57.4)</td>
<td>66 (42.6)</td>
<td>155 (43.1)</td>
</tr>
<tr>
<td>Others*</td>
<td>22 (36.7)</td>
<td>38 (63.3)</td>
<td>60 (16.6)</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>12 (20.0)</td>
<td>48 (80.0)</td>
<td>60 (16.7)</td>
</tr>
<tr>
<td>Rural</td>
<td>168 (56.0)</td>
<td>132 (44.0)</td>
<td>300 (83.3)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>176 (50.3)</td>
<td>174 (58.7)</td>
<td>350 (97.2)</td>
</tr>
<tr>
<td>Others</td>
<td>4 (10.0)</td>
<td>6 (20.0)</td>
<td>10 (2.8)</td>
</tr>
<tr>
<td><strong>Type of Marriage</strong></td>
<td>N=180</td>
<td>N=178</td>
<td>N=358</td>
</tr>
<tr>
<td>Monogamous</td>
<td>139 (51.1)</td>
<td>133 (48.9)</td>
<td>272 (76.0)</td>
</tr>
<tr>
<td>Polygamous</td>
<td>41 (47.7)</td>
<td>45 (52.3)</td>
<td>86 (24.0)</td>
</tr>
</tbody>
</table>

Cases and controls were comparable in terms of age, religion, ethnicity, income and marital status.

* One control had never married and the other had divorced.

* Others included traders and the employed.

* Percentages were computed across the rows.

Comparisons from table 5-2 were tested and the results are presented in table 5-3.
After adjustment using backward stepwise logistic regression technique cases and controls remained significantly different in level of education and place of residence (see table 5-3). More cases 114/182 (62.6%) than controls 68/182 (37.4%) were uneducated or were of education level of primary four and below. Mothers with education level of primary five and above were more likely to deliver from health unit maternity services than mothers with education level of primary four and below (OR = 1.2, CI = 1.1 - 1.3). Of the three hundred mothers whose residence was rural, fifty-six percent were cases (168/300) while forty-four percent were controls (132/300) as indicated in table 5-2. Area of residence was significantly different between cases and controls. Mothers from rural areas were less likely to deliver from a health unit (OR = 0.45, CI = 0.27 - 0.77) compared to those from urban areas who were 2 times more likely to do so (OR = 2.2, CI = 1.3 - 3.7).
Table 5-3: Comparison of Socio-demographic characteristics between cases and controls

<table>
<thead>
<tr>
<th>Variable</th>
<th>Crude OR</th>
<th>95% CI</th>
<th>Adjusted OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil or below P-4</td>
<td>1.0</td>
<td></td>
<td>1.20*</td>
<td>1.11 - 1.30</td>
</tr>
<tr>
<td>P - 5 and above</td>
<td>2.90</td>
<td>1.80 - 4.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anglican</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>0.79</td>
<td>0.47 - 1.33</td>
<td>0.57</td>
<td>0.32 - 1.02</td>
</tr>
<tr>
<td>Moslem</td>
<td>1.67</td>
<td>0.84 - 3.31</td>
<td>1.15</td>
<td>0.42 - 3.15</td>
</tr>
<tr>
<td>Pentecostal</td>
<td>1.67</td>
<td>0.72 - 3.94</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Tribe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iteso</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japhadhola</td>
<td>1.09</td>
<td>0.59 - 2.03</td>
<td>0.996</td>
<td>0.40 - 2.46</td>
</tr>
<tr>
<td>Munyole</td>
<td>1.32</td>
<td>0.64 - 2.74</td>
<td>0.83</td>
<td>0.43 - 1.61</td>
</tr>
<tr>
<td>Others</td>
<td>2.77</td>
<td>1.15 - 6.71</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependant</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>0.67</td>
<td>0.42 - 1.09</td>
<td>0.70</td>
<td>0.17 - 2.81</td>
</tr>
<tr>
<td>Others</td>
<td>1.92</td>
<td>1.05 - 3.54</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>0.20</td>
<td>0.09 - 0.40</td>
<td>0.45*</td>
<td>0.27 - 0.77</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1.52</td>
<td>0.37 - 6.25</td>
<td>0.63</td>
<td>0.05 - 8.55</td>
</tr>
<tr>
<td>Type of Marriage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monogamous</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygamous</td>
<td>0.87</td>
<td>0.52 - 1.46</td>
<td>0.27</td>
<td>0.01 - 8.64</td>
</tr>
<tr>
<td>Age</td>
<td>1.01</td>
<td>0.98 - 1.05</td>
<td>0.95</td>
<td>0.85 - 1.07</td>
</tr>
<tr>
<td>Parity</td>
<td>0.97</td>
<td>0.88 - 1.06</td>
<td>1.67</td>
<td>0.28 - 10.02</td>
</tr>
<tr>
<td>Term Pregnancy</td>
<td>0.96</td>
<td>0.87 - 1.06</td>
<td>0.69</td>
<td>0.10 - 4.54</td>
</tr>
<tr>
<td>Current Children</td>
<td>0.99</td>
<td>0.88 - 1.11</td>
<td>0.95</td>
<td>0.47 - 1.92</td>
</tr>
<tr>
<td>No of wives</td>
<td>0.78</td>
<td>0.38 - 1.60</td>
<td>0.74</td>
<td>0.30 - 1.81</td>
</tr>
</tbody>
</table>

* Removed from regression analysis by auto-correlation.
† Factors significantly associated with utilisation of health unit maternity services.
‡ Group with least significance was taken as a reference where there were more than two levels.
Fewer cases 23/180 (12.8%) than controls 38/180 (21.1%) reported having had complications during the previous pregnancies and deliveries. Complications during the last pregnancies and deliveries were not significantly associated with delivering in health units (OR = 1.83, CI = 1.0 – 3.35).

Responses from Focus Group Discussions and KI agree with the respondents interviewed from health units. All Focus Group Discussions and 70% (14/20) of KI mentioned most mothers deliver at home because they are not educated and are poor. They further mentioned young mothers, those referred by TBAs and those who had complications previously are the ones likely to deliver from health units. “Lack of or low education and poverty of mothers are the factors contributing to deliveries outside health units. However God decides where you deliver. Even if you say you have no money, once a complication occurs, they will take you to hospital” (Busolwe FGD).

5.2 Access

a) Socio-economic status index (SES index)

In the preliminary analysis socio-economic factors were tested to find out if they were correlated with utilisation of health unit maternity services. Factors correlated to utilisation of health unit maternity services were used to construct an asset index and the socio-economic status index.

An asset index was constructed using assets a family had. The range of the total scores for the asset index for both cases and controls was 2 - 6. The mean of the total score was compared between cases and controls. The mean asset index score for cases was 3.47 while for controls it was 4.31. There was a significant difference in the mean asset index between cases and controls (mean asset index \text{cases} \pm \text{sd} = 3.47 \pm 1.2, \text{mean asset}
index \text{controls} \pm \text{sd} = 4.31 \pm 1.3, t = 6.3, p\text{-value} < 0.001). Reliability analysis was done for the asset index. Given that the scale for the asset index only had 2 items, it was fairly reliable (mean scale for asset index \pm \text{sd} = 4.1 \pm 1.3, \alpha = 0.4, \text{CI} = 0.27 - 0.52).

As categorical data 50\% and beyond of the total asset index score was taken as high while below 50 \% was taken as low. There was a significant difference in the socio-economic status between the two groups. Mothers with low asset index were less likely to deliver from health units (OR = 0.32, CI = 0.19 - 0.54). On the other hand mothers with a high asset index were 3 times more likely to deliver from health unit maternity services than mothers with low asset index (OR = 3.1, CI = 1.85 - 5.3). Table 5-4 shows the details.

<table>
<thead>
<tr>
<th>Index</th>
<th>Cases N= 180 (%)</th>
<th>Controls N = 180(%)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50 %</td>
<td>71 (69.6)</td>
<td>31 (30.4)</td>
<td>3.1</td>
<td>1.85 - 5.3</td>
</tr>
<tr>
<td>\geq 50 %</td>
<td>109 (42.2)</td>
<td>149 (57.8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Mothers with a high asset index were significantly associated with delivering in health units.
- Percentages were computed across the row

A SES index was constructed using scores from socio-economic factors as indicated in the methodology section. The range of total scores for socio-economic status index for both cases and controls was 5–14. The mean socio-economic status index for cases was 8.7 while for controls it was 9.2. There was a significant difference in the socio-economic status index between cases and controls (means SES index_{cases} \pm \text{sd} = 8.7 \pm 1.7, means SES index_{controls} \pm \text{sd} = 9.2 \pm 1.9, t = 6.3, p\text{-value} < 0.001). When reliability analysis was done, the scale for the index for socio-economic status was fairly reliable.
(mean scale for index for socio-economic status ± sd = 10.9 ± 2., α = 0.5, CI = 0.45 – 0.60).

As categorical data fifty percent (50%) and beyond of the total SES index score was taken as high and below as low. There was a significant difference in SES between the two groups. Mothers with a high SES index were 3.7 times more likely to deliver from health unit maternity services (OR = 3.7, CI = 2.3 – 5.9) than mothers with a low SES index (OR = 0.27, CI = 0.17 – 0.43), taking the reciprocal. Table 5-5 shows the details.

**Table 5-5: The Socio-economic status index for cases and controls in Tororo District.**

<table>
<thead>
<tr>
<th>SES Index</th>
<th>Cases N = 180 (%)</th>
<th>Controls N = 180 (%)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50%</td>
<td>113 (66.9)</td>
<td>56 (33.1)</td>
<td>3.7</td>
<td>2.30 – 5.90</td>
</tr>
<tr>
<td>≥ 50%</td>
<td>67 (35.1)</td>
<td>124 (64.9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Mothers with a high SES index were significantly associated with delivering from health units.
- Percentages were computed across the row.

This concurs with findings obtained from Focus Group Discussions and Key Informant interviews. Majority of the Focus Group Discussions and 90% of KI mentioned the educated mothers and those whose partners are educated or employed go to health units for delivery while 11/20 (55%) of KI said mothers with high income deliver from health units. “At the hospital there are unlimited demands. They tell you to bring this and that. They require you to bring things for delivery and clothes for the baby yet our husbands say they can not buy clothes before seeing the baby due to low education and lack of money” (Mulanda FGD and KI).

Majority of Focus Groups Discussions and 13/20 (65%) KI mentioned most mothers deliver from home because labour is abrupt and at times occurs at night even if they
would have preferred to deliver from health units. *( Mostly labour occurs at night when there is no time to walk to the hospital. Mothers fear they can not go without money for soap and bed yet at times labour occurs when there is no money. But when complications occur you say let me be taken to hospital and property will be sold later to settle the payments*. *(Busolwe FGD)*

\[ \text{b) Distance} \]

The distance from home to health unit for cases ranged from 0.4km to 15km and for controls this ranged from 0.10km to 30km. The mean distance for cases was 4.43 ± 2.60km and for controls the mean distance 3.61 ± 3.55km. There was a significant difference in the mean distance from home to the health unit between cases and controls \((t = 2.5, \ p\text{-value} = 0.012)\). Considered as population living with in 5 km, fewer cases 105/180 (58.3%) than controls 125/180 (69.4%) stayed within five kilometres from the health unit. There was a significant difference between the two groups \((OR = 0.62, CI = 0.39 - 0.98)\). Taking the reciprocal, cases were 1.6 times more likely to be staying more than 5km from a health unit than controls \((OR = 1.6, CI = 1.02 - 2.56)\).

\[ \text{c) Mode of transport} \]

The mode of transport to the health facility for cases 88/180 (48.9%) and controls 86/180 (47.7%) was by walking while 81/180 (45.0%) cases and 83/180 (46.1%) controls used the bicycle. There was no significant difference in the mode of transport between cases and controls \((OR = 0.96, CI = 0.62 - 1.48)\)
d) Travel time

Fewer cases 129/180 (71.7%) than controls 154/180 (85.6%) take less than two hours to reach a health unit. The travel time to health unit from home ranged from 6 minutes to five hours for cases and from 5 minutes to 4 hours for controls. The mean travel time for cases was 79.09 ± 52.6 minutes and mean travel time for controls was 55.14 ± 40.7 minutes. Mean travel time was significantly different between cases and controls (t = 4.83, p < 0.003). Table 5-6 shows time spent on the way to health unit by cases and controls.

Table 5-6: Travel time to health unit taken by cases and controls.

<table>
<thead>
<tr>
<th>Travel Time</th>
<th>Cases % (N=180)</th>
<th>Controls % (N=180)</th>
<th>COR</th>
<th>95% CI</th>
<th>AOR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2 hours</td>
<td>129 (45.6)</td>
<td>154 (54.4)</td>
<td>0.43</td>
<td>0.24-0.75</td>
<td>0.23</td>
<td>0.08-0.64</td>
</tr>
<tr>
<td>&gt; 2 hours</td>
<td>51 (66.2)</td>
<td>26 (33.8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Percentages were computed across the row

There was a significant difference in travel time between cases and controls (OR = 0.23, CI 0.08 – 0.64). Mothers whose travel time goes beyond 2 hours were less likely to deliver from health unit maternity services than those whose travel time is less than 2 hours. Those who travel for less than 2 hours are 4.3 times more likely to deliver from health unit than those whose travel time is beyond 2 hours (OR = 4.3, CI = 1.56 – 12.5).
e) Transport costs

Majority of cases 165/180 (91.7%) and controls 161/180 (90%) mentioned their transport cost is less or equal to one thousand shillings. There was no significant difference in the cost on transport to health unit between cases and controls (OR = 1.22, CI = 0.56 – 2.66).

f) Delivery costs

Both cases and controls were asked about the delivery cost and 194 of them thought cost was high beyond 5000 Uganda shillings. Of the 194 mothers who thought cost was high, 174 (89.7%) were cases compared to 20 (10.3%) controls. Cases were less likely to deliver from health units (OR =0.014, CI =0.004 - 0.058) than controls who were 71.4 times more likely (OR = 71.4, CI =17.2 – 250). However 140/180 (77.8%) cases and 131/180 (72.8%) controls mentioned they paid less than or five thousand shillings for delivery items. There was no significant difference in the cost of delivery items between cases and controls (OR = 1.16, CI = 0.42 – 3.18).

5.3 Interpersonal Relations

Both cases and controls were asked how they perceived the interpersonal relations with the health unit staff in the maternity services in Tororo District. The scores from the responses from each individual were summed up and recorded as the sum score. Total scores for perception about interpersonal relations with health unit staff in the maternity services ranged from 5 – 12 for both cases and controls. When scores were used to measure perception on interpersonal relations with health unit staff in maternity services
and t-test applied, the results showed a significant difference between cases and controls (mean score \( \text{cases} \pm \text{sd} = 9.3 \pm 1.2 \), mean score \( \text{controls} \pm \text{sd} = 9.6 \pm 1.2 \), \( t = 2.2 \), p-value = 0.03). The reliability scale for perception score was fair (mean scale \( \pm \text{sd} \) for perception score = 2.65 \( \pm \) 0.81, \( \alpha = 0.3 \), CI = 0.11 – 0.41). The value for \( \alpha \) would have been probably higher if the items in the index were more.

As categorical data fifty percent (50%) and beyond of the sum score was taken as positive and below as negative. There was a significant difference between the two groups in perception about interpersonal relations with health unit staff. Mothers with negative perception about interpersonal relations with health unit staff in maternity services were less likely to deliver from health units (OR = 0.54, CI = 0.30 – 0.96) compared to mothers with positive perception who were 1.85 times more likely (OR = 1.85, CI = 1.04 – 3.3). Table 5-7 shows the details.

Table 5-7: Perception about interpersonal relations with health unit staff in maternity services as perceived by cases and controls.

<table>
<thead>
<tr>
<th>Perception about interpersonal relations</th>
<th>Cases N = 152(%)</th>
<th>Controls N = 158(%)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50%</td>
<td>42 (60.9)</td>
<td>27 (39.1)</td>
<td>1.85</td>
<td>1.04 – 3.3</td>
</tr>
<tr>
<td>≥ 50%</td>
<td>110 (45.6)</td>
<td>131 (54.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Positive perception about interpersonal relation with staff in the health unit maternity services was significantly associated with delivering in health units.
- Percentages were computed across the row

The results are supported by responses obtained from focus group discussions. Majority of focus group discussions (8/10) mentioned staffs are bad. * Staffs are bad as the
mother cries in pain they say you die even our parents died or at times they tell you do not push because they want to take you to theatre” (Busolwe FGD).

Most FGDs and 60% (12/20) KIs supported the actions of the midwives. They mentioned that midwives are forced to act the way they do because they want to save life and that they do everything possible to ensure the baby is delivered. “At times slaps are better. Mothers, who are fearful when slapped, the baby comes out. Midwives are harsher in deliveries than in ANC for they are saving life” (Mulanda FGD)

5.4 Perceived Safety

Both cases and controls were further asked how they perceived safety measures in the maternity services in Tororo District. The questions had options and scores as for interpersonal relations. The data was analysed similarly. The range of total scores of perception about safety practice measures in the maternity services for both cases and controls was 5 – 12. When scores were used to measure perception on safety practice measures in maternity services and t-test applied, the results showed no difference between cases and controls (mean score cases ± sd = 8.4 ± 1.2, mean score controls ± sd = 8.6 ± 1.6, t = 1.9, p-value = 0.06). Similarly as categorical data there was no significant difference between cases and controls on perception on safety measures in health unit maternity services (OR = 0.69, CI = 0.44 - 1.07).

However some KI (4/20) had bitter memories about health unit maternity services and said some actions at the delivery units discourage mothers from delivering from the health units. (In the hospital, after a woman has delivered, they cover the blood with ‘Kavera’ (Macintosh), then put another woman to deliver”. (Mulanda KI)
The overall perception about health unit maternity services was reported as good by 84.1% (132/157) of cases and 75.2% (118/152) of controls. The range of total scores for overall perception about health unit maternity services for both cases and controls was 12 – 22. The overall perception about health unit maternity services in Tororo District was not significantly different between cases and controls (OR = 1.52, CI = 0.82 – 2.82) when analysed as categorical data. When scores were used to measure overall perception about health unit maternity services and t-test applied, the results showed no difference between cases and controls (mean score cases ± sd = 17.97 ± 1.7, mean score controls ± sd = 17.88 ± 1.8, t = 0.4, p-value = 0.69).

5.5 Other factors influencing utilisation

a) Preference for place of last delivery

The reasons for preference for place of last delivery were different between cases and controls. Reasons why cases delivered outside included abrupt labour 84/180 (46.7%), no immediate transport at night 49/180 (27.2%), No money 30/180 (16.7%), hospital was far 25/180 (13.9%) and others 36/180 (20%). Others included presence of TBAs/old women, anticipation of no difficulty, partner wanted home and no transport. Reasons given by controls were adequate help from hospital 121/180 (67.2%), hospital was safe 67/180 (37.2%), fear for complications 57/180 (36.7%) and hospital was near 11/180 (6.1%).

As asked whether they had all deliveries in one place, 20/180 (11.1%) cases and 22/180 (12.2%) controls had changed place of delivery at one time. Responses from cases, 59.09% (13/22) and controls, 75% (15/20) indicated abrupt labour as the main reason
for change of delivery site. Lack of immediate transport when labour occurred at night was mentioned in 40% of the responses by cases and 45% by controls. Other reasons were lack of money mentioned in 20% of the responses by both cases and controls while difficult delivery featured in 30% of the responses by cases.

b) Person influencing decision making

Partners were less likely to make choice for place of delivery for cases 76/173 (43.9%) than for controls 97/173 (56.1%). The number of cases and controls whose partners made choice for place of delivery was significantly different (OR = 1.64, CI = 1.01 – 2.60). Table 5-8 shows details.

Table 5-8: Decision-maker for choice of site of delivery for cases and controls

<table>
<thead>
<tr>
<th>Decision maker</th>
<th>Cases (%)</th>
<th>Controls (%)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N=180)</td>
<td>(N=180)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother herself</td>
<td>78 (56.1)</td>
<td>61 (43.9)</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td>76 (43.9)</td>
<td>97 (56.1)</td>
<td>1.64</td>
<td>1.01 – 2.60</td>
</tr>
<tr>
<td>Mother and partner</td>
<td>13 (40.6)</td>
<td>19 (59.4)</td>
<td>0.54</td>
<td>0.23 – 1.25</td>
</tr>
<tr>
<td>Mother-in-law</td>
<td>13 (81.3)</td>
<td>3 (18.7)</td>
<td>3.39</td>
<td>0.85 – 15.73</td>
</tr>
</tbody>
</table>

- Mothers whose partners make choices are more likely to deliver from health units.
- Percentages were computed across the rows

c) Reasons for choice of place of delivery

There was a significant difference in the number of cases 6/180 (03.3%) and controls 39/180 (21.7%) who mentioned hospital was safe and had good facilities (OR = 0.12, CI
The second reason mentioned by case 47/180 (26.7%) and controls 78/180 (43.3%) was partner was financial controller. The number of cases and controls who mentioned husband was financial controller were significantly different (OR = 0.46, CI = 0.29 – 0.74). The other reasons mentioned were; partner was not around most of the time by 23/180 (12.8%) cases and 8/180 (04.4%) controls (OR = 3.15, CI = 1.28 – 7.97). Having no money was mentioned by 36/180 (20.0%) cases ($X^2 = 36.9$, df = 1, p-value < 0.001) and one control while fear to travel at night was mentioned by only 12/180 (15.0%) cases ($X^2 = 12.4$, df = 1, p-value < 0.001).

d) Use of herbal medicine

Both cases 65/180 (36.1%) and controls 59/180 (37.8%) use herbal medicine. The number of cases and controls using herbal medicine was not significantly different (OR = 1.16, CI = 0.73 – 1.84).

This is supported by the findings from FGDs and KIs. All FGDs and 75% (15/20) of key informants mentioned few women use herbal medicine during pregnancy. This is illustrated in the following quotation “Before the use of herbal medicine was very common but now very few use them. The herbs were believed to speed labor, change the life and even change the sex of the baby” (Nagongera women Councillor).

The few mothers who use herbs are because they found elders using them. Whether this group of mothers delivers from home or health unit they still use herbal medicine. “Few use herbs because their ‘Jaijas' (grandmothers) used them. Some for rupturing membranes, speed labor and others for placenta removal. The few who believe herbs are good, even go with them to hospital but they hide them and no health worker sees them” (TMC East FGD).
f) Radio Programmes

Majority of controls 73/76 (96.1%) compared to cases 40/115 (34.8%) listened to family planning programmes. The second commonly listened to programme was on STI/HIV/AIDS by cases 31 (27.0%) and controls 30/76 (39.5%). However there was no significant difference between cases and controls in the reproductive health programmes listened to.

5.6 Solutions for improving health unit maternity services as perceived by cases and controls.

When asked whether they would recommend other mothers to deliver from health units, there was no significant difference in the number of cases 177/180 (98.3%) and controls 175/180 (97.2%) who mentioned they would recommend other women to deliver from health units (OR = 1.69, CI = 0.32 – 11.0). When asked about the solution to improve health unit maternity services, a lower proportion of cases 19 (10.6%) than controls 35/180 (19.4%) mentioned improving sanitation especially toilets and bathrooms would improve utilisation of health unit delivery services. There was a significant difference in the number of cases compared to controls who mentioned improving sanitation would improve utilisation of health unit maternity services (OR = 0.49, CI =0.26 – 0.93). Though more cases 93 (51.7%) than controls 76 (42.2%) mentioned providing protective wear and drugs would improve utilisation of health unit maternity services, the two were not significantly different (OR = 1.46, CI = 0.94 – 2.27).

Responses from Focus Group Discussions and KI are in line with the above findings. Majority of focus group discussions and KI mentioned TBAs should go for refresher
training to get more skills and reduce complications. They wanted postnatal mothers separated from general patients and sanitation improved. "After delivery mothers are mixed with other patients on the same ward and this compromises their privacy" (Mukuju FGD and KI).
CHAPTER 6

6.0 DISCUSSION

6.1 Health unit maternity service utilisation and Socio-demographic characteristics

Health unit maternity services appear to be under-utilised throughout Tororo District. Factors influencing utilisation of health unit maternity services seem to be uniform throughout the district with minor variation in the Health Sub-Districts. These factors include education since a large proportion of the mothers had never gone to school or were of education level below primary four (62.6% among cases and 37.4% among controls). The proportion of mothers with education level above primary five of 49.4% (37.1% among cases and 62.9% among controls) agrees with the district female literacy level of 41.7% (DPU, 1999). The same view was expressed in the Focus Group Discussions and Key Informant interviews.

The other factor leading to low utilisation was place of residence. That a large proportion of mothers do not deliver in health units, probably could be due to the fact that the majority of the population (83.3%) was basically rural (56.0% among cases and 44.0%) among controls and this may explain the high MMR of Tororo District. This agrees partly with the findings of Addai (1998) in Ghana where the use of maternal health services tended to be shaped mainly by the level of education, place of residence, region of residence, occupation and religion. The study findings are in agreement with the findings of Ranjan (1998) in Pradesh India, where poverty, illiteracy, social segregation of females, economic dependency on husbands and cultural orthodoxy influenced utilisation of maternity services. This similarity despite the
difference in socio-economic status between Tororo and India could be due to the fact that human needs may be universal. The findings concur with the findings of UDHS (1995) where it was indicated that a child born in rural areas is three times likely to be delivered at home than a child born in urban areas. Access may be the main factor influencing the rural-urban disparity in utilisation of health unit maternity services. Similarly, Diman & Kantner (1998) argued that the odds of using hospital facilities were greater among urban women and the educated ones.

The study findings, however, contrast with the findings of Nahar and Costello (1998) in Bangladesh where a small percentage of women in urban area use government maternity services than they do in rural areas. This low use in Bangladesh was attributed to cultural rather than economic reasons because most government services were free except for a very small registration fee.

In this study however, there was no significant difference between cases and controls when asked about age, religion, tribe, marital status and parity. This partly concurs with Ndomugyenyi et al (1998) while studying the use of formal and informal services for antenatal care and malaria in Hoima when they found out that parity significantly influenced antenatal attendance but education, religion, and marital status did not. In the same study by Ndomugyuenyi et al 55% of the women reported having delivered outside the formal health delivery system despite antenatal care attendance, while all women in their second pregnancy delivered their first child in the village, despite TBA training to the contrary. This difference may be partly explained by the fact that cases and controls studied were all attending antenatal care and therefore likely to have the same thinking.
The study findings contrast those of Lukwago (1998) who found out that delivery at the health unit declined as birth order of mothers increased but increased with birth order at the TBA and home. His inference was that young mothers / mothers with low parity delivered from health units while those with high parity delivered from either home or TBAs because they were dissatisfied with health unit services.

Male partners influence utilisation of health unit maternity services. Mothers whose partners made choices of place of delivery were more likely to deliver from health units. This may have to do with payment for the services since it was pointed out that they are the financial controllers. Able husbands are likely to encourage their wives to deliver from health units for they are able to meet the costs.

6.2 Health unit maternity service utilisation and access

The three main factors found during the study that limit access to health unit maternity services were socio-economic status, cost of delivery and travel time. Cases had a low socio-economic status index. However there was no significant difference between cases and controls when asked about the family’s financial status. This probably was due to cases and controls feeling shy and fearing to express themselves on their financial status least they are despised. It was pointed out in the focus group discussions and key informant interviews that women deliver from home due to poverty / low incomes and low or no education. That mothers fear to go to health units may be because they have nothing to put on and they do not want to admit they are poor as pointed out by focus group discussions and key informants.

Though thought about the cost of delivery services at the health maternity services was significantly different between cases and controls, thought about the cost of delivery
items was not. This was likely due to cases and to some extent controls perceiving delivery services to be free. They were willing to buy items for delivery but not to pay for delivery itself. This conforms to current Government Policy of no cost sharing. Their perception about the cost may be genuine given that lack of money was a significant reason why decisions are made for cases to deliver from home.

Time taken to travel to the health centre significantly differed between cases and controls. This could probably be an important factor given that the population is rural and attach much importance on agriculture to which they devote much of their time.

There was a significant difference between cases and controls in terms of distance to the health unit. Fewer cases (58.3%) than controls (69.4%) were within less than 5 kilometres to the health unit. These figures reflect a better situation than the national average (UDHS, 1995) where the population living within 5 kilometres to the health unit is 49%. This may be as a result of the newly introduced Health Sub-District policy though it may be too early to assess its impact. The same trend was demonstrated in the CUAMM (1997) study in Arua, Iganga and Tororo where 55% of the women who delivered at home were within 5 kilometres of the facility. Similarly, Ebanyat & Okongo (1993) and Bwera (1997), argued that utilisation of health unit maternity services was greatly discouraged by long distance to the health unit. Likewise, Bwera (1997) argued that mothers who resided within 5km to the health unit were 3.5 time more likely to deliver in health units than those from far.

The mode of transport used to the health unit was not significantly different between cases and controls. This could be explained by the fact that the main form of transport in the district is by either walking (48.9% among cases or 47.8% among controls) or
use of bicycles (45.0% among cases and 46.1% among controls). This could further be explained by the fact that the presence of a bicycle in the home was not significantly different between cases and controls given that a bicycle is a common feature in most homes of the two groups. The main form of transport being by walking or by use of a bicycle could be due to the fact that cars and motor cycles are not common except in the towns. Lack of motor vehicles may explain why fear to travel at night was significantly associated with non-utilisation of health unit maternity services because mothers may not be able to cover the distance however short it may be after the onset of labour. This argument concurs with that advanced by Njie (1998) that the mainstay of transport in most districts in Uganda was by bicycle ambulance and that emergency medical evacuation was by use of a stretcher. The main reason for this being that most remote areas in Uganda are inaccessible by vehicles or the communities can not afford the high motor-vehicle costs.

Though cases and controls did not significantly differ in having a radio at home, they differed in the reproductive health programmes they listened to. Whereas cases had no preference for any reproductive health programme, controls preferred to listen to STI/HIV/AIDS programmes. This could be partly due to the extensive broadcasting of this programme and the prominence the health units give it. Such prominence may be lacking at the traditional birth attendants’ or at home where the cases go.

There was no significant difference in the use of traditional herbs during pregnancy between cases and controls. Even controls go along with their herbal medicine to health units. This is probably due to the strong attachment to the tradition of use of herbs because their elders used them. It was pointed out in the Focus Group Discussions and
Key informant interviews that they use herbs, even if they do not work, because their “jjajjas” grandmothers used them. This agrees with Kaharuz’s (1997) findings that even after training 40% of traditional birth attendants still use traditional medicine to speed labor in Bunyole county in Tororo District.

6.3 Interpersonal relations with staff in health unit maternity services

Interpersonal relations with health unit staff were an important factor affecting utilisation of health unit maternity services such that good perception encouraged utilisation while negative perception discouraged it. More cases 42 (60.9%) compared to controls 27 (39.1%) had negative perception about interpersonal relations with health unit staff in the maternity services. This concurs with the findings of Mayanja (1999) in Hoima where husbands had a negative perception because they believed that poorly motivated staff harassed their women and so did not allow their wives to go to health units for delivery. The controls generally had a positive perception about interpersonal relations with staff at health unit given that even in real and ideal situations people can not behave the same way. The uncooperative staffs were due to individual personalities. The same view was expressed in the focus group discussions and key informant interviews.

The study findings agree with those of Lukwago (1998) when he found out that the interaction between the midwives and mothers during ANC and delivery were inadequate and discouraged utilisation of health services. This is in agreement with the findings of Mohailov & Bogush (1998) that women were dissatisfied with the quality of care and complained of impartial treatment, in Moldova – Asia, leading to low utilisation.
Cases preferred traditional birth attendants or old women at home because they were hospitable, caring and charged less. These could be accessed any time since they live in the community and can even be called upon at night. The same trend was demonstrated by Smith et al (1997) in Ghana where he found out that TBAs attended to a high proportion of deliveries and that TBA assisted deliveries were significantly associated with retained placenta and labour exceeding 18 hours. This kind of belief can be explained by the low education status of the cases because they may not readily understand the importance of delivering from health units. On the other hand the controls preferred the health unit because they believed the hospital was safe with qualified staff and complications could well be managed (as also expressed by FGDs and KI). The education level of controls may best explain this understanding. The other factor was privacy in the health units. Some mothers may shun maternity units because postnatal mothers are mixed with the general patients as seen in Mulanda and Mukuju (expressed by FGDs). Yet good interpersonal care is essential in all types of care but especially in reproductive health. Bruce (1998) held the same view while studying quality of care.

6.4 Perception about safety practice measures at the health unit maternity services

Whereas there was no significant difference between cases and controls in the perception about safety measures in the health unit maternity services, there was evidence of unsafe practices in some health units. For example covering of blood stained Macintosh before cleaning to deliver other women as pointed out by key
informants. Though cases and controls were aware that protective wear like gloves and Macintosh were for protection against infection, they were not aware of safety precautions beyond that. This may suggest that the mothers’ perception about safety is different from what actually safety means. Therefore mothers understand safety differently from health units. This could probably mean the practice of covering beds to deliver more mothers also happens at the traditional birth attendants’ place and therefore seen as normal. This reasoning may apply because some controls at one time had ever delivered outside a health unit. Using the same reasoning it may help to understand why sepsis is one of the leading causes of maternal death in Sub-Saharan Africa. This is in line with findings of Boerma (1998) and CUAMM (1997) that the causes of maternal death in Sub-Saharan Africa are haemorrhage, sepsis, obstructed labor and raptured uterus.

6.5 Solutions for improving health unit maternity services as perceived by cases and controls

The fact that equal numbers of cases and controls mentioned they would recommend mothers to deliver in health units may indicate that perception of quality of service is not the major determinant for utilisation of health unit maternity services. More controls (19.4%) than cases (10.6%) wanted sanitation especially bathrooms and toilets to be improved in the same units. This could be one of the reasons why cases opt to deliver from outside health units. It is likely that cases are uncomfortable with the sanitation situation at the health unit maternity services. This could partly explain why cases, despite being aware of the presence of the qualified staff at the health unit that are able to offer good assistance and handle complication, still opted to deliver outside.
The Key Informants and Focus Group Discussions raised more solutions to improve utilisation of health unit maternity services. Their focus being on community sensitisation and close monitoring of traditional birth attendants is probably of paramount importance because they are part of the community and may understand it better. They are bound to know what takes place at the traditional birth attendants' place. Their suggestions are likely to benefit the community since their views may be part of the community views. The suggestion from FGDs and KI that postnatal mothers be separated from the general patients is very important because it may further explain why cases shun health unit maternity services when they seem to know the importance of delivering from health units. That they suggested further training of TBAs and health staff may indicate their discomfort about the maternity services in general.
CHAPTER 7

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

The following conclusions were made from the study findings;

1. Low or no education and residing in rural areas were significantly associated with low utilisation of health unit maternity services. This is of great concern given that a considerable number of mothers are of low or no education and reside in rural areas. If reproductive health programmes and services are not designed to target the grass-root communities, utilisation of health unit maternity services may not improve.

2. The male partners largely make the choices regarding place of delivery. The women whose partners make choices were more likely to deliver in health units than those who made choices themselves or by their mothers-in-law. This is a hindrance to health unit maternity services utilisation given that the male partners take a leading role in family decisions including issues regarding finances and health.

3. Socio-economic status was significantly associated with utilisation of health unit maternity services. Women of low socio-economic status were less likely to utilise health unit maternity services compared to women of high socio-economic status. If low-income mothers are not targeted, the reproductive health programmes aimed at improving utilisation of health unit services will not succeed.
4. Distance and time travel to health units greatly influenced utilisation of health unit maternity services. Those whose travel time was more than 2 hours or who stayed beyond 5km from a health unit, were likely to deliver from outside a health unit compared to those who took a shorter time on the way.

5. Payment for delivery services discourages utilisation of health unit maternity services. Although payment at the health unit maternity services for delivery discourages utilisation, mothers were willing to buy delivery items but not to pay for the services. They feel that delivery services should be free therefore decisions on where to deliver from largely have a bearing on attitude than mere presence of money.

6. The negative perception among cases greatly discouraged utilisation of health unit delivery services.

7. Perception on safety practice measures did not influence utilisation of health unit maternity services. Probably mothers did not know what to expect and therefore needed more health education.

7.2 Recommendations

The following recommendations were made from the study findings;

1. Given that majority of cases had never gone to school or were of education level below primary four, Tororo District Health Office and the District Council should take advantage of universal primary education and ensure that every girl child is educated beyond primary four. Tororo District Council should establish by-laws to reinforce Universal Primary Education.
2. Tororo District Health Team should strengthen a health education programme to provide basic information on deliveries and advantages of assisted deliveries. This programme should target grass-root or rural community women in the reproductive age group, men in the reproductive age and persons carrying out deliveries in the community. Men should be targeted because they make most of the decisions for place of delivery and they control family finances.

3. The District Council should assist the communities to identify income-generating activities to be able to improve on their income and better their socio-economic status. Activities like heifer project, poultry farming, rearing of pigs and rabbits, for women, are recommended. Brick making for men, rice and maize cultivation on a commercial scale for both could also be feasible and recommended income generating activities. This will enable families to build better houses, buy radios and listen to several reproductive health messages, and also get funds to pay for health unit maternity services. This will also enable families educate their children beyond primary four level. The improved socio-economic status will then increase utilisation of health unit maternity services since it has been found out that a high socio-economic status was significantly associated with utilisation.

4. The District Health Office should design and start a programme on communication and counselling skills on Reproductive Health for all health staff in the District. This will improve the interpersonal relations of staff with mothers through improved communication skills and will encourage utilisation of maternity services.

5. The District Health Team should step up supervisory visits to at least one visit every month to improve on the safety practice measures at the Health Sub-Districts.
Health Sub-Districts in turn should visit the lower health units (HC III, II and I) on a monthly basis. This should address the unsafe practices in the maternity services like covering bloodstained Macintosh to carry out more deliveries.

6. Health Sub-District managers should plan and strengthen refresher-training courses for all health staff and traditional birth attendants about safety practice measures. This training should take the form of in-service or hands on training. The District Health Team should strengthen the health education programme with a focus on safety to enable mothers know what to expect at the health unit maternity services. Mothers would then be able to understand the safety measures practised at these units.

7. Also recommended are further studies to establish;

1. The maternity care options in Tororo district.

2. Quality of care in health units with special focus on maternity services.

3. The level of utilisation and role of herbal medicine in pregnancy and childbirth.

REFERENCES


Kaharuza F; Bagenda D; Scheutz F; Sabroe S (1997): The Maternal and child health baseline survey report. Tororo Community Health Project.


APPENDIX 1: CONSENT FORM

Observation has been made over time that despite most mothers attending antenatal care, majority do not deliver from health units. They instead deliver at home and home deliveries have been associated with increased maternal deaths.

This study aims at finding out the reasons why mothers do not use health units for deliveries. The results of the study will be used by the district to improve maternity services hence reduce maternal mortality in Tororo District.

The information collected will be kept confidential and will be used for purposes of improving maternity services only.

I understand that I am free to withdraw from the study any time and my withdrawal will not affect me in any way.

I have understood the purpose of the study and what it involves for me to participate. I agree to participate in the study and to answer the questions with honesty.

__________________________________________  ______________________________
Respondent’s Signature / thumb print and date       Interviewer’s signature and date
APPENDIX 2: QUESTIONNAIRE

Name of the interviewer
Identification Number
Health Sub-District
Sub-County
Parish
LC1
Health Centre level / grade

A. Socio-demographic Characteristics

1. How old are you? (Give your age in Years)

2. Would you tell me your highest level of education attained?

3. What is your religion?
   1. Anglican
   2. Catholic
   3. Moslem
   4. Pentecostal
   5. Others (specify)

4. Would you tell me your (tribe ethnicity)?
   1. Iteso
   2. Japhadhola
   3. Munyole
   4. Other (Specify)
5. What is your source of income?
   1. Dependant on the partner
   2. Agriculture
   3. Trade / Business
   4. Employed / salary or wage earner

6. Where do you reside?
   1. Town (Urban)
   2. Trading centre (Semi-Urban)
   3. Village (Rural)

7. Tell me about your marital status
   1. Never married
   2. Married
   3. Cohabiting
   4. Separated / Divorced
   5. Widowed

8. What type of union is it in 7 above?
   1. Married Monogamous
   2. Married Polygamous
   3. Cohabitation Monogamous
   4. Cohabiting Polygamous

9. If polygamous, including yourself, how many wives does your partner have? ...........
B. Utilisation of health unit delivery services

I would like to ask you some questions about yourself as a mother.

10. How many pregnancies have you carried? ........................................

11. Of these, how many have you carried to term? ..............................

12. What difficulties did you get during these deliveries?

.................................................................

13. Where did you attend ANC during your last pregnancy?
   
   1. Did not attend ANC
   2. In Public hospital (Government)
   3. NGO Health unit
   4. Private clinic
   5. Others (specify)

14. Apart from attending ANC, do you use local herbs to maintain pregnancy or speed up delivery?
   
   1. Yes
   2. No

15. Would you tell me where you delivered your last baby?

   1. Public / Government Hospital
   2. NGO / Private Hospital
   3. Home
   4. Private Clinic
   5. TBA
   6. Others (specify)..................................................
16. Why did you prefer the place mentioned in 18 above? .................................................................

17. Did you deliver all your children in one place?
   1. Yes
   2. No
18. If no, to 19
   Why?
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................

19. a) Who makes the decision of the place where you deliver your children?
   ........................................................................................................................................
   b) Why? ................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................

C.   Access to services dimension

20. How far is your home from the health delivery unit? .........................

21. What do you commonly use as a mode of transport to reach the health unit?
   1. Walk
   2. Bicycle
   3. Motorcycle
   4. Motor Vehicle

22. How long does it take you to travel this distance using the above means?.............

23. How much money do you spend on transport from home to this health unit?........
24. At the health unit did you pay for the following services?

1. ANC  
   1. Yes  
   2. No

2. Delivery services  
   1. Yes  
   2. No

25. In your opinion, how do you rate this cost?

1. Very Cheap (Very good)
2. Cheap (Good)
3. Fair
4. High (Bad)

D. Interpersonal Relations

26. What comment can you give about the conduct of the staff at the health unit during the last pregnancy?

1. Very good / Very helpful
2. Good / helpful
3. Fair / somehow helpful
4. Not Good at all / Not helpful

27. Do you think they handled you well at the health unit?

1. Yes, they looked confident and interacted well (Very Good)
2. Yes, but did not explain enough (Good)
3. Somehow though most of them seemed not to care (Fair)
4. No, they did not (Bad)
28. How do you rate the services of health staff with those offered by other persons carrying out deliveries in your area?
   1. Very good
   2. Good
   3. The same
   4. Bad

E. Safety Dimension

29. What can you comment about sterilisation of the instruments used in maternity services at the time of your last delivery?
   1. Very good
   2. Good
   3. Fair
   4. Bad

30. Could you comment on the state of the protective items in the maternity services (gloves, Macintosh, aprons)
   1. Very safe (Very Good)
   2. Safe (Good)
   3. Somehow safe (Fair)
   4. Not safe at all (Bad)

31. On average how much did you spend on delivery items you used during the last delivery? ……………………………………………………………………………………………
32. In your opinion what was the state of cleanliness at the maternity unit at the time of your last delivery?
   1. Very clean (Very good)
   2. Clean (Good)
   3. Fair
   4. Dirty (Bad)

33. What can you comment about safety measures at the health unit delivery services in general in your area?
   1. Very good
   2. Good
   3. Fair
   4. Not good at all

34. Would you recommend other mothers to deliver or use health unit's services for delivery?
   1. Yes
   2. No Go to 36

35. If yes why would you recommend them?

36. If no why would you not recommend them?

37. Any appeal or recommendations towards improving health unit delivery services?
F. Socio-economic Characteristics

38. How old is your partner?  
1.  
2. I do not know

39. What is your partner’s level of education?  

40. What is your partner’s occupation?  
1. None  
2. Agriculture  
3. Trade  
4. Employed / salary or wage earner

41. How do you rate your family’s financial status?  
1. Good (You are able to meet food, school fees, clothing basic needs expenses)  
2. Average (You manage through hardship)  
3. Fair (At times you fail)  
4. Poor (Can not meet all the above)

42. What type of house do you stay in?  
1. Brick walls with iron sheets / tiles  
2. Mud and wattle with iron sheets  
3. Mud and wattle with grass  
4. Grass hut

43. Do you have a bicycle at home?  
1. Yes  
2. No
44. Do you have a radio in your home?

1. Yes
2. No

45. If yes, what Reproductive Health Programmes do you listen to? .........................
APPENDIX 3: FOCUS GROUP DISCUSSION QUESTION GUIDE

I am from the Institute of Public Health Makerere University with consent from the District Director of Health Service’s office Tororo. I am examining factors influencing utilisation of health unit maternal delivery services. The information will be confidential and will be used in planning of improved health unit delivery services in the district. I request you to discuss the following questions with due honesty to the best of your knowledge. Thank you.

1. Where do most mothers deliver from in your area?

2. What do you think influences their choice? (Probe more on the perception of quality of care)

3. According to health unit records, most of the mothers who attend ANC at health units do not deliver there. What do you think are the reasons? (Probe more on perception, attitude, facilities, staff)

4. How do you rate the staff at the health units? What about the facilities at the health unit?

5. Whom do you think are the mothers likely to deliver at home and who are those likely to deliver in a health unit. (probe about the mothers and their social environment)

6. Are there cultural practices and local beliefs that may discourage mothers from delivering in health units? If yes, which ones? Do you believe in any of them? (Probe more on the different practices)

7. What do you think is the role, played by the use of traditional herbs? (Probe on the different herbs and frequency of use)

8. What are your views about health workers, health unit services and traditional birth attendants?

9. In your opinion, how can utilisation of health unit maternity services be improved?
APPENDIX 4: KEY-INFORMANT INTERVIEWS QUESTION GUIDE

I am from the Institute of Public Health Makerere University with consent from the District Director of Health Service's office Tororo. I am examining factors influencing utilisation of health unit delivery services. The information will be confidential and will be used in planning of improved health unit delivery services in the district. I request you to answer the question with due honesty to the best of your knowledge. Thank you.

Code

Designation

Address

1. From your understanding where do you think most mothers delivery from? What is your comment about it?

2. Who do you think are the women likely to deliver in health units

3. Who are the ones likely to deliver out side a health unit?

4. Whom do you think influences the choice of delivery sites?

5. What cultural factors do you think discourage mothers from using health facilities for delivery

6. I understand local herbs are commonly used during pregnancy. What proportion of pregnant mothers use herbs and what type of herbs are used? Why do you think people use these herbs? What is your opinion on the use of these herbs?

7. What can you comment on health unit delivery services

8. What is your comment about the health unit staff

9. Why do you think mothers still prefer to go to deliver out side the health unit?

10. In your view, how can utilisation of maternal health services be improved at the health unit?
APPENDIX 5: MAP OF UGANDA SHOWING TORORO DISTRICT