FACTORS INFLUENCING UTILIZATION OF POSTNATAL CARE IN FIRST WEEK AMONG POSTPARTUM MOTHERS AGED 15-49 YEARS IN BUGIRI DISTRICT.

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A POSTGRADUATE DISSERTATION PRESENTED TO FACULTY OF HEALTH SCIENCES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE IN MASTER OF PUBLIC HEALTH

POPULATIONAND REPRODUCTIVE HEALTH OF

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DEDICATION

I dedicate this study to my late grandfather, Chief (Opi) Paskazio Labite Amero.

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The completion of this study could have not been possible in absence of support from a number of people involved. As I acknowledge people who supported in this research, I would like to recognize and acknowledge God for the divine guidance and wisdom and resilience provided.

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LIST OF ABBREVIATIONS AND ACRONYMS

AHSPR	Annual Health Sector Performance Report
ANC	Antenatal care
AOR	Adjusted Odds Ratio
CSA	Central Statistical Agency
DHO	District Health Officer
DISO	District Internal Security Officer
EBF	Exclusive Breast Feeding
HCII	Health Centre two
HCIII	Health Centre three
HCIV	Health Centre four
KDHS	Kenya Demographic Health Survey
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
NIPORT	National Institute of Population Research and Training
PNC	Postnatal care
PNFP	Private Not for Profit
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic Health Survey
uOR	Unadjusted Odds Ratio
WHO	World Health Organization

DEFINITION OF KEY TERMS

Maternal death	Refers to the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (WHO, 2016)
Postpartum Period	Means the period of up to six weeks or 42 days after birth when maternal physiological changes related to pregnancy return to the non-pregnant state (Berens et al., 2018)
Postnatal Care	Refers to the recommended care given to mother and newborn to reduce maternal and newborn deaths during the postpartum period (WHO, 2013). This may include counseling on baby care, support breastfeeding, maternal nutrition, provide contraception service, and immunize the infants
Postnatal Care Utilization in first week	Postpartum mothers receiving care by provided by healthcare provider in the first week after delivery
Household	Means a group of individuals who live in a home, who usually eat meals together (UBOS, 2016)

EXECUTIVE SUMMARY

Background: High maternal and infant deaths occur within the first 24 hours to during the first week after birth which is a critical time for both the mother and newborn. Although utilization of early postnatal care prevents the great majority of maternal and infant morbidity and mortality, the period is largely the most neglected in most of the developing countries. Knowledge on the determinants of postnatal care assists the policy makers to design, justify and implement appropriate interventions.

Study Objective: The aim of the study was to determine the factors associated with utilization of postnatal care in the first week after delivery among postpartum mothers in Bugiri district.

Methods: The study used community based cross sectional study design. Sample size was determined using Kish Leslie formula of 1965. Multi-stage random sampling technique was used and data was collected using structured questionnaires, key informants interview and observation checklist. Data was cleaned and entered into SPSS version 20 for statistical analysis at 95% Confidence Interval. Chi-square ($\chi 2$) test was used to analyze relationship between dependent and independent variables. Statistical associations with probability values of less than 0.005 were considered statistically significant for logistic regression analysis into odds ratios (ORs) with subsequent 95% Confidence Interval (CI). On the other hand, qualitative data was organized into themes using ATLAS ti for analysis and observation checklist data was quantified into frequencies and percentages.

Results: The study found than more than half (59.9%) of the respondents had their first PNC after a seven days after delivery. On the other hand, less than half (40.1%) utilized PNC in the first week after delivery. Occupation (p=<0.001), participation in community activities, (p=0.001), post-delivery follow ups (p=0.001), education about PNC schedules (p=0.005), knowledge on timing of PNC (p<0.001) and waiting time (p=0.048) were significantly influencing utilization of PNC in the first week. Multivariable logistic regression analyses revealed that post-delivery follow ups of postpartum mothers significantly influenced use of PNC in the first week by42% (AOR=0.42, 95%CI=0.214-0.828, p=0.012). Postpartum mothers educated about the PNC attendance during ANC visits were 2.05 times likely to utilize PNC in the first week after delivery compared to those who were not informed (AOR= 2.05, 95%CI=1.048-4.024, p=0.036). Postpartum mothers who mentioned PNC attendance timing within 24 hours to 7 days were 3.36 times likely to utilize PNC in the first week compared to those who mentioned that early postnatal period ranges from 7 days and beyond/42 days after delivery (AOR=3.36, 1.705-6.60, p<0.001).

Conclusion: Utilization of postnatal care in the first week after birth was low, at less than half 40.1%. Utilization of postnatal care in the first week requires encouraging and educating women on necessities of attending PNC in the first week irrespective of place of delivery, conduct follow ups for postpartum mothers after delivery.

CHAPTER ONE

INTRODUCTION

1.0. Introduction

Postnatal care is care given to the mother and newborn baby immediately after the birth of the baby and removal of the placenta for the first six weeks of life (WHO, 2010). This is very important for both the mother and newborn in the critical time from the first week to 42 days post-delivery. Evidence showed that almost half of the postnatal maternal deaths occur within the first 24 hours (WHO, 2015, p.1) and it was also confirmed that 66% of the death occur during the first week (Nour, 2008). According to Workineh & Hailu, (2014), postnatal care plays significant role in avoiding most of the maternal and infant morbidity and mortality but despite the improtance, the period is largely neglected in most of the low income countries.

Maternal and newborn deaths occur mostly during pregnancy, delivery, or within the first week after delivery (WHO, 2011). Postnatal care (PNC) in the first hours and days after childbirth prevents significant majority of maternal and newborn deaths. In Uganda, PNC is provided by care provider at six hours, six days and six weeks (Quality Health Care Initiative (QHCI), 2013).

1.1. Background of the Study

Globally, postnatal care is recognized as a significant care in sustaining and promoting the health of the mother and the newborn through support for the initiation of exclusive breastfeeding; proper feeding practices; personal hygiene; family planning counseling and services; provision of vitamin A; and Iron supplementation to the mother as well as immunization of the newborns (WHO, 2010).

In developing countries, care provision by skilled health workers did not benefit about half all mothers and newborns at time of birth and shortly after birth (WHO, 2011). As a result WHO recommended that the mothers utilize postnatal care within twenty four (24) hours followed by second or third day (48-72 hours), between days seven to fourteen (7-14) and the fourth on the six (6) weeks after birth for all mother including those who had home deliveries (WHO, 2015).

A study in Nepal found that community factors including place of residence and ecological region; socio-demographic factors like wealth status, religion, education, maternal occupation and factors like use of recommended ANC, place of delivery, skilled attendance during delivery were significantly associated with utilization of postnatal care (Khanal et al., 2014).

In Ethiopian, the coverage of postnatal care utilization was too low with women (92 %) with a live birth in the last five years before the study had not had PNC checkup (Central Statistical Agency (CSA), 2011). According to study by Berhanu *et al* (2016), the key factors associated with utilisation of PNC were PNC appointment provision by the health care provider, counseling of women on danger signs, history of previous PNC utilisation and length of stay at the facility before discharge. In a study in Tanzania, the predisposing factors like maternal education, place of residence and communities with high contraceptive prevalence were associated with use of postnatal care (Mohan et al., 2015). This study however did not focus on utilisation of PNC in the first week.

Although there was reduction in MMR from 438/100,000 live births, the current MMR of 336/100,000 live births is still unacceptable as well for neonatal mortality at 27/1000 live births (UBOS & ICF, 2017).

Obstetric haemorrhage is still the highest cause of maternal mortality (42% followed by uterine rupture (8%) (MoH, 2016). Maternal deaths are also extremely high on the immediate postpartum period, the first and second day after birth (WHO, 2014). However, postnatal care seeking in Uganda is still poor and disproportional across regions.

The proportion of women seeking postnatal care in urban areas is better (67%) than that of rural of 51% (UBOS & ICF, 2017). The utilization of postnatal care depends on a number of factors. A study finding by Izudi and Amongin (2015) showed that mothers informed about postnatal schedules were more likely to use early postnatal care. In addition, the study further revealed that scheduling for specific days was significantly associated with utilization of early postnatal care. On the other hand, they also found that one day increase in length of stay in health facilities after delivery led to 40% reduction in the utilization of early postnatal care with a week.

According to the UDHS 2016, 97% of women received ANC and only 54 % of the women received PNC for their last birth within the first two days following delivery and 43.3% for Busoga region below national level of 54% (UBOS & ICF, 2017). The Sexual and Reproductive Health Policy Guidelines for Uganda (MOH, 2011) indicated that a newborn receive PNC within the first 24 hours of life, 6 hours, within seven days and at six weeks for institutional delivery.

Thereafter, within the first 6 hours of birth, care should be provided on an hourly basis and after discharge, the mother is expected to return for a checkup in the first week post-delivery. In case of delivery outside a health facility, PNC after birth is required within the first six hours after birth thereafter return within the first seven days and then within six weeks.

Despite a significant number of interventions for maternal and child health in Uganda both by the government and the non-government organizations, maternal, neonatal and perinatal deaths still remain significant burden (WHO, 2014).

In 2016, the maternal mortality was at 336/100,000 live births and neonatal deaths of 27/1000 live births (UBOS & ICF, 2017) which were mainly associated with postpartum sepsis (20%) and neonatal sepsis (6.3%) respectively and malaria (42.8%), pneumonia (11.2%) and anemia at10.6% (MoH, 2016).

In 2001, the MOH of Uganda established the Village Health Teams strategy to overcome challenges and ensure equitable access to health services at community level (MoH, 2016). In 2014/15, an assessment in 112 districts of Uganda found major gaps in the implementation of VHT strategy (MoH, 2016). In addition, in place for implementation is the Community Health Extension Workers Strategy (2015/16-2019/20) that provides services for postpartum mothers on infant care, nutrition and exclusive breastfeeding, promote hygiene, immunization and others (MoH, 2016) and tasks in all Primary Health Care core including home visits and follow ups of postpartum and newborns MoH (2010). However, low interest, lack of transport, inconsistent remuneration, inadequate staff, equipment and supplies and lack of community involvement affects their work (MoH & United Nations, 2015).

Bugiri district has population of 382, 913 (186, 400 males and f196, 513 females) and population growth rate of 3% per year, has a general hospital, one health HCIV, thirteen (13) HC IIIs and twenty three (23) HCIIs including private and informal healthcare providers.

The Annual Health Performance report of 2013/14 showed that Bugiri District has the lowest postnatal attendance in Busoga region. The district's general Hospital also has PNC attendance below the average attendance for all the general hospitals in Uganda (MoH, 2015).

1.2. Statement of the Problem

The utilization of postnatal care among postpartum mothers in Bugiri is showed to be low among districts in Busoga region. More still less effort is put in disaggregation of this data into components that may enable the differences between different age groups. . According to the AHSPR 2014/15, only 18.2% of the women received PNC from Bugiri general hospital for all ANC attended which was below that of Iganga (32%) and Kamuli (83.3%) hospitals as well as the overall average for all general hospitals in Uganda at 26.7% (MoH, 2016).

Despite the available free PNC services, referral system, voucher schemes, National Safe Motherhood program, the utilization of postnatal care still remains low. As a result the maternal mortality still remains unacceptably at 336/100,000 live births and neonatal deaths of 27/1000 live births (UBOS & ICF, 2017) which are mainly associated with postpartum sepsis (20%) and neonatal sepsis (6.3%) respectively and malaria (42.8%), pneumonia (11.2%) and anemia at10.6% (MoH, 2016).In Uganda, there was no community based study that focused on the utilization of postnatal care in the first week among postpartum mothers.

This study determined the factors influencing the utilization of postnatal care in the first week among the postpartum mothers aged 15-49 years in Bugiri district from July to August 2017.

1.3 Main Research Question

What are the factors influencing utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district?

1.4. Specific Research Questions

i. To what extent do postpartum mothers aged 15-49 years utilize postnatal care in the first week in Bugiri district?

ii. What socioeconomic factors influence the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district?

iii. What are the maternal reproductive factors influencing utilization of postnatal care in first weeks among postpartum mothers in Bugiri district?

iv. What health system factors influence utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district?

1.5. Study Objectives

1.5.1. Major Objective

The main objective of this study is to determine the factors influencing the utilization of postnatal care among postpartum mothers aged 15-49 years in Bugiri district from July to August 2017.

1.5.2. Specific Objectives

i. To determine the extent to which postpartum mothers aged 15-49 years utilize postnatal care in the first week in Bugiri District from July to August 2017.

ii. To determine the socioeconomic factors influencing postnatal care utilization in the first week among the postpartum mothers aged 15-49 years in Bugiri district from July to August 2017.

iii. To determine the maternal reproductive factors influencing the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district from July to August 2017.

iv. To determine the health system factors influencing the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district from July to August 2017.

1.6. Scope of the Study

This study was conducted in ten (10) Sub Counties of Bugiri and at health facilities that comprised of nine (9), health center HCIIIs and one (1) HCIV. The quantitative data was collected among the postpartum mothers at community level and qualitative data (Key informants Interview and Observations) from in-charges of postnatal care clinics at the health facilities.

1.7. Justification of the Study

It's being broadly known that women experience a number of problems when child birth occurs, most especially in the first week following birth. A study by Kananura et al., (2016) on neonatal Mortality in the three rural districts of Eastern Uganda found a higher ratio (NMR = 34 per 1000 live births) than the national average that is estimated at 27/1000 live births.

Therefore, timely access to simple interventions such as treating maternal infections during pregnancy, ensuring a clean and safe birth, care of the umbilical cord and immediate exclusive breast-feeding could avert most of the newborn preventable deaths.

Postnatal care is an aspect of child survival that has received limited attention in Uganda. A result no study was conducted on utilization of postnatal care within 24 hours up to seven (7) days post-delivery. Many studies already conducted focused on PNC utilization from 48 hours to 7 days or up to 42 days.

1.8. Significance of the Study

The study identified the factors associated with utilization of postnatal care in the first week among postpartum mothers and the recommendations were derived from the findings that would inform policy makers to design and implement appropriate intervention for postpartum mothers in regards to use of PNC in the first week after delivery.

The study results would add knowledge among the district health team to improve and strengthen and sustain the quality of PNC delivery to the postpartum mothers.

The study findings will also enable policy makers to adopt the best practice that may reverse the consequences associated with maternal and neonatal mortality.

This study filled the gaps in the literature by providing information on the extent of utilization of postnatal care in the first week and the factors that confound and influence the utilization of PNC in the first wee. Most of the studies did not focus on use of PNC within 24 hours to the 7^{th} day post-delivery unlike this present study.

The new information obtained would add literature in the existing information for the academia and further identification of areas that may require further research in the area of postnatal care utilization in the first week after delivery.

1.9. Theoretical models

There are many models that can be used in explaining health services utilization. In general, health services utilization is influenced by behavior, societal determinants and health system related factors.

Andersen and Newman Framework

The conceptual framework in figure 1 below illustrates Andersen and Newman's model (1995) of health service utilization. It is most often used framework by researchers for analyzing factors influencing utilization of health care services.

According to this framework, three main categories of factors influence health service utilization namely; environment, population characteristics and health behavior. Andersen and Newman's framework was initially established in 1960s, updated in 1990.

The fourth phase shows three characteristics for determining people's access to health services and subsequent utilization. These are; the predisposing factors, enabling factors and need factors which are under population characteristics.

The predisposing factors include the socio-cultural characteristics of individual prior to ill health and this categorized into 1) social structure comprising of education, occupation, ethnicity, social networks, social interaction and culture 2) Health beliefs; attitude, values and knowledge towards healthcare system 3) demographic characteristics mainly age and gender.

The enabling factors include the key features that facilitate acquisition of healthcare services. This is categorized into; personal/family which involves the means and knowledge to access health services, income, health insurance, a regular car to aid movement, travel, extent and quality of social relationships.

At community level; this consists of available health personal and facilities, and waiting time at the health service delivery point and others; the genetic factors and psychological characteristics. The Need factors include the proximal determinant for health service use.

This consists of the perceived need which refers to "How people view their own overall health and functional state, including how they experience symptoms of sickness, pain, and concerns about current health status and whether the problems is of significance and magnitude to consult a skilled healthcare (Andersen, 1995) while evaluated need "represents professional judgment about people's health status and their need for medical care" (Andersen, 1995).

In 1970s, this model was expanded to include the health care system which includes; health policy, resources and organization, and fourth phase included external factors (Andersen, 1995).

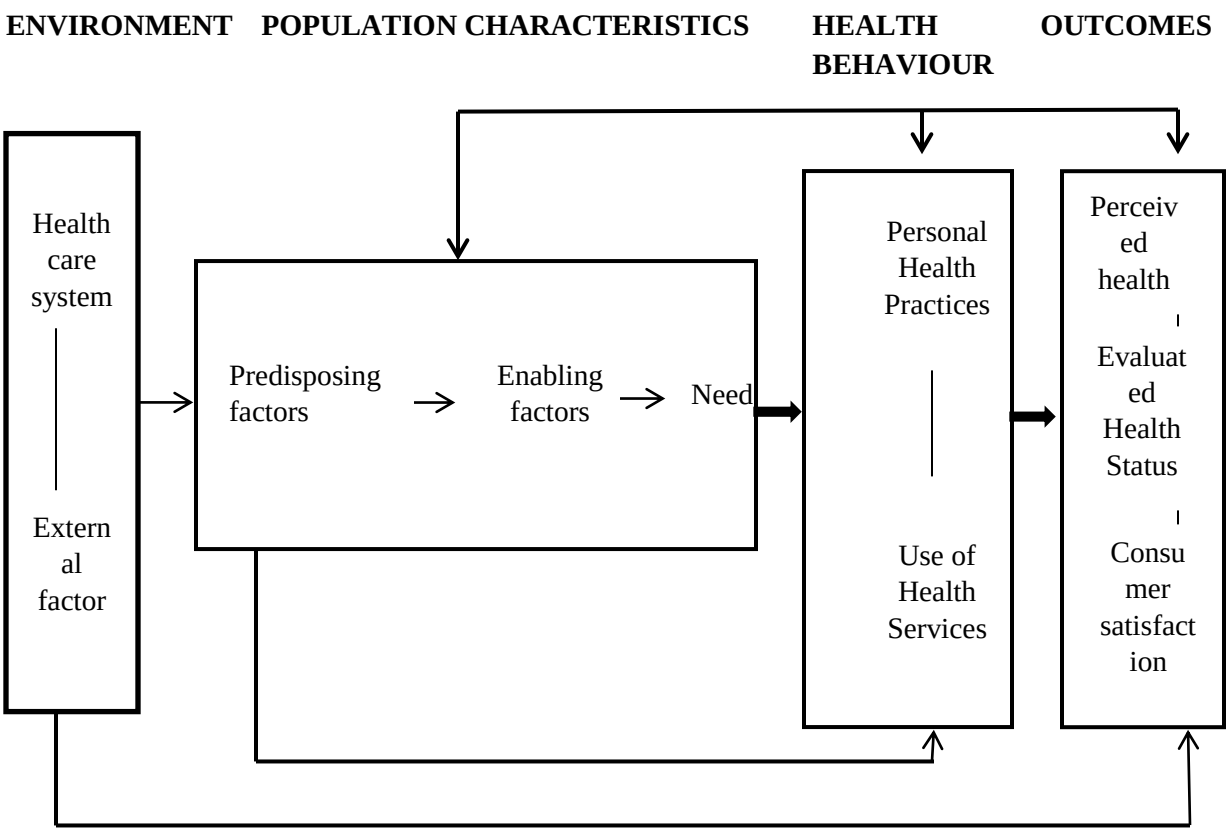
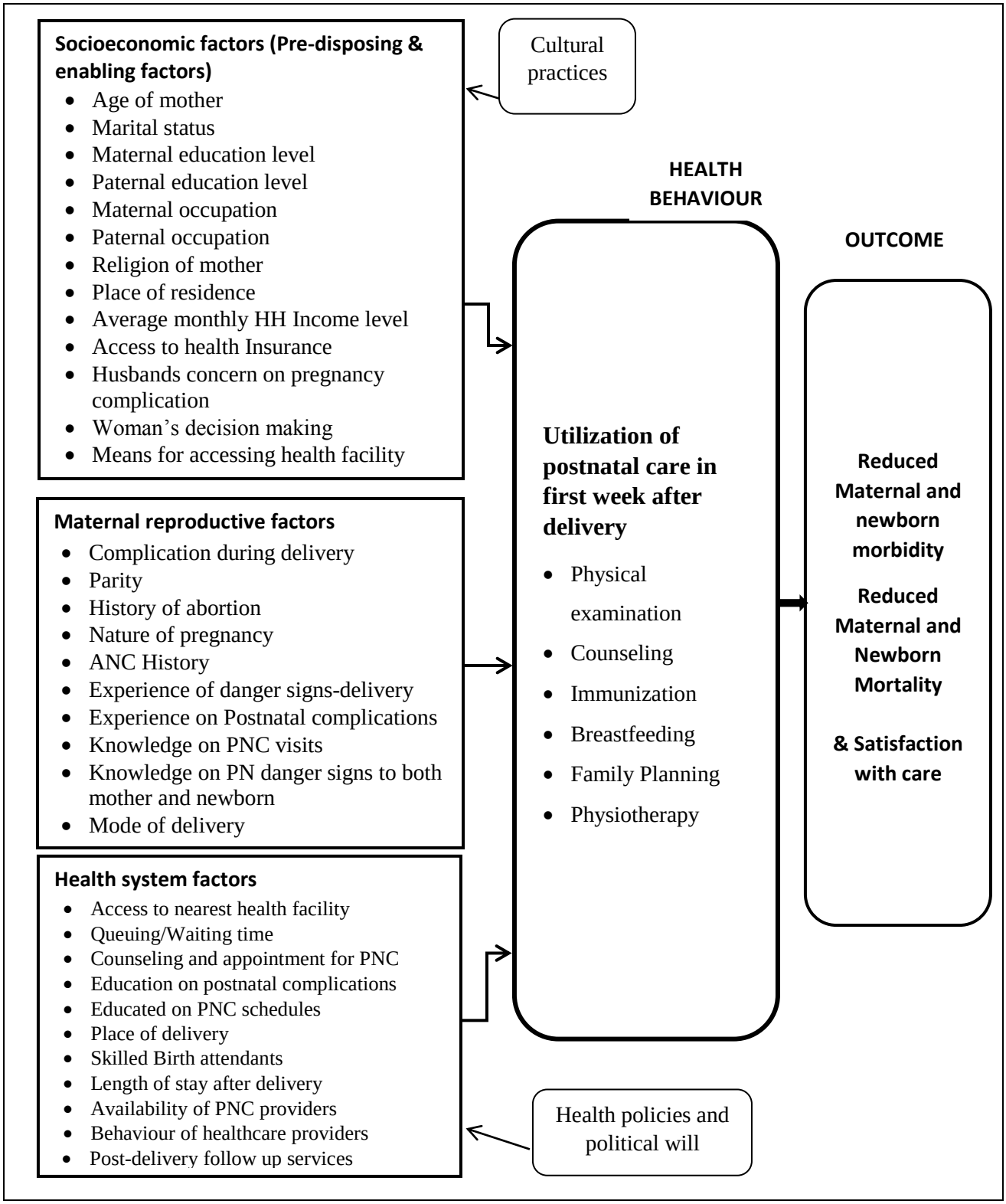


Figure 1: Andersen and Newman's Behavioral Model

1.10. The Partially Adopted Conceptual Framework from Andersen's Behavioral Model

Figure 2: Adopted Conceptual Framework



Description of the Conceptual Framework

The utilization of postnatal care in the first week (both immediate and early) is believed to be influenced by a complex interaction of various factors at socioeconomic, maternal reproductive and health system factors.

Socioeconomically factors considered include; age, marital status, maternal and paternal education, maternal and paternal occupation, place of residence, average monthly income level (family and individual levels), access to health insurance, husbands concern on pregnancy complication, woman's decision making power and availability of transport means to health facility may influence utilization of PNC in the first week after child birth.

The maternal reproductive factors considered are; parity, history of abortion, nature of pregnancy, ANC history, awareness on postnatal complications, and experiences of danger signs after delivery, knowledge on recommended PNC schedules and first PNC visits and gestational age of the index pregnancy may influence utilization of PNC in the first week after deliver.

Lastly, it also believed that the health system factors may also play a significant role in ensuring the utilization of postnatal care in the first week among the postpartum mothers. The factors in this study that may contribute to this include; access to nearest health facility, queuing/ waiting time to service, counseling and appointment for PNC after delivery, education on maternal and neonatal danger sings or complications, place of delivery, skilled birth attendants, availability of PNC providers, behavior of healthcare providers and post-delivery follow up services.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter focuses in presenting the review of the literature on factors influencing use of postnatal care in the first week after delivery. In bid to compound relevant information, studies conducted in both developed and developing countries was reviewed with particular underscores on the results and methodological issues. The sources for the literature were from journals, reports and books on the studies on utilization of postnatal care.

Postnatal care (PNC) is the care provided to women and newborn in the first six weeks after birth (WHO, 2014a). The care is provided in postnatal period that begins from the childbirth to forty two (42) days where mothers are expected to receive PNC from 6–24 hours, 3–6 days, and 6 weeks. In this period, both mother and newborn are vulnerable during postnatal period especially during first 24 hours post-delivery because nearly two third of the maternal death occur in the developing countries this period (WHO, 2014). Despite the schedule being emphasized to mothers during ANC visits, reports and studies still show sluggish adherence to the recommended visits for PNC. It is therefore important for health care providers to ensure mothers seek early postnatal care irrespective of the location of the birth. It has been observed that immediately after birth, bleeding and infection contributes the enormous risk to the mother, while preterm birth, severe infections and asphyxia pose the most risk to newborn (Khanal *et al*., 2014). In a study conducted by Deepthi *et al* (2010) that interviewed women, one of them reported no need for postnatal care based on her feeling;

'*I did not feel the need to get any checkup within seven days after delivery, everything was fine…' a FGD participant.*

In terms of timing and postnatal contacts, the mothers and newborns should be provided with postnatal care at 24 hours for child births conducted at health facilities. Healthcare providers should provide PNC within 24 hours for mothers who gave birth from home. Thereafter, at least three additional postnatal contacts are recommended for all mothers and newborns, on day 3 (48–72 hours) and from 7–14 days and six weeks post-delivery (WHO, 2013).

According to WHO (2013), it is still being observed that even though the health of mothers is regarded as the health of the society, an estimated 287,000 maternal deaths occurred worldwide. Globally, postnatal care reaches even fewer women and newborns: Postpartum mothers on average receive a postnatal care visit within 48 hours of childbirth (Lawn *et al.*, 2014) Majority of expectant mothers do attend ANC but use of PNC services is still very low especially in Sub Saharan Countries including Uganda.

Maternal mortality remains inadmissibly high in most of the developing world particularly Sub-Saharan Africa and South Asia at 87% of maternal deaths (WHO, 2014b). In Uganda, the main determinants of maternal deaths are due to postpartum hemorrhage, infections, postpartum pre-eclampsia and complications from abortion which can be prevented through postnatal care (MoH, 2013).

The Ethiopian Demographic Health Survey 2016 that assessed women who had living children in the 2 years preceding the survey on PNC found that overall, 17% of the women had PNC checkup in the first two days after birth, and only 32% had 4 or more ANC attendances (CSA, 2016). A community based cross sectional study conducted in 2013 that employed multistage sampling technique indicated that 20.2% of the mothers utilized postnatal care. This study however targeted women who delivered their children in the last 2 years (Workineh & Hailu, 2014). In contrary, the study in Bugiri focused on utilization of postnatal care in the first week.

According to Kenya National Bureau of Statistics (2014), 53% of women utilized postnatal care within the critical two-day period following delivery. This is above the national proportion of Uganda which is at 33%. The report also shows that 38% of women had postnatal care within four hours after delivery, 9% received care within 4-23 hours, and 6% were seen 1-2 days following delivery. Overall, 43% of women did not receive a postnatal checkup within the first six weeks after delivery (UBOS, 2012). The utilization of postnatal are in the first week after childbirth among mothers could be achieved if mothers embrace the importance irrespective of place and mode of delivery.

2.1. Utilization of Postnatal care in the first week after delivery

A facility based study in Soroti found utilization of early postnatal care in seven days was at 13 (19.1%) (Izudi & Amongin, 2015). This study found low utilization of PNC in the first week. In another similar study in Mundri East South Sudan, Izudi et al., (2017) in their analytical cross sectional study found 44 (11.4%) of the postpartum mothers used early postnatal care. This involved use of PNC within 48 hours to 7 days after birth, meaning any utilisation of PNC in less than two (2) days was excluded in this study.

In Rwanda, a secondary analysis of the 2010 DHS revealed that out of the 2,748 women who gave birth in the last two years, 353 (12.8%) revisited the health facility for PNC services within the first week post-delivery (Rwabufigiri et al., 2016).

The above study excluded postpartum mothers who might have delivered from home but were seeking postnatal care in the first week after delivery but rather postpartum mothers who delivered from health facility and returned for PNC within seven days after delivery.

Another facility based cross sectional study conducted at Zomba Central Hospital in Malawi found 122 (80.3%) postpartum mothers had utilized PNC in the first week after birth (Sakala, 2013). This study showed very high utilization of PNC at one week compared to other studies in Eastern Uganda, South Sudan and Rwanda. The differences in the findings might result from the study design and sample sizes. In addition, the study in Malawi was at one hospital unlike the other studies which were conducted at health facilities in different locations.

2.2. Socioeconomic factors and utilization of postnatal care in the first week post-delivery

WHO and other bodies developed recommendations that are designed for safe motherhood including the baby. The health and organizational systems in many settings are re-oriented to make these recommendations feasible. However, this does not happen as planned due to various factors that have been categorized as the predisposing and enabling factors as per Andersen and Newman's behavioral model for health care services utilization which was used in this study for explaining the utilization of postnatal care in the first week after delivery.

The predisposing factors consists of age, marital status, education, religion and place of residence while the enabling factors include; occupation, monthly income, access to health insurance, woman's decision making power, means for accessing health facility while husbands concern on pregnancy complication as health belief and attitude on health status.

2.2.1. Age of the mother

The DHS of Bangladesh 2007 showed that mother's age at birth was associated with the utilization of postnatal care services (Rahman *et al.*, 2011). This implies that a young mother may use postnatal care services in hope of uncertainty or emergency following child birth. However, older mothers may not utilize PNC care due to their own maternal past experiences.

In a facility based study in Mundri East, South Sudan, that had 385 postpartum mothers, 276 (71.9%) in 385 of them were less than 30 years old with only 12.3% (34) mothers who used early postnatal care (Izudi et al., 2017). This result implies that most of the postpartum mothers were in their twenties (20s) hence were young. In most cases young mothers deliver from health facilities and tend to use postnatal care unlike some older women who because of their previous childbirth experience of birth from home. Andersen and Newman's model of health care services utilization considered that age is an important factor that influences utilization of health care.

According to Neupane & Doku, (2013), young mothers perceive themselves at increased risk hence fear to give birth from home but from skilled healthcare provider. This means the young mothers have higher chances to receive skilled PNC from health facility at 24 hours and other subseqent visits unlike older mothers based on their experiences tend to overlook PNC and yet pregnancy at late age can be risk factor to complications.

2.2.2. Marital status of the mother

A study conducted, in Nyeri, Kenya showed that single women (27.7%) were better at attending postnatal clinic compared to married women (10.9%) (Wangari, 2011). The study found significant relationship between marital status and use of postnatal care services. This could be due to fear that the young mothers have for deliveries associated with uncertainties hence they tend to seek skilled care with support of their parents or peers because of their vulnerability. The married mothers could be of older age and their past experience could be a protective factor.

On the other hand, a study in Kiambu Sub County, Kiambu County in Kenya found that the majority (73%) of the PNC users were married compared to single and divorced women at 17% and 10% respectively (Nyoka, 2015).

A study by Takai *et al*., (2015) on factors responsible for under-utilization of PNC in Maiduguri, North Eastern Nigeria among married women aged 15-49 years who previously delivered and were receiving maternal care had higher odds of using PNC than the unmarried women. However, the above study did not focus on the utilization of PNC in the first week.

2.2.3. Maternal education

Education is one of the predisposing factors that is important in determining utilization of health care services as per the Andersen and Newman's model of 1995. A study conducted using the UDHS 2011 in Bangladesh found that mothers who had secondary or tertiary education appear to influence utilization of PNC than their non-educated counterparts which accounted for 43.0% and 11.0% respectively (Kabir & Mokbul, 2016). This result is in agreement with study by Dhakal et al., (2007), Izudi *et al.,* (2017) and (Teklemariam & Wosen, 2018). This implies that increase in level of education appears to increase the autonomy and independent decision making capabilities among the women towards utilization of PNC. Furthermore, the inferential analysis revealed that the effect of mothers education were found to be a key determinant of postnatal care evidenced by that fact that women who completed just primary education had 1.3 fold greater chance compared to their illiterate counterpart.

According to UDHS 2017 report of Uganda, the majority (78.5%) of women with more than secondary education) had attended at least PNC in the first two days after live birth followed by those with secondary education (63.8%), 52.1% among those with no education and the lowest (48.2%) being for those who had primary education (UBOS & ICF, 2017). This finding implies that exposure to formal education has positive influence on uptake of postnatal check-ups that might be due to influence of education on the economic status which was in conformity with Andersen's and Newman's model for health care services utilization.

A study found that lack of education among the mothers also deters postpartum mothers from seeking postnatal care (Singh *et al.,* 2012). This implies that education adds value in women hence strengthens their decision making potential and this in turn has positive influence on utilization of postnatal care services.

The level of education showed strong statistical association with postnatal care service utilization. This is evidenced by mothers who attended secondary school who were about four (4) times more likely to utilize postnatal care service than illiterate women (Neupane & Doku, 2013). This implies that level of education has significant influence on use of postnatal care services among the postpartum mothers.

However, in contrary to the above findings, a study on utilization of postnatal care services in tribal area of Maharashtra in Ethiopia found no significant association between educational status of mothers and utilization of PNC services (Bhaisare & Khakase, 2014). This means education status does not matter in utilization of postnatal care. However, this finding can differ from the others due to variation in sample size, level of analysis and design.

2.2.4. Educational level of the spouse

The education of the spouse of the woman is believed to have some influence on the early utilization of the postnatal care. This could probably be as a result of ability to access and utilize information give the source of this information. A study conducted on utilization of postnatal care among rural women in Nepal found that women with a spouse who were educated to secondary education level were six times higher in having PNC compared to those with uneducated husbands. The finding elucidated a statistically significant association (p=0.001) (Dhakal *et al*., 2007).

Similarly, findings by Khanal *et al*., (2014) in their study also found that mothers whose husbands had higher education were 70% higher to utilize PNC than the reference group. However, their study focused on immediate utilization of PNC that used secondary data from the demographic and health survey data unlike current study that targeted use of PNC in the first (from immediate up to 7 days after delivery).

2.2.5. Maternal occupation

In Andersen and Newman's model (1995) for health care services utilization, occupation is a predisposing factor that is important is use of health care. The occupation of the mother is believed to also have some influence on determining use of PNC in the first week after delivery. In terms of study conducted by Izudi & Amongin (2015), occupation had a significant association with early PNC use. Occupation has the potential to shape people's behavior of utilization of healthcare services including seeking PNC services.

Whereby, mothers who are self-employed mothers were found to be less likely to utilize EPNC than unemployed mothers (Izudi & Amongin, 2015). In most cases, unemployed mothers are in the most times at home hence could have the time and opportunity to easily visit health facility. In addition, the majority of married women in the communities are not in formal employment hence this statistical significance could be attributed to their population in the study as well.

Another study by Bhaisare & Khakase (2014) showed that there was an association between occupation of study subjects and utilization of postnatal services. According to Dhakal *et al*., (2007), the occupation of women was associated with uptake of postnatal care. Women who were housewives were seven (7) times more likely to use postnatal care compared to women who were farmers.

In regards to the above, Teklemariam & Wosen, (2018) disagreed with study by Dhakal *et al*., (2007). They found out that mothers who were house wives had lower odds of using PNC compared to those who were merchants.

These differences could be the type of occupation being compared. Otherwise, it's assumed than women whose responsibilities lie only at household level may have little time for PNC due to their tiresome indoor chores that may limit them.

A study conducted on factors associated with the utilization of postnatal care services among the mothers of Nepal by analysis of Nepal Demographic and Health Survey 2011 found that mothers who worked in agriculture had lower odds of attending postnatal care compared those working or employed in formal jobs (Khanal *et al*., 2014).

2.2.6. Spouse occupation

The occupation of the child or spouse to the mother can be one of the enabling factors in accessing and using postnatal care services by the postpartum mothers.

A study conducted by Kabir & Mokbul (2016) shows that partner's occupation was found to be associated with the perinatal health care service utilization. This study however did not consider postnatal care in the first week after delivery. It also focused on the determinants of the use of delivery and postnatal care services by pregnant women.

In another study in Nepal, similarly, occupation of husband was found to be associated with utilization of postnatal care. It was found that husband with a formal job or civil servants were three times likely to have their wives attend PNC compared to the reference group (Dhakal *et al.*, 2007).

In addition, this study also did not focus on the use of PNC in the first week post-delivery. Khanal *et al*, (2014) in their study on immediate utilization of postnatal care revealed that mothers whose husbands had professional and manual occupations were more likely to attend immediate postnatal care.

2.2.7. Religion of the mother

A study on determinants of non-utilization among women in Nigeria found that the number of mothers who did not use postnatal care was about equally distributed between Christians and Muslims (Oluwaseyi, 2014). This implies that the two religious denominations may have similar reasons for non-utilization of PNC services and can be an indication that religion has limited influence on utilization of PNC services. However, this study did not focus on the utilization of PNC services in the first one week unlike this study.

The study by Njoka NM (2015) on utilization of postnatal care services in Kiambu Sub County indicated that there was no statistical significant association between the religion and utilization of PNC services. In any society, people ascribe to religious denomination but in health, at times the religion does not matter much hence it appears to be consistent with study in Kenya.

2.2.8. Place of residence

The place of residence is believed to have some influence on use of PNC. The UDHS 2016 indicated that 67% of the postpartum mothers had PNC checkup in the first two days were from urban residence. On the other hand, 51% of the mothers from the rural residence too had their PNC in the first two days (UBOS & ICF, 2017). In urban areas, the hospital or health facilities are mainly in close proximity to the population compared to community based situation where villages are sparsely situated further apart from health facilities. In most cases, women in those areas usually report challenges related to distance as well as transport cost to access facilities.

The study by Kabir *et al.,* (2016) with use of Bangladesh DHS 2011 found that women who resided in urban areas enjoyed two (2) times greater chance of receiving delivery care service than rural women and the same trend also found in case of postnatal care utilization.

Similarly, a study in Kombolcha, Ethiopia revealed that only 20.9% rural women used institutional delivery compared to 35.9% for urban women (Ayele *et al.*, 2014). This result implies that women in urban areas have slightly better maternal health services compared to their rural counterparts probably as a result of the availability and affordability capacities.

2.2.9. Average monthly income

Looking at the wealth quintile of the mothers, the UDHS 2016 found that women with the highest wealth quintile accounted for 71.5% for seeking PNC in the first two days after birth and 50.4% for those with the lowest wealth quintile (UBOS & ICF, 2017). Another study showed that the practice of not utilizing PNC decreased as the household wealth index also increased.

The study indicated that women who were in the middle wealth status had lower odds of not using PNC (RRR=0.57, 95CI=0.46-0.72) as well as those women in the rich category (RRR=0.38, 95CI=0.30-0.49). However, a study by Khanal *et al* (2014), mothers from middle and rich families were 1.26 and 3.2 times more likely to attend PNC respectively compared to those from poor families.

A study by Neupane & Doku, (2013) found that mothers from households with incomes of more than 75,000 Ugandan shillings per month were less likely to use early PNC (2-7 days) than those from households with income of up to 75,000 Ugandan shillings per month ($p<0.001$).

This result however shows that the respondents who earn more monthly income tend not to seek early postnatal care. This study has outcome variable of use of early PNC in 2-7 days unlike use of PNC in the first week as an outcome of interest in this study.

2.2.10. Access to Health Insurance

Uganda is the only East African Country without National Health Insurance and the proposed Uganda NHIS is to contribute to health financing, whereby members pay a premium for defined services from both public and private sectors (Basaza *et a*l., 2013). However, some people are covered by their employers including the private sector and Non-governmental Organizations. The impact of health insurance on health service utilization is mainly associated to its premiums, benefits, location and for whom (Frimpong *et al*., 2014). In Rwanda, extremely poor do not pay premium for the Mutelle program (Saksena *et al*., 2011) and full subsidization for low income households in Indonesia (Sparrow *et al*, 2013) while in Ghana, it's based on income and geographical location whereby some sub groups are also exempted from paying the premium (Akazili *et al.,* 2012). Health insurance has the potential to spread the health costs across subscribers so that healthcare cost is covered for everybody irrespective of the health condition. This means health insurance can be an enabling factor for utilization of healthcare services including postnatal care among postpartum mothers.

According to Andersen and Newman's framework, having access to health insurance is one of the variables for health service utilization. The study by Browne *et al.,* (2016) on health insurance determines antenatal, delivery and postnatal care using the Ghana Demographic and Health Surveillance report (Ghana Statistical Service, 2008) found that the chance of receiving postnatal care among insured women was 61% higher compared to the uninsured women.

2.2.11. Woman's decision making power

Studies in Democratic Republic of Congo (DRC) and Mali have showed that mothers who make independent decision to use PNC have higher odds of using it than those who depend on other people's decision (Ntambue et al., 2012; Sakala & Kazembe, 2011).

This is because a mother should have the freedom to get care for her health and that of the newborn without restriction from the spouse. Therefore, the community should be sensitized on women making informed decision for utilization of health care and that of the newborn because the ill health of the mother and newborn directly affects the entire family.

Another study conducted by Wangari (2011) indicated a significant proportion of respondents 48.5% made the decision to seek postnatal care on their own while 42.2% of the respondents' decision to seek postnatal care was made by both the women and their partners. On the other hand, a minority 7.1% and 2.1% respectively had the decision made for them by partner or any other persons respectively. The best options are that the mother should have the power to make informed decision on PNC utilization as well as shared decision making on use of the care.

2.2.12. Means of accessing health facility

The means of transport to health facility was found to have association with utilization of PNC services as per the study by Njoka NM (2015) that mothers who used private means were more likely to use PNC services that those who used public transport means. The study also found postpartum mothers who accessed health facility by walking were less likely to utilize PNC services compared to public transport users. The same study found that women who walked and used public means were significantly associated with utilization of PNC. This implies that the most reliable and commonly used transport means were used of public transport means and walking.

A study by Nteta *et al* (2010) found taxi (47%) and walking (43.2%) were the most the commonest means of transport the majority of women used to access health facilities. Readily available transport means to access health care services is an enabling factor in utilization of health care services. It is therefore important to have reliable transport means to the health facilities.

2.2.13. Participation in community activities

Participation of women in community activities including health program is important towards utilization of health services including postnatal care. In the current study, women's participation in Voluntary Savings and Loans Association (VSLA) and community health programs was studied. It was acknowledged that efforts to improve community based participatory program might help to improve utilization of health service (Shankar *et al*., 2009).

For example the SIAGA (alert) program was an initiative to engage local community member to participate in maternal and child health programs. The program facilitates women from households with low socioeconomic status to access maternal and child health services through communal financing scheme to support during time of seeking health services including transport costs. Interestingly, other studies also established the benefits of programs like the SIAGA (Titaley *et al*., 2010).

2.3. Maternal reproductive factors and utilization of PNC in first week post-delivery

This study considers maternal reproductive factors that may influence the utilization of postnatal care among the postpartum mothers aged 15-49 years.

The specific factors or variables considered are; incidence of complication during delivery, parity, nature of pregnancy, history of ANC attendance, history of danger signs after delivery, awareness on PNC schedules, knowledge on first PNC visit, mode of delivery.

The above factors can be classified to be under the need factors and health system related outcomes which included care during ANC and delivery including knowledge gained during education and counseling which could influence utilization of PNC in the first week.

2.3.1. Incidence of complication during delivery

A study showed that delivery complication that occurred during birth was associated with use of postnatal care service and those women who had delivery complication after birth were about three (3) times likely to utilize postnatal care. (Limenih *et al*., 2016). Complication during delivery may lead to increased period of hospitalization.

According to Andersen (1995), people view their entire health status and functionality status as well as how they experience syndromes and worries about their health and whether or not they judge their problems to be of substantial significance and magnitude to seek professional support. This means women who had complication experience during delivery may use early postnatal care due to what they judge or perceive in relation to their health.

A study on the determinants of postnatal care use at health facilities in rural Tanzania: multilevel analysis of a household survey showed that women who had a complicated mode of delivery by Cesarean section were 2.9 times more likely to report receiving postnatal care services from facilities. This implies that the aftermath of the complicated delivery brings women close to health facilities just in case of any other emergency (Diwakar *et al*, 2015).

The delivery complication poses health risks and emergency situation even after delivery hence mothers during this state tend to also adhere to the instructions or appointments given to them hence leading to the use of postnatal checkups.

2.3.2. Parity

A study by Regassa, (2011) indicated that primipara women are more likely to use both ANC and PNC. In another study from Ethiopia, multi parous women who had PNC experience were three times more likely to utilize PNC service for the current delivery than those primi Para women. On the other hand, those multi parous women who had no PNC experience were almost 50% less likely to utilize PNC for the current delivery than those women who gave birth once (Berhanu et al., 2016).

According to study carried out by Bhaisare & Khakase (2014), 68.8% of the women who gave birth once had utilized postnatal care services, whereas only 31.20% multipara utilized the same. However, inferential analysis showed there was no statistically significant association between parity and utilization of postnatal care.

2.3.3. Nature of Pregnancy

A study conducted on factors associated with postnatal care utilization of the women conducted in selected government Health Centers of Addis Ababa, Ethiopia, 2015(n=422) shows that nature pregnancy (planned and supported, unplanned and supported and unplanned and unsupported) was associated with postnatal care use with p-values of less than 0.2 (Berhanu. *et al*, 2016). This means utilization of postnatal care may depend on whether the previous pregnancy was planned and supported or not in totality have influence of mothers' use of postnatal care.

2.3.4. History of ANC attendance

A study conducted on postnatal care service utilization and associated factors among mothers in Lemo Woreda, Ethiopia found that ANC attendance before giving last birth is a strong determinant of PNC use. It indicated that mothers who had attended at least one ANC visit before last childbirth were more likely to use PNC than those who did not (Belachew *et al*., 2016). A study in Ethiopia by Regassa (2011) revealed that the level of ANC and PNC service utilizations is 77.4 % and 37.2% respectively. The inferential analysis with logistic regression showed that literate women who had exposure to media were likely to use both ANC and PNC services. According to Khanal *et al*., (2014), mothers who had attended four or more ANC visits were more likely to utilise PNC compared to those who did not.

Bhaisare & Khakase, (2014) found women who received recommended antenatal services, also utilized post natal services compared to those who did not received recommended antenatal services. Similarly, another study found that mothers who had three ANC visits were four (4) times and those with four visits were nine (9) times more likely to use PNC than those who had single visit (Abebo & Tesfaye, 2018).

2.3.5. Experience of danger signs during delivery

Most studies show that maternal deaths occur within the first 24 to 48 hours after delivery. Therefore the experience of danger signs during delivery should be taken seriously even after delivery. A study conducted on determinants of PNC utilization in a Western District of Nepal revealed that experience of danger signs during delivery was found to be strongly associated with utilization of postnatal care from skilled healthcare workers. The result indicated that mothers who experienced the danger signs were 17 folds more likely to receive PNC care (Paudel *et al*., 2013).

2.3.6. Knowledge on first PNC contact

The WHO guideline on postnatal care of 2013 states that; if birth is in a health facility, mothers and newborns should receive postnatal care in the facility for at least 24 hours after birth. On the other hand, women who delivered at home should receive their first or immediate PNC within 24 hours (WHO, 2015). The fact that the first 24 hours and few days is critical to the health of the mother and the newborn, provision of early PNC can significantly contributes to reduction of maternal and newborn morbidities and mortalities. The association between awareness & utilization of PNC services in study subjects was found to be statistically (Bhaisare & Khakase, 2014).

The awareness on PNC services is usually offered to the mothers during ANC attendance. In addition, mothers also access additional information through various sources of information like; Televisions, radios, newspapers, magazine, articles, peers and health camps among others.

A study conducted by Takai *et al.,* (2015) on factors responsible for under-utilization of postnatal care services in Maiduguri, North Eastern Nigeria also found that there was statistically significant association between mother's awareness of postnatal care services and utilization of the PNC services.

A study conducted in Malawi on knowledge, views and practices of mothers regarding PNC revealed that awareness of mothers on postnatal care was associated with promotion of utilization of postnatal care at first week and six (6) weeks (Sakala, 2013).

2.3.7. Mode of delivery

The UDHS 2011 shows that 5% of births are delivered by caesarean section. Delivery by C-section is highest among births to highly educated mothers (11 percent), births to mothers in the highest wealth quintile (13%), urban births (14 %), and births in Kampala (18 %), and first births accounted for 9% (UBOS, 2012).

Mode of delivery comprised of vaginal and caesarian delivery. The mode of delivery is believed to have influence on the mothers' timing of PNC use. A study by Limenih *et al* (2016), found that the utilization of postnatal care services was significantly influenced by mode of delivery. Whereby women who delivered by cesarean section were found to be 4.8 times likely to use PNC compared to those who did not deliver by Caesarian section. In normal circumstances too, all postpartum mothers are to go for PNC checkup irrespective of the mode of delivery but this seems to be a wide spread challenge that still exists.

A study by Izudi *et al* (2017) in Mundri East South Sudan found that mothers who delivered by caesarian section were more likely to use early postnatal care compared to those through spontaneous vaginal delivery.

2.4. Health system factors and utilization of postnatal care in the first week post-delivery

Health System factors considered in the this study are; access to health facility, waiting time, counseling and appointment for postnatal care, awareness about maternal complications, education on PNC schedules, place of delivery, skilled birth attendance, duration of stay in the health facility, place of previous PNC, skilled PNC provider, behavior of PNC provider, post-delivery follow up services.

The Andersen and Newman's behavioral model was expanded in 1970s to include the health care system which includes; health policy, resources and organization. Therefore, according to the model, the health policy, resources and organization of the health system influences the utilization of health care services.

2.4.1. Access to the nearest health facility

Proximity to health facility is seen to lessen the troubles mothers get in accessing services. A study shows that however much 69.2% of the mothers reported having access to the nearest health facility; they were also less likely to use EPNC than those who find it difficult to access their nearest health facilities (Izudi & Amongin, 2015).

Similarly, a study by Mohan *et al*., (2015) also indicated that distance to nearest facility (A geographic access indicators) did not appear to have any influence on utilization of postnatal care. This implies that various situations on ground plays role in the utilization postnatal care among the postpartum mothers irrespective of the proximity of the health facility to them.

Another study on determinants of postnatal care non-utilization among women in Nigeria found that mothers who said that distance to health facility was not a big challenge had lower odds of not utilizing PNC services (Somefun & Ibisomi, 2016). This finding was consistent with study conducted in Ghana that showed that some mothers did not use reproductive healthcare services because of long distance from home to the health centers coupled with poor roads and transport means (Doku et al., 2012). This means when health facilities are easily accessible, then the chances of not attending PNC also becomes low. It is therefore necessary to ensure health facilities are accessible at least by less than five (5) Kilometers from home.

In another study in Ghana, some communities have poor road infrastructure but footpaths which mothers use to access health facilities about 10 kilometers away from home and TBA did support women to deliver (Atuoye et al., 2015). This means some mothers after childbirth in the hands of the TBAs end up not using skilled postnatal care because of poor roads and the means of transport used to access the health facilities.

2.4.2. Waiting time at health facilities

In Uganda and other countries, the time a mother takes waiting at the ANC and PNC can influence use of early PNC. In Izudi & Amongin, (2015) study, a long queuing time at the health facility was associated with reduced likelihood of early Postnatal Care use.

A study conducted on factors affecting utilization of postnatal care services at Central Provincial General Hospital in Nyeri Kenya found that long waiting time at the hospital negatively affected the utilization of postnatal care services whereby mothers who had long waiting experience tend not to use the PNC services (Wangari, 2011). In Andersen's framework, waiting time is an enabling factor in the utilization of health care services.

2.4.3. Counseling on danger signs and appointment for PNC

According to WHO Guideline, health systems are to promote respectful and women-centred maternity care where women are treated with kindness, dignity and respect. This is because respectful maternity care is an essential part of postnatal care particularly in health facilities since it promotes best practices and recognizes the need for the mothers and their families are informed on all aspects of care, and values counseling as an opportunity to respond to questions and address outstanding issues among the mothers (WHO, 2015).

The study conducted in Ethiopia by Kavita *et al* (2012) also shows that women who underwent counseling and given appointment for postnatal care utilization were thirty two times more likely to utilize care than those women who were not provided with the appointment schedule. This study agreed with that by Berhanu *et al*., (2016). This means counseling and scheduling for PNC attendance is important to ensure postpartum mothers utilise the services in the indicated periods.

According to Neupane & Doku, (2013), sufficient advice during pregnancy were all independently associated with having postnatal check-ups and were three (3) times likely to receive PNC compared to those who did not get sufficient advice. Counseling of the postpartum mothers after live delivery on the danger signs while at home for both the mother and newborn is very significant in preventing death. Undertaking comprehensive education to postpartum mothers is very good for both the mother and newborn.

According to results from study carried out by Izudi & Amongin, (2015), women who were educated on maternal and neonatal complications before discharge were three times more likely to use early PNC (2-7 days). This implies that the knowledge acquired by the mothers made significant contribution in making informed decision for utilization of early PNC.

A study by Kavita *et al* (2012) also indicated that the odds of having postnatal care visit for those women who were counseled about any danger signs by the healthcare providers before discharge were two times more likely use PNC services than their counterparts. Similarly, Berhanu et al., (2016) also found counseling on danger sign had statistically significant relationship with utilization of PNC and those counseled were 1.95 times likely to use PNC compared to those who were not.

The probability of postnatal care service utilization was highly associated with level of knowledge of postpartum obstetric danger signs. Mothers who had knowledge of at least one postpartum obstetric danger sign were about 4 times more likely to utilize postnatal care service than those who failed to mention any of the obstetric danger signs (Workineh and Hailu, 2014).

According to WHO Guideline, health systems are to promote respectful and women-centred maternity care where women are treated with kindness, dignity and respect. This is because respectful maternity care is an essential part of postnatal care particularly in health facilities since it promotes best practices and recognizes the need for the mothers and their families are informed on all aspects of care, and values counseling as an opportunity to respond to questions and address outstanding issues among the mothers (WHO, 2015).

Therefore, this becomes important for healthcare providers to execute their duties with the highest possible discipline so as to build the mutual trust where confidence is assured even during delivery of care.

2.3.4. Education on PNC schedules during ANC

The World Health Organisation recommended that a postpartum mother and the newborn be provided with a total of four postnatal visits.

According to WHO, the first visit should be in the first day within 24 hours, on day three (in 48-72 hours, between 7-14 days and the last one at six weeks (WHO, 2015). It is expected that during ANC visits, the mothers are taught among other things including the above recommended schedules. Postpartum mothers educated or informed about PNC attendance schedules were significantly associated with utilization within 2-7 days post-delivery (Izudi & Amongin, 2015).

This means it is important to ensure women attending ANC are effectively educated about PNC including when to begin and end with receiving PNC services. Similarly, the finding was again consistent with their study in South Sudan (Izudi et al., 2017).

2.4.5. Awareness about maternal complications/danger signs

A community based study conducted by Limenih *et al* (2014), at Debre Markos town found out that women who were aware about maternal complication were about three (3) times likely to utilize PNC. Therefore, there was significant association with use of postnatal services. Although this study was however a community based in nature, it did not focus on the time line considered in this study as in the first week after delivery.

A study conducted in Royal Government of Cambodia revealed that mothers who were aware of maternal complications during postpartum period were 1.63 times more likely to use postnatal care services than those who were not aware (Ith *et al*., 2013). Limenih *et al*., (2016) in their study found mothers who were aware of maternal complications that can occur during postpartum period were 2.7 times more likely to use postnatal care services than mothers who were not aware of maternal complications that can occur during postpartum period.

Another study by Belachew *et al*., (2016) also revealed that knowledge on key postnatal danger signs and symptoms has a strong postive asscoaition with utilisation of PNC. This means women should be provided adequate information for women during ANC and before discharge post-delivery. However, this study did not consider the utilisation of PNC in the first week after delivery.

2.4.6. Place of delivery

In Sub-Saharan Africa, utilization of PNC was very low among women who did not deliver at health facility unlike in Ghana and Madagascar, where slightly more than half of such women had a postnatal checkup during this period. In SA, the proportion of women who reported utilization of PNC tends to increase as mother's age at birth increases. Mothers less than 20 years were least likely to utilize PNC.

In South and South East Asia, Bangladesh and the Philippines, a study showed increase in PNC use among older women. In contrast, the pattern of using PNC associated with mother's age is not clear among women who did not deliver in health facilities. In 12 countries, women aged 20-34 reported the highest levels of use of postnatal care (Wang *et al*., 2011). This is because the greatest percentages of women who deliver whether at health facilities or at home were of the younger age groups. Institutional delivery is expected to be the cornerstone for the postpartum mothers to be empowered further with information on likely complications and danger signs for the mother and the newborn. It's therefore a significant foundation for the mother to return for postnatal care services. Similarly, studies conducted in Jabitena district Amhara region, Ethiopia by Workineh & Hailu, (2014), Gondar Zuria district, Ethiopia (Tesfahun, 2014); Royal kingdom of Cambodia (Ith. et al, 2013) which found giving birth in health facility was significantly associated with postnatal care utilization. This result was in in conformity with study conducted by Teklemariam & Wosen, (2018).

Findings from India revealed that postnatal care for both mothers and newborns was considerably lower than the care received during pregnancy and delivery. This study indicated that only 44% of mothers in India at the time of survey had PNC within 48 hours after birth and 45% of the newborns had check-up within 24 hours of birth.

In terms of place of delivery, mothers who delivered from home were significantly less likely to have received PNC than those who had facility births (Singh. *et al*, 2012). The mothers who delivered from home as a result of various reasons ranging from failure to report early to a health facility for delivery, distance, age and past delivery history can render some these mothers to decide for home delivery under the performance of the elderly or Traditional Birth Attendants.

Bangladesh Health Survey 2011 shows that 91.4% of the mothers received check-up within two days after birth and only 0.8% for those who delivered elsewhere (National Institute of Population and Training, 2013). This is an indication that women who deliver with support of TBAs or others have reduced likelihood of utilization of PNC at health facilities. According to Workineh and Hailu (2014) mothers who gave birth to their last child in health facility were about four (4) times more likely to use postnatal care services. In a similar result, a formative study showed that women who delivered in a facility, irrespective of whether they were discharged immediately or within 24 hours, were twice as likely to seek postnatal care (Deepthi *et al*., 2010).

It is therefore important that when women get ANC and delivered from health facility, this might have a positive influence on the utilization of postnatal care that might be associated with counseling and health education given.

The UDHS 2016 that 73% of the births took place in a health facility an increase from 58% as per the 2011 UDHS. The AHSPR 2014/15 shows that Bugiri district has health facility delivery at 37.4% below the National average of 52.7%. This is an indication that a number of the mothers delivered from home and few of them also attended skilled postnatal care from the health facilities.

2.4.7. Skilled Birth attendants

In the global perspectives, 72% of mothers had child birth attended by skilled personnel (WHO, 2014). Interestingly, the maternal mortality ratio has decreased from 380 to 210 per 100,000 live births between 2000 and 2013. In South-East Asia and sub-Saharan Africa only 67% and 48% of women give birth with the assistance of skilled personnel, respectively (WHO, 2014).

It is envisaged that women who are attended to by skilled healthcare providers tend to use postnatal care services because they are able to get adequate information regarding PNC follow ups and timeline. According to UBOS (2012), obstetric care from a health professional during delivery is recognized as critical for the reduction of maternal and neonatal mortality.

Children delivered at home are usually more likely to be delivered without assistance from a trained provider, whereas children delivered at a health facility are more likely to be delivered by a trained health professional.

The UDHS 2016 found that 74% of deliveries were conducted by skilled provider, which may be a doctor, nurse or midwife, medical assistant or clinical officer which was an increase from 58% in the 2011 UDHS).

On the other hand in Kenya, the KDHS 2014 indicated that the births assisted by a skilled birth attendant have increased in the last five years, from 44 percent in 2008-09 to 62 percent in 2014.

It was also noted that delivery conducted by a skilled birth attendant in rural areas has also increased from 37% to 50% (Kenya National Bureau of Statistics (KNBS) *et al*., 2015). There is likely expectation that where many women are attended by skilled personnel, then comprehensive information is also disseminated on postnatal care utilization especially in the six hours after delivery then six days and six weeks with the respective services to be offered at each visits.

2.4.8. Duration of stay at health facility

The study by Deepthi (2010) revealed that women who stayed for more than 24 hours after delivery in a facility were eight times more likely to go back for PNC check-ups as compared to those who had a home delivery. This results position the believe that longer stay in the facility exposures the women to more positive information on postnatal care as well as experiences of those who return for such care in their presence.

It was reported in UDHS 2011 that the vast majority of women who had a vaginal birth stayed in the health facility either for less than one day 47% or for one to two days (45 percent). In comparing the results, the majority of women who had a delivery by Caesarean section 68% stayed in the health facility for three or more days (UBOS, 2012).

The mothers who deliver at health facility and had long hospitalization are likely to have their PNC checkup in the first two days within the facility. A study by Izudi & Amongin, (2015) also revealed that an increase in length of hospitalization by 1 day was associated with reduction in early postnatal care use.

This implies that during this time, the opportunity for access and utilization of PNC is improved due to the exposure to the services during the stay in the health facility.

2.4.9. Skilled PNC provider

A study conducted by Kavita *et al* (2012) indicated that unskilled PNC on first day was associated with a 32% decrease in the probability of death (compared to no PNC on day 1) during days 2 to 28 after controlling for other factors. This is an indication that PNC provision by skilled healthcare provider should be contributing with higher chances of reducing mortality.

Despite the fact that some unskilled persons also offer PNC services, they are few but may be dangerous to the health of the mother and the newborn.

In a study by Izudi & Amongin, (2015), the majority of the PNC was provided by skilled birth attendants (Medical doctors, nurses or midwife) which accounted for 300 (84.0%) births, 46 (13.5%) and 9(2.5%) by traditional birth attendant and traditional healers respectively. Although few of these informal workers attend to few mothers, the consequences can be detrimental to the mothers and newborns because they cannot provider recommended care and manage complications.

2.4.10. Behaviour of healthcare providers

The conduct of the healthcare providers to their patients or clients is very important and in most cases positive attitude and care is significant in encouraging healthcare seekers to return for any service. According to Izudi & Amongin, (2015), majority of the health workers were more receptive during the prenatal visits to the women than those who were not.

2.4.11. Post-delivery follow-up services

Postnatal follow up of new mothers and their newborns can also be provided through outreach visits by a skilled attendant or the community health worker/village health teams.

During this visit, the care provider can examine both the mother and baby as well as provide essential care including identification of any complications for instant management or referrals (Warren *et al*., 2006). This visits if well implemented as recommended by WHO could make a significant difference in terms of addressing concerns during the postpartum period.

In addition, such visits build the trust and relationship among the women and the healthcare providers hence leads to desired behavior change.

Singh *et al* (2012) also stressed that inadequate follow-up services in healthcare systems deter women from seeking postnatal care.

In Madagascar, 15% of women receive a postnatal visit by a health professional in their own homes. The outcome of postnatal visits at mothers' homes can increase their access to skilled healthcare provider so as to achieve desired outcomes.

Generally, the study in Madagascar also shows very low postnatal visits by the healthcare providers. During prenatal and immediate postnatal period, access to significant information is critical.

The World Health Organization (WHO) and UNICEF recommend home visits implemented by Community Health Workers or Village Health Teams (VHTs) as a means to communicate important health information on maternal and newborn health (WHO & UNICEF, 2009).

Home visit was also recommended in the first week after delivery for both the mother and the baby (WHO, 2014). This means that follow up of the postpartum mothers at community level can make significant difference in the health of the mother and newborn. As a result, the Ministry of Health of Uganda established Village Health Teams strategy in 2001 to bridge the gap and improve equity in access to healthcare services at community level.

The VHTs are involved in community drug distribution, community change agents and traditional birth attendants. They are also involved in maternal and child health, Integrated Community Case Management, HIV/AIDS, TB, reproductive health, immunization, nutrition and immunization. In addition, they conduct health education, testing malaria, distribution of drugs, condoms, mosquito nets and linking community to health facilities (MoH, 2016). It's therefore important to equip community health workers or VHTs with all what they need to execute their roles and responsibilities at community level.

A mobile phone consultation during home visits by CHWs for maternal and newborn care, an intervention in Kiryandongo improved access to maternal and newborn information which reduced costs of accessing care and facilitated referral (Ayiasi *et al*., 2015). This means contact between the CHWs and the postpartum mothers at community level is very important in the utilization of PNC especially where referrals can be effected for any complication that requires skilled attendance.

Another study conducted on improving coverage of postnatal care in rural Ethiopia using a community based, collaborative qualitative improvement approach found women who had contact with the health extension workers and also had their mobile-phone number or on friend's or neighbor's phone were 1.6 times more likely to have received postnatal care from healthcare provider within 48 hours after delivery (Tesfaye *et al*., 2014). This means that the contact between the mothers and the health extension workers or VHTs can be important in ensuring postpartum mothers seek postnatal care from a skilled healthcare provider.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0. Introduction

This chapter explains the methodology used to determine the extent of utilization of postnatal care in the first week and its association with the socioeconomic, maternal reproductive and health system factors. The chapter particularly explains the design, area of study, study population, selection criteria, sample size determination, sampling techniques, sampling procedures, data collection methods and instruments, quality control measures, data management and processing, data analysis, ethical considerations, dissemination of results and limitations of the study.

3.1. Research Design

The study used community based analytical cross sectional study design that used both quantitative and qualitative data collection methods to determine the factors influencing the utilization of postnatal care in the first week among the postpartum mothers in ten (10) Sub Counties in Bugiri district.

3.2. Study Area

The study was conducted in 10 of the thirteen (13) Sub Counties in Bugiri district. The catchment areas of health facilities in Bugiri district were studied. According to UBOS, (2016), the district has population of 382,913 people with 186,400 males and 196513 females. The Annual Health Sector Performance report of 2013/14 showed that Bugiri District has the lowest postnatal care attendance in Busoga region. The district's general Hospital also has PNC attendance below the average attendance for all the general hospitals in Uganda (MoH, 2015).

Regionally, east central Uganda including Bugiri district has the highest teenage pregnancy rate of 30.6% above national rate of 26.0% (UNFPA, 2012). The district has average household size of 5.1, population density of 368 (UBOS, 2016) and total fertility rate of 6.9-7.4 births, infant mortality of 49-60 deaths per 1000 live births under five mortality that ranges between 73-90 per 1000 live births (UBOS, 2017)

3.3. Study Population

The study population is the subset of the target population available for study (Banerjee & Chaudhury, 2010). In this study, the population included was the postpartum mothers who were 8 days to six weeks old. Mothers aged 15-49 years who were permanent residents or have lived in the village for at least a year.

3.4. Selection Criteria

This is the criteria used to include and exclude postpartum mothers and key informants in the study.

3.4.1. Inclusion Criteria

- The postpartum mothers with live births and were 8 to 42 days old
- Married and unmarried postpartum mothers
- Postpartum mothers who consented to participate in the study were administered the semi-structured questionnaires
- Postpartum mothers who live in the selected Sub Counties
- Health facility in-charges (key informants) who consented to participate in the study were interviewed

3.4.2. Exclusion Criteria

- Postpartum mothers without live births because the study asked postpartum mothers about services like assessment of the newborns, education and care for cord stumps, immunization and others.
- Postpartum mothers who were visitors in the selected Sub Counties

3.5. Sample size determination and Sampling Techniques

3.5.1. Sample Size determination

A sample is a finite part of a statistical population whose properties are studied to gain information about the whole (Webster, 1985)

The sample size was determined using the formula for simple random sampling for single proportions by Kish Leslie, 1965.

According to Annual Health Sector Performance report of 2014-15, Bugiri district general hospital had postnatal care of 18.2%. Therefore, this was used as the p in the formula below to obtain the sample of postpartum mothers required.

$$n = \frac{\mathbf{z2\ x\rho\ (1-\rho)}}{\mathrm{d2}}$$

Where

N = is the required sample size.

$(Z_{1-\alpha/2})^2$ = confidence level of 95% (standard value of 1.96).

p = expected proportion of postpartum women who had PNC in the first week = 18.2%=0.182.

q = proportion of postpartum women not using contraception which equal to 1-0.182= 0.818.

d = acceptable margin of error.

Thus the sample size is;

$$\mathbf{n} = \frac{(1.96)2 \text{ x}0.182\ (1-0.182)}{(0.05)2}$$

$$= \frac{(1.96)2 \text{ x}0.182 \text{ x } 0.818}{0.05\text{x}0.05}$$

$$= 228.77$$

n = 229 and with none response of 10%, the required sample size was 252.

In qualitative data collection, the in charges of the ten (10) health facilities in the ten (10) sub counties were interviewed.

3.5.2. Sampling Techniques

According to Orodho and Kombo (2002), sampling is the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire population. The study used Multi-stage sampling technique using simple random approach.

Stage one: Selection of the district

East central or Busoga region has six (6) districts of Jinja, Iganga, Kamuli, Namutumba, Bugiri and Kaliro. Bugiri district was purposively selected as the district of study because the district general hospital has PNC utilization below the average for the general hospitals in the Uganda. In addition, Bugiri is also among the districts with the highest teenage pregnancy and early marriages.

Stage two: Selection of the Sub Counties

Bugiri district has thirteen (13) Sub Counties namely; Nabukalu, Iwemba, Bulesa, Nankoma, Buwunga, Bulidha, Kapyanga, Muterere, Buluguyi, Budaya, Bugiri town council, Eastern division (Bugiri Municipality) and Western Division (Bugiri Municipality). Simple random sampling was used to select ten out of thirteen Sub Counties for the purposes of generalizability of study findings and in addition, due to the time resource factors, all the Sub Counties could not be studied.

The names of the ten Sub Counties were typed and printed out separately. Each printout was uniformly folded. The envelopes were then poured on the floor and then randomly picked.

This was then opened and the selected Sub County was considered as one of the study Sub Counties. The process was repeated until the sample size for the Sub Counties were obtained.

Stage three: Selection of parishes from the Sub Counties. The list of parishes in each selected Sub Counties was obtained; thereafter two parishes were randomly selected.

Stage four: Selection of villages from the selected parishes. In each parish randomly selected, the list of villages in it was obtained then two villages were randomly selected to make a sample of villages for study in the district. The sample size was then proportionally allocated to each randomly selected village.

Before the study, the research assistants met the local council leaders in each village. During this meeting, the purpose of the study was explained to the local leaders as well as the approval for it.

At the time of survey, each household was selected using simple randomly sampling, one eligible mother with any child aged between 8 days to 42 was selected.

Table 1: Bugiri District Health Facility by Level

No.	SUB COUNTY		HEALTH FACILITY LEVEL		
		General Hospital	**Health centre IV**	**Health Centre III**	**Health Centre II**
1.	Nabukalu			Nabukalu	a. Wangobo b. Nkaiza
2.	Iwemba			Iwemba	a. Kigulu b. Bambi
3.	Bulesa			Bulesa	a. Bulebe b. Nakigunju c. Nantawawula d. Kitodha
4.	Nankoma			Nankoma	a. Busimba b. Matiki
5.	Buwunga			Buwunga	a. Busoga b. Busowa
6.	Bulidha			Bulidha	a. Wakawaka
	Kapyanga			Kapyanga	a. Kapyanga b. Kayango c. Kiseitaka d. Bugoyozi Nanderema
8.	Muterere			Muterere	a. Kitumba Kayogera
9.	Buluguyi			Buluguyi	Nsango
10.	Bugiri Town Council		IV	Bugiri Town Council	
11	Budaya			Budaya	
12.	Western Division	Bugiri General. Hospital	N/A	N/A	N/A
13	Eastern Division				

Step five-Sampling of the respondent: The respondents who are postpartum mothers were identified after random selection of households. The consent of the mothers was sought for their participation in the study.

In qualitative data collection, the key informants (the In-charges of PNC) were purposively selected in the ten (10) health facilities (9 HCIIIs and 1 HCIV) of the ten (10) sub counties of Bugiri district.

3.6 Data Collection Methods and Instruments and variables

Table 2: Variables Table

Objective	Variable	Indicators	Sources of data	Data collection method	Tool
To determine the extent of the utilization of early postnatal services in among postpartum mothers aged 15-49 years in Bugiri district	• Utilization of PNC services in first week	• Proportion of postpartum mothers who utilized PNC in the first week after delivery (24hrs-7 days post-delivery)	• Postpartum mothers who delivered in the last six weeks • Secondary data from mothers' cards	Questionnaire	Structured questionnaire
To determine the socio-economic factors influencing early postnatal services among the postpartum mothers aged 15-49 years in Bugiri district.	Socio-economic factors	• Age of mother • Marital status • Maternal Education level • Partner education level • Maternal occupation • Partner occupation • Place of residence • Income level • Access to health insurance • Husbands concern on pregnancy complication • Woman's decision making power • Means of transport to HF	• Postpartum mothers who delivered in the last six weeks	Questionnaire Observation	Semi-structured questionnaire

Objective	Variable	Indicators	Sources of data	Data collection method	Tool
To determine the maternal reproductive factors influencing early postnatal services among postpartum mothers (15-49 years) in Bugiri district.	• Maternal Reproductive factors	• Complication during delivery • Parity • History of abortion • Nature of pregnancy • ANC History • Education on PN complications • Knowledge on PNC visits • Experience on PN danger signs to both • Mode of delivery	• Postpartum mothers • Review of ANC, delivery and PNC records • Mid-wives offering PNC services	• Questionnaire	Semi-structured questionnaire
To determine the health system factors influencing early utilization of postnatal services among postpartum mothers (15-49 years) in Bugiri district	• Health system factors	• Access to nearest health facility • Queuing/Waiting time • Counseling and appointment for PNC • Education maternal & neonatal complications • Educated on PNC schedules during ANC • Place of delivery • Skilled Birth attendants • Length of stay after delivery • Availability of PNC providers • Behaviour of healthcare providers • Post-delivery follow up services	• Postpartum mothers • Observe Structural and processes involved in PNC services delivery from selected Health facilities • Interview of 10 PNC in-charges in selected health facilities	• Questionnaire • 10 Observation visits • Key Informant Interview	Semi-structured questionnaire Observation Checklist Key Informant Interview Guide

There were ten (10) Key informants interviewed which consisted of 4 enrolled midwives, 2 nursing officers, 1 registered midwife and 3 nursing officer/midwife (double trained).

3.7. Quality Control Methods

In order to guarantee the expected quality, three research assistants (Health workers) were first trained to carry out collection of valid data. This was to ensure consistent and correct interpretation of questionnaire to the participants. They also ensured that the information collected from the respondents was accorded total privacy and confidentiality.

The likelihood of data loss was reduced by double checking of collected data on daily basis to ensure completeness and incomplete questionnaires were corrected while in the field.

The questions in the tool were translated into Lusoga to allow comprehension for participants who do not speak English. Prior to data collection, consent for participation in the study was sought. Permission to conduct the study was obtained from the District Health Officer, and after his approval, he forwarded to the Senior Assistant Secretaries Bugiri District and the District Internal Security for approval since the study was a community based study in nature.

The questionnaire was translated into Lusoga, which is the mostly used language in the district. The translation was done by District Health Educator who is very good in both English and Lusoga hence translated the questions from English to Lusoga and back to English in order to check whether the same meaning was maintained in either languages.

Pre-testing of structured questionnaire; the data collection tools were first pre-tested with 10% of the study's sample size in a village outside the selected study areas to ensure reliability and validity of the data collection tool.

3.8. Data Management and Processing

In order to guarantee meaningful interpretation, some of the independent variables were categorized. The unprocessed data was extracted, coded and entered into EpiData thereafter exported to SPSS version 20 for analysis.

All data that were collected underwent double checking for completeness, clarity and consistency by the supervisor at the end of the day for all data collected. The observations of structural attributes were conducted at the health facilities that serve the postpartum women who were interviewed using the quantitative data collection tool.

The qualitative data collected through the key informants interview guide were re-read and transcribed on daily basis for analysis

3.9. Data Analysis

The overall analysis was conducted by objective using SPSS at 95% confidence level. For comparative purposes, the dependent variable in this study was utilization of postnatal care in the first week among the postpartum mothers. Postpartum mothers who utilized PNC in the first week were coded 1 and those who used after seven (7) days and did not were coded 0.

The numerical data was summarized into descriptive statistics of mean, median, range and categorical data was summarized into frequencies and percentages.

The secondly, bivariate analysis was performed to test for statistically significant difference or relationship between the independent and dependent variable using Chi-square test

The relationship between the independent variables and the dependent variables were considered significant at 95% Confidence Interval where the probabilities (p) were less than 0.05. In analysis where cell values were less than five (5), Fisher's exact test value and p-values were reported. In order to ascertain strength of influence of significant categorical variables on the dependent variable, univariable logistic regression was performed into unadjusted odds ratios (uOR) with their subsequent 95% confidence intervals and associated p-values were obtained and interpreted.

In order to control for confounders, Multivariate Logistic Regression analysis was performed only for significant variables. The results were expressed inform of adjusted odds ratios (aOR) with their subsequent 95% confidence intervals and p-values to determine factors independently associated with utilization of PNC in the first week after delivery.

In all analyses, associations with p-values of less than 0.05 ($p<0.05$) were considered statistically significant.

The observation data was entered into Microsoft Excel sheet and all the itemized data from structural component were analyzed by health facility against the respective total scores. Table was used to present the structural attributes with the frequencies and percentages of each item, and their overall scores.

The qualitative data from the key informants were summarized deductively because the tool had pre-structured questionnaires. The main and other emerging themes were used to triangulate the quantitative data. The observations were made on 7 components with items necessary for provision of postnatal care services. They include the structural attributes of general supply (4 items), equipment (10 items), vaccines (6), infection control supplies (8), general infrastructure (7), family planning commodities (10) and Sexually Transmitted Infections (STI) and Reproductive Health (RH) drugs (10).

There were ten (10) health facilities and for each item, number of facilities with the particular item was given 1 score when available and 0 when not available. In order to obtain the within percentage of each item available from the 10 facilities this was calculated by dividing the number of facilities with available item by 10 multiplied by 100%.

In addition, the percent of each item, number of facilities with each item was divided by overall expected cumulative score/number multiplied by 100%.

Overall component score was obtained by adding all the actual item scores and percent obtained by dividing total actual scores for all items in a component divided by total expected item score multiplied by 100%.

3.10. Ethical Considerations

The researcher obtained ethical clearance from the faculty of health sciences of Uganda Martyrs University through the supervisor.

The Study approval letter was presented to the District Health officer of Bugiri district who also approved the study for its conduction in the selected communities and health facilities in Bugiri district. The fact the study participants were selected at household level, the DHO forwarded the approved copy of the letter to the District Internal Security Officer to also approve for the recognition of the local leaders at the community level.

The study participants were informed about the objective of the study. They were also informed that the study has no direct benefits but the information provided will be used to propose appropriate recommendations that may be used by district or policy makers to improve on utilization of postnatal care in the first week after delivery. The study participants were informed that the study has no harm to them.

Thereafter, both verbal and written consent of individual participant was also obtained from the postpartum mothers. In order to keep confidentiality of any information provided by study subjects, the data collection procedure was anonymous. The mothers were also informed that their participation in the study was on voluntary basis and have the liberty to withdraw from the study at any time of data collection.

All completed forms were verified and kept locked in a room at the nearest health Centre III in the respective sub counties was only accessed by the focal person of the research assistants and the principal investigator.

3.11. Limitations of the Study

The study could be limited by self-reporting among the postpartum mothers; however mothers with records had their information validated during data collection period.

The postpartum mothers without live births were excluded in this study hence some of the reasons or factors related to utilization of postnatal care in the first week among these mothers were missed. This study however, targeted postpartum mothers with live births because some of the services related services including immunization require mothers with live births.

This study did not also asked mothers why they did not attend postnatal care in the first week after delivery but rather asked those who did not attend PNC and health workers regarding why some mothers did not utilize PNC in the first week.

CHAPTER FOUR

RESULTS

4.0. Introduction

This chapter describes the study results with all analysis of data presented. The findings from this study were obtained from 252 postpartum mothers who were 8 days old to 42 days in the ten (10) Sub Counties in Bugiri. In each Sub County, not less than 25 and 29 postpartum mothers were interviewed respectively.

No.	Name of Sub County	Frequency of respondents Interviewed
1.	Budaya	25
2.	Bulesa	26
3.	Bulidha	20
4.	Buluguyi	25
5.	Buwunga	25
6.	Iwemba	26
7.	Kapyanga	25
8.	Muterere	29
9.	Nabukalu	24
10.	Nankoma	27
	Total	**252**

Figure 3: Frequency of Postpartum Mothers Interviewed per Sub County

There were 10 Key informants interviewed from 10 health facilities (9 HCIIIs and 1 HCIV). The results presented the level of utilization of PNC services in the first week after delivery, socioeconomic characteristics of women and their spouses, maternal reproductive factors and health system related factors and inferential analysis for associations, and triangulation was done.

a) Background Characteristics

Variable	Frequency (n)	Percentage (%)
Age categories in years		
15-19	42	16.7
20-24	92	36.5
25-29	48	19.0
30-34	46	18.3
>=35 years	24	9.5
Marital status		
Single	18	7.1
Married	224	88.9
Separated/divorced	10	4.0
Education level		
No formal education	18	7.1
Primary	179	71.0
Secondary	52	20.6
Tertiary	3	1.2
Education level of spouse		
No formal education	11	4.4
Primary	97	38.5
Secondary	86	34.1
Tertiary	19	7.5
Don't Know	39	15.5
Occupation		
Not working	73	29.0
Farmer/Peasant	151	59.9
Gainful Employment	28	11.1
Don't know		
Occupation of spouse		
Not working	21	8.8
Farmer	145	60.4
Gainful Employment	72	30.0
Don't know	2	0.8
Missing	12	4.8
Religion of respondent		
Catholic	57	22.6
Muslim	104	41.3
Anglican/protestant	70	27.8
Others	21	8.3

Table 3: Background Characteristics

The table 3 above shows the background characteristics of the postpartum mothers. The average age was 25 years (SD±6.1) with median of 24 years; minimum age was 16 years and maximum being 43 years. Greater numbers were aged 20-24 years 92 (36.5%). Majority 224 (88.9%) of the respondents was married and least was separated/divorced (4.0) and single (7.1%). Most of the postpartum mothers attained only primary education (71.0%) followed by secondary level accounting for 20.6%. More than half (59.9%) of the respondents are farmers or peasant farmers, only 11.1% are in gainful employment while 29.0% are not employed at all. The spouses of the respondents are also mainly peasant farmers (60.4%). However, the spouses are two times (30.0%) in gainful employment than their wives. Nearly half (41.3%) of the respondents were Muslims.

b) General utilization of postnatal care services

The utilization of postnatal care used was considered in two perspectives, mainly, the proportion of PNC services utilization and the timing of the PNC use in the first week. The general utilization shows that 222 (88.1%) utilized PNC services and 30 (11.9%) did not. Among the mothers who used PNC, 43(17.1%) used within 0-23 hours, 23(9.1%) 1-2 days, 35(13.9%) at 3-7 days and 121(48.0%) within 8-42 days after delivery.

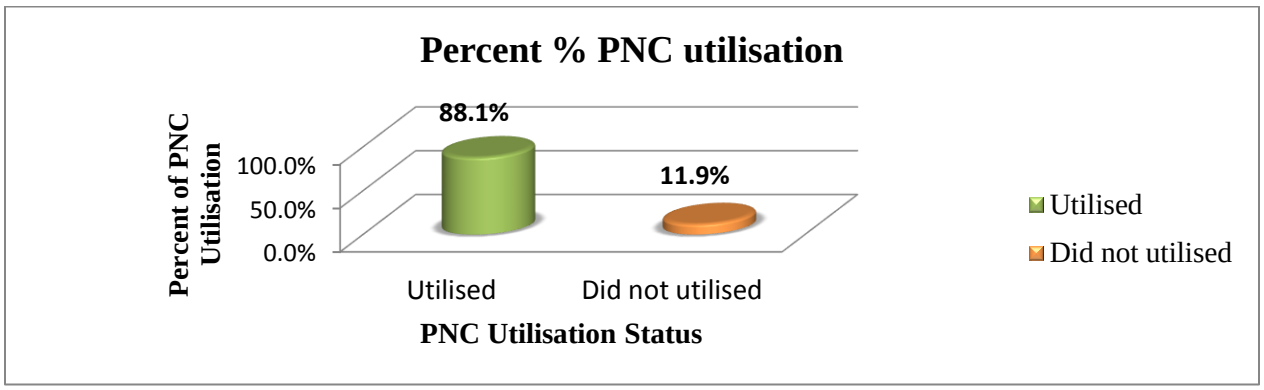


Figure 4: Utilization of PNC up to 42 days after delivery

Reasons for non-utilization of Postnatal Care in the period from birth to 42 days

Reasons for not attending Postnatal care	Frequency (n)	Percentage (%)
No/Little knowledge for PNC	3	10%
Being healthy	6	20%
Being busy	2	6.7%
Health facility is far	3	10%
Long waiting time	2	6.7%
Others	1	3.3%
Missing	13	43.3%
Total	**30**	**100%**

Table 4: Reasons for not attending Postnatal Care

The table 4 above shows, 30 postpartum mothers in the community did not utilize postnatal care at the time of the survey. Out of 30, 17 of them gave their reasons for non-utilisation while 13 did not hence was considered missing data. The highest number mentioned being healthy after delivery and three said because of no or limited information about PNC. This is an indication of inadequate knowledgeable about PNC which could be attributed to seldom attendance of services at the health facilities or limited outreaches activities being conducted.

During interview with healthcare providers, two of them commented on the attitude of the postpartum mothers towards utilization of PNC services in the first week after delivery and the first one said,

> Actually mothers, do not see the importance even after telling them to return for services. 'When the mother does not have any alarming condition, many take postnatal period for granted and they see no need for review. But now we are trying to at least sensitize them to make use of the services. Otherwise, turn up is still low because they are not convinced about the need and importance for these services, Nursing Officer/midwife, Buluguyi HCIII, 17th July 2017.

The second healthcare provider said;

'When mothers feel that they are fine, they have no problems and their babies are fine, they feel that they do not need to come to the health facility', In-charge/Nursing Officer, Iwemba HCIII, 12th July 2017

4.1. Utilization of postnatal care in the first week after delivery

This study revealed that less than half 101 (40.1%, 95%CI: .341-.464) utilized PNC in the first week after delivery while more than half (59.9%) of the postpartum mothers used theirs after seven days post-delivery or did not. In addition, among the postpartum mothers who used PNC in the first week, four (4), ninety three (93) and four (4) of them were single, married and divorced or separated respectively, and 34 were aged 20-24 years, 21 were aged 30-34 years as well as 18, 17 and 11 were in 25-29, 15-19 and 35 and above years respectively.

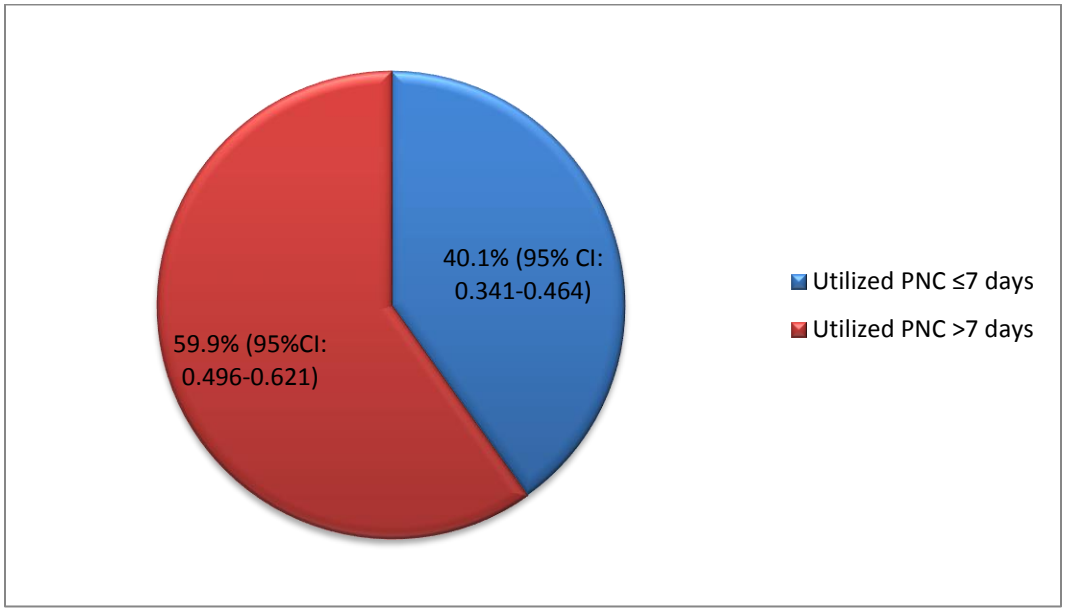


Figure 5: Percentage on level of Utilization of PNC in the first week after delivery

Key Informant interviews during interviews mentioned the challenge of understaffing evidenced when outreach services are provided alongside the facility based services.

In most cases when implemented very few staff is left to work in labour, antenatal care, Young Child Clinics and PNC clinics. On some days many women/mothers come at the facilities and this creates a lot of work load, hence they are forced to work more than eight hours per day.

It was observed that health education on PNC during ANC and Young Child Clinics, use of VHTs to educate the women during PNC, training of VHTs and make them conduct follow up visits and referral could improve utilization of early postnatal care.

'We usually health educate them on the need for these services but also we use VHTs to follow them up from their villages. There they do not encounter transport problems' Registered Midwife, Bulidha HCIII, 18th July 2018.

The role of VHT is very important in postnatal care services provision because their activities increase accessibility of mothers to basic services.

'We health educate them at antenatal that they should go for PNC services. Here after delivery we also educate them on the benefits for PNC services. We have also trained VHTs', Nursing Officer/Midwife, Nankoma HCIV, 18th July 2017.

The Key Informants also reported that many mothers after delivery rarely come back for PNC in six days. Once they feel fine they don't but if they feel some complications, then they come back. Others come when they just need immunization. The mothers who usually return for PNC include those referred by VHTs during follow ups and those who come for immunization.

'As I told you, a few mothers come back at six days and those ones who come back, come because of complications or if we did not immunize, they would come back on Wednesday for immunization', Nursing Officer/Midwife, Mayuge HCIII, 18th July 2017.

The fact that postpartum mothers still have limited knowledge on the significance of PNC in the first week, they still do not recognize its value only when they encounter complications or seek immunization services.

Postnatal Care Decision Maker

This study found 153 in 222 of the postpartum mothers made the decision to attend postnatal care while 38 mothers stated that the decision was made by their husbands and 31 respondents shared or jointly made the decision to attend PNC. Among those who made decision to attend PNC by themselves, 72 out of 153 (47%) used PNC in the first week. However, decision making by the postpartum mothers was not significantly associated with PNC utilization in the first week after delivery (P=0.092).

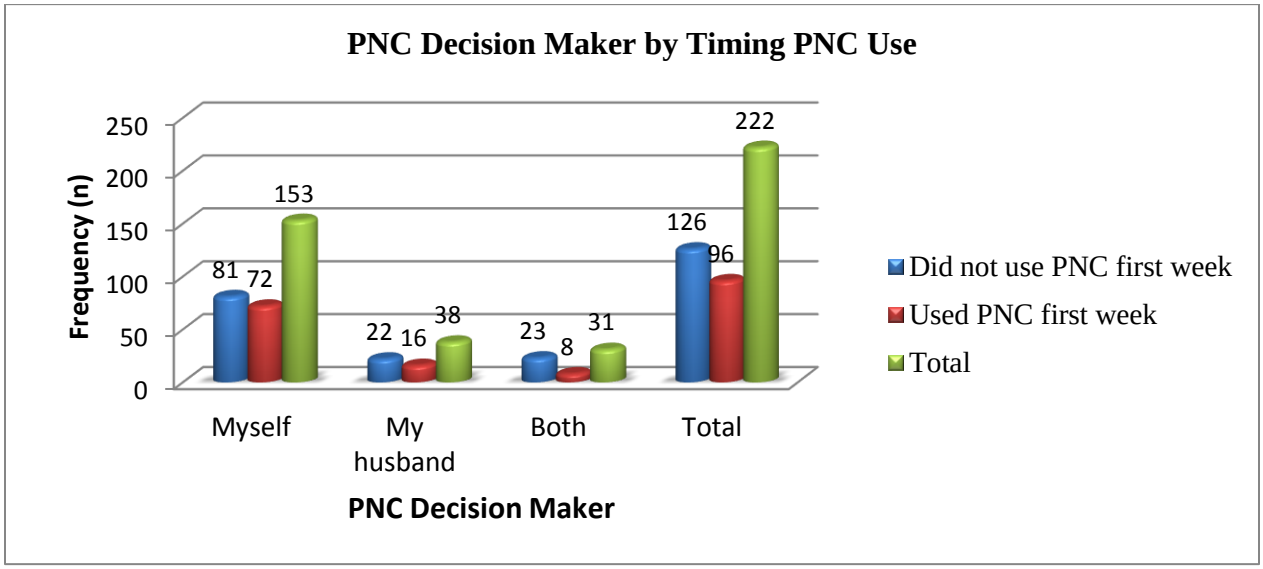


Figure 6: PNC Decision maker by Timing PNC use (N=222 (χ^2 = 4.768, df =2, p=0.092)

4.2. Socioeconomic factors and utilization of PNC in the first week after delivery

	Utilized PNC within first week			[χ^2, (df)]	p-value
Variable	**No**	**Yes**		**Unadjusted OR 95%CI**	**p-value**
Age of mother	No. (%)	No. (%)	**Total**	**[χ^2 =1.43, df=4]**	**0.839**
15-19	25(59.5)	17(40.5)	**42**	0.80(0.292-2.211)	0.459
20-24	58(63)	34(37)	**92**	0.69(0.28-1.717	0.428
25-29	30(62.5)	18(37.5)	**48**	0.71(0.263-1.914)	0.497
30-34	25(54.3)	21(45.7)	**46**	0.99(0.369-2.673)	0.988
35 and above	13(54.2)	11(45.8)	**24**	1	
Marital status				**[χ^2=2.58, df=2]**	**0.275**
Single	14(77.8)	4(22.2)	**18**	0.43(0.08-2.308)	0.324
Married	131(58.5)	93(41.5)	**224**	1.07(0.292-3.879)	0.924
Separated/divorced	6(60)	4(40)	**10**	1	
Education level of respondent				**[χ^2=5.85, df=3]**	**0.119**
No formal education	10 (55.6)	8 (44.4)	**18**	0.00	0.999
Primary	106 (42.1)	73(40.8)	**179**	0.00	0.999
Secondary	35(67.3)	17(32.7	**52**	0.00	0.999
Tertiary	0(0)	3(1.2)	**3**	1	
Education of spouse				**[χ^2=1.542, df=3]**	**0.673**
No formal education	30(60.0)	20(40)	**50**	0.60(0.207-1.738)	0.347
Primary	58(59.8)	39(40.2)	**97**	0.61(0.225-1.625)	0.319
Secondary	54(62.8)	32(37.2)	**86**	0.53(0.196-1.451)	0.218
Tertiary	9(47.4)	10(52.6)	**19**	1	
Occupation of mother				**[χ^2=29.79, df=2]**	**<0.001***
Not working	63 (86.3)	10(13.7)	**73**	0.16(0.06-0.43)	0.001*
Self-employment	74(49	77(51)	**151**	1.04(0.46-2.33)	0.923
Formal employment	14(50)	14(50)	**28**	1	
Occupation of spouse				**[χ^2=6.30, df=3]**	**0.098**
Not working	12 (57.1)	9(42.9)	**21**	0.00	0.999
Self-employment	78(53.8)	67(46.2)	**145**	0.00	0.999
Formal employment	50(69.4)	22(30.6)	**72**	0.00	0.999
Don't' know	2(100)	0	**2**	1	
Religion of respondent	No. (%)	No. (%)		**[χ^2=5.15, df=3]**	**0.161**
Catholic	35 (61.4)	22 (38.6)	**57**	0.39(0.138-1.083)	0.071
Muslim	67 (64.4)	37 (35.6)	**104**	0.34(0.129-0.895)	0.029*
Anglican	41(58.6)	29 (41.4)	**70**	0.44(0.160-1.184)	0.103
Others	8 (38.1)	13 (61.9)	**21**	1	
Family average monthly income				**[χ^2=1.07, df=2]**	**0.587**
<Ushs 50,000	124(59.3)	85(40.7)	**209**	0.69(0.193-2.441)	0.590

Ushs 100,000-150,000	22(66.7)	11(33.3)	**33**	0.34(0.119-2.210)	0.344
>Ushs 200,000 and above	5(50)	5(50)	**10**	1	
Personal average monthly income				**[χ^2=1.97, df=3]**	**0.579**
<Ushs 50,000	125(59)	87(41)	**212**	2.09(0.214-20.407)	0.527
Ushs 100,000-150,000	22(66.7)	11(33.3)	**33**	1.50(0.139-16.144)	0.738
>Ushs 200,000 and above	1(33.3)	2(66.7)	**3**	6.0(0.221-162.531)	0.287
Nothing	3(75	1(25)	**4**	1	
Saving income earned				**[χ^2=1.95, 1]**	**0.163**
Yes	20(50)	20(50)	**40**	1.62(0.820-3.189)	0.165
No	131(61.8)	81(38.2)	**212**	1	
Participation in community				**[χ^2=14.83 df=2]**	**0.001***
VSLA activities	22(81.5)	5(18.5)	**27**	0.67(0.212-2.092)	0.486
Community health activities	88(51.8)	82(48.2)	**170**	2.73(1.386-5.271)	0.004*
None	41(74.5)	14(25.5)	**55**	1	
Access to health insurance				**[χ^2=1.00, df=1]**	**0.317**
Yes	5(45.5)	6(54.5)	**11**	1.84(0.547-6.213)	0.323
No	146(60.6)	95(39.4)	**241**	1	
Means of accessing health facility				**[χ^2=3.30, df=1]**	**0.069**
Foot/walking	86(55.5)	69(44.5)	**155**	1.63 (0.961-2.765)	0.070
Not walking (Bicycle, motorcycle, taxi or own/family care	56(64.4)	32(35.6)	**96**	1	

Table 5: Socioeconomic factors influencing utilization of PNC in the first week after delivery

4.2.1. Age of postpartum mothers

Age of an individual in health care services utilization is considered as predisposing factor in Andersen's behavioral model of health services utilization. Mothers aged 20-24 years were the majority followed by those within 25-29, 30-34 and 15-19 years and the least being those in 35 and above.

More than one half 134 (53.2%) of the postpartum mothers were aged between 15-29 years (<30 years) and more than one-third 51 (20.2%) in 252 of them used PNC in the first week after delivery. A study by Izudi et al (2017) in Mundri East, South Sudan, had 385 postpartum mothers, 276 (71.9%) of them were less than 30 years old and 34 (12.3%) used early postnatal care (2-7 days). The two studies agreed that the majority of the postpartum mothers were mainly less than 30 years old. However Izudi et al (2017) considered PNC use from 2-7 days unlike the current study from within 24 hours to 7 days post-delivery.

4.2.2. Marital status

The study found 93 (41.5%) out of 224 of the married postpartum mothers utilized PNC in the first week after delivery. However, there was no statistically significant difference between marital status and utilization of PNC in the first week (χ^2=2.58, df =2, 0.275).

Single postpartum mothers were less likely to utilize PNC in the first week compared to the separated or divorced mothers (UOR=0.43 95%CI=0.08-2.308 p=0.324).

4.2.3. Education level of respondent

Majority 179 (71%) of the mothers completed primary level of education and 40.8% of 179 of these managed to receive PNC within the first week after delivery. There was no statistically significant difference between education level of postpartum mothers and utilization of PNC in the first week (χ^2=5.85, df =3, p=0.119).

4.2.4. Education level of the spouse

The spouses of the respondents mainly completed primary and secondary level of education. There were 39 (40.2%) in 97 of those who reported primary level of education had utilized PNC services in the first week.

On the other hand, those who completed secondary level of education that had 32 (37.2%) out of 86 mothers. The mothers whose spouses had no formal education were less likely to utilize PNC in the first week compared to those with tertiary education (UOR=0.60, 95%CI=0.207-1.738, p=0.347). Similarly, mothers who attained primary and secondary education were also less likely to use PNC in the first week compared to the reference group (UOR=0.61, 95%CI =0.225-1.625, p=0.319) and (UOR=0.53 95%CI: 0.196-1.451 p=0.218) respectively. This finding implies that spouses with tertiary level of education could have been more exposed to information compared to mothers whose spouses had no formal, primary and secondary education. In addition, the spouses could be employed hence this enables the capacity of the family in accessing health care services.

4.2.5. Occupation of the postpartum mother

The majority of the postpartum mothers were self-employed and 77 (51%) in 151 of them utilized PNC in the first week after delivery. The inferential analysis using chi-square revealed a statistically significant relationship between occupation of the mother and the utilization of the PNC in the first week after delivery (χ^2=29.8, df = 2, P=0.000).

In addition, self-employment status was associated with 4% increase in utilization of PNC services within the first week after birth (UOR=1.04, 95%CI=0.403-2.745, P=0.923) and (AOR=1.05 95%CI=0.403-2.745, P=0.917). On the other hand, none-working status among the respondents was associated to 84% decrease in utilization of PNC in the first week (UOR=0.16 95%CI=0.06-0.43, P=0.001). While after adjustment for confounders, not working among the respondents were associated with 81% decrease in use of PNC in the first week (AOR=0.19 95%CI=0.056-0.633, P= 0.007). This significant association was found because the majority of the mothers reported that they were ‘not working’.

4.2.6. Occupation of spouse

The majority (145/252) of the respondents reported that their spouses were self-employed. The result indicates that 67 (46.2%) out of 145 of the respondents who reported their spouses' self-employment status had sought PNC in the first week after delivery with no significant association (χ^2=6.30, df =3, p=0.098). In Andersen and Newman's model, occupation is one of the predisposing factors that influence utilization of health care services; however, this finding did not establish the relationship with use of PNC in the first week.

4.2.7. Religion of respondent

The Muslims were the majority (104) followed by Anglicans (70) and Catholics (57) and no statistically significant difference was found between religion and utilization of PNC in the first week (χ^2=5.15, df =3, p=0.161. In addition, other religion had better utilization of PNC in the first week with 13 (61.9%) out of 21 mothers followed by Catholics 22/57(38.6%). However, Catholics, Anglican and Muslims mothers were less likely to utilize PNC in the first week compared to other regions (UOR=0.39 95%CI=0.138-1.083, P=0.071), (UOR=0.44 95%CI=0.160-1.184, P=0.103) but Muslim as religion contributed to 66% in reduction of the utilization of PNC in the first week after delivery (UOR=0.34 95%CI=0.129-0.895, P=0.029) and this was statistically significant. This difference could be due to the sample sizes.

4.2.8. Family average monthly Income

The majority 209 (82.9%) of the respondents earn family average monthly income of <Ushs 50, 000 .It emerged that 85(40.7%) out of 209 of the respondents who earned <Ushs 50,000 reported to have utilized PNC in the first week after delivery. Statistically, low earning of about Ushs 50,000 contributes to 31% reduction in use of PNC in the first week (UOR=0.69 95%CI=0.193-2.441, p=0.590).

Respondents whose family average incomes were between <Ushs 50,000 (UOR=0.69 95%= 0.193-2.441) and from Ushs 100,000-150,000 (UOR= 0.34 95%CI=0.119-2.210, p=0.344) were less likely to utilize PNC in the first week after delivery compared to those who earned nothing.

4.2.9. Personal average monthly Income

Respondents who earn <Ushs 50,000 were 2.00 times likely to utilize PNC in the first week compared to the reference group (UOR=2.09, 95%CI=0.214-20.407, p=0.527). However, there was no statistically significant association.

Mothers who earn between Ushs 100,000-150,000 were 1.5 times likely to use PNC with no statistically significant association between the two (UOR=1.5, 95%CI=0.139-16.144, p=0.738). Additionally, respondents who earn >Ushs 200,000 and above were 6 times likely to utilize PNC services in the first week after delivery (UOR=6.0 95%CI=0.221-162.531, p=0.287). This finding implies that higher earnings becomes an enabling factor towards utilization of PNC in the first week hence was in conformity with Andersen's behavioral model for health care services utilization.

4.2.10. Saving income earned

The saving finding shows few (40/252) respondents reported saving the money they earned, which implies that the majority of them did not save part of their income earned. However, no significant difference exist between saving income and use of PNC in the first week (χ^2=1.95, df =1, p=0.163). Considering postpartum mothers who earned income, 20 (50%) reported saving part of the money and were 1.62 times likely to utilize PNC in the first week after delivery compared to those who did not (UOR=1.62, 95%CI=0.820-3.189, p=0.165).

4.2.11. Participation in community activities

Participation by women in community activities was found to have significant relationship with utilization of PNC in the first week after delivery (χ^2=14.83, df =2, p=0.001).

The result revealed that respondents who participated in VSLA activities which included saving, borrowing loan, saving for welfare among others were less likely to utilize PNC in the first week after delivery compared to the reference group (uOR= 0.67 95%CI=0.212-2.092, p=0.486).

Interestingly, significant association was confirmed among mothers who had participated in community health activities and were 2.73 times more likely utilize PNC in the first week after delivery compared to non-participants (UOR=2.73 95%CI=1.386-5.271, p=0.004*).

In adjusting for odds ratio, participation in community health activities still contributed 26% in the utilization of PNC in the first week after delivery however there was no confirmed statistically significant association at this level of analysis (AOR=1.26 95%CI=0.526-2.999, p=0.608). While those who participated in VSLA were less likely to use PNC in the first week compared to the reference group and there was significant association with access to insurance (AOR=0.48 95% CI=0.105-2.199, p=0.345).

4.2.12. Access to health insurance

Majority of the respondents did not have access to health insurance and only 11/252 of the respondents reported to have access to it (χ^2=1.00, df=1, 0.317). Although postpartum mothers who have access to it were 1.8 times likely to utilize PNC in the first week after delivery compared to the reference group (UOR=1.84 95%CI=0.547-6.213), p=0.323).

4.2.13. Means of accessing health facility

More than half (155(61.5%) of the mothers accessed health facility by foot or walking and 68 (44.5%) of those who foot or walk had utilized PNC in the first week, and were 1.6 times likely to utilize PNC in the first week after delivery compared to the reference group (UOR=1.63 95%CI=0.961-2.765 p=0.070).

4.3. Maternal-reproductive factors and utilization of PNC in the first week after delivery

Variable	Utilized PNC within first week		Total	[χ^2, df] Unadjusted OR 95%CI	P-value P-value
	No	Yes			
Parity	No. (%)	No. (%)		**[χ^2=4.43, df=2]**	**0.109**
Para 1	25(59.5)	17(40.5)	**42**	0.70(0.326-1.494)	0.354
Para 2-4	87(65.4)	46(34.6)	**133**	0.54(0.306-0.962	0.036*
≥5	39(50.6)	38(49.4	**77**	1	
Had an abortion before				**[χ^2=3.14, df=1]**	**0.077**
Yes	45(52.3)	41(47.7)	**86**	0.62(0.366-1.054)	0.078
No	106(63.9)	60(36.1)	**166**	1	
Nature of pregnancy				**[χ^2=0.04, df=2]**	**0.981**
Planned and supported	68(59.6)	46(40.4)	**114**	1.10(0.422-2.862)	0.846
Unplanned but supported	70(59.8)	47(40.2)	**117**	1.09(0.420-2.836)	0.858
Unplanned and unsupported	13(61.9)	8(38.1)	**21**	1	
Attended ANC when pregnant for this child				**[χ^2=0.25, df=1]**	**0.616**
Yes	148(60.2)	98(39.8)	**246**	0.66(0.131-3.348)	0.618
No	3(50)	3(50)	**6**	1	
Frequency of ANC attended				**[χ^2=0.68, df=2]**	**0.713**
Once	1(100)	0	**1**	0.000	1.000
2-3 times	62(59.6)	42(40.4)	**104**	1.03(0.613-1.724)	0.916
≥ 4 times	85(60.3)	56(39.7)	**141**	1	
Experienced postnatal complications				**[χ^2=0.15, df=1]**	**0.697**
Yes	68(58.6)	48(4.14)	**116**	1.11(0.667-1.832)	0.697

No	83(61.0)	53(39.0)	**136**	1	
Postpartum period may be dangerous to me and my baby				**[χ^2=0.296, df=1]**	**0.587**
Yes	136 (59.4)	93(40.6)	**229**	0.78(0.318-1.914)	0.587
No	15(65.2)	8(34.8)	**23**	1	
Knowledge on period for attending early postnatal care				**[χ^2=7.33, df=1]**	**0.007**
Within 24rs to 7 days	110(55.6)	88(44.4)	**198**	2.52(0.273-5.000)	0.008
After 7 days and beyond/42 days	41(75.9)	13(24.1)	**54**	1	
Mode of delivery				**[χ^2=2.63, df=1]**	**0.105**
Vaginal	146(61.1)	93(38.9)	**239**	0.40(0.126-1.254)	0.116
Caesarian	5(38.5)	8(61.5)	**13**	1	

Table 6: Maternal-reproductive factors

The reproductive and obstetric factors investigated included parity, history of abortion, nature of pregnancy, ANC attendance, frequency of ANC attendance, history of post-delivery follow ups, information about PNC attendance, experience of postnatal complications, Knowledge on period for attending early postnatal care and mode of delivery.

These factors were tested for their association with utilization of PNC in the first week after delivery using chi-square for significant difference between dependent and independent variables and logistic regression was used to test for strength of association.

4.3.1. Parity

The study found no statistically significant difference between parity and utilization of PNC in the first week (χ^2=4.43, df =2, p=0.109). Postpartum mothers with 1, and 2-4 parities were less likely to utilize PNC in the first week compared to the reference group. However, those with 2-4 parities were associated with 46% reduction in utilization of PNC in the first week after delivery (UOR=0.54 95%CI=0.306-0.962, p=0.036).

4.3.2. History of abortion

History of abortion showed not significant relationship with use of PNC in the first week (χ^2=3.14, df =1, p=0.077). Mothers who had abortion were less likely to utilize PNC in the first week compared to those who never had abortion (UOR=0.62, 95%CI=0.366-1.054, p=0.078). This implies that history of abortion does not matter in utilization of PNC in first week.

4.3.3. Nature of pregnancy

This study indicated no significant difference between nature of pregnancy and utilization of PNC (χ^2=0.04, df =2, p=0.981).

Postpartum mothers whose pregnancy was planned and supported (114) and unplanned but supported (117) contributed to 10% and 9% respectively in increasing use of PNC in the first week (UOR=1.10 95%CI=0.422-2.862 p=0.846) and UOR=1.09 95%CI=0.420-2.862, p=0.858. In most cases unplanned pregnancies are likely to receive limited attention hence it is important to ensure pregnancies are planned and helped.

4.3.4. ANC Attendance

In this study, no statistically significant difference was established between ANC attendance and utilization of PNC (χ^2=0.25, df =1, p=0.616).

The respondents who reported to have attended ANC were less likely to utilize PNC in the first week after delivery compared to those who did not attend (UOR=0.66 95%CI= 0.131-3.348, p=0.618). Although ANC attendance could have the component of educating or informing women on PNC attendance in the late gestational ages, this study indicated that it does not guarantee PNC attendance among the postpartum women.

4.3.5. Frequency of ANC attendance

Frequency of ANC had no significant difference with use of PNC (χ^2=0.68, df =2, p=0.713) Majority of the respondents attended from 2-3 times (104) and 141 did attend up to 4 visits or more. The mothers who had only one ANC visit. Postpartum mothers who attended 2-3 times contributes 3% increase utilization of PNC in the first week (UOR=1.03, 95%CI=0.613-1.724, P=0.916).

4.3.6. Experienced postnatal complications

The study showed no significant difference between experience of postnatal complication and utilization of PNC (χ^2=0.15, df =1, p=0.697).

Postpartum mothers were asked to whether they had experienced postnatal complications and 48 (41.4%) in116 who had experienced the postnatal complications utilized PNC in the first week. The result also showed that the experience of the complication contributed 11% on use of PNC in the first week after delivery. However there was no statistically significant association between having experienced postnatal complications and utilization of PNC in the first week after delivery (UOR=1.11 95%CI=0.667-1.832, p=0.697). This means experience about postnatal complication does not matter in utilisation of PNC in the first week.

4.3.7. Dangers of postpartum period to mother and baby

It is being recognized that postpartum period is very critical for both the mother and newborn. In this study, no significant relationship was found between mothers knowledge on whether postpartum period would be dangerous to them and utilization of PNC in first week (χ^2=0.296, df=1, p=0.587). The majority 229(90.9%) reported that the period could be dangerous to them and were less likely to utilize PNC in the first week compared to the reference group (UOR=0.78 95%CI=0.318-1.914, p=0.587).

4.3.8. Knowledge on period for attending early postnatal care

During the study, the knowledge of the mothers was tested on the period for seeking early postnatal care services. The finding showed that the majority 198(78.6 %) reported the correct period being within 24hrs after delivery to the 7th day and 44.4% of them actually had utilized PNC in the first week after delivery. The knowledge on period of attending early postnatal care was associated with 31% utilization but 59% reduction on use of PNC in the first week.

The analysis also showed that mothers knowledgeable on when to use early postnatal care within a week were 2.5 times more likely to use PNC in the first week. There was significant association between knowing the correct period of attending early postnatal care and utilization of the PNC in the first week after delivery (UOR=2.52 95%CI=0.273-5.000, p=0.007). It is valuable for mothers to know the correct timing for utilization of PNC and the reasons in the early periods.

4.3.9. Mode of delivery

Majority 239 (94.8%) out of 252 of the postpartum mothers delivered vaginally and 93 (38.9%) in239 of them utilized PNC in the first week after delivery.

The study also revealed that those who delivered vaginally were less likely to utilize PNC in the first week after delivery and there was no statistically significant association UOR=0.40 95%CI=0.126-1.254, p=0.116).

4.4. Health System related factors and utilization of PNC in the first week after delivery

The study investigated the influence of selected health related factors on the utilization of PNC in the first week after delivery.

The factors considered included; place of delivery, cadres involved in delivery, duration of stay at the health facility after delivery, education of postpartum mothers on postnatal complications, availability of health facility for accessing regular health services, distance of health facility, the behavior of health workers.

In addition, availability of health work force for postnatal care services, waiting time at the health facility and whether services are offered free of charge.

Bivariate analysis between Health System related factors and utilization of PNC in first week

Variable	Utilized PNC within first week		Total	[χ^2, df] Unadjusted OR 95%CI	p-value p-value
	No	Yes			
Place of delivery	No. (%)	No. (%)		**[χ^2=1.58, df=2]**	**0.455**
Public health facility	116(58.9)	81(41.1)	**197**	0.52(0.161-1.677)	0.273
Private health facility	9(52.9)	8(47.1)	**17**	0.79(0.291-2.122)	0.634
At home	26(68.4)	12(31.6)	**38**	1	
Cadre who delivered you				**[χ^2=3.50, df=3]**	**0.321**
Midwife	110(56.7)	84(43.3)	**194**	0	1
Physician/doctor	12(66.7)	6(33.3)	**18**	0	1
TBAs	28(72.2)	10(27.8)	**36**	0	1
Others	2(66.7)	1(33.3)	**3**	1	
Duration of stay at the health facility after delivery				**[χ^2=1.80, df=3]**	**0.613**
<6 hours	43(58.9)	30(41.1)	**73**	0.802(0.375-1.714)	0.57
6-11 hours	22(53.7)	19(46.3)	**41**	0.993(0.421-2.342)	0.988
12-23 hours	37(64.9)	20(35.1)	**57**	0.622(0.277-1.396)	0.250
≥24 hours	23(53.5)	20(46.5)	**43**	1	
Educated on postnatal complications before discharge				**[χ^2=0.63, df=1]**	**0.427**
Yes	75(57.3)	56(42.7)	**131**	1.23(0.740-2.039)	0.428
No	74(62.2)	45(37.8)	**119**	1	
Post-delivery follow ups				**[χ^2=11.70, df=1]**	**0.001**
Yes	90(70.3)	38(29.7)	**128**	0.41(0.244-0.686)	0.001*
No	61(49.2)	63(50.8)	**124**	1	
Educated/informed about PNC attendance				**[χ^2=8.04, df=1]**	**0.005**

during ANC visits					
Yes	79(53.0)	70(47.0)	**149**	2.18(1.267-3.764)	0.005*
No	69(71.1)	28(28.9)	**97**	1	
Have regular health facility where services are sought				**[χ^2=0.01, df=1]**	**0.924**
Yes	141(60.0)	94(40.0)	**235**	1.05(0.386-2.857)	0.924
No	10(58.8)	7(41.2)	**17**	1	
Distance of the health facility				**[χ^2=1.04, df=2]**	**0.596**
Walkable distance	127(61.4)	80(38.6)	**207**	0.63(0.153-2.590)	0.630
Less than 5 kms	20(54.1)	17(45.9)	**37**	0.85(0.184-3.923)	0.835
≥ 5 kms	4(50.0)	4(50.0)	**8**	1	
The behavior of the health workers visited				**[χ^2=0.111, df=1]**	**0.739**
Friendly	25(58.1)	18(41.9)	**43**	1.12(0.575-2.182)	0.739
Not friendly	126(60.9)	81(39.1)	**207**	1	
PNC service providers are always available during visits				**[χ^2=1.59, df=1]**	**0.208**
Yes	120(60.9)	77(39.1)	**197**	0.67(0.356-1.254)	0.209
No	25(51.0)	24(49.0)	**49**	1	
Waiting time at health facility is a problem (n=243)				**[χ^2=3.92, df=1]**	**0.048**
Yes	107(62.9)	63(37.1)	**170**	0.57(0.329-0.997)	0.049*
No	36(49.3)	37(50.7)	**73**	1	
H. Facility equipped with supplies for PNC services				**[χ^2=1.96, df=1]**	**0.161**
Yes	97(63.4)	56(36.6)	**153**	0.693(0.414-1.159)	0.162
No	54(54.5)	45(45.5)	**99**	1	

Table 7: Health System related factors and utilization of PNC in the first week

4.4.1. Place of delivery

This study found no significant difference between place of delivery and utilization of PNC (χ^2=1.58, df =2, p=0.455). More than three quarter (197(78.2%) of the mothers delivered in public health facilities followed by those who delivered from home (38) and least being from private facility (17). Child births at public and private health facilities reduced use of PNC in the first week by 48% (UOR=0.52, 95%CI=0.161-1.677, p=0.273) and 21% (UOR= 0.79, 95%CI=0.291-2.122, p=0.634) respectively.

4.4.2. Cadres who performed delivery

The study showed that the majority (197) of the mothers were delivered by midwives followed by the TBAs (36), medical doctors (18) and least being by others (3). The report indicated the expected trend on delivery by cadre, however, the deliveries by medical doctors was low because 9 in 10 of the health facilities are health centre III.

4.4.3. Duration of stay at the health facility after delivery

Mothers who delivered at health facility were asked about the period they spent while there after delivery. There were 73 postpartum mothers stayed for less than 6 hours and 30 (41.1%) of them sought PNC in the first week. The group were however less likely to utilize PNC compared to those who stayed for 24 or more hours after delivery (uOR=0.802 95%CI=0.375-1.714, p=0.57). In addition, postpartum mothers who stayed from 6-11 hours (41) and 46.3% (19/41) of them utilized PNC in the first week but were also less likely to utilize PNC in the first week after delivery compared to the reference group (UOR=0.993 95%CI= 0.421-2.342, p=0.988). Additionally, 57 mothers also stayed from 12-23 hours after delivery and 20 (35.1%) in 57 of them did utilize PNC in the first week (UOR=0.622, 95%CI=0.277-1.396, p=0.250).

4.4.4. Educated on postnatal complications before discharge

The study found that 131 in 250 of the respondents were educated on postnatal complications before discharge from the health facility and 119 of them were not. Among those educated, 56 (42.7%) out of 131 of them utilized PNC in the first week after delivery and were about 1.2 times likely to utilize PNC in the first week after delivery compared to those who were not educated on the postnatal complications before discharge.

The present study however did not realize statistically significant association between education on postnatal complications before discharge and utilization of PNC in the first week after delivery (UOR=1.23 95%CI=0.740-2.039, p=0.428).

4.4.5. Post-delivery follow ups

The study revealed that 63(50.8%) out of 124 of the postpartum mothers who never had post-delivery follow ups utilized PNC in the first week after delivery. On the other hand, 38(29.7%) in 128 of the postpartum mothers who had post-delivery follow ups also had PNC in the first week. However, the mothers who had the follow ups were less likely to utilize PNC in the first week hence with only 41% contribution of the statistically significant association with use PNC in the first week UOR=0.41 95%CI=0.244-0.686, p=0.001). Further analysis revealed that although the majority 127 (99.2%) of those who were followed up attended PNC, very few used PNC in the first week.

4.4.6. Educated/Informed about PNC attendance during ANC visits

The majority of the mothers reported that they were educated/informed about the PNC attendance during their ANC visits. The inferential analysis revealed that the mothers who were informed were 2.2 times more likely to utilize PNC in the first week after delivery and there was statistically significant association UOR=2.18 95%CI=1.267-3.764, p=0.005). This means educating of the mothers empower them with knowledge on PNC as well as the timing for the utilization of the care.

4.4.7. Have regular health facility where services are sought

The majority 235 (93.3%) of the postpartum mothers reported that they have regular health facility for seeking regular health services and 94 (40.0%) of them utilized PNC in the first week after delivery.

The inferential analysis also showed that having regular health facility contributed only 5% likelihood of utilizing PNC in the first week after delivery. However there was no statistically significant association (UOR=1.05 95%CI=0.386-2.857, p=0.924). This implies that having regular health facility for seeking care did not matter in the utilization of PNC in the first week.

4.4.8. Distance of the health facility

The distance to health facility is important factor in utilization of healthcare services. This study revealed that the majority 207 (82.1%) of the postpartum mothers reported that the health facilities they have access to have walkable distance from their homes. Less than half 80 (38.6%) of them utilized PNC in the first week but were less likely to use PNC in the first week compared to mothers who were 5 or more kilometers away from facilities. In addition, mothers who also have health facility accessible in less than 5 kms were less likely to utilize PNC in the first week after delivery compared to the reference group (UOR= 0.85 95%CI=0.184-3.923, p=0.835).

The Key Informants were asked to talk about the barriers/challenges are there that make postpartum mothers not to attend PNC services in the first week after delivery. The majority seven out of ten of the KI said the mothers always complain that the distance from their home to the health facilities are far and at times they lack transport to move to the health centres.

In addition, four out of ten of the mothers mentioned that some mothers tend not to come for PNC because they claim they and babies are fine.

The key informants also reported that some of the postpartum mothers complain of the distance to the health facilities. Some of the key informants said,

'Many complain of the distance and transport…..Also somebody just says why should I go there now, I have just delivered am fine, the baby fine, so no need to go there', Nursing Officer, Iwemba Health Centre III, 12th July 2017.

'The distance is too long, we get mother from far places, so it becomes difficult for them to access the facility' Incharge/Registered Midwife, Bulidha HCIII, 18th July 2017.

'Many complain of the distance and transport. Also somebody just says why I should go there now, I have just delivered am fine, the baby fine, so no need to go there' Nursing Officer, Iwemba HCIII, 12th July 2017.

'Transport cost is problem because some of them come from very far, and even men are not interested in it,' Nursing officer/ registered midwife, Mayuge HCIII, 18th July 2017.

The feedback the mothers give like in the above requires behavior change communication among the mothers at community level so that appreciate the significance of PNC attendance at all the recommended time irrespective of the health status.

4.4.9. The behavior of the health workers visited

Favorable behavior of healthcare workers is important to for building healthy rapport with mothers where effective communication can be built for service delivery. In this study, the majority 207(82.1%) of the respondents reported unfriendly health workers while 43 said were friendly to them. Friendliness among health workers to the mothers contributed to 12% increase in utilization of PNC in the first week after delivery (UOR=1.12 95%CI=0.575-2.182, p=0.739).

When Key Informants were asked to talk about the barriers/challenges that make postpartum mothers not to attend PNC services in the first week after delivery, one of the Key informants mentioned;

'……Sometimes also it is health worker attitude, especially when you have a lot of work and tired thereby fail to see them. This demotivates them from coming', Enrolled Midwife, Buwunga HC III, 17th July 2017.

The fact that some health facilities reported shortage of staff; this may predispose some of them to behave unusual to the mothers thus creating unsupportive environment. This implies that adequate human resources for health in each department are valuable.

4.4.10. Availability of PNC service providers

Majority 197(78.2%) of the postpartum mothers reported that the PNC providers were always available during their visits at the health facility.

However, less than half 77 (39.1%) of those who reported the above utilized PNC in the first week after delivery but were less likely to utilize PNC in the first week compared to those who reported that the PNC providers were not always available during the time of their visits (UOR=0.67 95%CI=0.356-1.254, p=0.209).

4.4.11. Waiting time at health facility is a problem

Waiting time at health facility may demoralize clients to seek healthcare services especially when the waiting time is long. In this study, nearly three-quarters 170 (70%) in 243 of the respondents reported that waiting time at the health facility was a problem to them while 73 said waiting time was not a problem. On the other hand, 37 (50.7%) in 73 of those who reported waiting time was not a problem were able to utilize PNC in the first week after delivery.

The study also found that long waiting time was associated to 43% reduction in utilization of PNC in the first week after delivery (UOR=0.57 95%CI=0.329-0.997) p=0.049).

The key informants were asked to comment on the human resources in regards to PNC services provision. The human resources numbers was identified as the challenges affecting utilization of PNC.

> We are not enough when it comes to manpower. We are three midwives here and when one is off, another for outreach, then that means you are alone at the health facility to handle postnatal mothers, deliveries, those who come for family planning, you see that work is overwhelming. In a day we receive 10 for PNC, 30 ANC, 3 labour, 10 for FP. Nursing Officer/Midwife, Buluguyi Health Centre III, 17th July 2018.

Similarly, this reflects the shortage of staff in the above facility which has potential to have quality of service delivery compromised, hence adequate staffing is required.

4.4.12. Availability of supplies for PNC services

According to Andersen (1968), enabling factors facilitate utilization of health services and among them; availability of resources is one of the factors that contributes towards use of services.

More than half (60.7%) of the respondents reported that the health facility they usually get services were equipped with items required for provision of PNC services. In terms of PNC use, 56 (36.6%) in 153 of them used PNC in the first week but were less likely to utilize PNC services in the first week after delivery compared to those who reported not equipped (uOR=0.693 95%CI=0.414-1.159) p=0.162). Although the study did not showed significant difference (χ^2=1.96, df=1, p=0.161), well equipped health facility contributes towards efficiency and effectiveness of quality delivery of care to the mothers.

The Key informants were asked to comment on infrastructure, medical equipment and supplies in relation to PNC services delivery at the health facilities. Among the KIs who talked in regards to supplies, most of them said drugs and supplies are not adequate at time of interview. Some of them said,

> With the supplies, whatever they deliver is too little- even now we do not have gloves and mothers are buying for themselves except those who are on voucher system where MarieStopes gives us gloves or money to buy for them. They can give us like four or three boxes of surgical gloves until another round. This can take two to three months to get another supply and yet mothers are always coming in big numbers, [Nursing Officer, Mayuge HCIII, 18th July 2017]

Infection control requires adequate supplies including both surgical and non-surgical gloves for use during postnatal care service delivery among others.

Inadequate materials and supplies can demotivate both the service provider and the clients. Therefore, health facility in-charges and management committees should ensure adequate stock of health facility requirements.

'…..the supplies are not enough. They bring few items……..for example, we may need strong pain killers like DICLO IV but they only supply Panadol', [Enrolled Midwife, Buwunga HCIIII., 17th July 2017].

4.5 Multivariable Logistic Regression Analysis for significant variables

Table 8: Multivariate Logistic Regression Analysis

Variable	Utilized PNC within first week		Total	Adjusted OR 95%CI	p-value
	No	Yes			
Occupation of mother					
Not working	63 (86.3)	10 (13.7)	**73**	0.19(0.056-0.633)	0.007*
Self-employment	74(49	77 (51)	**151**	1.05(0.403-2.745)	0.917
Formal employment	14(50)	14 (50)	**28**	1	
Religion of respondent					
Catholic	35 (61.4)	22 (38.6)	**57**	0.69(0.199-2.416)	0.565
Muslim	67 (64.4)	37 (35.6)	**104**	0.43(0.131-1.384)	0.156
Anglican	41(58.6)	29 (41.4)	**70**	0.57(0.168-1.944)	0.371
Others	8 (38.1)	13 (61.9)	**21**	1	
Participation in community					
VSLA activities	22 (81.5)	5 (18.5)	**27**	0.48(0.105-2.199)	0.345
Community health activities	88 (51.8)	82 (48.2)	**170**	1.26(0.526-2.999)	0.608
None	41 (74.5)	14 (25.5)	**55**	1	
Had post-delivery follow ups					
Yes	90 (70.3)	38 (29.7)	**128**	0.42(0.214-0.828)	0.012*

No	61 (49.2)	63 (50.8)	**124**	1	
Educated/informed about PNC attendance during ANC visits					
Yes	79(53.0)	70(47.0)	**149**	2.05(1.048-4.024)	0.036*
No	69(71.1)	28(28.9)	**97**	1	
Knowledge on period for attending early postnatal care					
Within 24rs to 7 days	110(55.6)	88(44.4)	**198**	3.36(1.705-6.600)	0.000*
After 7 days and beyond/42 days	41(75.9)	13(24.1)	**54**	1	
Parity	No. (%)	No. (%)			
Para 1	25(59.5)	17(40.5)	**42**	0.875(0.347-2.209)	0.778
Para 2-4	87(65.4)	46(34.6)	**133**	0.635(0.321-1.254)	0.191
≥5	39(50.6)	38(49.4	**77**	1	
Waiting time at health facility is a problem (n=243)					
Yes	107(62.9)	63(37.1)	**170**	1.19(0.613-2.315)	0.606
No	36(49.3)	37(50.7)	**73**	1	

4.5.1. Occupation of mother

The results found that mothers who were not working were less likely to attend PNC in the first week compared to those in formal employment. However, statistically significant association exists among those who were not working and utilization of PNC in the first week after delivery (AOR=0.19 95%CI=.056-.633, p=0.007). This significant associated could be attributed to the fact that the majority of the mothers reported "not working" On the other hand, self-employed mothers were 5% likely to utilize PNC in the first week than those employed mothers; however no statistically significant association exists between self-employment and utilization of PNC in the first week after delivery (AOR=1.05, 95%CI=0.403-2.745, p=0.917).

4.5.2. Participation in community health activities

The study also assessed the participation of the mothers for VSLA and community health activities.

Mothers who did participate in VSLA activities were however less likely to attend PNC in the first week compared to those who did not participate (AOR=0.48, 95%CI=0.105-2.199, p=0.345). While those who participated in community health activities were 26% likely to utilize PNC in the first week compared to those who did not. However, there was no statistically significant association between utilization of PNC in the first week and participation in Community health activities (AOR=1.26, 95%CI=0.526-2.999, p=0.608).

4.5.3. Post-delivery follow ups

Mothers who had post-delivery follow ups were less likely to attend PNC compared to those had no post-delivery follow ups. However, this study found a statistically significant association between post-delivery follow ups and utilization of PNC in the first week after delivery (AOR=0.42, 95%CI=0.214-0.828, p=0.012).

During Key Informants Interview, the PNC in-charges were asked to tell the measures they put in place to ensure postpartum mothers use PNC in first week after delivery. The Key informants said they do educate the women during ANC and before discharge after delivery as well as during Young Child Clinics. In addition, they also ensure the VHTs conduct follow up visits to the mothers and refer them to the health facility for PNC and other services.

> We usually health educate them about the goodness in these services through health talks at antenatal and when they are being discharged. VHTs also help us in sensitizing mothers in the Villages and also refer those with problems to the facility", Enrolled Midwife, Buwunga Health Centre III, 17th July 2017.

4.5.4. Awareness on PNC visits during ANC

The study finding revealed that mothers who were informed about the PNC attendance during ANC visits were 2.05 times likely to utilize PNC in the first week after delivery compared to those who were not informed (aOR= 2.05, 95%CI=1.048-4.024, p=0.036). Majority of the key informants mentioned that during ANC, they usually health educate the women about PNC visits. This result explains the linkage between ANC and PNC in education and counseling.

'We use VHTs who talk to them, sensitize them, and even during antenatal we health educate them and if someone delivers at the facility, we tell them about the PNC visits', Nursing Officer, Bulesa Health Centre III.

The VHTs play significant role in Integrated Community Case Management as well as support in health promotion, counseling and referral of the postpartum mothers for skilled care.

4.5.5. Knowledge on period for attending PNC

Mothers were assessed on the appropriate time for attending early postnatal care during the study. The finding indicated that mothers who mentioned correct time within 24 hours to 7 days (Within a week) were 3.36 times likely to utilize PNC in the first week compared to those who mentioned that early postnatal period ranges from 7 days and beyond/42 days after delivery.

There was also statistically significant association between knowing the period for early postnatal care attendance time and utilization of PNC in the first week after delivery (AOR=3.36, 1.705-6.60, p<0.001). This shows that having knowledge on when to attend PNC and why is very important to the mothers and their spouses so that they can consistently seek care.

4.6. Observation Results on structural attributes of health facilities

(Kayango, Nankoma, Buluguyi, Mayuge, Muterere, Bulesa, Iwemba, Nabukalu, Buwanga, Bulidha)

Structural attribute components	Items	Overall item Availability status in 10 facilities	Actual Counts (n) and (%) of Available items in the 10 facilities	Percent (%) within each item available for 10 facilities
General supply	Disposable needles and syringes	10	10 (20%)	100%
	LLTINS	10	2 (4%)	20%
	Specimen bottles	10	5 (10%)	50%
	Urine pots	10	5 (10%)	50%
	Sputum and blood slides	10	7 (14%)	70%
	Total	**50 (100%)**	**29 (58%)**	
Equipment	Thermometer	10	10 (10%)	100%
	Sphygmomanometer	10	10(10%)	100%
	Stethoscope	10	10 (10%)	100%
	Weighing scale (Children)	10	9 (9%)	90%
	Weighing scale (Adult)	10	8 (8%)	80%
	Spot light	10	3 (3%)	30%
	Flashlight/examination light	10	5 (5%)	50%
	Examination couch	10	10 (10%)	100%
	Autoclave	10	8 (8%)	80%
	Exam room	10	10 (10%)	100%
	Total	**100 (100%)**	**83 (83%)**	
Vaccines	Tetanus Toxoid	10	5 (8.3%)	50%
	BCG	10	8(13.3%)	80%
	Measles	10	7(11.7%)	70%
	Polio	10	8(13.3%)	80%
	Hepatitis B	10	3 (5.0%)	30%
	Pentavalent	10	10 (16.7%)	100%
	Total	**60 (100%)**	**41 (68.3%)**	**100%**
Infection control supplies	Sterile and clean latex gloves	10	7 (8.8)	70%
	Clean non-latex gloves	10	10(12.5)	100%
	Decontamination solution	10	10(12.5)	100%
	Plastic liner	10	10(12.5)	100%
	Safety boxes	10	10(12.5)	100%
	Single use hand drying towel	10	1(1.3)	10%
	Functional electric drier	10	1(1.3)	10%
	Running water	10	9(11.3)	90%
	Total	**80 (100%)**	**58 (72.7%)**	**100%**
General infrastructure	Waiting space with seats	10	9(12.9%)	90%
	Postnatal ward	10	10(14.3%)	100%
	Private space for PNC examination	10	8(11.4%)	80%
	Water	10	10(14.3%)	100%
	Reliable lighting available	10	8(11.4%)	80%
	Clean toilets	10	10(14.3%)	100%
	Clean water for drinking with clean cups	10	10(14.3%)	100%

	Total	**70 (100%)**	**65 (92.9%)**	**100%**
Family planning commodities	Available combined pill	10	4 (4%)	40%
	Progestin only pill	10	6 (6%)	60%
	Emergency contraceptives	10	4 (4%)	40%
	Injectables	10	10 (10%)	100%
	IUCD	10	9 (9%)	90%
	Implants	10	10 (10%)	100%
	Male condoms	10	9 (9%)	90%
	Female condoms	10	5 (5%)	50%
	Male and female sterilization	10	5 (5%)	50%
	Fertility based methods	10	6 (6%)	60%
	Total	**100 (100%)**	**68 (68%)**	**100%**
Sexually Transmitted Infections (STI) and Reproductive Health (RH) drugs				
	Ciproflaxin oral	10	4 (4%)	40%
	Erythromycin	10	2 (2%	20%
	Tetracycline	10	3 (3%)	30%
	Benzathine penicillin	10	8 (8%)	80%
	Cotrimoxazole tablets	10	9 (9%)	90%
	Cotrimoxzole syrup	10	5 (5%)	50%
	Metronidazole	10	6 (6%)	60%
	Metronidazole IV	10	2 (2%)	20%
	Gentamicin IV	10	9 (9%)	90%
	Amoxicillin	10	6 (6%)	60%
	Total	**100 (100%)**	**54 (54%)**	

Table 9: Observation results on health facility structural attributes (1 HCIV and 9 HCIII).

Observation Results on Structural Attributes

This observation was made to also validate what the postpartum mothers were reporting about the status of supplies at the health facilities as well as what the health workers reported during interviews at the ten health facilities.

General supply

The results on general supply shows that all the health facilities have disposable needle and syringes and 70% had sputum and blood slides at time of observation.

The least available supply was Long Lasting Treated Insecticide Nets (LLTINs) (20%). Generally, 29 (58%) of the general supply items were available.

Equipment

There were 10 items observed under equipment and all the health facilities had clinical thermometer, sphygmomanometer, stethoscope, examination couch and room.

Nearly all the health facilities also had weighing scale (90%) for children and adults (80%). Only 30% of the health facilities had spot light. In overall, 83% of the items in equipment component were available at the time of observation.

Vaccines

There were six items considered under vaccine and all health facilities had pentavalent and the majority as well had BCG (80%), Polio (80%) and measles vaccine (70%).

Half (50%) and less than half (30%) of the facilities had Tetanus Toxoid (TT) and Hepatitis B vaccines respectively. Overall, more than half 41 (68.3%) of the facilities had vaccines available.

Infection Control Supplies

There were eight (8) items observed under infection control component and the four items (clean non-latex, decontamination solution, plastic liner and safety boxes) were available in all the ten facilities. Majority of the facilities also had running water (90%) and sterile and clean latex gloves (70%). The least available items were single use hand drying towel and functional electric drier. In overall, 58 (72.7%) out of 80 cumulative items in the 10 facilities were available.

General Infrastructure

Seven items were observed (waiting area with seats, postnatal ward, private space for PNC examination, water, reliable lighting, clean toilets, clean water for drinking with clean cups) under general infrastructure. All the facilities had postnatal ward, water, clean toilets, and clean water for drinking with clean cups.

In addition, the majority of the facilities had waiting space with seats, private space for PNC examination and reliable lighting. A cumulative score of 65 (92.9%) in 70 was achieved, indicating high level of availability of general infrastructure items.

Family Planning Commodities

There were 10 family planning commodities observed and all the health facilities had injectable and implants. The majority also had IUD (90%) and male condoms (90%) and more than half had progestin only pill and fertility based methods (by Marie Stopes Uganda). The least items available were combined pill (40%) and emergency contraceptives (40%). In general, the cumulative availability score was 68 (68%) out of 100.

STI and Reproductive Health Drugs

There were ten (10) items observed and the majority of the facilities had Benzathine penicillin, Cotrimoxazole tablets, gentamicin IV and more than half of the facilities had metronidazole (60%) and Amoxicillin (60%). Most of the health facilities had no metronidazole IV, Erythromycin, and Tetracycline capsules. The items that had more than half of the items available were; general supply and STI and RH drugs components.

4.7. Summary of key findings for each objective

1. Utilization of postnatal care in the first week after delivery

i. Less than half 101 (40.1%) of the postpartum mothers utilized PNC in the first week after delivery.

ii. Most of the key informants reported that postpartum mothers take PNC for granted and one of them said, *"When mothers feel that they are fine, have no problems and their babies are fine, they feel that they do not need to come to the health facility",* In-charge/Nursing Officer, Iwemba HCIII, 12th July 2017.

2. Socioeconomic factors and the utilization of PNC in the first week

i. More than one half 134 (53.2%) of the postpartum mothers were aged between 15-24 years and one-third 51 (20.2%) in 252 of them used PNC in the first week after delivery.

ii. Participation in community activities (χ^2 =14.83 (df =2) p=0.001) and also community health services were significantly associated with utilization of PNC in the first week (uOR=2.73(1.386-5.271 p=0.004). It also increased utilization of PNC in the first week by 26% (AOR=1.26(0.526-2.999, p=0.608).

3. Maternal reproductive factors and the utilization of postnatal care in the first week

i. The result also revealed that the postpartum mothers knowledgeable about the range of period (24 hours to 7th day) for utilization PNC in the first week after delivery were 3.36 times more likely to utilize PNC in the first week (AOR=3.36, 1.705-6.60, p<0.001).

4. Health system factors influencing the utilization of postnatal care in the first week

i. Education on PNC attendance during ANC visits was significantly associated with utilization of PNC in the first week (AOR= 2.05, 95%CI=1.048-4.024, p=0.036).

ii. Post-delivery follow ups was significantly associated with 42% increase in the utilization of PNC in the first week (AOR=0.42 95%CI=0.214-0.828, p=0.012).

iii. In the qualitative findings, most of the healthcare providers conduct health education and encourage women to attend PNC during ANC sessions and Young Child Clinics.

In addition, most of them reported use of VHTs to make follow visits at homes, educate and refer women for PNC

iv. Observation results on structural components showed that all the health facilities do not adequately have general supplies including STI and reproductive health drugs unlike general infrastructure and equipment.

In qualitative results, the key informants were asked to comment on infrastructure, medical equipment and supplies and most of them said drugs and supplies were not adequate at time of interview. Among others, two of the key informants said,

> "…….With the supplies, whatever they deliver is too little- even now we do not have gloves and mothers are buying for themselves except those who are on voucher system where Marie Stopes gives us gloves or money to buy for them. They can give us like four or three boxes of surgical gloves until another round. This can take two to three months to get another supply and yet mothers are always coming in big numbers "Nursing Officer, Mayuge HCIII, 18th July 2017.

> "…..the supplies are not enough. They bring few items……..for example, we may need strong pain killers like DICLO IV but they only supply Panadol", Enrolled Midwife, Buwunga HCIIII., 17th July 2017

CHAPTER FIVE: DISCUSSIONS

5.0 Introduction

This chapter discusses the findings of the study in comparison with the literature in relation to the study objectives namely; the socioeconomic, maternal reproductive and health system related factors. The findings discussed were also related to Andersen's behavioral model for health services utilization.

5.1 Utilization of PNC and timing of use in the first week

The utilization of postnatal care used was considered in two perspectives, mainly, the proportion of PNC services utilization and the timing of the first PNC use. The general utilization shows that 88.1% utilized PNC services and 11.9% did not. Although the use of PNC was reported to be high however more than half (59.9%) of the respondents had their first PNC after seven days after delivery. PNC attendance within two days was at 26.6% below the average attendance for Busoga region at 43.3% and national value of 54%.

In this study, less than half 101 (40.1%) of the postpartum mothers utilized PNC in the first week after delivery. In another study in Bangladesh, 5.5% used PNC within 2 days while 14% of the postpartum mothers utilized PNC in the first week after delivery (Anwar *et al*., 2008). This difference could be due to the time of the two years and use of PNC in the first week.

In Rwanda, data for 2,748 women with live birth in the last two years in demographic Health Survey data of 2010 found that 353 (12.8%) of the women returned for PNC services within seven days after birth (Rwabufigiri et al., 2016). The study in Rwanda considered return for PNC use after birth, however, the study in Bugiri considered utilization of PNC within 24 hours to seven days irrespective of place of delivery.

In another study in Mundri East South Sudan, 44 (11.4%) of the postpartum mothers used early postnatal care (Izudi *et al*., 2017). The study in South Sudan considered mothers 8-14 days post-delivery and was facility based study and focused on visits for early postnatal care within 2-7 days after delivery.

According to Dhakal *et al*., (2007), only 34% of the 150 women in rural Nepal received postnatal care after delivery. Although this study was conducted at community, the timing of the PNC considered was utilization within 48 hours unlike for a week. In the study in Bugiri, the first week proportion was 40.1% and in comparing utilization of PNC within 48 hours, the finding from Ethiopia was slightly higher (34%) than that of Bugiri (26.6%). In addition, the two studies had differences in the sample size (Bugiri 252) and Nepal (150).

The study in Bugiri found 11.9% of the postpartum mothers did not use postnatal care and most common reason for non-utilization was being healthy hence no need to use and the second main reason for not using postnatal care was having no or little knowledge for use of postnatal care. Similarly, a study by Sharma *et al*., (2014) showed most common reason was being not aware about PNC.

In the current study, most of the key informants interviewed reported that some women usually do not come back for postnatal care in the first week on claim that they feel fine as well as their babies hence see no need to come to the health facility.

In another study, similar finding was obtained among women during focus group discussion where some participants said they did not feel the need to get any checkup within seven days after delivery because everything was fine Deepthi *et al* (2010).

The two results from the women implies that when women gave birth and they feel fine or no postnatal danger signs are seen or experienced, postnatal care is not utilized. This gap thus requires that women should be comprehensively empowered with information including significances of utilization of PNC in the first week.

This study also found 30 postpartum mothers in the community did not attend postnatal care and the most given reasons were that of being healthy after delivery and having no or limited information about PNC. In contrary, another community based cross sectional study in Ethiopia found main reasons for not using postnatal care was due to facility being far hence no transport and poor quality of service (Yarinbab & Tona, 2018). This means every community may have their distinct reasons for not using postnatal care at all.

According to Andersen's and Newman's framework for health care services utilization, environment in which people live determine their service use; for example in their fourth phase of model review, environment consists of the health system and external factors.

In this case, the health system location being far was found to be a barrier in the environment towards utilization of postnatal care. In this study, health care providers were interviewed and mentioned that just like the study in Ethiopia, some of the mothers also complained of distance.

This means attendance of postnatal care becomes even difficult when men do not support their partners particularly in both verbal and financial support. Mothers also tend not to make visits for PNC when they and their newborns have no any sign of complication, and yet significant services are provided during such visits.

5.2 Socio-economic factors influencing the utilization of PNC in the first week

Participation in community activities

It was recommended for women to participate in their groups to improve communication and support which is a significant opportunity for them to discuss their needs during pregnancy including among others barriers to reaching care and to increase support to pregnant women (WHO, 2016).

In Andersen and Newman's framework of health services utilization, social interaction which is a predisposing factor may influence people's use of health services. Therefore, participation of women in community activities was considered as an element of social interaction.

In this study, women's participation to community activities was found to have statistically significant relationship with utilization of postnatal care in the first week after delivery (χ^2=14.83 df=2, p=0.001). Further test to confirm the strength of association still showed the results was in conformity with Andersen's behavioral model where women's participation in community health activities was found to be significantly associated with utilization of PNC in the first week and were 2.73 times more likely to use PNC in the first week after delivery compared to the reference group (p=0.004*). This implies that when women participate in community health activities, they tend to get access to information hence are empowered to make informed decisions.

However, in further adjusting for confounders, the participation in community health activities still contributed 26% in utilization of PNC in the first week after delivery despite the absence of statistically significant association (p=0.608).

A study conducted on improving coverage of postnatal care in rural Ethiopia using a community based, collaborative qualitative improvement approach found that use of TBAs and community health development agents especially for community maternal Newborn Health family meetings had significant association with increase in postnatal care coverage. (Tesfaye *et al*., 2014). This means participation in such meetings empower the women on their health and that of their newborns hence increase their decisions towards seeking postnatal care from skilled healthcare provider.

5.3. Maternal reproductive factors influencing utilization of PNC in first week

The reproductive and obstetric factors investigated included parity, history of abortion, nature of pregnancy, ANC attendance, frequency of ANC attendance, history of post-delivery follow ups, information about PNC attendance, experience of postnatal complications, Knowledge on period for attending early postnatal care and mode of delivery. This section will discuss the above factors in comparison with the findings from other studies so as to identify the areas of agreements ad disagreements.

5.3.1. Knowledge on period for early postnatal care contacts

In Andersen's behavioral model, knowledge on health services is one of the predisposing factors that may influence an individual in using health care services.

In this this study, the knowledge of the postpartum mothers was tested on the period for seeking early postnatal care services, the result emerged that the majority 198 (78.6 %) reported the correct period being within 24hrs after delivery to the 7^{th} day and 44.4% of them actually had utilized PNC in the first week after delivery.

The knowledge on period of attending early postnatal care was associated with 31% utilization but 59% reduction on use of PNC in the first week. The analysis also showed that there was significant association between knowing the correct period of attending early postnatal care and utilization of the PNC in the first week after delivery (p=0.001).

This implies that having knowledge on the period for attending early postnatal care is important in the utilization of PNC in the first week after delivery. According to WHO (2015), if birth occurred in a health facility, mothers and newborns should receive postnatal care in the facility for at least 24 hours after birth and within 24 hours for births from home. This means that when postpartum mothers are aware about this information, then they would be able to use immediate to early postnatal care in the first week.

5.4. Health system related factors influencing the utilization of PNC in first week

5.4.1. Education on PNC attendance during ANC visits

The majority of the mothers reported that they were informed about the PNC attendance during their ANC visits. It also emerged that mothers who were informed were 2.2 times more likely to utilize PNC in the first week after delivery (P=0.005).

This implies that informing the mothers each time they attend ANC on PNC attendance after delivery has significant influence on the utilization of PNC in the first week after delivery.

It is expected that during ANC visits, the mothers are taught among other things including the PNC schedules. The World Health Organization also recommended that a postpartum mother and the newborn be provided with a total of four postnatal visits. According to WHO, the first visit should be in the first day within 24 hours, on day three (in 48-72 hours, between 7-14 days and the last one at six weeks (WHO, 2015).

Therefore availing this information to the mothers during ANC attendance and after delivery is likely to have positive influence over their utilization of PNC services.

5.4.2. Post-delivery follow ups

The study revealed that 50.8% (63/124) of the postpartum mothers who never had post-delivery follow ups utilized PNC in the first week after delivery. On the other hand, 29.7% (38/128) of the postpartum mothers who had post-delivery follow ups also had PNC in the first week.

Although the study found that mothers who had the follow ups were less likely to utilize PNC in the first week but their follow up contributed by 42% in the utilization of PNC in the first week after delivery with statistically significant association (p=0.001). This implies that conducting post-delivery follow ups for the mothers has lower odds towards some the utilization of PNC in the first week after delivery. In another study in Ethiopia by Tesfaye *et al* (2014) on improving coverage of postnatal care in rural Ethiopia using a community based, collaborative qualitative improvement approach found women who had contact with the health extension workers and also had their mobile-phone number or on friend's or neighbor's phone were 1.6 times more likely to have received postnatal care from healthcare provider within 48 hours after delivery.

In addition, although findings from Ethiopia reported influence on utilization of postnatal care within 48 hours after delivery, there is clear indication that follow ups or contacts between community health workers and the postpartum mothers is important in utilization of early PNC. According to Warren *et al* (2006), postnatal follow up of new mothers and their newborns can also be provided through outreach visits by a skilled attendant or the community health worker/village health teams. They added that during this visits, the care provider can examine both the mother and baby as well as provide essential care including identification of any complications for instant management or referrals.

In the qualitative findings, most of the healthcare providers reported that they at times use VHTs to make follow visits at homes and educate and refer women for PNC. Therefore making follow ups to the postpartum mothers and their newborns is very important and can contribute towards reduction of maternal and newborn deaths especially when mothers are timely managed and referral for further management.

5.4.3. Availability of supplies for PNC services

More than half 60 %(153/252) of the respondents reported that the health facility they usually get services from were equipped with items required for provision of PNC services. In qualitative results, the key informants were asked to comment on infrastructure, medical equipment and supplies and most of them said drugs and supplies were not adequate at time of interview. The health facilities at times rely on the voucher system where Marie Stopes support in giving the health facilities gloves or money as reported by facility in-charges.

A study conducted in Gondar Zuria district in Ethiopia reported that inadequate supplies of drugs and equipment contributes to poor quality of postnatal care which in turn lead to low utilization of services among the postpartum mothers (Tesfahun et al., 2014).

The fact that some families are of low socioeconomic status, this challenge thus compounds what they have which affects health services utilization including postnatal care.

In another study by Wilunda et al., (2015), hospitals were found to be well equipped with drugs and supplies but health centres had dificiencies. It is important for hospitals to be equipped with all necessary euipment, drugs and supplies because they are referral centers for the health facilities.

It is key for the health facilities to have all the necessary equipment, drugs and supplies for their level because the majority of the population is found in the rural communities. The availability of the above items may contribute towards improving seeking skilled care at health facilities for postnatal care in the first week including subsequent visits.

5.5. Conclusion

The utilization of postnatal care in the first week after delivery was low among the postpartum mothers at 40.1% meaning the majority attend after a week as others do not even attend.

Post-delivery follow up was found to reduce utilization of utilization of PNC in the first week but is significantly associated with lower odds for using PNC in the first week.

Comprehensive education of expectant women during antenatal care on postnatal care and its significance including schedules for attendance influenced the utilization of postnatal care in the first week.

Knowledge on when to begin utilization of first postnatal care irrespective of place of delivery was associated with utilization of postnatal care in the first week among the postpartum mothers.

Participation of women during community health activities was found to be associated with utilization of PNC in the first week although it was not associated at multivariable logistic regression analysis.

5.6. Recommendations

5.6.1. Recommendations to healthcare providers

i. Healthcare providers should encourage women including expectant mothers to participate in community based health program activities to increase their scope of access to information regarding general and maternal health issues services.

ii. Healthcare providers should conduct comprehensive education during ANC on postnatal attendance and timing including the reasons why they needed such care during those specific periods.

iii. Midwives/nurses and CHWs/VHTs should conduct post-delivery follow ups for the postpartum mothers during outreaches for health education and referral of the mothers.

iv. The health care providers should conduct community based health education that is led by model postpartum mothers who have consistently attended PNC and had better maternal and newborn or child health outcomes in each sub county.

v. The midwives should identify model postpartum mothers who have consistently utilized postnatal care services and have desired health outcome for them and newborns to be involved in sensitization at community level.

vi. The healthcare providers should involve community leaders in dissemination of information about utilization of early postnatal care and the importance.

5.6.2. Recommendation to the District Health Office

vii. The healthcare management should ensure and maintain adequate drugs and supplies at the health facilities in order to prevent mothers from not utilizing postnatal care.

viii. The district health officer should plan and coordinate joint health facility management meetings to overcome challenges associated with shortage of drugs and supplies in health facilities.

ix. The DHO office should strengthen monitoring of health facilities and VHT in provision of quality postnatal care services including education and counseling of postpartum mothers.

Self-Evaluation

This study has been fully conducted by me from concept note development, proposal writing, data collection management, data analysis to report writing. Overall, this study dissertation is very good because no other study focused on postnatal care utilization at or within 24 hours after delivery to 7 days irrespective of the place of delivery. This study could also be conducted among adolescent mothers due to high teenage pregnancy in order to acquire knowledge about their utilization of postnatal care because of limited study focused on them in Uganda and other places.

I therefore suggest for further qualitative research among postpartum mothers on utilization of postnatal care in the first week and include their partners for focus group discussion in order to establish other factors that determine utilization of postnatal care in the first week after child birth.

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APPENDICES

APPENDIX I: WORK PLAN

	2017												2018									
Months/Act.	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**
Topic presentation																						
Proposal writing																						
Submission of draft proposal 1																						
Updating draft proposal 1																						
Submission of draft proposal 2																						
Updating draft proposal 3																						
Submission of final proposal																						
Approval & Introduction letter																						
Recruitment and training of research assistants																						
Data collection																						
Data analysis																						
Report writing																						
Submission of draft report																						
Updating draft report																						
Submission of final copies																						

APPENDIX II: BUDGET

No.	ITEM	Quantity	Unit cost (Ugx)	Amount (Ugx)
1	Modem	1	100,000	100,000
2	Data bundles	1	100,000	100,000
3	Printing	4	3000	12,000
4	Binding	4	30,000	120,000
5	Payment for research assistants	3	300,000	900,000
6	Transport	2	100,000	200,000
7	Airtime	1	100,000	100,000
8	Accommodation	30	20,000	600,000
9	Final books	4	50,000	200,000
	Total			**2,332,000**

APPENDIX III: APPROVAL AND INTRODUCTION LETTER

Uganda
Martyrs
University

Making a difference

Faculty of Health Sciences
Email: health@umu.ac.ug
1st July 2017

TO WHOM IT MAY CONCERN

RE: INTRODUCING MR. RONALD KAREODU (REG. NO. 2015-M272-20027)

This is to introduce to you Mr. Ronald Kareodu as a bona fide student of Uganda Martyrs University. He is pursuing a programme leading to the award of Master of Public Health –Population and Reproductive Health.

He is collecting data on 'Factors **Influencing Utilization of Post Natal Care in the First Week among Postpartum Mother Aged 15-49 year in Bugiri District**.'

Ronald will be collecting data from the catchment areas of selected facilities in Bugiri District.

The relevant university authorities have approved the topic and protocol.

Any assistance rendered to him in this respect will be highly appreciated by the university

Yours sincerely,

DR. Miisa Nanyingi

Faculty of Health Sciences,
Uganda Martyrs University

Authority granted but the CAO and DISO should clear this too.

DISTRICT HEALTH OFFICER
BUGIRI - LOCAL GOV'T
10 JUL 2017
P.O. BOX 37, BUGIRI (UG)

15/07/17

P.O. Box 5498 – Kampala – Uganda
Tel: (+256)038-410611 Fax: (+256) 038-410100 E-mail: umu@umu.ac.ug

Senior Assistant Secretary
Bugiri District.

I have got no objection to this research as long as its purpose is academic. Please accord him access to the Sub-Counties.

10/07/2013.

N.B: DISO
Please take note of the above and clear on academic grounds.

10/07/13

INTERNAL SECURITY ORGANISATION
REPUBLIC OF UGANDA
OFFICE OF THE PRESIDENT
Signature:
Date:
DISO BUGIRI

No

15/07/20

APPENDIX IV: INTRODUCTION TO THE STUDY

My name is Kareodu Ronald a student of Master of Public Health-Population and Reproductive Health in Faculty of Health Sciences of Uganda Martyrs University.

I am conducting a study on the factors influencing the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district. The main objective of this study is to investigate the factors influencing the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri.

The study will specifically collect data on the postpartum mothers and their spouses with more focus on the socioeconomic factors (pre-disposing and enabling factors), maternal reproductive factors and health system related factors.

This study absolutely has no associated risk hence the respondent has the freedom to withdraw at any stage in case he/she feels to do so. The information provided will be treated with high confidentiality and privacy will be ensured whereby no unauthorized person (s) will have access to the information provided. This study is typically for academic purposes and your name will not be included in the questionnaire in order to prevent anyone from tracing responses to identify you.

In case you have any question to ask or need more explanation, please do so through +256-777631174, email ronald.kareodu@stud.umu.ac.ug/rkareodu84@gmail.com.

APPENDIX V: INFORMED CONSENT FORM FOR POSTPARTUM MOTHERS

Good Morning/evening, my name is ……..a research assistant for a study approved by the Ethical Review Board Committee of Uganda Martyrs University. We are conducting a study on factors influencing the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district.

This household has been randomly selected and you were selected based on the selection criteria of the respondents for this study. Participating in this study is voluntary and if you accept to be interviewed, I will ask you some questions about your background, socio demographic characteristics, maternal reproductive and health facility related factors which will take about 35 minutes.

Participation in the study does not have direct benefits however, your responses will help in coming up with recommendations that may be adopted by policy makers or support in suggesting areas for further research.

In case you choose to participate, you have the liberty to withdraw at any time you wish and this will be kept confidential. Your responses recorded will be kept confidential and your name will not appear anywhere. We highly appreciate and respect your decision to participate. If you have any question you are free to ask. Are you willing to proceed with the interview?

Yes ☐ No ☐

Respondent's signature/Thumb print:	: _____	Date: _____
Interviewer's signature:	: _____	Date: _____
Name of Interviewer:	:_____	Time: ___:____AM/PM

APPENDIX VI: SEMI-STRUCTURED QUESTIONNAIRE (ENGLISH VERSION)

Instruction: Interview mothers who delivered in the last 42 days/six weeks to 3 months.

ID	**PRELIMINARY INFORMATION**		
a	**Sub County:** ……	Parish	
	Village: ……	Date of birth of baby: ……	
	Child Health card number: ……	VHT name/LC……	
e	**Mobile Number of VHT/LC**	……	
	SOCIOECONOMIC FACTORS	**CATEGORICAL RESPONSES**	**TICK**
1.	How old are you?	……..years	
2.	What is your marital status	1. Single	
		2. Married	
		3. Separated/divorced	
3.	May I know your education level?	1. No formal education	
		2. Primary	
		3. Secondary	
		4. Tertiary	
4.	Education level of the spouse	1. No formal education	
		2. Primary	
		3. Secondary	
		4. Tertiary	
5.	What is your occupation?	1. Not working	
		2. Farmer	
		3. Gainful Employment	
6.	Occupation of your husband/spouse	1. Not working	
		2. Farmer	
		3. Gainful Employment	
7.	Please may I know your religion?	1. Catholic	

		2. Muslim	
		3. Anglican/Protestant	
		4. Others	
8.	What is the family's monthly Income?	1. <USHS 50,000	
		2. 100,000-150,000	
		3. USHS200,000 and above	
9.a	What is your personnel average monthly income	1. <Ugx 50,000	
		2. 100,00-150,000	
		3. 200,000 and above	
9.b	If you do earn this money, do you save some?	1. Yes	
		2. No	
10.a.	Do you have health insurance card to access health services?	1. Yes	
		2. No	
10b.	If yes (In above), are you insured?	1. Yes	
		2. No	
10c.	If yes, what type do you have access to?	1. Voucher scheme	
		2. Private	
		3. Government	
10d.	If no, who pays for you	1. Myself	
		2. Spouse	
		3. Relatives	
		4. Parents	
11.	What means did you use to access the health facility (ies) when seeking postnatal care (Care after giving birth) services	1. Foot	
		2. Bicycle or Motorcycle	
		3. Taxi	
		4. Own/family car	
12	Do you participate in the followings in your community?	1. VSLA group activities (saving, loans)	

		2. Community health activities/initiatives (Maternal and newborn health)	
	MATERNAL REPRODUCTIVE HEALTH FACTORS		
13.	May I know whether you had any abortion (note, this may include miscarriages)	1. Yes	
		2. No	
14.	Parity or Number of pregnancies held	1. Para 1	
		2. Para 2-4	
		3. >5	
15	In your previous pregnancies after delivery, were you offered post-delivery follow ups at home for Postnatal care? (If answered 2 and 3 above)	1. Yes	
		2. No	
16.	May I know about the nature of pregnancy of your breastfeeding baby	1. Planned and supported	
		2. Unplanned but supported	
		3. Unplanned and unsupported	
17.	Have you attended Antenatal care (ANC) when pregnant?	1. Yes	
		2. No	
18.	If yes, may I know how many times you attended to it?	1. None	
		2. Once	
		3. Three	
		4. 4 and above	
19b.	If no, why?	…… ……	
20a.	Please may I know whether you were	1. Yes	

	educated/informed about schedules for post natal care during ANC visits	2. No	
20b.	If yes, please give the schedules you know for the visits? (**Circle all that applies**)	1. Within 24 hours after delivery	
		2. 48-72 hours (2^{nd} -3^{rd} day)	
		3. 7-14 days	
		4. At six weeks/42 days	
		5. Others specify…….	
21a.	During your postnatal periods, did you encounter any post natal complications?	1. Yes	
		2. No	
21b.	What post natal danger signs/complications do you know that may occur to a mother who has delivered a baby?	Excessive bleeding	
		Foul smelling vaginal discharge	
		Fever with or without chills	
		Severe abdominal pain	
		Excessive tiredness or breathlessness	
		Swollen hands, face and legs with severe headaches or blurred vision	
		Painful, engorged breasts or	
		sore, cracked, bleeding nipple	
		Convulsion	
		Others specify	
21c.	What postnatal danger signs do you know that may occur to the baby?	Movement only when stimulated or no movement, even when stimulated	
		Not feeding well	
		Fast breathing (more than 60 breaths per minute), grunting or severe chest in-drawing	
		Fever (above 38	

		Low body temperature (below 35.5°C	
		Very small baby (less than 1500 grams or born more than two months early)	
		Bleeding	
		Others specify……	
22a.	Do you know that postnatal period may be dangerous to your life and the baby?	1. Yes	
		2. No	
22b.	If yes, where do you need to go?	1. Consult VHT	
		2. Return to Health facility	
23.	When is the correct time to start Postnatal care or care after delivery	1. Within 24 hours	
		2. Within the first two days/third day	
		3. In the first week of life	
		4. At six weeks	
		5. Others	
24	If no (Qn22a above), why?	…… ..……..	
25.	Mode of delivery for (Name of newborn/baby)	1. Vaginal	
		2. Caesarian section	
	HEALTH FACILITY FACTORS		
26.	Where did you deliver (Name of the current newborn) from?	1. Home/elsewhere	
		2. Health center	
		3. Government hospital	
		4. Private hospital	
		5. Private clinic	
27a.	Who attended to you during delivery?	1. Midwife/nurse	

		2. Physician/Doctor	
		3. Traditional birth attendant	
27b.	If you delivered from home or/ (returned home after delivery), were you referred for PNC services by a VHT during follow ups?	1. Yes	
		2. No	
28.	How long did you stay in the health facility after delivery	1. <6 hours	
		2. 6-11 hours	
		3. 12-23hours	
		4. ≥24	
29	Were you educated on postnatal/post-delivery complications before discharge?	1. Yes	
		2. No	
30a.	Do you have a health facility where you get regular health services	1. Yes	
		2. No	
30b.	If yes, is it within your community?	1. Yes	
		2. No	
30c.	How far is this health facility for you?	1. Walkable distance	
		2. Less than 5 kms	
		3. >5 kms	
31.	How do you describe the behavior of the health workers	1. Not friendly	
		2. Friendly	
32.	Are the health workers available each time you seek postnatal care services?	1. Yes	
		2. No	
33a.	Do you think waiting time is a problem?	1. Yes	
		2. No	
33b.	If yes (33 above), how long do you take to wait in the queue?	1. Less than 30 minutes	
		2. 2. >30 minutes	

34c.	Is the health facility in which you usually get services equipped with material and favorable for PNC service (E.g. Immunization kit, weighing scales, thermometer	1. Yes	
		2. No	
34d	If no, what do you think should be done?	…… ……	
35.	Are the services free of charge?	1. Yes	
		2. No	
	UTILISATION OF POSTNATAL CARE SERVICES		
36.	After you gave birth to (Child's Name), did anyone check on your health or use PNC services?	1. Yes	
		2. No	
37a.	Who made the decision for you to seek postnatal care services	1. My self	
		2. My Husband	
		3. Both of us/Family	
38b.	If yes, what Postnatal care services did you receive when you went back to health facility after delivery> **[Circle all the services provided]**	1. Checkup for bleeding and temperature, 2. Supporting breastfeeding, checking the breasts to prevent mastitis, 3. Managing anaemia, 4. Promoting nutrition and insecticide treated bed nets, 5. Provision of vitamin A supplementation, 6. Completing tetanus toxoid immunization if required, 7. Provide counseling and various family planning options, 8. Referral for complications like bleeding, infections or postnatal depression and 9. Counsel on danger signs and home care. 10. Others specify…….	
38c.	If yes (to question 37), when was your starting	1. 0-23 hours after delivery	

	time in the first PNC you attended? (Probe whether she returned for PNC after discharge-Re-tick at appropriate time of return)	2. 1-2 days	
		3. 3-7 days	
		4. 8-42 days after delivery	
38d.	If No (to question 37), what are your reasons for not using PNC?	1. No/little knowledge	
		2. Being healthy	
		3. Being busy	
		4. Health facility is far from home	
		5. Long waiting time	
		6. Others specify……	

APPENDIX VII: TRANSLATED TOOL INTO LUSOGA FOR POSTPARTUM MOTHERS

Maama wasuze /osiibye otya, Amaina gange nze ……nga ndi muyambi mu kukola omusomo ogwokunonereza oguganiibwa aba Uganda Martyrs University. Tulinonekereza ku nsonga ediletera abantu okukozesa obwidandhabi nga abakyaala bakazaala mu week esooka, abali wagati weimyaka eikumi neitaano na ana na mwenda mu disitulikiti y'ebugiri.

Omukisa/ Akalulu kagwire ku maka go okuba nga weetaba mumusomo gwaife guno. DDembe lyo okuganha oba okuloba okugwenigiramu aye bwobanga oikiriza okugubaamu, nja kubuuza ebibuuzo ebigemagana ni gyova, ebikugemaku, ebigemagana ku kyalo gyova,ebyo'bulamu ebigemagana ku bakyala nebyokuzaala, n'ebyobwidandhabi. Kija kututwalira ddakika nga asatu na itanu.

Ozira kyoja kufunmu inho kilyawo aye byetunaaba tuwayiya, Bigya kwambaku okuwabula abakulembeze baife, n'okulungamya emisomo edhindi gyebwidha mumaiso.

Bwoikiriza okwetata mu musomo guno, oli waiddembe okulekera okuwaya ekiseera kyona kyona kyoyenda. Byetujja okuwayaku tuja bikuuma nga bya kyama era tubyesigaliza.N'amainago, tigaja kuba wantu wona wona. Tusiima inho era tuwa ekitibwa okusalawo kwo okwenigira mu musomo guno. Bwoba nga olina ekibuuzo kyona kyona, oli waiddembe okumbuuza.

Tweyanziza.

Oyikiriza tweyogereyo n,okuwaya

Yi ☐ Bbe ☐

Omukhono/ekinkumu ky'ayirama	: _____	Einaku dh'omwezi: _____
Omukono gw'abuuza	: _____	_____
Eriinha ly'abuuza:	:_____	Kiseera ___:____AM/PM

APPENDIX VIII: THE STRUCTURED RESEARCHER ADMINISTERED QUESTIONNAIRE

Instruction: Interview mothers who delivered in the last 8 days to 42 days

ID	**PRELIMINARY INFORMATION**		
a	Eggombolola	Omuluka	
	(Ekyalo): ……..	(Olunaku lwewazaliraku): ……	
	(namba ya ekipande ky'okugema): ……	(erinha lya VHT/LC…… …	
e	**Mobile Number of VHT/LC(Eisimu lyaVHT/LC)**	…… …….	
	(Ebikugemaku)	**(Eby'okwiramu)**	**TICK (kebera wano)**
1.	Olina emyaka emeka?	Emyaka…….	
2.	Oli mufumbo?	Tofumbirwangaku/omuguna	
		Olimufumbo	
		Mwayawukana n'omwami wo	
3.	Wasoma kutuuka mu kyakumeka?	Togyangaku ku isomero	
		Pulaimale/juniya	
		Siniya	
		Eitendekero ely'obukugu obwa wangulu	
		Toidhi	
4.	Omusadhawo yakoma mu kyakumeka?	Togyangaku ku isomero	
		Pulaimale/juniya	
		Siniya	
		Eitendekero ely'obukugu elya wangulu	
		Tidhi	
5.	Okola mulimu ki?	Takola	
		Mulimi	
		Alina omulimu	
6.	Omusadha wo akola mulimu ki?	Takola	
		Mulimi	
		Alina omulimu	
7.	Osoma eidhini ki?	mukatuliki	
		musiraamu	
		mupolotesitanti	
		ddini yindi)	
8.	Eningiza yamaka go ey'omwezi eyaga gha?	tidhiwera 50,000	
		100,000-150,000	

		(okuja emberi)	
9.a	Ate iwe ng'omuntu, eningiza yo ku mwezi eyaga gha?	tidhiwera 50,000 100,00-150,000 okuja emberi	
9.b	Ku sente dhoyingiza oterekaku edhindi?	Yi	
		Mbe	
10.a.	Olina ku caada ya insuwa nga ogyitwala bwamwirwaliro wafuna obwidandhabi?	Yi	
		Mbe	
10b.	Oli mu insuwa?	Yi	
		Mbe	
10c.	Kika ki ekya insuwa kyolina?	ka vocha	
		ya bwannanyini	
		ya Gavumenti	
10d.	Bwoba ozira Insuwa, Ani akusasulira sente dhobwidhandabi?	nze mwene	
		musadha wange	
		baluganda	
		bazaire	
11.	Wakozesa ntambula ki okutuuka mu eirwaliro okwetuusaku obwidandhabi ng'omaze okuzaala?	ku bigere	
		kaggaali oba piki piki	
		Taxi(speso/taxi)	
		motoka yo oba yawaka)	
12	Wenigiraku mu bintu nga bino mu kitundu kyo?	ebibina bya seevingi no kwewola (Ebyokutumbula obulamu naddala ebya abakyala n'abaana abawere)	
	MATERNAL REPRODUCTIVE HEALTH FACTORS		
13.	Ofunangaku amabunda gavaamu?	Yi	
		Mbe	
14.	Wakafuna enda imeka mu bulamu bwo?	Ndala	
		Ibiri ku ina	
		Dhiswika mu itanu	
15	ndha edhabita, bakukyaliraku waka	Yi	

	bakulambulaku, bakulagiriraku engeri yokwerabiriramu ng'ozaire?(bwaba aizemu 2 ne 3 wangulu?	Mbe	
16.	Endha yo omwana oyo gw'oyonsa yali etya mu ngeri yo kusalawo okugifuna n'okujirabirira.	netegekere era yaliku kulabirilwa	
		tinetegekere aye yaliku kulabirilwa	
		tinetegekere era tiyaliku kulabirirwa)	
17.	Ojangaku mu eirwaliro okunhwa obulezi ng'oli mabunda?	Yi	
		Mbe	
18.	Bwoba ojanga, nkoberaku emirundi gye wakaja?	Tyajaku waire	
		Omulundi mulala	
		Emirundi esatu	
		Emirundi ena n'okujja emberi	
19b.	Bwoba tojangayo, nkoberaku lwaki?	…… …… ……	
20a.	Nkoberaku oba bakusomesaku eibangalyosanirae okufuniramu obwidhandabi bwa nakawere bwe waja okunwa eidhagala ng'oli mabunda?	Yi. Bankoberaku	
		Mbe. Tibankoberaku	
20b.	Bwoba wasomesebwa, nkoberaku eibanga ly'osanire okugiiramu.	Ku lunaku lwene olwo nga omaze okuzaala	
		Ku lunaku olwokubiri paka ku lw'okusatu	
		Wiki ndala kwibiri	
		Omwezi mulala n'ekitundu oba enaku ana na ibiri	
		Ebindi	
21a.	Bwewamala okuzaala, wafunaku obuzibu bwonabwona?	Yi	
		Mbe	
21b.	Bubonero ki obubi bwoyidhiku obusobola okutuuka ku mukyala nga azaire omwana?	Okuvaavu omusayi omungi	
		Okuwuna obubi wansi	
		Omusuudha wasuuwa omubiri	
		Endha yakuluma inho	

		Obukoowu n'obukalubirirwa okuweera)	
		Ebigere ,obwala ne mu maaso byazimba, omutwe gwakuluma nga tobona bulungi)	
		Amabeere galuma/gazimba gavaamu omusayi, oba nga kuliku amabwa	
		okwesika	
21c	Bubonero ki obutiisa bw'oyidhi obusobola okutuuka ku mwana azalibwa?	Omwana tiyenhenha waire nga bamunyogereza oba nga bamala kumunyogereza me yenhenha?	
		Okuloba okwonka oba nga tayonka bulungi	
		Okuweera obubi	
		Okusuuwa omubiri	
		Okwinogoga	
		Omwana kuba nga mutono inho	
		Okuvaamu omusaayi	
		(ebindi)……..	
22a.	Oidi nga ekiibo kisobola okuba eky'obulabe eri obulamu bwo n'obw'omwana?	Yi	
		Mbe	
22b.	Bwekiba kifuuse kyabulabe,osaana kuja gha?	kwebuuza ku musawo w'ekyalo	
		kuja muirwaliro	
23.	Kiseera khi ekituufu ekyokutandiikiraku okufuna obwidandabi nga omaze okuzaala?	Kulunaku lwozaireku	
		mu naku eibiri/eissatu edhisooka	
		mu wiiki esooka)	
		ku wiiki mukaaga)	
		ekindi)	
24	Okobye nti toidi nga ekiibo kyankaba kya bulabe. Lwaki?	…… ……..…… ……..…… …….	
25.	Wazaala otya?	Bulungi)	
		Kusala)	
	HEALTH FACILITY FACTORS		
26.	Wazalira wa omwana oyo eyasembayo?	Whaka oba awantu awandi	
		Eirwaliro lya gavumenti elisokelwaku	

		Eirwaliro lya gavumenti einene	
		Eirwaliro ly'obwananyini nga inene	
		Kilinika y'obwananyini	
27a.	Ani yakuzaalisa?	Muzalisa omutendeke	
		Dokita	
		Mulerwa	
27b.	Bwoba wazalira waka/wayira waka ngomaze okuzaala, abasawo b'ekyalo(VHT) baidhaku kakulambula era bakusindika okufuna obwidandhabi obundi?	Yi	
		Mbe	
28.	Wamalayo kiseera kyaga gha muirwaliro ng'o zaire?	Nga amasawa mukaga gakali kubita	
		Nga wabisewo amasawa agali wagati w"omukaga ne ikumi ne ndala	
		Nga wabisewo amasawa agali wagati wa ikumi na abiri ni abiri neisatu	
		Nga wabisewo olunaku lulamba	
29	Bakusomesaku ku buzibu obusobola okutuukawo ng'omaze okuzaala nga bakaali kukusiibula muirwaliro?	Yi	
		Mbe	
30a.	Olina eidwaliro wosobola okwetisaako obwidandhabi buli bwoba obwetaaze?	Yi	
		Mbe	
30b.	Bwe liba liriwo, liri mu kyalo kino?	Yi	
		Mbe	
30c.	Olugendo lwaga gha okutuuka kwidwaliro lino?	Wha bigele	
		Tidhiwera kilomita itanu	
		Dhiswika mu kilomita itanu	
31.	Olowooza Abasawo bebisa batya?	Bazira mukwano	
		Balungi/balina omukwano n'abalwaire	
32.	Abasawo batera okubaawo buli lwojayo okufuna obwidandhabi ng'ozaire?	Yi	
		Mbe	
33a.	Olowooza ekiseera kyomala ng'olinda mwidwaliro kinene?	Yi	
		Mbe	
33b.	Bwoba olowoza kinene, otwala kiseera ki nga okuumye mu layini?	Tidiwera dakika asatu	
		Diswika dakika asatu	

34c.	Eirwaliro lino lyemutera okweidhandabiramu, olowooza lirina ebyetaagisa ebimala okwidandhabisa abakyala nga bamaze okuzaala okugeza nga obulezi obwokugema,minzaani yokwepimamu kilo, akuuma akapima okusuuwa nebindi?	Yi	
		Mbe	
34d	Bwe liba lizira, kiki kisaana okukolebwawo?	…… …… …… ……	
35.	Obwidhandabi bwa bwerere?	Yi	
		Mbe	
	ENKOZESA YOBWIDHANDABI BW'EKIBO		
36.	Ng'omaze okuzaala naani(eriina yo mwana)oyo waliwo omuntu yena yena eyakukeberaku okubona oba ozira buzibu bwonabwona oba okubona ng'okozesa obwidhandabi bw'ekibo?	Yi	
		Mbe	
37a.	Ani yakola okusalawo gwe okuja okufuna obwidhandabi bwe ekibo nga omaze okuzaala?	Nze mwene	
		Musaadha wange	
		Twembiriri /Twenatwena mumaka gaife	
38b.	Bwoba nga waja bakwidhandaba, Bwidhandabi ki bwe baakuwa bwe waira kwidwaliro nga omaze okuzaala?	Okukebera oba ovaamu omusaayi n'okusuuwa) Okukwambaku okwonsa n'okukebera amabeere Okwidhandaba okuwaamu omusaayi), Okulya obulungi na katimba kensiri akalimu obulezi), Okukuwa akakerenda ka xxiun kol) Okumalikiza okugema kwa tatanansi) Okubuuliribwa xxiun kola dha famile planingi ez'endhawulo) Okukusindika Okufuna obwidhandabi bw'obuzibu nga okuvaamu omusaayi) Kubulirirwa ku bubonero	

		obutiisa nendabirira awaka? Ebindi……	
38c.	Bwoba waja okufuna obwidhandabi, kiseera ki kwe wajiira okufuna obwidandhabi obwasooka?	Kulunaku lwene lwewazala	
		Wagati wolunaku olusooka n'olw'okubiri	
		Ngawabise wagati w'enaku isatu ku musanvu	
		Ngawabise wagati w'enaku munana ku ana naibiri (mwezi mulala kitundu)	
38d.	Bwoba tiwaja, nsonga ki edhakulobera okuna ofuna obwidhandabi ng'omaze okuzaala?	Nali nziraku kyonakyona kyendidi/tibiidi bulungi	
		Nali newulira nga ndi mulamu	
		Nga nina bingi ebyokola	
		Eirwaliro liri wala newaka	
		Okulinda okumala eibanga einene	
		Ebindi.	

APPENDIX IX: KEY INFORMANT INTERVIEW CONSENT FORM

Introduction

My name is Kareodu Ronald a student of Master of Public Health-Population and Reproductive Health in Faculty of Health Sciences of Uganda Martyrs University.

I am conducting a study on the factors influencing the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri district. The main objective of this study is to investigate the factors influencing the utilization of postnatal care in the first week among postpartum mothers aged 15-49 years in Bugiri.

Consent form

You have been purposively selected for this key informant interview based on your knowledge and experience in provision of postnatal care services.

Your participation is voluntary hence you are free to withdraw from the interview.

In case you choose to participate, you have the liberty to withdraw at any time you wish and this will be kept confidential. Your responses recorded will be kept confidential and your name will not appear anywhere. We highly appreciate and respect your decision to participate. If you have any question you are free to ask. Are you willing to proceed with the interview?

Yes. ☐ No ☐

Respondent's signature/thumb print :_____ Date:_____

Interviewer's signature :_____ Date:_____

Name of Interviewer :_____

APPENDIX X: KEY INFORMANT INTERVIEW GUIDE

Sub County :_____

Parish :_____

Village :_____

Name of Health facility :_____

Date of Interview :_____

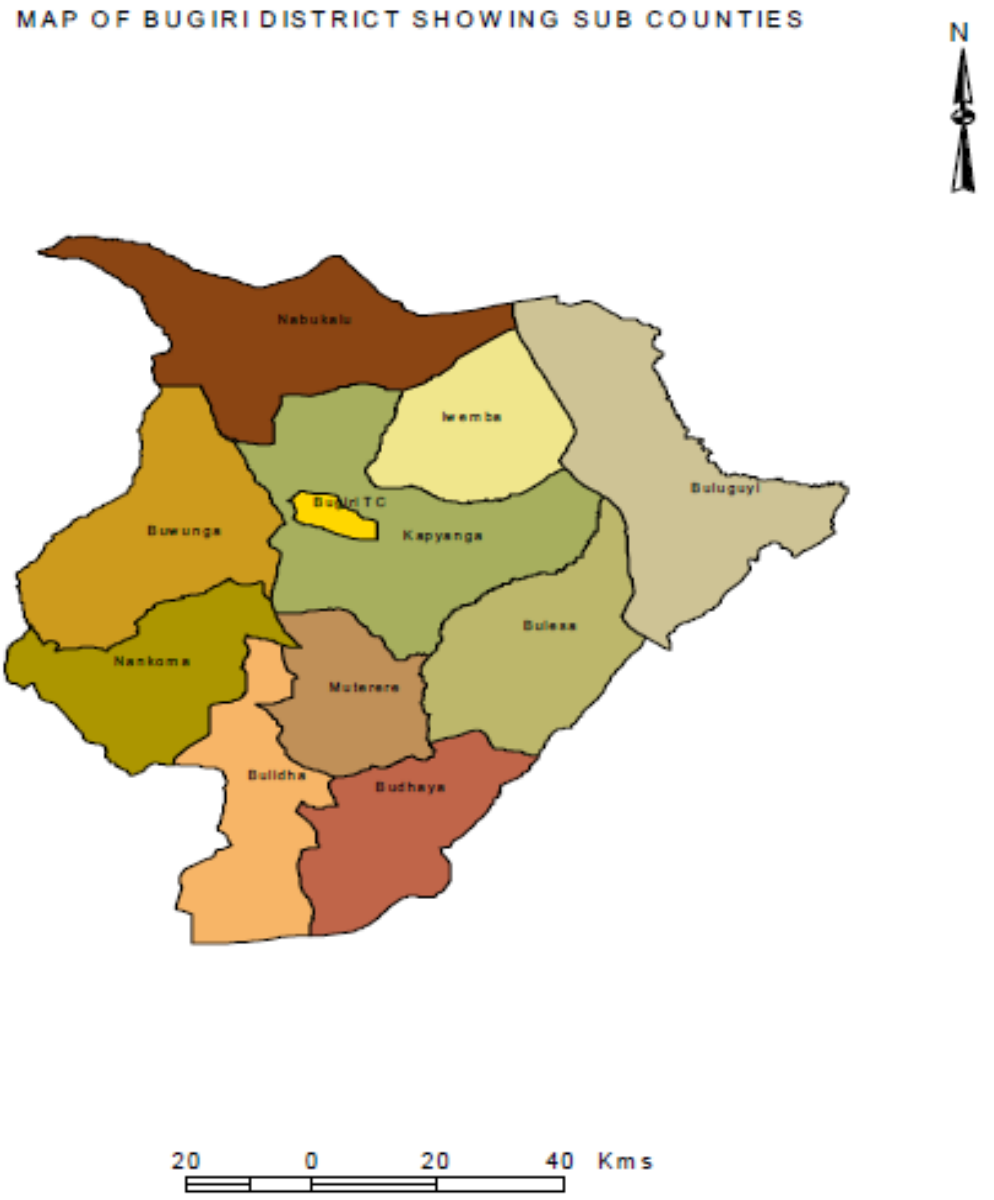
Time of Interview :_____

1. Do you provide postnatal care services to mothers in this health facility?
2. In terms of human resource, what can you say in regards to PNC services provision?
3. What comments can you make in regards to the infrastructure, medical equipment and supplies in relation to PNC services delivery in this facility?
4. Please can you tell me about the recommended schedules for PNC services utilization?
5. What are the trends of postpartum mothers in the utilization of PNC services in the first week after delivery?
6. What can you say about the knowledge of postpartum mothers towards utilization of PNC services in the first week after delivery?
7. What can you comment on the attitude of the postpartum mothers towards utilization of PNC services in the first week after delivery in this health facility?
8. When should postpartum mothers visit the health facility after delivery?
9. What are the barriers making postpartum mothers not to attend PNC services in the first week after delivery?
10. What measures did the health facility put in place to ensure postpartum mothers use PNC in first week after delivery?

APPENDIX XI: OBSERVATION CHECKLIST FOR PNC

No.	Items	Observation	
		Yes	No
General supplies	Disposable needles and syringes, LLITNs, specimen bottles, urine pots, sputum and blood slides		
Equipment	Monitoring equipment (Thermometer, sphygmomanometer, stethoscope, gloves, weighing scale (baby and adult), spot light, flashlight exam light, examination couch, autoclave,		
Vaccines	Vaccines-TT, BCG, Measles, polio, HB, pentavalent, contraceptives,		
ARVs	Nevirapine, Zidovudine, AZT Syrup, stavudine, zidovudine+lamivudine, miconazole, clotrimazole pessaries		
Infection control supplies	Sterile and clean latex gloves, clean non-latex gloves, decontamination solution, waste receptacle with and without lid and plastic liner, safety boxes, single use hand drying towel, functional electric drier or running water		
Delivery supplies	Delivery kit, suture kit		
Emergency equipment	Oxygen, adult and newborn resuscitation set, magnesium sulphate, Calcium gluconate		
General infrastructure/utilities	Waiting area shaded and with seats, postnatal ward, private space for PNC examination, water, light, reliable light, client toilets, clean water for drinking with clean cups/glasses		
Family planning commodities	Combined pill, progestin only pill, emergency contraceptives, injectables, IUCD, implants, male and female condoms, male and female sterilization, fertility based methods		
STI and RH drugs	Ciproflaxin oral, erythromycin oral, tetracycline oral, benzathine penicillin, cotrimoxazole tabs and syrup, metronidazole, tablets, metronidazole IV, Gentamin IV, Amoxicillin		

APPENDIX XII: MAP OF BUGIRI DISTRICT



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