FACTORS AFFECTING UTILIZATION OF POSTNATAL CARE IN RUKUNGIRI DISTRICT

BY

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DECLARATION

I, Dr. Gertrude Kalema Namazzi, do hereby declare that all the work presented in this dissertation is my own original work unless otherwise acknowledged. It has never been submitted either in part or in full for publication or award of a degree in any other university. I hence forth present it for the award of the degree of Masters of Public Health of Makerere University Kampala.

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DEDICATION

This work is dedicated to my husband, Dr. Fred Musana and our girls, Amelia, Julia, Samantha and Amanda who missed me so much while I was away for the course and field work and who always bring a smile on my face.
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OPERATIONAL DEFINITIONS

Post natal Care is care given to the mother and her baby for a period of 6 weeks from time of delivery.

Post natal Care services comprise of physical examination, Health Education on personal hygiene, child care and breast feeding, postnatal family planning uptake, treatment, counseling, immunization and physiotherapy.

Utilization of services refers to use of post natal services by mothers following delivery.
ABSTRACT

Background: All pregnant women need good quality maternal health services, Post Natal Care inclusive, so as to ensure their well being and that of their infants. The MMR and IMR in Rukungiri District are 500/100,000 and 88/1000 live births respectively. Maternal complications rank tenth and contribute 1.9% to the burden of disease in the District (BOD study, 1995). In 2005/2006, PNC utilization at 6 weeks after delivery was very low at 6.7% of all the new ANC attendances. This study was conducted in order to identify the factors associated with PNC service utilization so as to enable the DHT to design appropriate interventions in Rukungiri District.

Methodology: This study employed a cross sectional study design and was conducted in 29 villages (clusters). Eight households were selected from each cluster and a total of 232 mothers were interviewed. A check list was used to collect the data concerning health facilities. In-depth interviews of 8 mothers; 4 that attended PNC and 4 that never attended PNC were also conducted. Quantitative data were then analyzed using EPINFO 3.2.2 version and SPSS. A master sheet technique was used to analyze qualitative data.

Results: A total of 232 respondents were enrolled in the study, with the mean age of 26.9 years. At bivariate analysis, the employment of the mother and spouse, the type of house lived in, time to health facility and knowledge of PNC services were the factors found to be associated with utilization of PNC services. After logistic regression, being aware of the of PNC services was found to enhance the utilization of PNC services (OR=12.12, CI: 6.12—24.02) and living in a permanent house was established as a predictor of non
utilization of those services (OR=0.32, CI: 0.13—0.80). Poor attitude of mothers towards the health providers and lack of integration of PNC services were also found to hinder utilization of such services.

Conclusion: Mothers lack awareness of the existence of PNC services which contributes markedly on the low utilization of those services in Rukungiri District. Opportunities do exist through which mothers can be sensitized to utilize the PNC services and these include ANC visits, outreaches during immunization and radio Rukungiri.
1.0 INTRODUCTION/ BACKGROUND

1.1 INTRODUCTION

The global annual maternal mortality is about 529,000 women with another 17.5 million women suffering significant maternal morbidity from birth injuries, painful disabilities and post natal complications. Nearly all these deaths and morbidities are shouldered by low income countries (WHO report 2005). The level of maternal mortality is disproportionately high in Africa; with a regional maternal mortality ratio (MMR) of 1000/100,000 live births. In Uganda, the MMR is currently 435 deaths per 100,000 live births, which translates to 6,000 annual maternal deaths (UNFPA report 2006).

Previous studies done in Uganda indicate that there is a marked imbalance between Antenatal Care (ANC) consultations during pregnancy and Post Natal Care (PNC) consultations as fewer than 10% of the mothers get post natal check up compared to the over 80 % that attend at least one ANC consultation (Waiswa et al, 2007; UDIDS, 2006).

Maternal health services, PNC services inclusive, have a potentially critical role to play in the improvement of reproductive health. One of the dominant themes of the International Conference on Population and Development held in Cairo in September 1994 was reproductive health. This has been defined as a state of complete physical, mental and social well being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes. This implies that people have the ability to reproduce and regulate their fertility; women are able to go through pregnancy and childbirth safely; the outcome of pregnancy is successful in terms
of maternal and infant survival and well being; and couples can have sexual relations free of the fear of pregnancy and of contracting disease (Fathalla, 1997).

The WHO has called for intensified action among member countries in addressing the threats to maternal health and child survival and has assisted countries with high rates of maternal deaths such as Uganda to strengthen their health systems to build a ‘continuum of care’ approach for mother and child that begins before pregnancy and extends through child birth, postnatal period and into childhood (WHO, 2005).

Awareness campaigns in line with the Millennium Development Goals (MDG) that were agreed upon by the world leaders from 189 countries at the United Nations millennium summit in September 2000 have been going on in Uganda. The country is committed (through the poverty eradication plan) to achieving the MDG target of reducing by three-quarters the number of women dying during pregnancy and goal 4 on child mortality of reducing the under-five mortality rate by two-thirds by the year 2015 from 1990 levels (MOH, WHO, 2005). The objective of this is that all women and their babies can go through pregnancy, childbirth and the postnatal period safely irrespective of their ability to pay for these services.

The infant mortality rate (IMR) in Uganda however, is still very high (currently at 75/1000 live births), the MMR at 435/100,000 live births and the uptake of family planning measures still quite low at 24% (UDHS, 2006). All public health facilities in Uganda do provide PNC services but utilization is still very low at 10% (UDHS, 2006) despite the improved access to health services. The mere provision of services does not lead to their better utilization (Alaka, 1990). Studies that focus on the perceptions and motivations of
individuals reveal that it is often the services that are inadequate in quality and insensitive providers that fail to communicate effectively with their clients (Obermeyer et al, 1991).

1.2 BACKGROUND

Rukungiri District is located in South Western Uganda bordering the Districts of Ntungamo in the East, Kabale in the South, Bushenyi in the North and Kanungu to the West. The Town council is about 400 km from Kampala, the capital city of Uganda.

The district has two counties of Rubabo and Rujumbura with 11 sub-counties, including Rukungiri town council. It has a total area of 1,524.28 sq km and is characterized by undulating hills, with steep fluted slopes and U-shaped valleys with altitudinal range of about 615 m to 1846 m above sea level. The cheapest means of transport in Uganda is by bicycle; however, this cannot be utilized in most areas of the district due to the topography and hence affects the access to health services by mothers.

The total population of Rukungiri District is about 300,000 people with a growth rate of 2.52%. Twenty three percent are women in the reproductive age group of 15-49 years with a general fertility rate of 6.7 children per woman. About 95 percent of the population lives in the rural areas and majority are peasant farmers with annual income of less than $200. The district lacks a public hospital; it is served by two private not for profit hospitals (where patients have to pay for health services) one in each of the two counties, 2 HCIV, 15 HCIII and 43 HCII which are all in position to offer the basic PNC package. Physical access to health services in the district has been progressively improving and currently 75% of the population is within 5 km distance to a health unit. However, the HCW (Health care worker) population ratios are still too low, i.e. doctor
population ratio is 1:26372, nurse population ratio is 1:2705 and midwife to expectant mother ratio is 1:293 (Uganda Census report, 2002).

South western Uganda, Rukungiri inclusive has one of the highest IMR of 88/1000 live births compared to the national rate of 75/1000 live births (UDHS, 2006). The under-five mortality rate is 137/1000 live births and the MMR (Maternal Mortality Ratio) in the District stands at 500/100,000 live births (the national MMR is currently 435/100,000 live births). Maternal complications rank tenth and contribute 1.9% of the top ten killer diseases in the District, the commonest being malaria, followed with HIV/AIDS and perinatal mortality (BOD study, 1995). Most maternal deaths occur during the early postpartum period due to causes like postpartum hemorrhage, eclampsia and sepsis (Safe motherhood, 1998). Care during the postpartum period provides opportunities to check that the mother and baby are doing well, provides support to breast feeding, and enables HCWs to detect and manage any problems early.
2.0 LITERATURE REVIEW

All pregnant women need good quality maternal health services during pregnancy, delivery and in the post partum period to ensure their good health and that of their infants. About 17million women encounter complications due to child birth annually. According to WHO (2005), 529 000 mothers and 10.6 million children are still dying each year worldwide, mostly from avoidable causes.

In Uganda, according to indicators for monitoring the health sector, PNC service utilization stands at only 25.2% of the mothers that deliver from health facilities (MOH, 2003). The situation is even worse for those mothers that deliver outside of a health facility, with more than nine out of 10 women not receiving postnatal care (UDHS, 2006). PNC services are essentially restricted to immunization of infants at birth, 6 weeks after delivery and on a monthly basis thereafter. The comprehensive PNC, including health education on the care and feeding of the infant is rarely utilized by mothers after delivery.

As a consequence one in every 13 Ugandan children dies before reaching age one (IMR=75/1000 live births), this is even worse for southwestern region, Rukungiri inclusive where the IMR is highest at 88 deaths per 1000 live births (UDHS, 2006). Though under-five mortality has declined from 158 to 137 deaths per 1000 live births, this is still among the highest in the world. The post-neonatal mortality rate is also still high in Uganda (at 46/1000 live births) yet this rate easily declines through primary health care interventions which require active participation of the mothers. The mothers
on the other hand, require knowledge and support from HCWs on how to care for their infants.

2.1 PNC utilization at 6 weeks

In Uganda, PNC at 6 weeks is the first scheduled return visit for mothers after delivery. It offers a crucial opportunity especially to mothers with a well child and no complaints to receive among other services the necessary information on child care. This is also an important indicator for mothers' willingness to seek preventive services. The PNC package is used to deliver a number of interventions, which would be difficult to scale up one by one. The lack of a defined postnatal care package is an important gap, which contributes to discontinuity between maternal and child health programmes. PNC is one way to provide the continuum of care for maternal, newborn, and child health which has become a rallying call to reduce the world wide yearly toll of half a million maternal deaths, 4 million neonatal deaths, and 6 million child deaths (Kerber et al, 2007). One to one postnatal health education for mothers would positively affect their subsequent knowledge of and practices about infant care and family planning and hence improve child survival.

2.2 Postnatal Care Services

The mother and the baby are supposed to receive immediate postpartum care in the first 24hrs after delivery, and postpartum assessment 6-8 weeks (MOH, Safe motherhood, 2001). This is to ensure the well being of the mother and that of the baby, to detect any complications and access other services as well as receive counseling and health education on the care of the new born. The information given to parents/mother
concerning the baby include; breast feeding practices, assessing the baby’s general condition, how to identify signs and symptoms on common health problems seen in babies like malaria, pneumonia and diarrhea and to contact a HCW if required. Mothers should also be taught how to identify danger signs like convulsions, failure to feed, excessive vomiting and blood in stool.

Mothers are encouraged to report any concerns in relation to their physical, social, mental or emotional health, discuss issues and ask questions. Specific problems are documented in the care plan as well as follow up (NICE, 2006).

Other PNC services provided include physical examination of both mother and her baby, family planning services, immunization and growth monitoring of the infant as well as physiotherapy to the mother.

2.3 Postnatal Complications

Post natal complications are more common and severe in developing countries. Short term complications may include; post partum hemorrhage, anaemia, puerperal sepsis/pyrexia and eclampsia. Delayed maternal complications in the postnatal period include; chronic pain, impaired mobility, perianal and vaginal tears, vesicle/ano-vaginal fistulae and infertility (Safe motherhood, 2002). Some women suffer genital prolapse following bearing several children which is so uncomfortable and can result in further complications in subsequent pregnancies if not properly addressed during postnatal period (Ashford, 2004). It is postulated that these complications might be prevented or reduced if women had access to maternal health services across their childbearing years (WHO, 2005). This calls for more maternal–child health programme coverage and outreach.
2.4 Barriers to PNC service utilization

Demographic factors

Factors like age of the mother have been noted to influence utilization of health services. Adolescent mothers rarely utilize maternal services probably due to unfriendly reproductive health services, low socio-economic status or as a result of lack of the right information on where and why to seek such services (MOH, 2005). Under-five mortality has been found to be higher among children born to mothers under age 20 and over 40. First births also suffer higher rates of infant and under-five mortality than other births order (UDHS, 2006) probably due to the fact that most first pregnancies in Uganda occur during the adolescent period.

The levels of education of mothers and residence have been found to affect the level of utilization of maternal health services, PNC inclusive. A cross-sectional survey conducted during 1993 in urban and rural areas of Karnataka State, India by Bhatia et al. (1995) of 3595 married women aged below 35, who had at least one child under five found a marked imbalance between antenatal and postnatal care as less than one-fifth of the mothers had a postnatal checkup. The educational level, economic status and religion of the mother were the significant predictors of use of maternal health services.

According to the UDHS, 2006 results, urban and better educated women are more likely to receive postnatal care than other women. Mother’s education was also found to be associated with the chances of children being fully immunized, 51% of the children of mothers with secondary education were found to be fully immunized compared to only 28% of the children of mothers with no education. Mother’s education is also strongly
associated with higher rates of child survival. Children born to a mother with secondary or higher education have by far the lowest rates for all types of childhood mortality. Children born to such women have 40 percent less chance of dying before their fifth birthday than children whose mothers had no education. The under-five mortality rate for children whose mothers had primary education is 12 percent lower than that of infants whose mothers had no education.

The parity of the mother has also been reported by some studies to affect the utilization of maternal health services. The study conducted by Kogan, 1990 found that the more number of children a woman had the less likely that she returned for PNC services probably as a result of previous experiences or due to the perceived gain in confidence or due to increased household responsibilities (Kogan & Leary, 1990). Due to low PNC utilization, child spacing services included, mothers end up with short birth intervals which have been found to be associated with increased child mortality. According to UDHS, 2006 findings, children born less than two years after a previous birth are about 93 percent more likely to die before reaching age five than those born three years after the last birth.

**Socio-economic factors**

Socio-economic status has been found to affect the access of health services. Most mothers in Uganda work in agricultural sector and a number of them are not paid for their work. The study conducted by Nanda (2002), established that for people who depended on agriculture, limited access to cash restricted their ability to meet the direct and indirect
costs of their health care. This was also confirmed by Blanchard-Horan (2003) who noted that low income communities were more prone to under utilization of health care services. Those women who are not married would find it even harder to meet the costs of health care in such communities. For those mothers that are married to peasant spouses were also less likely to utilize maternal health services (Nuwaha et al, 1997). Some other studies however, show that socio-economic status is not a barrier to service utilization if mothers perceived the benefits of the services to out weigh the costs (Griffiths & Stephenson, 2001). However, for mothers to be able to appreciate the benefits of the services they should be having knowledge and awareness of the kind of services provided.

Knowledge/Awareness of mothers

Women may not attend PNC services because they may not know that the services are available to them, they may not perceive any benefit from attending, or the opportunity cost of attending may be great (WHO, 2005). In Uganda most mothers lack the right information concerning the care they need and where to get it from. According to the study conducted in Mulago and Mengo Hospitals concerning postnatal care utilization some of the barriers to service utilization included lack of awareness of what PNC services are and to what benefit these services are to the mothers (Nankwanga, 2004).

Studies that have examined the relationship between levels of prenatal care utilization and postnatal patterns of health care behavior among high risk minority women found that women who sought inadequate or no prenatal care had greater infant morbidity and
mortality in the postnatal period. These mothers also had lower levels of attendance at PNC visits, child clinics and immunization completions (York et al, 2000). These studies have concluded that the level of prenatal care indicates the level of postnatal care women seek for themselves and their children after delivery. However for the case of Uganda, Rukungiri District inclusive this does not seem to be the case since ANC attendance is over 80% and PNC utilization is about 10%. However, according to the survey done in Zimbabwe, PNC attendance was found to be greater than usually reported (Sibanda et al, 2001).

Limited studies have been conducted in very poor countries and regions concerning PNC service utilization and yet as few as 5% of women receive such care. In developed countries however, over 90% of new mothers receive postpartum care (Safe motherhood, 1998). They are usually followed up from their homes by HCWs.

**Women’s empowerment and Gender**

Women in Uganda are generally less educated than men. Although the gender gap has narrowed in recent years, 19% of women aged 15-49 years never went to school, compared with only 5% of men in the same age group. Only 56% of women aged 15-49 are literate compared to 83% of men (UDHS, 2006). As a result of gender imbalances, a number of women are employed in Agricultural sector (75%) and are not paid for their work (30% compared with 13% of men). Most women depend on their husbands for transport costs and any other costs that they may incur in seeking health care, PNC inclusive. Due to lack of women empowerment, most women in Uganda do not make
decisions on their health care; four in ten have their husbands/partners make such decisions and only 22% of married women make sole decisions on their own health care (UDHS, 2006). The overwhelming responsibilities of mothers and women’s lack of decision making within the family have also been reported to hinder mothers from utilizing the services by Safe motherhood, 1998 and Mwaniki et al, 2002).

Community involvement and support

A community situational analysis that determined factors impacting the utilization of maternal health services in South Africa by Pulani et al, (2007) found that families and communities are an untapped resource for improving maternal and neonatal health. They noted transport and distance to care as the biggest problems particularly in rural areas where family and community members would be required to assist mothers with ways of accessing health services.

2.5 Health service factors

Distance to Health facility and related costs

The factors which prevent women in developing countries from accessing postnatal care include distance to health facilities. The study done in Kenya by Mwaniki found that mothers living less than 5 km distance utilized maternal services better (Mwaniki et al, 2002; Gulliford et al, 2001). This is in agreement with the study conducted by Nuwaha et al, 1997 in Rakai Uganda which looked at determinants of home deliveries. They found out that mothers that lived beyond 5 km distance or in rural areas were more likely to deliver from home. Even though health services are offered free in public health facilities in Uganda mothers still incur other costs like transport costs and indirect fees
which may hinder them from utilizing health services, worse still if these services are preventive rather than curative services. The longer the distance to the health facility the more the costs in terms of transport costs and working hours lost especially those that are self employed.

Quality of PNC services

Several studies have documented concern about the behavior of post-partum healthcare providers. In one study conducted in Mulago and Mengo Hospitals it was noted that providers answered specific questions rather than providing overall health education, were not sensitive and understanding, and they were often rushed during healthcare encounters (Nankwanga, 2004). Hirst & Hewison, (2002) reported similar results and recommended shorter waiting times and more time per visit so that caregivers would be less rushed. The providers were found to be rude, uncaring and not to attend to their duties (Safe motherhood, 1998). Studies that have been conducted in Jordan that examined the perceptions and motivations of individuals showed that it is often the services that are inadequate in quality and insensitive providers that fail to communicate effectively with their clients and their family members (Obermeyer et al, 1991). Similar findings were also reported by Pulani et al, 2007

Poor quality of services coupled with chronic shortages in health facilities of adequate staff, equipment, drugs and basic supplies as well as poorly trained medical staff, lacking both life saving skills and basic clinical skills are also deterrents for mothers to utilizing maternal services, PNC inclusive (Safe motherhood, 1998; Mwaniki, 2002). Professional
and personal social support has been demonstrated to decrease post-partum depression, and thus enhance women’s overall health status, especially in high-risk populations of women (Gang et al, 2005; Goldbort 2006). Such support includes post-partum health care.

2.6 Knowledge of appropriate child care practices

In developing countries 50-60% of all infant deaths occur in the neonatal period and mortality from acute respiratory infections is highest in the first 2 months of life, when a mother’s response to warning/danger signs is crucial to survival. Malnutrition is the 4th commonest cause of infant death in Uganda, resulting from poor infant feeding practices. UNICEF and WHO recommend that children be exclusively breastfed during the first 6 months of life and that children be given solid or semisolid complementary food in addition to continued breastfeeding from 6 months until age 24 months or more when the child is fully weaned. Studies done in Uganda indicate that exclusive breastfeeding quickly declines from birth to age 6-7 months. A substantial proportion of children are fed water, other milk, and complementary foods starting from very young ages (UDHS, 2006).

Mothers are encouraged to continue feeding children with diarrhea normally and to increase the amount of fluids. These practices help to reduce dehydration and minimize the adverse consequences of diarrhea on the child’s nutritional status. In Uganda diarrhea is one of the leading causes of infant death. According to the UDHS, 2006; forty-seven percent of children who had diarrhea were given the same amount of liquid as usual, 19 percent were given somewhat less than the usual amount, and 7 percent were given much
less than the usual amount. Seven percent of children who had diarrhea were given no liquids (UDHS, 2006). Meeting women’s physiological, emotional and educational needs during the postnatal period is essential in order to support breastfeeding increase use of family planning and reduce maternal/infant morbidity/mortality rates.

2.7 Policy review on maternal and child health in Uganda
Maternal and child health conditions contribute the highest (20.4%) to Uganda’s total burden of ill health and avoidable death (HSSP II) and thus are accorded priority in the Uganda National Minimum Health Care Package (UNMHCP) as one of the clusters. The objective of which is to contribute towards the achievement of reduction in maternal, neonatal and young child mortality that is commensurate with the timely achievement of the Poverty Eradication Action Plan (PEAP) targets and related Millennium Development. The HSSP II outlines the core essential and emergency newborn care interventions through postnatal care interventions for mother and baby however, no delivery mechanisms or guidelines are defined for postnatal contacts.

2.8 Knowledge gap
There are fundamental gaps in knowledge of factors affecting utilization of postnatal care services especially in the rural areas like Rukungiri district. Most of the studies alluded to above such as by Nuwaha (1997), Nanda (2002), Mwaniki (2002) are mainly about delivery at health facility and their findings are used as proxy indicators on determinants of postnatal service utilization due to the limited number of studies concerning postnatal care that have been conducted in the African setting in general and in the Ugandan context in particular. The study carried out by Nankwanga (2004) was hospital based (exit interviews) and in urban setting of Kampala, looking at mothers who have access to
health services and who have demonstrated ability to utilize the services to some extent. A community based survey based in the rural setting where most of the mothers in need of maternal health services are based was therefore found necessary to explore those factors that are specifically affecting postnatal care utilization in Uganda so as to inform policy and other stake holders who need to take action.
3.0 PROBLEM STATEMENT/ JUSTIFICATION/ CONCEPTUAL FRAME WORK/

3.1 Problem Statement

Post Natal Care is an important complement to ANC in the effort to reduce maternal mortality and morbidity as well as trying to enhance family planning uptake and improve infant welfare.

Utilization of PNC services in Rukungiri district like in many other districts in Uganda is very low and the factors responsible for this are not clear. According to HMIS (Health Management Information system) reports of the year 2005/2006, out of the total of 17,254 new ANC attendances, about 35% delivered from the health facilities and only 6.7% (1,163) attended PNC clinics 6 weeks after delivery in the District. This has vast consequences like the low contraceptive uptake which stood at 31.2%, lack of uptake of screening for cancer of the cervix and low completion of immunization rates of infants. The infant/ maternal mortality and morbidity are high in the district; the IMR and MMR stand at 88/1000 and 500/100,000 live births respectively (UDHS, 2006).

The Health Directorate has opened more health units to improve on access of health services, 75% population are within 5 km distance from health unit. Sensitization of the community on use and importance of family planning and immunization has been on going, however, there has been less emphasis on the importance of PNC services in the general Maternal/ Child health Care.
Probable factors responsible for the low PNC service utilization include; social economic factors like low education and low income of mother and the spouse to meet the transport costs, overwhelming house hold responsibilities and health service factors such as long waiting lines, missed opportunities when mothers bring their children to health facilities for other reasons, as well as lack of effective communication to mothers during ANC and on discharge after delivery.

To encourage the active participation of the community in the uptake of these services the Reproductive Health Team should be equipped with adequate knowledge of the factors (community and health service factors) responsible for the low PNC utilization.

3.2 Justification

The DHT (District Health Team) noted with concern the inappropriately very low utilization of PNC services (less than 10%) compared with the number of mothers that attend ANC consultations at least once which stands at over 90% and they are wondering why mothers do not come back for check up after delivery! PNC services are an important compliment to ANC as a strategy to reduce the high maternal mortality ratio (500/100,000 live births), maternal morbidity and infant mortality in the District. During PNC consultations family planning services are offered and the uptake of these services is also still low in the district. The role of birth spacing is very clear in reducing maternal mortality; the less number of pregnancies and the more space in between pregnancies the less the risk to die because of pregnancy related complications.

The study was conducted in order to generate information about the factors associated with low PNC utilization so as to enable the DHT and other stake holders to design appropriate interventions to improve PNC utilization, maternal and infant welfare which
in the long run will eventually reduce maternal mortality and morbidity as well as infant mortality.

3.3 Research Questions;

What are the PNC services being offered at the health facilities?

What knowledge do mothers have about PNC services?

What are the factors related to the utilization of PNC services in Rukungiri District?
3.4 CONCEPTUAL FRAMEWORK

For Factors affecting utilization of Postnatal Care in Rukungiri District

**Client related factors**
- Lack of Education
- Low income
- Lack of transport costs
- Lack of awareness of PNC services
- Low deliveries in Health facilities
- Overwhelming responsibilities of mothers
- Negative attitudes, beliefs and practices
- Perceived need for preventive services

**Health service factors**
- Long waiting lines
- Lack of effective communication
- Excessive work load
- Inadequate staff
- Service organization
- Limited support supervision
- Limited funds for service delivery
- Long distance to Health facilities

**Community and House Hold Support**
- Gender issues
- Partner support & male involvement
- Decision making
- Women empowerment

**PNC service utilization**
- High Maternal morbidity/mortality
- High Infant Mortality
3.5 Explanation of the conceptual frame work

Health service factors such as inadequate number of health care workers in the District lead to lack of effective communication to the mothers during ANC visits and following deliveries hence resulting into limited mothers’ awareness and thus low utilization of PNC services. This may also be a consequence of excessive workload resulting into missed opportunities like when mothers bring their infants for immunization at 6 weeks.

The socioeconomic factors that are related with low PNC utilization include poverty/low income of mothers and their spouses which results in lack of transport fare and money for other costs. Lack of education of mothers also limit their awareness of the importance, and hence the low utilization of the PNC services. Lack of male involvement and limited decision making by mothers in the house hold as well as lack of empowerment in resource control limit their capacity to utilize health services.

4.0 OBJECTIVES OF THE STUDY

4.1 General Objectives

To determine the factors associated with PNC utilization so as to enable the DHT to design appropriate interventions in Rukungiri district.

4.2 Specific Objectives

- To establish the PNC services that are offered in the health facilities in the District.
• To identify the health service factors associated with PNC utilization in Rukungiri District

• To identify the client related factors associated with utilization of postnatal care services in Rukungiri District.
5.0 METHODOLOGY

5.1 Study Area

Rukungiri District is in the South Western part of Uganda with a population of about 300,000 people, of which 95% live in the rural areas and majority of whom are peasant farmers. The population growth rate is 2.5% and 22.6% are women in the reproductive age group of 15-49 years with a general fertility rate of 6.7. There are two private not for profit hospitals – Nyakibale and Kisiiizi; one in each of the two counties and 58 health centers, 56 private clinics and 108 drug shops. All the 58 health centers and the two hospitals offer PNC services.

5.2 The study Population

The study population included mothers aged 15 to 45 years who delivered within one year prior to the date of starting data collection.

The health facilities were also included in the study to assess the level of PNC services being offered.

5.3 Study design

A Cross-sectional descriptive study design which is community based was used in this study and it employed both quantitative and qualitative methods of data collection.

5.4 Sample size calculation

Using Bennet et al 1991 formula of cluster sampling;

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

\[ N = b \times C \]
\[ C = pqD \]
\[ 6^2b \]

where, \( C \) = Number of clusters (villages) selected for the study

\( b = \) Number of study units (mothers) studied per cluster/day = 8

\( p = \) Prevalence = 25% Post Natal Care utilization (MOH, 2001)

\( q = 100\% - 25\% = 75\% \)

\( D = \) Design effect \( \sim 3 \), given the three levels of sampling; \( D = 1 + \rho [b-1] \)

\( \rho = \) rate of homogeneity between clusters (villages), represented by inter cluster correlation

\( 6 = \) maximum error the PI was willing to allow, between the estimated prevalence of the outcome \( P \) and the true prevalence in the population = 5%

\[ C = \frac{25 \times 75 \times 3}{5^2 \times 8} \approx 28.125 \sim 29 \]

\[ 5^2 \times 8 \quad 200 \]

\( N = 8 \times 29 = 232 \): **Sample size = 232 mothers**

**5.5 Sampling Procedure**

Multistage, cluster sampling technique was employed for quantitative methods, 5 out of 11 sub-counties (~50% representation) were selected by simple random sampling (SRS). Ten out of 43 parishes and 29 Villages (clusters) from the 10 parishes were selected by SRS and included in the study. From each cluster, using a random start, 8 households were selected. From each house hold one woman aged between 15-45 years was interviewed. Where there were more than one woman fitting the inclusion criteria a SRS was used to select one to participate in the study. Where there was no woman in a house
hold fitting the inclusion criteria the next house hold was visited until the required sample was obtained.

For qualitative methods, purposive sampling technique was used to select 4 mothers that had attended PNC and 4 that did not attend PNC for in-depth interviews.

5 HCIIIs, one from each of the sub-county involved in the study were selected. Where the sub-county has a HCIV; such a HF was studied instead of HCIII. One HCII per sub-county was selected by SRS for the study.

5.6 Study Units

The study unit was the mother who delivered in the past one year from the date of data collection and the health facilities in the district.

5.6.1 Inclusion Criteria

Women aged 15 to 45 years who delivered within a period of one year prior to the date of data collection so as to reduce on the recall bias

Health facilities located in the 5 sub-counties were selected for the study

5.6.2 Exclusion criteria

Women whose babies died during the perinatal period were excluded from the study since they did not need some services of the PNC package. The mothers who had delivered less than 8 weeks prior to data collection were left out since the time for PNC attendance had not yet passed.
5.7 Study Variables

5.7.1 Dependent Variables

- PNC service utilization after delivery

5.7.2 Independent Variables

- Socio-demographic characteristics (e.g. Age, Education level of mother and spouse, religion)
- Employment of mother and spouse
- Maternal responsibilities
- Awareness of PNC services and source of information
- Attitude to preventive services and practices of mothers
- Place of delivery
- ANC attendance
- Distance to health facility
- Parity of the mother
- Staffing of health facilities
- Health service organization
- Partner support

5.8 Data collection and Quality Control

5.8.1 Data collection

Quantitative data were collected using semi structured pre-tested questionnaires which were administered by the research assistants. Using a random start one direction was
followed by interviewers, who then started visiting homes in that direction. When a home did not have the appropriate mother for the interview, the next home was visited, until the sample required was obtained. To establish the economic status of respondents, observations were made on the materials in which the wall, roof and floor of the main house are made of. The PI (Principal Investigator) used a check list to obtain information from the health facilities. Qualitative data was collected using an In-depth interview guide from 8 mothers; 4 mothers that attended PNC and 4 mothers that did not attend PNC after delivery.

5.8.2 Quality Assurance

Five research assistants with good knowledge of Runyankore/Rukiga and English as well as previous experience in this work were recruited and trained. They were then supervised by the PI in the field. The questionnaires were checked daily at the end of data collection exercise for completeness before leaving the field.

5.8.3 Pre-testing

The questionnaire and In-depth interview guide were first pre-tested in Bogyera, Buyanja sub-County that did not participate in the study and relevant alterations were made accordingly before data collection.

5.9 Data Management and Analysis

5.9.1 Data management

The data entry screen was created with range and consistency checks in EPINFO. The check lists and questionnaires were edited, coded and entered (double entry) into the
computer using the EPINFO 3.2.2 version. Qualitative data were transcribed, coded and entered into the master sheet.

5.9.2 Data Analysis

Quantitative data were analyzed using EPINFO 3.2.2 version and then presented as frequency tables and cross-tabulations. Odds ratios, 95% confidence intervals and p-values were used to determine the statistical significance of the associations between independent variables and PNC utilization.

Qualitative data collected with in-depth interview guides were coded and analyzed qualitatively using a Thematic Analysis technique.

5.10 Ethical considerations

Permission to conduct the study was given by the School of Public Health, Makerere University (MUSPH) after approval by the Institutional Review Board and the National Council of Science and Technology (NCST). Permission to conduct the study was also obtained from the District Health Officer (DHO) as well as the In-charges of Health facilities where the study was conducted. Informed consent was sought from each respondent before participation; privacy and confidentiality were safeguarded throughout the course of the study. Data obtained from the study, In-depth interview data and the questionnaires were kept securely locked at all times by the PI. No personal identifiers of the study participants were noted on the questionnaires or the transcripts. The study had no risks to the respondents.

Study limitation
Recall limitation was observed with some mothers, and verification of mothers' information on PNC attendance was difficult since some mothers had lost their medical forms. However, probes were used to triangulate the information.

Health care workers were not interviewed due to the limited time in which the study had to be conducted in order to finalize the dissertation for submission.
6.0: RESULTS

The study enrolled 232 mothers aged 15 to 45 years who delivered within one year prior to the date of starting data collection and received 100% response rate. Qualitative data from 8 participants were also collected. Ten HFs were studied using a check list. The results of the study are presented below in form of text, frequency tables, 2x2 tables and charts.

6.1: Social Demographic characteristics

The mean age of the respondents was 26.9 years; the median was 27 years with the minimum and maximum of 17 years and 44 years respectively. Other demographic factors studied included religion, education level, marital status as well as parity of the participants. The findings are presented in the table1 below.
Table 1: Socio-demographic characteristics of respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n= 232</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age group (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-25</td>
<td>103</td>
<td></td>
<td>44.4</td>
</tr>
<tr>
<td>26-35</td>
<td>110</td>
<td></td>
<td>47.4</td>
</tr>
<tr>
<td>36-45</td>
<td>19</td>
<td></td>
<td>8.2</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>87</td>
<td></td>
<td>37.5</td>
</tr>
<tr>
<td>Protestant</td>
<td>124</td>
<td></td>
<td>53.4</td>
</tr>
<tr>
<td>Pentecostal</td>
<td>5</td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Muslim</td>
<td>7</td>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td>Others</td>
<td>9</td>
<td></td>
<td>3.9</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal Education</td>
<td>11</td>
<td></td>
<td>4.7</td>
</tr>
<tr>
<td>Primary not completed</td>
<td>91</td>
<td></td>
<td>39.2</td>
</tr>
<tr>
<td>Primary completed</td>
<td>73</td>
<td></td>
<td>31.5</td>
</tr>
<tr>
<td>Secondary O-Level</td>
<td>41</td>
<td></td>
<td>17.7</td>
</tr>
<tr>
<td>Secondary A Level</td>
<td>15</td>
<td></td>
<td>6.5</td>
</tr>
<tr>
<td>Tertiary</td>
<td>01</td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single/Never Married</td>
<td>25</td>
<td></td>
<td>10.8</td>
</tr>
<tr>
<td>Married/ Co habiting</td>
<td>196</td>
<td></td>
<td>84.5</td>
</tr>
<tr>
<td>Separated/ Divorced/ Widowed</td>
<td>11</td>
<td></td>
<td>4.7</td>
</tr>
<tr>
<td><strong>Parity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>95</td>
<td></td>
<td>40.9</td>
</tr>
<tr>
<td>3-4</td>
<td>86</td>
<td></td>
<td>37.1</td>
</tr>
<tr>
<td>5+</td>
<td>51</td>
<td></td>
<td>22.0</td>
</tr>
<tr>
<td><strong>Sex of baby</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>132</td>
<td></td>
<td>56.9</td>
</tr>
<tr>
<td>Male</td>
<td>100</td>
<td></td>
<td>43.1</td>
</tr>
</tbody>
</table>
The results show that a big percentage of respondents, 40% (91/232) never completed primary education and only 6% (15/232) reached advanced secondary education. Most mothers (84%) were either married or cohabiting, with 1-2 children (41%).

6.2: Distribution of the respondents by Social Economic factors of

These included the employment of the respondent and her spouse, the house hold assets as well as the type of house they are staying in. The findings are summarized in table 2 below;

Table 2: Socio-economic factors of respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n= 232</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupation of Respondent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House wife</td>
<td>193</td>
<td>83.2</td>
<td></td>
</tr>
<tr>
<td>Self employment</td>
<td>3</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Public Sector</td>
<td>14</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Private Sector</td>
<td>22</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td><strong>Occupation of Spouse</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peasant farmer</td>
<td>109</td>
<td>48.4</td>
<td></td>
</tr>
<tr>
<td>Self employment</td>
<td>54</td>
<td>24.0</td>
<td></td>
</tr>
<tr>
<td>Public Sector</td>
<td>34</td>
<td>15.1</td>
<td></td>
</tr>
<tr>
<td>Private Sector</td>
<td>19</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>09</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td><strong>House Occupied</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grass thatched</td>
<td>18</td>
<td>7.8</td>
<td></td>
</tr>
<tr>
<td>Iron roof mud wattle walls</td>
<td>171</td>
<td>73.7</td>
<td></td>
</tr>
<tr>
<td>Iron roof cemented walls</td>
<td>41</td>
<td>17.7</td>
<td></td>
</tr>
<tr>
<td><strong>Household assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td>181</td>
<td>78.0</td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td>55</td>
<td>23.7</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 above shows that 83.2% of the respondents were not employed (housewives), 48.4% of their spouses were peasant farmers and about 74% stayed in semi permanent houses.

6.3: Distance to health facility and related factors

The distance to the nearest HF was established and categorized into whether less than 5km or more since this is the measure of access to HF by MOH; the time one spends walking to the HF and the means of transport used to attend PNC were also noted. The findings are shown in table 3 below.

Table 3: Distance to HF and other related factors

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from nearest HF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5km</td>
<td>198</td>
<td></td>
<td>85.3</td>
</tr>
<tr>
<td>≥5km</td>
<td>34</td>
<td></td>
<td>14.7</td>
</tr>
<tr>
<td>Time to HF on foot</td>
<td>232</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 30 mins</td>
<td>92</td>
<td></td>
<td>39.7</td>
</tr>
<tr>
<td>30—1hr</td>
<td>115</td>
<td></td>
<td>49.6</td>
</tr>
<tr>
<td>More than 1hr</td>
<td>34</td>
<td></td>
<td>10.8</td>
</tr>
<tr>
<td>Means of transport to HF</td>
<td>132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walked</td>
<td>112</td>
<td></td>
<td>84.8</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>11</td>
<td></td>
<td>8.3</td>
</tr>
<tr>
<td>Public vehicle</td>
<td>5</td>
<td></td>
<td>3.8</td>
</tr>
<tr>
<td>Bicycle</td>
<td>4</td>
<td></td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source of money for health care

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>51</td>
<td></td>
<td>21.9</td>
</tr>
<tr>
<td>Spouse</td>
<td>176</td>
<td></td>
<td>75.5</td>
</tr>
<tr>
<td>Relatives/friends</td>
<td>9</td>
<td></td>
<td>3.8</td>
</tr>
</tbody>
</table>
Most of these respondents (85.3%) are within 5 km distance to the nearby health facility but only 39.7% take less than 30mins to reach the HF.

Transport costs

The in-depth interviews also revealed that most mothers usually have to walk to the HF to access the services since they cannot afford other means of transport like boda bodas (motorcycles). The money is usually given to them by their spouses and a few who operate small businesses like shops are the ones that can have their own funds. One mother pointed out that, “I did not attend PNC because I come from very far. I did not have money for transport and it can be so tiring to walk that distance”.

6.4: Knowledge of PNC services and health service utilization behavior

Respondents were asked whether they knew that at 6 weeks after delivery a mother is supposed to go back to the HF for PNC services. Those who were aware of the PNC were then asked what kind of PNC services did they know of and what was the source of that information. We were also interested in knowing whether the mothers attended ANC services, the number of times of attendance, place of delivery, who makes choices and how such factors affected PNC utilization. Table 4 shows the distribution of maternal health service utilization behavior.
### Table 4: Summary of findings on Knowledge and Service utilization

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge of PNC</strong></td>
<td>232</td>
<td>141</td>
<td>60.8</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>91</td>
<td></td>
<td>39.2</td>
</tr>
<tr>
<td><strong>Source of information</strong></td>
<td>180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANC visits</td>
<td>86</td>
<td></td>
<td>37.1</td>
</tr>
<tr>
<td>On discharge after Delivery</td>
<td>37</td>
<td></td>
<td>15.9</td>
</tr>
<tr>
<td>Radio</td>
<td>32</td>
<td></td>
<td>13.8</td>
</tr>
<tr>
<td>Friends/ Neighbours</td>
<td>16</td>
<td></td>
<td>6.9</td>
</tr>
<tr>
<td>Others</td>
<td>9</td>
<td></td>
<td>3.9</td>
</tr>
<tr>
<td><strong>PNC attendance</strong></td>
<td>232</td>
<td>124</td>
<td>53.4</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>108</td>
<td></td>
<td>46.6</td>
</tr>
<tr>
<td><strong>ANC attendance</strong></td>
<td>231</td>
<td>14</td>
<td>6.1</td>
</tr>
<tr>
<td>At least one time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-3 times</td>
<td>95</td>
<td></td>
<td>41.1</td>
</tr>
<tr>
<td>4 or more times</td>
<td>122</td>
<td></td>
<td>52.8</td>
</tr>
<tr>
<td><strong>Place of Delivery</strong></td>
<td>232</td>
<td>12</td>
<td>5.2</td>
</tr>
<tr>
<td>TBA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Centre</td>
<td>87</td>
<td></td>
<td>37.5</td>
</tr>
<tr>
<td>Hospital</td>
<td>71</td>
<td></td>
<td>30.6</td>
</tr>
<tr>
<td>Home</td>
<td>56</td>
<td></td>
<td>24.1</td>
</tr>
<tr>
<td>Other (on the way to HF)</td>
<td>6</td>
<td></td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Who makes choices where to go</strong></td>
<td>222</td>
<td>9</td>
<td>4.1</td>
</tr>
<tr>
<td>Relatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>46</td>
<td></td>
<td>20.7</td>
</tr>
<tr>
<td>Self</td>
<td>160</td>
<td></td>
<td>72.1</td>
</tr>
<tr>
<td>Friends</td>
<td>03</td>
<td></td>
<td>1.4</td>
</tr>
<tr>
<td>HCWs</td>
<td>04</td>
<td></td>
<td>1.8</td>
</tr>
</tbody>
</table>
Given the above results one realizes that ANC attendance was over 99%, only one respondent out of 232 never attended ANC because she was a student during pregnancy. However among those who attended ANC, 53% had four or more visits. Deliveries from HF s were 68% and 72% of the respondents make their own choices of where to seek health care. Most respondents (61%) were aware of PNC services 6 weeks after delivery. The PNC services known to mothers were mostly; immunization of infants 97.9% (138/141) and Family planning services 26.2%. PNC attendance at 6 weeks after delivery was noted to be 53.40% (124/232).

In-depth interviews revealed that most participants were only aware of immunization of children as the PNC services they are supposed to receive 6 weeks after delivery. A few mentioned family planning services and treatment if they are sick. They recommended that HCWs should educate them during ANC visits and at time of discharge after delivery of the PNC services they are supposed to get. Some mothers suggested that they should be given a PNC form with the return date for the services. They also called for community sensitization using opinion and church leaders as well as radio Rukungiri.

6.5: PNC services Received

Out of the 232 respondents, 124 reported having attended PNC services 6 weeks after delivery. Those that attended PNC were then asked about the kind of PNC services they received at the HF. Table 5 below presents the PNC services received by the mothers.
Table 5: Distribution of PNC services received by mothers (n=124)*

<table>
<thead>
<tr>
<th>PNC services received</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization</td>
<td>122</td>
<td>98.39</td>
</tr>
<tr>
<td>Health education</td>
<td>46</td>
<td>37.09</td>
</tr>
<tr>
<td>Family planning</td>
<td>20</td>
<td>16.13</td>
</tr>
<tr>
<td>Counseling on general health issues</td>
<td>11</td>
<td>8.87</td>
</tr>
<tr>
<td>Examination of mother</td>
<td>8</td>
<td>6.45</td>
</tr>
<tr>
<td>Treatment of ailments</td>
<td>6</td>
<td>4.84</td>
</tr>
<tr>
<td>Tetanus toxoid</td>
<td>3</td>
<td>2.42</td>
</tr>
<tr>
<td>Examination of baby</td>
<td>2</td>
<td>1.61</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0.80</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>

* % based on number of respondents, multiple responses were accepted

Results show that most of the mothers who went back for PNC received immunization of the baby, some few got health education and other services are almost non existent.

6.6: Postnatal complications experienced by mothers

The study tried to establish the proportion of mothers that developed post natal complications and the kind of complications experienced. Table 6 shows the distribution of the various complications mothers experienced during the post natal period
Table 6: Post natal complications (n=232)

<table>
<thead>
<tr>
<th>PNC complications</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive bleeding</td>
<td>30</td>
<td>12.9</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>20</td>
<td>8.6</td>
</tr>
<tr>
<td>Tears to the reproductive system</td>
<td>8</td>
<td>3.4</td>
</tr>
<tr>
<td>Impaired mobility</td>
<td>6</td>
<td>2.6</td>
</tr>
<tr>
<td>Fever</td>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td>Breast problems</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Any other</td>
<td>3</td>
<td>1.3</td>
</tr>
<tr>
<td>None</td>
<td>167</td>
<td>71.70</td>
</tr>
</tbody>
</table>

*% based on number of respondents, multiple responses were accepted*

Most of the respondents never had any complication during the postnatal period (71.7%), but the main complications included excessive bleeding (12.9%) and chronic pelvic pains (8.6%).

**Action taken by mothers that experienced post natal complications**

Mothers who developed post natal complications (28.3%) were asked the kind of action taken to solve the problem; the findings are presented in the figure below.
Figure 1: Action taken by mothers following PNC complications

Most mothers, 67.7% (44/66) reported to have visited a HF when having any Post natal complication.

6.7: Reasons given for Post Natal Care non-attendance

The reasons for PNC non attendance were mainly due to lack of awareness of PNC services and the perception that PNC was not necessary following normal delivery, 50.0% (54/108) and 36.1% (39/108) respectively. These findings are summarized in the figure below.
Figure 2: PNC non attendance

Reason given for PNC non attendance

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Percentage frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not told to go back to clinic</td>
<td>50</td>
</tr>
<tr>
<td>Child sick</td>
<td>28</td>
</tr>
<tr>
<td>No clothes for baby/mother</td>
<td>9</td>
</tr>
<tr>
<td>Not necessary to deliver normally</td>
<td>36.1</td>
</tr>
<tr>
<td>A lot of responsibilities at home</td>
<td>4.6</td>
</tr>
<tr>
<td>Long waiting</td>
<td>0.9</td>
</tr>
<tr>
<td>Long distance to HF</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Home visits by Health Care Workers

Sometimes mothers do not have to go to the HF to access PNC services but rather health workers take the PNC services to the women in their homes. Respondents were asked whether they received any visit from the HCWs during the post natal period.

About 10% (24/232) of the respondents reported having been visited by HCWs however, those visited were either friends or relatives to the HCWs and the visits were just out of courtesy.

During the in-depth interview one mother pointed out that, “Unless the HCW is your friend how can she come to visit you deep in the village at your home to offer you health services?”

6.8: PNC utilization in relation with immunization of infants

Since immunization is one of the PNC services being offered at the HFs and DPT1/Polio-1 is given at 6 weeks after delivery coinciding with the first scheduled PNC appointment,
information on the immunization status of the infant was sought so as to establish whether there are some missed opportunities for mothers to receive a complete package of PNC services. Table 7 below shows the distribution of the immunization status.

Table 7: Immunization of infants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>Frequency</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Up to date Child immunization</strong></td>
<td>232</td>
<td>122</td>
<td>52.6</td>
</tr>
<tr>
<td>Yes (card seen)</td>
<td></td>
<td>61</td>
<td>26.3</td>
</tr>
<tr>
<td>Yes (card not seen)</td>
<td></td>
<td>45</td>
<td>19.4</td>
</tr>
<tr>
<td>Not up to date</td>
<td></td>
<td>4</td>
<td>1.7</td>
</tr>
<tr>
<td>Never immunized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BCG vaccination</strong></td>
<td>228</td>
<td>115</td>
<td>50.4</td>
</tr>
<tr>
<td>Within 1 week after delivery</td>
<td></td>
<td>113</td>
<td>49.6</td>
</tr>
<tr>
<td>&gt;1 week</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Received OPV1/DPT1</strong></td>
<td>220</td>
<td>111</td>
<td>50.5</td>
</tr>
<tr>
<td>At 6 weeks</td>
<td></td>
<td>109</td>
<td>49.5</td>
</tr>
<tr>
<td>&gt;6weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

About 20% of babies did not have up to date immunization and some few had never been immunized at all (1.70%). Half of the mothers brought their infants later than 6 weeks after delivery to receive OPV1/DPT1 (49.5%).

Mothers that participated in the in-depth interviews revealed that HCWs give them appointments for outreach clinics which unfortunately they do not honour. One of the participants reported, "I have been going back more than five times but without ever finding there the HCWs. My daughter is now 8 months old and is just getting the first dose". Her child lagged behind as far as immunization is concerned and at the time of the interview, was just getting DPT1/Polio1 which she would have got at 6 weeks after birth.
And she managed to get that after deciding to come to the HF rather than waiting for HCWs at the outreach posts.

6.9: Relationship between demographic factors and postnatal care utilization

Age of the respondents was categorized to determine whether young mothers may be less likely to utilize PNC services compared to older ones. Other socio-demographic factors included number of the children and birth interval. Marital status was also included to establish whether single mothers may be less likely to utilize PNC services as compared to those staying with their spouses since it is usually the spouse to provide money for transport and other related costs for health care. Table 8 below gives a summary of the results of the analysis.
Table 8: Associations between PNC utilization and some selected socio-demographic factors

<table>
<thead>
<tr>
<th>Exposure</th>
<th>PNC attendance</th>
<th>Crude OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-35</td>
<td>113</td>
<td>100</td>
<td><strong>0.79</strong></td>
</tr>
<tr>
<td>36-45</td>
<td>11</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td><strong>Number of children</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td>97</td>
<td>84</td>
<td><strong>1.03</strong></td>
</tr>
<tr>
<td>5+</td>
<td>27</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>21</td>
<td>15</td>
<td><strong>1.26</strong></td>
</tr>
<tr>
<td>Married/cohabiting</td>
<td>103</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td><strong>Birth interval</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 2 years</td>
<td>34</td>
<td>36</td>
<td><strong>0.77</strong></td>
</tr>
<tr>
<td>≥2 years</td>
<td>70</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td><strong>Education status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary or less</td>
<td>91</td>
<td>84</td>
<td><strong>0.79</strong></td>
</tr>
<tr>
<td>Secondary +</td>
<td>33</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

From table 8 above, socio-demographic characteristics that included; age of mother, marital status, education, number of children and birth interval were not found to be associated with PNC utilization.

6.10: Relationship between Socio-economic status and PNC utilization

Mothers were asked about the kind of work they do as well as that of the spouse so as to establish whether such factors have any impact on PNC utilization. The kind of house mothers stay in was also assessed to further establish the socio-economic situation of the respondents. The results are presented in table 9 below.
Table 9: Association between Socio-economic factors and PNC utilization

<table>
<thead>
<tr>
<th>Employment of Mother</th>
<th>PNC attendance</th>
<th>Crude OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>House wife/Public sector</td>
<td>106</td>
<td>3.25</td>
<td>1.13—9.72*</td>
</tr>
<tr>
<td>Housewife/self employment</td>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private sector</td>
<td>6</td>
<td>0.78</td>
<td>0.43—1.40</td>
</tr>
<tr>
<td>Spouse employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peasant farmer</td>
<td>60</td>
<td>0.27</td>
<td>0.12—0.58*</td>
</tr>
<tr>
<td>Employed</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>House lived in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent</td>
<td>12</td>
<td>0.27</td>
<td>0.12—0.58*</td>
</tr>
<tr>
<td>Semi-permanent</td>
<td>112</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = statistically significant association

Employment of the respondents (mothers) as well as the type of house lived in, were found to be affecting PNC utilization; a housewife or a mother working in public sector is 3 times (CI:1.13—9.72) more likely to utilize PNC services than a mother working in the private sector. Living in a permanent house as compared to semi-permanent is however, associated with less likelihood of utilizing PNC in Rukungiri district (OR= 0.27, CI: 0.12—0.58).

Relationship between knowledge of PNC services, ANC attendance, place of delivery and PNC utilization.

Analysis was performed to establish whether knowledge of PNC services, ANC attendance and place of delivery affect PNC utilization. The findings are given in table 10 below.
Table 10: Associations between Knowledge of PNC services, ANC attendance, place of delivery and PNC utilization

<table>
<thead>
<tr>
<th>Exposure variable</th>
<th>PNC attendance</th>
<th>Crude OR</th>
<th>95% Conf. interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of PNC</td>
<td>Yes</td>
<td>107</td>
<td>13.69*</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>34</td>
<td>7.13 - 26.33</td>
</tr>
<tr>
<td>ANC attendance</td>
<td>Yes</td>
<td>17</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>74</td>
<td>0.71 - 2.14</td>
</tr>
<tr>
<td>Place of Delivery</td>
<td>3 times or less</td>
<td>61</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>4+ times</td>
<td>48</td>
<td>0.58 - 1.89</td>
</tr>
<tr>
<td>Health Facility</td>
<td>Yes</td>
<td>85</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>73</td>
<td>1.04</td>
</tr>
<tr>
<td>Home/TBA/other</td>
<td>Yes</td>
<td>39</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>35</td>
<td>1.04</td>
</tr>
</tbody>
</table>

* = Statistically significant association

From the above table, mothers who were aware of PNC services were 13.69 times likely to attend PNC 6 weeks after delivery than those who were not informed. Place of delivery and ANC attendance however, were not associated with PNC utilization.

6.13: Impact of Distance to HF on PNC utilization

Information on distance to HF and time mothers spend walking to the nearest facility was noted and analysis carried out to find the relationship of such factors with PNC utilization. The findings are presented in table 11 below.
Table 11: Association between distance to the nearest HF and PNC utilization

<table>
<thead>
<tr>
<th>Distance</th>
<th>PNC attendance</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤5km</td>
<td>Yes</td>
<td>104</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>&gt;5km</td>
<td>Yes</td>
<td>20</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

Time to HF on foot

<table>
<thead>
<tr>
<th>Time</th>
<th>PNC attendance</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤30 mins</td>
<td>Yes</td>
<td>59</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>&gt; 30 mins</td>
<td>Yes</td>
<td>65</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

* = Statistically significant association

Given the above findings the time one spends walking to the HF is associated with PNC utilization; mothers who take less or equal to 30 mins to reach the HF are 2 times likely to utilize PNC services than those who take much longer time. Distance categorized by “within 5km” distance to HF or not was not found to be statistically significant in hindering PNC utilization.
6.14: Multivariate analysis

Logistic regression was used to control for confounding. All independent and plausible factors identified during bivariate analysis as determinants for utilization of PNC were included into the model.

\[
\text{Logit } P(Y) = \alpha + \beta_1 (\text{Occupation of mother}) \\
+ \beta_2 (\text{Age of mother}) \\
+ \beta_3 (\text{Knowledge of PNC}) \\
+ \beta_4 (\text{Time to Health facility}) \\
+ \beta_5 (\text{Type of house lived in}) \\
+ \beta_6 (\text{Education status of mother}) \\
+ \beta_7 (\text{Number of ANC attendance})
\]

Where logit \( P(Y) \) is the probability of utilization of PNC services which has to be explained by the variables in the model

\( \alpha = \text{ls the intercept} \)

\( \beta = \text{is the slope of the gradient of the independent variable} \)

Table 12 below displays the results of logistic regression of the best fit model. The loglikelihood of the model was 236.78 and overall, 86% of the dependent variable was correctly predicted by the variables in the model.
Table 12: Adjusted Analysis

<table>
<thead>
<tr>
<th>Exposure variable</th>
<th>Crude OR</th>
<th>95% Conf. interval</th>
<th>Adjusted OR</th>
<th>95% Conf. interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education of mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary or less</td>
<td>0.79</td>
<td>(0.41—1.50)</td>
<td>1.12</td>
<td>(0.49—2.60)</td>
</tr>
<tr>
<td>Secondary +</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation of mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife/public sector</td>
<td>3.25</td>
<td>(1.13—9.72)</td>
<td>1.26</td>
<td>(0.44—3.61)</td>
</tr>
<tr>
<td>Private sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15—35 years</td>
<td>0.82</td>
<td>(0.29—2.31)</td>
<td>1.08</td>
<td>(0.33—3.52)</td>
</tr>
<tr>
<td>36—45 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of PNC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13.69</td>
<td>(7.13—26.33)</td>
<td>12.12*</td>
<td>(6.12—24.02)</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to HF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 30 mins</td>
<td>2.06</td>
<td>(1.16—3.67)</td>
<td>0.85</td>
<td>(0.43—1.65)</td>
</tr>
<tr>
<td>≥ 30 mins</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of house lived in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent</td>
<td>0.27</td>
<td>(0.12—0.58)</td>
<td>0.32*</td>
<td>(0.13—0.80)</td>
</tr>
<tr>
<td>Semi-permanent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of ANC attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 or less</td>
<td>1.23</td>
<td>(0.71—2.14)</td>
<td>0.99</td>
<td>(0.51—1.95)</td>
</tr>
<tr>
<td>4+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant after logistic regression

After logistic regression the variables that remained significantly associated with utilization of PNC services included; the type of house lived in, where the β coefficient was – 1.137 (p= 0.015, OR= 0.32; 95%CI: 0.13—0.80) and Knowledge of PNC services with a β coefficient of 2.495 (p= 0.00, OR= 12.12; 95%CI: 6.12—24.02).
Other variables like; Age of the mother, Education level, occupation of the mother, time to the HF and the number of ANC attendance were not statistically significant.

6.15: Recommendations by mothers on how to improve PNC services

Respondents were asked to mention ways through which PNC services may be improved so as to encourage mothers to utilize them. The figure below gives a summary of what they suggested.

Figure 3: Recommendations given by respondents

* Multiple responses were accepted
Recommendations suggested included; health education followed with sensitization, quality services, home visits and bye-laws that would encourage mothers to attend maternal services (see figure 3 above).

6.16: Other findings on client related factors associated with PNC utilization

Eight in-depth interviews were conducted in order to elicit corroborative evidence on some of the reasons identified by quantitative survey. Four of these participants had attended PNC and four had not attended. The participants pointed out that lack of accessibility of services, perceived poor quality of services and lack of the right knowledge were some of the hindrances to utilization of PNC services.

Additional issues talked about that influence PNC utilization were professional conduct of HCWs and family support.

Quality of services

The participants complained of the long waiting lines and indicated that they get tired of staying the whole day at the HF waiting to receive health services. A number of them also pointed out that HCWs in public HFs are usually rude, abusive and insensitive. One them said that “unless I am so badly off and without any money I would not go to public HFs for health services. I prefer Private HFs, pay money but assured of good handling”

Family support

Most participants indicated that their spouses help them with household chores following deliveries and sometimes the community members may be of some social support. Community members rarely contribute financially unless there is some special
association/group organization. House hold responsibilities were not a hindrance to accessing PNC services, all participants pointed out.

6.17: Organization of PNC services at HF

Using a check list 10 HF including 5 HCII, 4 HCIII and one HCIV were studied. All the HF offer PNC services but these are limited to immunization of children, growth monitoring and occasionally health education. Family planning services are offered to only those mothers who request for the service and are not integrated within the under five clinics.

The under five clinics are only offered once a week in each HF and are run by usually 2 nurses that range from a general nurse, midwife to a nursing assistant. There were no PNC guidelines in any of those HF and no comprehensive PNC services being offered to the mothers.
7.0: DISCUSSION

The study was conducted in order to establish the PNC services that are offered in the HF in Rukungiri District as well as to identify the health service factors and client related factors that are associated with utilization of PNC services in the District.

The PNC attendance at 6 weeks after delivery was found to be 53.4%, which is higher than that recorded in HMIS reports of 2005/2006 which stood at 10% and also higher than that reported by MOH of 25.2% which is out of the mothers that deliver from HF. The discrepancy could be due to the fact that mothers who come back for immunization of their children at 6 weeks are not offered the comprehensive PNC services and hence not recorded. This is in agreement with the survey done in Zimbabwe by Sibanda et al, 2001 which noted that PNC attendance was found to be greater than usually reported.

7.1: PNC services offered in HF in Rukungiri District

The study established that the PNC package offered in the district predominantly consisted of immunization of the baby (98%), followed with health education (37%) and family planning (16%). Other services like examination of mother and her child, counseling and physiotherapy are almost non existent. This is supported by the information obtained from the in-depth interviews as well as that elicited by the checklist while reviewing the HF. The Study has actually confirmed that mothers do not receive comprehensive post natal services. The probable explanation for this could be due to lack of guidelines on what and how to offer PNC services. Lack of integration of the maternal child health services is another contributing hindrance to comprehensive PNC uptake.
7.2: Client related factors associated with utilization of PNC services

7.2.1: Demographic Factors

A significant proportion of mothers (44.4%) were 25 years and below. Age of mothers was not found to be associated with utilization of PNC services, unlike what was reported by MOH, 2005 that adolescent mothers rarely utilize maternal services. The number of children a mother had was also not found to affect PNC utilization in Rukungiri District. These findings do not agree with those of the study conducted by Kogan and Leary (1990) which reported that the more children a woman had the less likely that she returned for PNC services.

Education level of mothers was found to be low with 71.5 % of mothers stopping at primary level. However this did not affect the utilization of PNC services, (adjusted OR=1.12; CI: 0.49—2.60). The findings do not agree with those of the survey conducted by Bhatia et al, 1995 in Karnataka state, India which reported Education level, economic status and religion of the mother as the significant predictors of use of maternal health services. The UDHS, 2006 also reported that better educated women are more likely to receive PNC than other women but this was not found to be true with women in Rukungiri District. This could be due to the fact that low utilization of maternal services is rarely as a result of client related factors but rather due to providers failing to communicate effectively with their clients (WHO, 2005; Obermeyer et al, 1991).
7.2.2: Socio-economic factors of respondents

Eighty three percent of mothers were found to be house wives and thus not having any paying employment, and as a result they depend on their spouses to meet the transport costs and related costs of health care. The economic status of a mother is thus a key factor expected to affect utilization of PNC services by mothers. At bivariate analysis however, being a house wife was found to be 3 times associated with utilization of PNC services as compared to working in the private sector. The findings do not support the conclusions made by Nanda (2002) and Blanchard-Horan (2003) that people who depended on agriculture and of low income have limited access to cash which restricted their ability to meet the direct and indirect costs of their health care. The findings could be explained by the fact that mothers employed in private sector may not have time to spare to attend PNC services, and if they had normal delivery may not perceive PNC services as important.

Employment of the spouse on the other hand was not found to affect the likelihood of a mother utilizing PNC services, (OR=0.78; 95% CI: 0.02—8.75). These findings do not correlate with those of the study conducted by Nuwaha et al (1997) which stated that those mothers married to peasant spouses were less likely to utilize maternal health services. This could be due to PNC services being free of charge in all HFs in Uganda, Rukungiri District inclusive.

The study also established that most mothers (over 80%) stay in semi-permanent houses which indicate the low socio-economic status of these mothers. However, living in a
permanent house was found to be associated with less likelihoodness of utilization of PNC services (adjusted OR = 0.32; 95% CI: 0.13–0.80). This could probably be due to the fact that people with better living standards are usually also in formal employment such as the private sector and thus do not find time to attend PNC services.

### 7.2.3: Knowledge/Awareness of mothers

A number of mothers were not aware of PNC services available to them 6 weeks after delivery (39.2%). Those respondents who were aware that they were supposed to go back to HF after delivery knew mostly about immunization of their infants (97.9%), family planning services (26.2%) and health education (25.5%). Almost none of the respondents were aware of other services like examination of the mother and her baby, counseling on breast feeding and other health issues, as well as physiotherapy. One of the main reasons given by mothers for non attendance of PNC services was that they were not told to go back by the HCWs or they were not aware of the existence of the services. These findings were supported by the information obtained from the in-depth interviews.

Lack of knowledge on PNC services was a hindrance to utilization of those services. Mothers who were aware of PNC services were 12 times (95% CI: 6.12—24.02) more likely to utilize PNC services than those who were not aware of the existence of the services. A number of mothers did not know which services, when to get them and from where. The findings correlate with the conclusions made by Nankwanga, 2004 that lack of awareness of PNC was one of the barriers to utilization of those services. Mothers also did not perceive any benefit from attending; 36.1% of mothers who did not attend PNC
after delivery reported that it was not necessary since they delivered normally which affirms the observations by WHO, 2005 report.

The main source of information concerning PNC package was ANC visits and at time of discharge from HF after delivery. However, there was no significant association between the numbers of ANC visits a mother had during pregnancy, the place of delivery, with PNC utilization. These study findings are contrary to the observations by York et al, 2000 that levels of prenatal care utilization would predict the levels of attendance at PNC visits. The probable explanation for this could be due to the fact that HCWs fail to explain to the mothers the importance of PNC package.

7.2.4: Family and community support

The qualitative findings provided corroborative evidence that mothers receive substantial support both financially and physically from their spouses following delivery. The spouses were said to be very helpful with household chores like fetching water and firewood, cleaning as well as looking after children during the immediate postnatal period. The findings are contradicting the perceptions of most researchers and politicians who believe that spouses are non supportive of their wives. The community support on the other hand is usually very limited reflecting the conclusions by Pulani et al, 2007 that communities are an untapped resource for improving maternal and neonatal health.

7.3: Health Service factors

7.3.1: Distance to Health Facility and related costs

Most mothers (85.3%) were found to live within 5km distance to HF and most of them just walk to receive health services due to lack of money for transport. These findings
were also affirmed by those from the In-depth interviews and are in agreement with the observations by Pulani et al (2007) that transport and distance to care were the biggest problems particularly in rural areas. About 40% of the respondents take less than 30 mins to reach the health facility and at bivariate analysis they were 2 times more likely to utilize PNC services than those that take longer than 30 mins. These study findings correlate with those of Mwaniki et al (2002); Gulliford et al (2001) and those of Nuwaha, (1997). However, in this case the distance mothers were willing to walk to the HF had to be covered within 30 mins, which is a distance of about less than 2 km. This is contrary to the target of MOH Uganda concerning access to health services which is defined as living within 5km distance to the HF.

7.3.2: Quality of Health Services

The behavior of the PNC health providers was found to be one of the hindrances to utilization of the services. This was elicited mainly from the qualitative study which found that HCWs especially in public HFIs were rude, abusive and insensitive. Mothers also complained of HCWs not honoring appointments at the outreach sites and the long waiting lines at the HFIs resulting in spending the whole day at the HF. These findings correspond to those of Nankwanga (2004) and Safe motherhood (1998). Similar conclusions were reported by Obermeyer et al (1991) that it is often the services that are inadequate in quality and insensitive providers that fail to communicate effectively with their clients.
7.4: Postnatal Care and Immunization

The study obtained information on the immunization status of the infants in order to establish whether there are some missed opportunities for those mothers that bring their infants to receive DPT1/Polio1 at 6 weeks but fail to receive other PNC services. We found that about 20% of the infants did not have up to date immunization status. Even though 68% of the respondents delivered from HFUs, only 50% of the infants received BCG vaccination within 1 week of delivery and a corresponding number got DPT1/OPV1 at 6 weeks after delivery which correlate with the PNC attendance of 53.40%. About half of the infants get DPT1/OPV1 much later following delivery; past 6 weeks which is also the first scheduled time for PNC attendance. The qualitative study established that mothers do actually turn up at the outreach sites but only not to find the HCWs. This is in agreement with the conclusions by Safe motherhood (1998) and Obermeyer (1998) that health care providers are usually uncaring and do not attend to their duties.
8.0: CONCLUSIONS AND RECOMMENDATIONS

8.1: CONCLUSIONS
The PNC package being offered at Health facilities in Rukungiri District is mostly restricted to immunization of the infant and health education to a lower extent. Other services like counseling of mothers, physical examination of mother and baby are rarely done. Family planning services are only offered on request and are not integrated in the under five child clinics.

Socio-demographic factors in this study that included age, religion, marital status and education of respondents were not found to influence the utilization of PNC services. Factors like the number of children in the household and the sex of the baby were also found not to affect PNC utilization at 6 weeks after delivery. Mothers employed in the private sector were less likely to utilize PNC services as compared to housewives, self employed and those in the public sector.

In Rukungiri District, being aware of the existence of PNC services and knowing that following delivery a mother is supposed to go back to the health facility for those services was found to improve the chances of utilization of PNC services. Living within a walkable distance to the HF, where mothers take less than 30 minutes, was found to improve the chances of a mother utilizing the PNC services. But poor attitude towards health care providers where mothers perceive them as rude and insensitive was found to hinder utilization of PNC services 6 weeks after delivery.

Most of the mothers were found to be willing to come for preventive services as indicated by uptake of DPT1/OPV1 which corresponds with PNC utilization at 6 weeks after
delivery. However, a number of mothers come late for such services and it was established that HCWs not honoring the appointments hinders uptake of such services resulting into missed opportunities.

8.2: RECOMMENDATIONS

- Post natal maternal and child health services should be offered to the clients on the same visit so as to ensure that comprehensive PNC services are given to all mothers.

- Ministry of health should design and distribute to all HF's guidelines for provision of PNC services in order to standardize and enhance PNC service delivery.

- The DHT in Rukungiri should carry out sensitization and health education of community (mothers and their spouses) to raise awareness on maternal service utilization, PNC inclusive at all HF's and at all opportunities. Mass media such as radio Rukungiri can also be utilized for that purpose since majority of the respondents were found to own a radio.

- Training of HCWs, midwives in particular on counseling, communication skills and how to impart relevant information to mothers should be done through refresher courses and workshops.

- Geographical as well as functional access to health services need to be improved

- Further research on quality of PNC services offered at HF's should be done using more robust study designs such as a case control study.
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Appendix 1: Questionnaire

QUESTIONNAIRE For factors associated with the low PNC service utilization
Identification No. ____________________
Name of Interviewer ________________ Date of Interview ___________________

Section 1. Demographic issues
Age (in years) of Mother ___________ Place of Residence ______________________
Religion of Mother
1 = catholic 2 = protestant 3 = Pentecostal 4 = Muslim 5 = other
Religion of Spouse
1 = catholic 2 = protestant 3 = Pentecostal 4 = others 5 = other
Date of Delivery of youngest baby ___________ Age in months of youngest baby ______
Sex of youngest baby: 1: Female 2: male

Section 2. Social Economic Factors
1. Education level
   1 = None 2 = Primary not completed
   3 = Primary completed 4 = Secondary, O-level
   5 = Secondary A-level 6 = Tertiary

2. Marital Status
   1 = Never Married 2 = Married/Co-habiting 3 = Separated/Divorced/ Widowed

3. Employment of Mother
   1 = House wife 2 = Agriculture 3 = Public sector
   4 = Private sector

4. Employment of Spouse
   1 = Peasant Farmer 2 = Self Employment 3 = public sector 4 = Private sector
   5 = None

5. Parity of Mother (tick) 1, 2, 3, 4, 5, 6, 7, >7

6. Birth interval between youngest & second youngest children
   1 = one year and less 2 = more than one year but less than two years
   3 = two years and above

7. Number of Children in the House hold
   1 = 1-2 2 = 3-5 3 = over 5 children
8. Type of House: 1 = Grass thatched House  2 = Iron Roofed but with mud wattle walls  
3 = Iron Roofed, Walls Cemented  4 = Tiled Roof or floor

9. Household assets;  1 = Radio  2 = Bicycle

Section 3  Health Service Utilization Behavior/Knowledge

10. Did you attend ANC during the last pregnancy?  1 = Yes  2 = No

11. How many times did you attend ANC  1 = 1 time  2 = 2 to 3 times  
3 = 4 or more

12. If No, why did you not attend ANC? Please explain..............................

13. Where did you deliver the youngest child from?
1 = TBA  2 = Health Centre  
3 = Hospital  4 = Home  5 = Other (specify)..............................

14. Who made that choice of where to deliver from for you?
1 = Spouse  2 = Relatives  
3 = Self  4 = Friend/neighbor

15. Why did you decide to deliver from that place stated in 13 above?
1 = It is the nearest place  2 = Like the place because of quality of services  
3 = It is free  4 = I know someone working there  5 = No reason

16. By what method did you deliver?
1 = Normal vaginal delivery  2 = Caesarian section  3 = Assisted delivery/vacuum  
5 = Breech delivery

17. Were you happy with the services which were offered?  1 = Yes  2 = No

Please explain..................................................................................

18a. Do you know the Post natal Care services (PNC package) you are supposed to get after delivery until 6-8 weeks?  1 = Yes  2 = No

b. Name those services
1 = Immunization of baby  5 = Physical examination of baby/growth monitoring  
2 = Family planning services  6 = Physiotherapy  
3 = Health Education & or counseling  7 = Others  
4 = Physical examination of mother

19. Where did you get the information about PNC from?
1= ANC visits  2= HF at time of delivery  3= Relatives  4= Neighbor/ friend
4= other (specify)........................................

20. What do you think is the importance of the PNC package?

21. Did you go to Health Facility for Post natal Care 6 weeks after delivery?
   1= Yes  2= No

22. If No, Why didn’t you go for PNC?
   1= I was not told to go back/ not aware of PNC
   2= It was not necessary since I delivered normally and did not get any problem after
   3 = I have a lot of responsibilities at home thus I can’t find time
   4= No money for transport
   5= My Husband could not allow me
   6= Because of long distance to Health Facility
   7= HCWs Rude and insensitive
   8= Long Waiting lines
   9= other (specify)........................................

23. How far from home is the nearest HF?
   1= Less than or equal to 5 km  2= More than 5km

24. How long do you take while on foot to reach that HF?
   1= less than 30 mins  2= more than 30 mins < 1.0 hour
   3= more than 1.0 hour

25. If you attended PNC what means of transport did you use to reach the HF?
   1= Walked  2= Bicycle  3= Motorcycle  4= Public Vehicle

26. How much money does it cost you to reach the HF? ________________

27. Who gives you the money for your health care including transport costs?
   1= self  2= spouse  3= relatives  4= friends/neighbors

28. Why did you attend PNC Services?
   1= Told by Midwife  2= To access FP services  3= Immunize baby
   4= Ensure I was normal  5= Ill health  6= Others (specify)

29. Did you pay money at the H/Facility at time of PNC visit?  1= Yes  2= No

30. What kind of services did you receive when you attended PNC consultation?
1 = Counseling  2 = Family planning  3 = immunization of baby
4 = physical examination  5 = Health Education  6 = physiotherapy
7 = others (specify) ...........................................

31. Which of the following problems did you get during the postnatal period?
1 = chronic pain  2 = impaired mobility  3 = excessive bleeding after delivery
4 = tears to the reproductive system  5 = prolapsed uterus  6 = none
7 = other, specify ..................

32. What did you do for the above problems?
1 = used herbs  2 = bought medicine from drug shop  3 = used medicine left for previous illness
4 = visited Health facility  5 = got medicine from neighbor

33. Did you receive any visit from a Health worker from time of delivery up to 8 weeks?
1 = Yes  2 = No

34. What about the baby, did he/she get any problem during that time (Post natal period)
1 = fever  2 = difficult breathing  3 = breast feeding problems  4 = changed color to yellow for many days
5 = none  6 = Other, specify ........................................

35. State what you did for the baby’s problem?
....................................................................................

Section 4: Immunization uptake in relation to PNC utilization

36. Is the Child Immunized up to date for the age (use schedule below)?

Please check Card if available  1 = Yes (Card Seen)  2 = Yes (but Card not Seen)
3 = No
37. Did the child receive BCG immediately after birth?
1= within 1 week after delivery   2= >1 week after delivery

38. After how long from time of delivery did child receive OPV1/ DPT1?
1= 4-6 weeks   2= > 6 weeks

39. Do you have any Recommendation to MOH/ DHT/ HCWs on what can be done so that mothers can utilize PNC services?

THANK YOU FOR YOUR TIME/PARTICIPATION!
Appendix 2: Informed Consent Form

Good morning/afternoon Madam,

I am (Name of interviewer)....................., from the DHO's office Rukungiri. We are conducting a study on utilization of post natal services, collecting the information which will assist the DHT to design appropriate interventions so as to improve Maternal/ Child Health services in the District.

We request you to participate in the study by answering the questions in this questionnaire. The interview will take about 45 mins and there are no risks to participation. All the information we obtain from you will be treated with utmost confidentiality during and after the study. Your name will not be included on the form and the information you give will not be shared with other people except the DHT members involved in the study. You are free to accept or not to answer these questions at any stage during the questioning. In case of any further inquiries, you can contact the Principal investigator on Telephone 0772458835

Thank you for your participation

Signature of the respondent............................................

Witness.................................................................

Date.................................................................
Appendix 3: In-depth interview Guide
On “Factors affecting PNC utilization in Rukungiri District “

Attendance of PNC
1. a, Do you know the PNC services you are supposed to get 6wks after delivery?
   b, What are those services?
2. Did you attend PNC 6 weeks after delivery?
   a, If Yes, what prompted you to attend this service?
   b, Do you think PNC services are beneficial? If yes, in what ways?
   c, If you did not attend PNC, why did you not attend? Please explain

Family and community support
3. How do you get the money for Health care including transport costs?
4. What kind of support do you receive from your spouse concerning health care, PNC inclusive?
5. What kind of support do you receive from the community members?
6. In your opinion, do you think house hold chores/roles affect your utilization of health service? If Yes, How?
7. What can be done to ensure that mothers go and receive PNC services?

Thank you for the information and your time
Appendix 4: Check list for Health facilities

On “Factors affecting utilization of PNC services”

1. Name of the Health facility ________________________________
2. Type of Health facility ______________________________________
3. Do you provide PNC services? Yes/No

4. The following services are offered at the HF (tick appropriately)
   Immunization of children
   Family planning services
   Health Education
   Counseling on breast feeding, care of baby and mother
   Physical examination of mother
   Physical examination of baby
   Treatment of illnesses and complications
   Physiotherapy

5. The under five clinic
   Available everyday
   Available only on specific days

6. The number of HCWs that run the clinic _______________________

7. The HCWs qualifications
   - Midwives _________
   - Registered/Enrolled nurses___________
   - Nursing Assistants _____________
   - Clinical Officers _______________ 
   - Others _______________

8. Average number of mothers seen per day/PNC clinic ______________

9. Guidelines on PNC package available or not available _______________

10. PNC clinic integrated within the Under-five clinic; Yes/No ___________
Appendix 5: MAP OF RUKUNGIRI DISTRICT (Study site)