



**FACULTY OF HEALTH SCIENCES
DEPARTMENT OF COMMUNITY AND PUBLIC HEALTH**

FINAL YEAR MASTERS' DISSERTATION

**DETERMINANTS OF POSTNATAL CARE UTILIZATION
AMONG POSTPARTUM WOMEN IN MBALE DISTRICT
EASTERN UGANDA: A COMMUNITY-BASED CROSS-
SECTIONAL STUDY**

By

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ABSTRACT

Background to the study: Despite several international and local initiatives to promote postnatal care which is a very important component of maternal, newborn, and child health continuum of care, utilization is still less than 25%. Globally, a third of all maternal and neonatal morbidity and mortality occurs in the first 24 hours after delivery. The determinants of utilization of postnatal care services vary according to the context. Because of low PNC utilization, the study assessed the level and determinants of postnatal care services use among postpartum women in Mbale district to advise policy and make suggestions to clinicians how to improve on PNC attendance.

Methodology: This was a community based cross-sectional study in Bungokho south county in Mbale, Eastern, Uganda. Using multistage sampling technique, we consecutively enrolled 654 postpartum women between 11th August and 8th September 2025 using quantitative data collection methods. This was followed by two focus group discussions (FGDs) for midwives and VHTs and 14 in-depth interviews (IDIs) with postpartum women and their partners. A modified Poisson regression run in Stata Software Version 17 to determine factors associated with utilisation of PNC, at 0.05% level of significance. Similarly, the qualitative data ATLAS ti was used and content analysis technique was used.

Results The prevalence of PNC utilization was 87.46%, the facilitators were caesarean mode of delivery, developing intrapartum complications and health facility delivery. The barriers included normal vaginal mode of delivery, lack of counselling and clear discharge instructions, lack of husband support, long distance to health facility, lack of transport and long waiting hours.

Conclusion: Although postnatal care (PNC) utilization was above national average, gaps in quality, timing and completeness persist. Utilization was strongly facilitated by facility delivery, cesarean section, and complications, while hindered by financial, geographic, gender, and knowledge barriers. PNC uptake requires strengthened health systems, community education, and policies addressing gender and economic barriers, with particular focus on reaching women excluded before delivery. Above interventions need to be targeted in Mbale district to advance maternal and newborn health and contribute to achieving SDG 3.1.

Key words: Postnatal care, postpartum period, postnatal care utilization

DECLARATION

This dissertation is my original work and has not been presented to any other university or institution of higher learning for an academic award.

Signature:



Date:

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APPROVAL

The dissertation has been submitted for examination with the approval of my university supervisors below.

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DEDICATION

To my lovely parents (Mr James Wakyaya & Mrs Agnes Wakyaya) for mentoring, nurturing and financially supporting me through school.

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LIST OF ABBREVIATIONS

ANC:	Antenatal care
DHO:	District health office
HCIII	Health center III
HCIV	Health center IV
HSD	Health Sub District
MMR:	Maternal Mortality Ratio
MOH:	Ministry of Health
PNC:	Postnatal care
SDG	Sustainable Development Goals
SSA:	Sub Saharan Africa
UDHS:	Uganda demographic health survey
UNIPH:	Uganda national institute of public health.
WHO:	World Health Organization

OPERATIONAL DEFINITIONS

Maternal mortality ratio: Is the number of maternal deaths per 100,000 live births.

Neonatal mortality rate: Number of deaths during the first 28 completed days of life per 1000 live births in a given year or other period.

Postnatal care utilization: Is a service provided to a woman and her baby following child birth by a Skilled Birth Attendant (SBA) from a health facility or home at least once and the purpose of the visit should not be anything else but postnatal care.

Postnatal care: Is care given to a mother and her baby after birth, usually within the first six weeks, to ensure they are healthy and recovering well.

Postpartum period: Is a period from the end of 3rd stage of labor up to six weeks.

CHAPTER ONE: INTRODUCTION

1.1. Background to the study

Postnatal period is defined by World Health Organization (WHO) and Uganda Ministry of Health (MOH) as the period beginning immediately after the birth of the baby and extending up to six weeks (42 days) after (Ministry of Health, 2022) and (World Health Organization, 2022). WHO recommends four postnatal care contacts, first within 24 hrs of birth, then a minimum of three more contacts occurring within 48 to 72 hrs, between day seven and 14 days and six weeks post birth (World Health Organization, 2022). Uganda Ministry of health (MOH) recommends postnatal care at six hours, six days and six weeks (Ministry of Health, 2022).

Postnatal care is a very important component of maternal, newborn, and child care. Postnatal care services are a fundamental component of the continuum of maternal, newborn and child care, and are key to achieving the Sustainable Development Goals (SDGs) on reproductive, maternal and child health, including targets to reduce maternal mortality rates and end preventable deaths of newborns.

Despite several global and national initiatives aimed at improving maternal and new born health, maternal death remains a challenge. The maternal mortality ratio (MMR) globally at 158.8 deaths per 100,000 live births as of 2021, for Sub-Saharan Africa at 545 maternal deaths per 100,000 live births as of 2020, Uganda at 189 deaths per 100,000 live births and 20 deaths per 100,000 live births for Mbale district.

Up to 30% of these maternal deaths occur in the postpartum period (Kassebaum et al., 2014), according to a systematic review by UN inter-agency group for child mortality rate estimation. In addition, infants have a high risk of dying in their first month after birth, with an average global rate of 17.5 deaths per 1000 live births in 2019 (Sharrow et al., 2022).

According to UDHS report of 2022 (Uganda Bureau of Statistics, 2022) in Uganda, neonatal mortality rate is 22 deaths per 1,000 live births meaning that 1 in every 45 new-born dies within the first month of life, accounting for 61% of infant deaths and 42% of under-5 deaths. Through Post Natal Care (PNC), danger signs and complications that arise after delivery such as postpartum hemorrhage can be detected and managed accordingly and this is why postnatal care is important to prevent this mortality.

A study conducted in Sub-Saharan African countries, indicated a low coverage of postnatal care service utilization at 52.48% with high regional disparities. The highest postnatal care service utilization in central Africa (73.51%) and the lowest postnatal care service utilization in East Africa ((31.71%) in which Uganda belongs. The same study also noted the following determinants of PNC utilization; residence, age group, maternal education, maternal occupation, media exposure, ANC visit, place of delivery and accessing health care (Tessema et al., 2020). In Uganda the key determinants of PNC utilization are noted in the UDHS 2022 as birth order, residence, wealth status and accessing health care (Uganda Bureau of Statistics, 2022).

In Uganda, PNC services have been made universal, but attendance at 6 weeks is at only 4%, in comparison to ANC attendance at 99%, and health facility delivery at 86% according UDHS 2022 (Uganda Bureau of Statistics, 2022) The expectation is since they deliver in health unit, they are told about importance of PNC and PNC utilization would be similar to ANC attendance but 29% don't even attend. In Mbale district, approximately 76% women utilize PNC within 72hrs, 57% at 6 days and 68% at 6 weeks –DHIS report of 2022/2023 financial year which is below the Mbale district PNC target of 98%.

The challenge is the determinants have been reported but PNC still low in Uganda and Mbale district in particular. The study aimed at assessing the level and determinants of postnatal care services utilization among postpartum women in Mbale district, Eastern Uganda.

1.2.Problem Statement

In Mbale district, PNC utilization is less than the WHO target of 100% PNC utilization. In Mbale district, PNC utilization is approximately 76% at 24hrs, 57% at 6 days and 68% at 6 weeks according to DHIS report of 2022/2023 financial year.

Low utilization (defined as <100% target) of postnatal care services affects the fight towards reduction in maternal and newborn morbidity and mortality. This is because during PNC, danger signs and complications that arise after delivery can be detected and managed accordingly which if not attended to may lead to serious, life-threatening complications such as postpartum hemorrhage and even death.

Several interventions and efforts have been put in Antenatal care and intrapartum care services which has greatly decreased maternal death rates during these periods. According to the 2022 Uganda Demographic Health Survey, the Maternal Mortality Ratio reduced from 336 to 189 per 100,000 live births while the infant mortality went from 43 to 34 per 1,000 live births. When compared to ANC attendance which is high (99%), health facility delivery (86%) but PNC is low at 66% within 2 days and 4% after 2 days (Uganda Bureau of Statistics, 2022). This suggests that postnatal period is still an ignored area in the spectrum of provision of maternal services. Yet up to 30% of maternal deaths occurring postpartum (Kassebaum et al., 2014).

The current government of Uganda policy regarding postpartum care services (Esther Kisakye UNIPH, 2021) is for mothers to receive prompt postnatal care when they bring children for immunization. Whereas child immunization has continued to rise (from 37% in 2000-01 to 63% in 2022), there has been a slow or almost no progress in regard to postnatal care (PNC) use as evidenced by PNC at 6 weeks being only 4% (Uganda Bureau of Statistics, 2022). The persistence of low utilization of PNC below the ANC attendance, necessitates that we examine the context specific community determinants of PNC

1.3. Objectives

1.3.1 Main Objective

The main aim of this study was to assess the utilization of postnatal care services among postpartum women in Mbale district, Eastern Uganda.

1.3.2 Specific Objectives

1. To determine proportion of postnatal care services utilization among postpartum women in Mbale District, Eastern Uganda.
2. To establish the determinants of postnatal care service utilization among postpartum women in Mbale District, Eastern Uganda
3. To explore the facilitators and barriers of PNC utilization among postpartum women in Mbale District, Eastern Uganda.

1.4. Research questions

- 1.What is the proportion of postnatal care utilization among postpartum women in Mbale district, Eastern Uganda?
- 2.What are the determinants of postnatal care utilization among postpartum women in Mbale district, Eastern Uganda?
- 3.What are facilitators and barriers of PNC utilization among postpartum women in Mbale District, Eastern Uganda?

1.5. Research Hypothesis

Objective 1:

Null Hypothesis (H₀)

- The proportion of postpartum women utilizing postnatal care services in Mbale District, Eastern Uganda is equal to the National average in UDHS 2022

Alternative Hypothesis (H_a)

- The proportion of postpartum women utilizing postnatal care services in Mbale District, Eastern Uganda is not equal to the National average in UDHS 2022 (Two tailed)

1.6. Justification

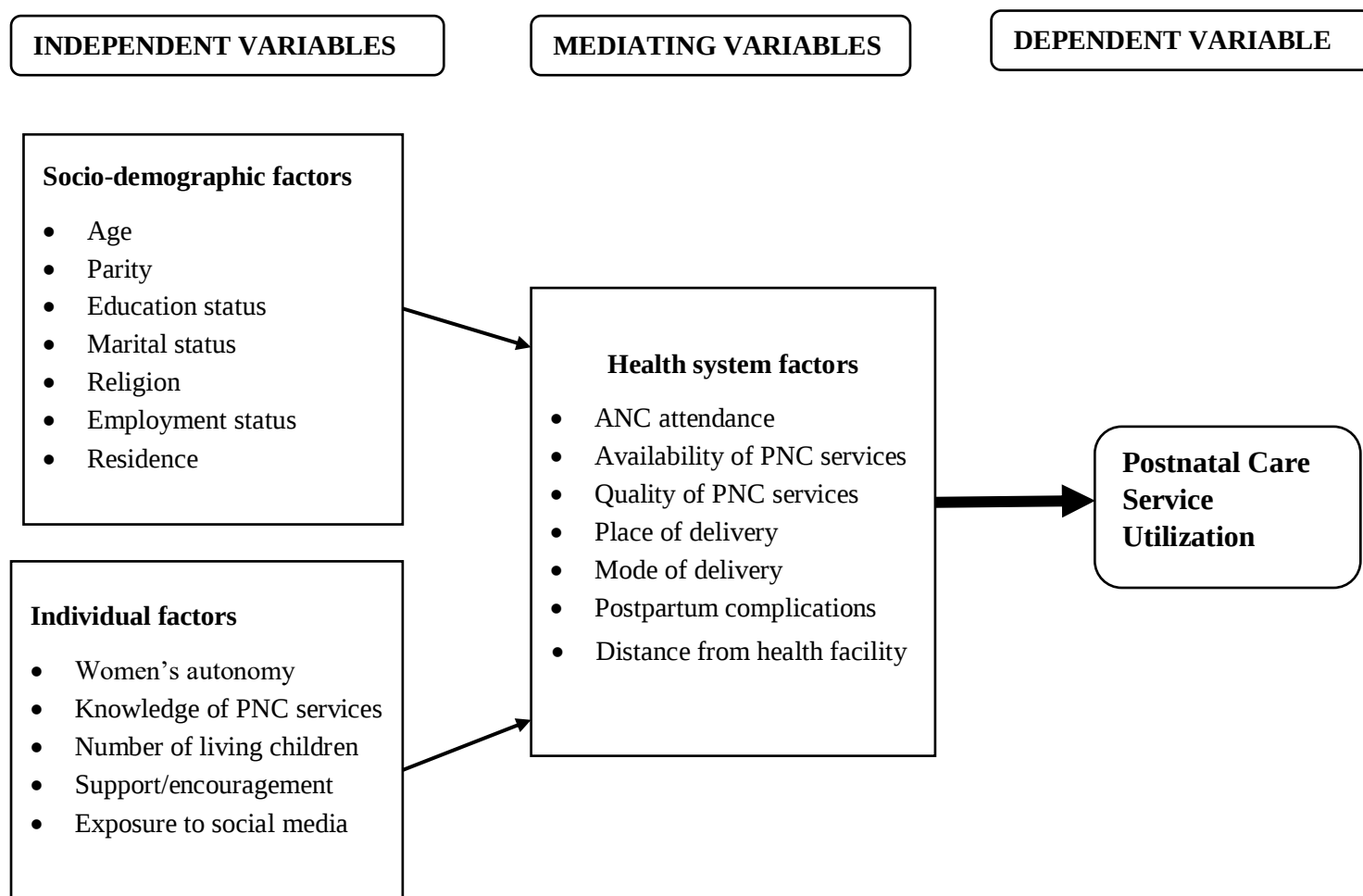
This study identified context specific determinants of PNC utilization which will inform policy makers & service providers to design and implement focused interventions, contribute to the reduction in maternal & newborn mortality and morbidity and may also contribute to attainment of SDG 3, Target 3.1 on ending preventable maternal and perinatal mortality.

1.7. Conceptual framework

The conceptual framework for this study was modification of that developed based on Andersen's behavioural model for health services utilization which provides a theoretical structure to understand access to and utilization of health service and to recognise the factors that impact a person's decision to use or not use existing health services. According to this model the usage of health services is determined by three dynamics i.e. predisposing factors (e.g. age, race, health

beliefs), enabling factors (e.g. family support, health insurance, one's community) and need (both perceived and actual need for health care services).

Figure 1.1: Conceptual framework



The relationship between variables

Postnatal utilization is the dependant (Outcome) variable. Maternal factors (parity, ANC attendance, place of delivery and knowledge of importance of PNC), Sociodemographic factors

(age, occupation, level of education, marital status, residence, employment status) and Health system factors (availability of PNC services, quality of services provided and distance from health unit) are independent factors and they affect PNC service use.

If independent factors affect PNC service use positively, then it will reduce maternal and new born mortality and morbidity but if they affect PNC negatively then it will increase maternal and new born mortality and morbidity.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter explored different studies done on Postnatal care utilization and its determinants. Looking at studies under two sub themes i.e. the level of utilization of postnatal care and determinants of postnatal care utilization.

Postnatal care are services provided to the woman and new born in the first 6 weeks of birth. PNC is still ignored by the mothers and health workers despite the guidelines issued by WHO and Ugandan MOH, let's look at what other studies revealed in different settings/locations.

2.2. Definition of Postnatal care and postpartum period.

World Health Organisation defines postnatal period as the period beginning immediately after the birth of the baby and extending up to six weeks (42 days) (World Health Organization, 2022).

The term postpartum according to the essential maternal and newborn clinical care guidelines for Uganda, May 2022, the refers to a period for the mother from the end of 3rd stage of labor up to six weeks or more (Ministry of Health, 2022).

2.3. Prevalence of postnatal care utilization

In Sub-Saharan Africa countries, coverage of postnatal care service utilization was low (52.48%) with high disparities among the region, with the highest postnatal care service utilization in central region of Africa (73.51%) and the lowest postnatal care service utilization in Eastern regions of Africa ((31.71%). With factors such as young age, no ANC attendance, being in rural residence, low education level, no occupation, not exposed to media and home delivery all contributing to the low Postnatal care service utilization in Sub-Saharan Africa (Tessema et al., 2020).

In Ethiopia between November 2016 and February 2017, a community based cross sectional survey found the prevalence of postnatal care utilization was low (28.4%) compared to the regional target and the factors that contributed to this included; parity, maternal education, mode of delivery which were similar to part of the factors revealed by study in Sub-Saharan Africa countries (Akibu et al., 2018a).

The prevalence of 6th week Postnatal care visit was found to be 59% and majority of these women (60.6%) had Antenatal care by a skilled birth attendant. Unawareness and being healthy/ not

having any complication were main contributors of non-attendance of postnatal clinic in Nigeria (Onwuka et al., 2023).

Different from other studies, in Malawi the prevalence of Postnatal care utilization was high (84.8%) with the following factors positively affecting PNC utilization: mother's and partner's secondary education level and above, household income, knowledge of available postnatal care services utilization, health facility delivery, joint decision making and partner's occupation (Sagawa et al., 2021).

Immediate postnatal care utilization is usually high compared to the subsequent postnatal care utilization, this may be due to the fact that within 24hrs women are still admitted in the health facility compared to the subsequent visits where a woman has to travel from home thus may be hindered by several factors as noted above, a study in Thyolo, Malawi revealed above facts as their immediate PNC service utilization was high at 91% and 97% among neonates and women respectively (Nyondo-Mipando et al., 2023a).

There was a low postnatal care utilization in Ethiopia as revealed by a mixed methods study which noted the factors that quantitatively (i.e. age, religion, use of maternity waiting homes, mode of birth, lack of awareness of PNC services and distance from the health facility) and qualitatively (i.e. lack of awareness of PNC services, traditional beliefs, religious practices, distance and transportation-related problems, fear of exposure to sunlight and wind, and long waiting times in health facilities) associated with PNC service utilization (Zelege et al., 2021).

In Uganda, postnatal care utilization is also low as indicated the results of a study using secondary data from 2022 UDHS with a prevalence of 58% PNC utilization within 2 days, this is lower than WHO target of 100%. Similar factors like elsewhere influenced utilization of postnatal care services e.g., age, parity, level of education, place of residence, employment status, attendance of antenatal care, and community media saturation (Towongo et al., 2024).

2.4. Facilitators and barriers to Postnatal care services use

A systematic literature on utilization experiences and satisfaction with postnatal follow-up care identified factors that influenced greater utilization during early and/or late postnatal periods were complications during labor, birth and after birth, distance from a health center and knowledge on the importance of postnatal review. Additionally, women who had completed advanced education

(secondary and above), and thus who had higher monthly incomes, were reported as having higher utilization of postnatal care. Several studies reported increased use of postnatal care if women's husbands had completed advanced education from college and above. Women who were 18–48 years and had attended an antenatal care were more likely to utilize postnatal care. Women who identified that they were able to decide for themselves or were involved in joint decision-making were more likely to attend postnatal visits. Other factors that were reported to increase utilization of postnatal follow-up care included awareness of at least one postpartum danger sign, attendance at family planning services and use of postnatal care after a previous pregnancy. Major factors reported by women that impeded the utilization of postnatal services included a lack of knowledge about postnatal services, beliefs that there was no need for postnatal review if one was feeling well, not being given information regarding postnatal complications before discharge, long distance to health facilities, high transportation costs, home birth, cultural barriers and lack of education, long queues at health facilities, experiences of abandonment by healthcare providers and fears of mistreatment by health professionals (Al Hadi et al., 2022).

Facilitators and barriers to PNC service utilization can be categorised into five main components i.e., physical, educational, sociocultural, organizational and economic. And factors under these categories influence PNC service utilization at both individual and community level. The facilitating factors include higher mother's and partners' education level, lower parity, higher socioeconomic status, better transportation and better insurance coverage. The inhibitory factors include lower quality of care, poor policy regulation and migrants or under-privileged people, this was evidenced by an integrative review study in China (Zhang et al., 2022).

Adequate ANC, delivery from health facility, women's education and empowerment are critical issues in utilization of postnatal care services as noted by a study in Afghanistan, PNC visits were very low and the study revealed that women who attended ANC four or more times as commended had more chances of attending PNC visits compared to their counterparts, also women who delivered from health facility attended PNC visits compared to those who delivered from home and also revealed that women who were educated or made health care decisions independently were more likely to attend PNC than those who depended on their husbands and surprisingly the women who were employed attended less PNC visits than the non-employed (Khankhell et al., 2020).

In Rwanda, a qualitative study provided evidence that the PNC package (i.e., the four recommended visits and the services provided during each visit) was not initially well understood (Williams et al., 2019). This lack of enough knowledge/ awareness may apply to both health workers and the women which is also a common finding in other countries especially in SSA.

In Malawi the barriers to postnatal care service utilization included absence of a baby or mother, limited understanding of PNC services, lack of male involvement, economic challenges, poor attitude of health care workers, advice from community members, cultural and religious beliefs (Nyondo-Mipando et al., 2023b). This study revealed a slightly higher prevalence compared to other studies and noted the following enablers to PNC service utilization i.e. mother's level of education, awareness of the services, community-based health support, adequacy and attitude of health workers, seeking treatment for other conditions and other clinic activities.

In most study settings/ countries, a higher level of education facilitated PNC service uptake but in Mali it's different, women with no formal education and those with primary level of education had higher odds of postnatal care uptake, compared to those with secondary/higher education. On the contrary, postnatal care utilization was lower among women who were not covered by health insurance, those who were not working, and those who were not exposed to mass media, compared to those who were covered by health insurance, those who were working, and those who were exposed to mass media, respectively (Ahinkorah et al., 2021).

In Nepal, a community-based cross-sectional study revealed that women who exhibited high autonomy in decision making, control over finance and freedom of movement had greater odds of complete PNC than those with low autonomy (Amatya et al., 2023).

In Sierra Leone, using 2019 national survey, the odds of PNC utilization were eight times higher among women that delivered by caesarean compared to those that delivered vaginally. This is not surprising because women who have operative deliveries are at higher risk of suffering a wide range of postoperative complications. Therefore, frequent return to the health facilities for checkup would be a mitigation strategy to minimize the perceived risks and in return get the opportunity to utilize PNC. The odds of PNC utilization were higher among women who had eight or more ANC contacts compared to their counterparts who had fewer. This may be attributed to the fact that regular contact with health workers during ANC, accords more opportunities for education and counselling about the need to seek for health care services during and after pregnancy. Women in

the Northern region had lower odds of PNC utilization compared to those in the Western region. In Sierra Leone, the Western region has the largest concentration of health workers, is the most developed region, which also houses the capital and economic city of the country and hence has higher quality social amenities compared to other regions. Therefore, women in the Western region have easier access to health care facilities for PNC and are more likely to afford the direct and indirect costs involved in seeking PNC compared to those from the Northern region which is one of the poorest regions with inadequate skilled staff and infrastructure (Sserwanja et al., 2022).

In Ghana respondents who were 25–39 years of age had a higher probability of using PNC services compared to their counterparts who were less than 25 years of age, Mothers with high school (SHS) education and above were 3.65 times more likely to patronize PNC services within 48 h than mothers without formal education, married mothers are 10.34 times more likely to use PNC services within 48 h than single or cohabitation mothers and finally, the study showed that mothers who attended ANC at least four times during pregnancy were 6.92 times more likely to go for PNC services within 48 h compared to those mothers who had less than four ANC visits during pregnancy (Asumah et al., 2023) barriers were noted as ; long waiting time, poor attitude of health workers and no family support.

In Tanzania, facilitators to PNC service utilization were similar to other countries ; significant difference was observed by place of delivery with a higher proportion of women who delivered at health facilities seeking postnatal care at least three times compared to women who delivered at home, women who reported experiencing complications during labor and delivery were more likely to come for postnatal care within a week compared to those who had no complications, , early contact within the first week after delivery for a postnatal checkup was significantly higher among women with 4 or more ANC visits compared to those who had less than 4 ANC visits during pregnancy but their hinderances to PNC service utilization were quite different e.g. not being scheduled for PNC by health providers, overwhelming workload and shortages of supplies (Konje et al., 2021).

The 2016 Uganda Demographic and Health Survey found out that women aged 20-29 years and 30-39 years were found to be more likely to use PNC services compared to those aged ≤ 19 years the plausible explanation might be that as maternal age increases, women become more experienced regarding their physiology and how to manage complications arising after childbirth, women who received high quality ANC were more likely to use postnatal care services than those who received low quality ANC because

during ANC services, women may develop a rapport with health personnel, who may provide positive information, encouraging them to dispel myths about giving birth in a health facility and eventually receiving early postnatal care service, women who lived in media-saturated communities were more likely to use postnatal care services than their counterparts because the education women received due to media access may have created awareness about the importance of PNC services and the complications that can arise during the postpartum period, women of higher parity were less likely to utilize postnatal care services than those of lower parity, the explanations ascribed to this phenomenon may be traced to the experiences individuals acquired throughout their initial childbirth experiences, women with secondary or higher education were more likely to utilize postnatal care services compared to those with primary or no education because educated women can make better health decisions and are more likely to have the financial means to pay for health care, so they do not have to rely on their husbands to seek care, Place of residence is associated with early utilization of postnatal care services. Women who reside in rural areas were less likely to utilize postnatal care services compared to those who live in urban areas, Women in the middle and upper wealth index were more likely than those in the lower wealth index to use postnatal care services, women employed were more likely to utilize postnatal care services than their counterparts this is because higher-income women have more purchasing power and are more likely to meet the direct and indirect costs of healthcare services (Ndugga et al., 2020).

2.5 Conclusion

Most studies reported low postnatal care utilization and more markedly in low- and middle-income countries.

The facilitators and barriers to PNC utilization varied across the regions but the lack of knowledge about PNC services and its importance was reported in most of the countries.

However, most studies didn't explore why there is less awareness about postnatal care services and its importance.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter describes the methods that were used to conduct the study on the determinants of postnatal care utilization among postpartum women in Mbale district. It outlines the research design, study area, study population, sample size determination, sampling procedures, data collection methods, and tools used in the study. In addition, the chapter presents the procedures for data management and analysis, including the statistical techniques applied to identify factors associated with postnatal care utilization.

3.2. Study design

This was a community based cross-sectional study. A sequential explanatory mixed method was used; this was a two- phase study in which quantitative data was collected and analyzed followed by the collection and analysis of qualitative data. The quantitative arm was the main focus and qualitative data was used to support and strengthen the quantitative data.

3.3. Study setting

The Study was conducted in Mbale district, Eastern Uganda. Mbale district is located approximately 225km (140miles) North East of the capital Kampala. Geographically, Mbale district is divided into three distinct topographical regions, namely lowland, Upland and the mountainous landscape. The dominant altitude of this landscape is slightly over 1800m and the most striking topographical feature is Mount Elgon, with its magnificent craters, deep valleys and ridges. The district is neighboring Mbale city which was curved out of Mbale district. Mbale city is the regional business hub for Eastern Uganda. Mbale district is composed of three counties in which there are 20 sub counties, of which four are town councils and one municipality and 15 are rural (Mbale district, 2025). The district headquarters is situated at Malukhu ward in Industrial Division. The district is bordered by Bukedea district in the Northwest, Sironko in the North, Budaka and Pallisa in the west, Tororo and Butaleja districts in the south-west, Manafwa District in the east. It lies between latitudes 00⁰57' North and longitudes 34⁰20' East and has a total area of 518.4sq km of which 353.56 sqkm arable land (Figure 1). The estimated population for Mbale district for financial year 2024/2025 is 290,356 people, of which 45.88% are females (UBOS, 2024).

Mbale district health system is composed of one Health Centre IV located in Bungokho South County, 27 Health Centre IIIs and IIs. These provide a wide range of services including, antenatal care, deliveries, postnatal services and immunization services. Each village in the district has two VHTs (one male and one female) to provide community level health services including home visits and referrals.

Figure 3.1: A map of Mbale district

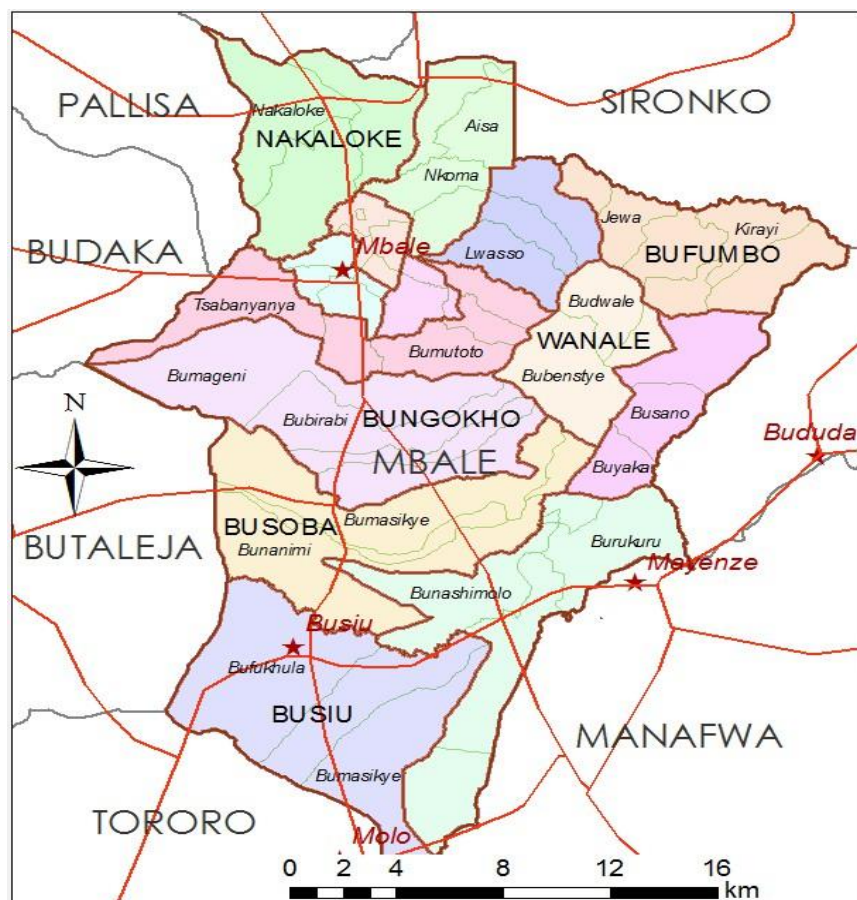


Table 3.1: Distribution of key health targets/indicators in Mbale district

Indicator name	District baseline (2017/18)	District target (2024/25)	DDP/ND PIII	Vision 2040
DPT3 Coverage	105	112%	100%	100%
ANC 1 st visit in first trimester	22	70%	90%	90%
Institutional deliveries	76	90%	100%	100%
PMTCT Coverage	80	100%	100%	100%
ANC 4 th visit for pregnant mothers	45	80%	95%	95%
IPT2 Coverage for pregnant mothers	68	90%	100%	100%
Malaria test and treat	85	100%	100%	100%
Latrine Coverage	52	95%	100%	100%
TB treatment success rate	79	90%	95%	95%
Perinatal deaths audited	0	65%	90%	100%
Maternal deaths audited	14	100%	100%	100%
Approved positions filled	76	95%	95%	95%
Completeness and timeliness of HMIS reports	90	100%	100%	100%

Source (Mbale District Local Government, 2020)

3.4. Quantitative Study Methodology

3.4.1. Study population:

The study targeted to estimate postnatal care service utilization and its associated factors for women during postpartum period in Mbale district, Eastern Uganda. Target population was all postpartum women in Uganda and accessible population was all postpartum women within three months of child birth in Mbale district

The study population was women in the postpartum period in sampled villages in Mbale district, Eastern Uganda.

3.4.1.1 Inclusion criteria:

The study enrolled women who had a delivery within three months before the time of the study. The women in the postpartum period were enrolled irrespective of the type, place, and outcome of delivery.

3.4.1.2. Exclusion criteria:

The study excluded women who were very sick to participate and those who were not found home at the time of data collection

3.4.2. Sample Size

The minimum number of participants required for the study was calculated using Open-Epi online sample size calculator (<http://www.openepi.com>). The sample size was calculated using the formula for estimating the frequency of a factor in the population.

$$\text{Sample size } n = \frac{Z^2 \cdot P \cdot (1-P)}{d^2}$$

Where:

- n= required sample size
- Z= Z-score corresponding to desired confidence level (1.96 for 95% confidence)
- P= estimated proportion (prevalence) from prior studies or assumptions
- d= desired precision (margin of error) i.e. 0.05

The calculation assumed an absolute precision of 5%, design effect of 1.5. To obtain an appropriate sample, three calculations were calculated in order to pick the highest sample size for the study. A non- response rate of 10% was considered.

The first calculation was based on estimating the proportion of postpartum women utilizing PNC services. The estimated PNC utilization in Mbale district was assumed to be the national average of 66% as reported by the Uganda Demographic Health Survey (Uganda Bureau of Statistics, 2022). The minimum sample size obtained was 569. The second calculation was based on coverage of institutional deliveries of 91% as reported by the UDHS 2022 findings (Uganda Bureau of Statistics, 2022). The calculated minimum sample size was 208 participants. The third calculation was done using factors determining postnatal care service use, whereby, it is reported by UDHS

2022 that 59% of women age 15-49 reported at least one problem accessing PNC. Using this proportion, the sample size 654 was calculated. Therefore, **654** was selected because it was the highest calculated sample size which helped to minimize a random error and improve the power of the study.

3.4.3. Sampling procedure

This study employed a multistage random sampling technique, where sampling will be conducted in successive stages from larger to smaller units. **Stage 1: Selection of Study Area (Constituency Level).** Mbale District has three constituencies. Using a simple random sampling method (balloting), Bungokho South Constituency was selected as the study area. **Stage 2: Selection of Sub-counties (Primary Sampling Units).** From Bungokho South, sub-counties were selected using simple random sampling (balloting). Four sub-counties were chosen, namely: Bkhiende, Busiu, Bumasikye and Lukhonge. These constituted the primary sampling units. **Stage 3: Selection of Villages (Secondary Sampling Units).** Within each selected sub-county, a list of all villages was obtained. Using simple random sampling (balloting), approximately ten (10) villages were selected from each sub-county. These formed the secondary sampling units. **Stage 4: Selection of Households (Tertiary Sampling Units).** In each selected village, households were sampled systematically: The starting point was the LCI Chairperson's household. In cases where the first household had an eligible respondent (a woman within three months postpartum), it was selected, and the next household was skipped before proceeding to the following one. In the event that the first household didn't have an eligible respondent, the research team moved to the next household sequentially until an eligible respondent was identified. This process continued until the required number of households per village was obtained. The tertiary sampling units were therefore the households with women who were within three months of giving birth.

3.4.4. Study Procedure

The research assistant identified the postpartum women in the household by help of LC1 chairperson of the villages. The research assistant introduced herself to the woman to create rapport and got permission from her and the husband. The research assistant then agreed with the woman on the convenient place within the household which provided privacy to conduct the interview. Then the woman was assessed for eligibility and an informed consent was sought if she was found

eligible. A questionnaire was then administered and checked through for completeness and errors. The woman was then assessed for any issues that may require referral for appropriate services.

3.4.5. Study Variables

Dependent/expected outcome: Postnatal care service utilization; which according to this study refers to a service provided to a woman following child birth from a health facility or home by a trained birth attendant and the reason for the visit should not be anything else but postnatal care.

Independent variables: Socio-demographic factors (age, education, religion, marital status, culture, employment, household income), perinatal factors (place of delivery, ANC attendance, Parity, knowledge of postnatal care services), health systems factors (Accessibility of health facility, quality of Antenatal and postnatal care services offered, availability of guidelines).

3.4.6. Data collection methods

Quantitative interviews were conducted by trained research assistants (Ras) who got data on the proportion of postpartum women utilizing postnatal care services and determinants of postnatal care service utilization. This involved interviewing postpartum women using a questionnaire (attached in appendix v) which was adapted from a community-based study in Malawi which looked at determinants of postnatal care service utilization among mothers of Mangochi district, Malawi. The questionnaire was translated into Lumasaba using a forward and backward translation process, programmed using Kobo collect Toolbox and deployed on smart phones.

3.4.7. Data quality control

Data quality for this study was ensured by the following ways: data collection tool (questionnaire) was pretested on a selected sample similar to the actual sample, this ensured that a clear understanding of the language and the concepts, having appropriate response categories, easy answering of questions by participants, logical flow of information and completion of the instrument in a reasonable amount of time. Triangulation of data collection methods to ensure that the findings of this study are valid and reliable, for this study qualitative and quantitative methods supplemented each other. Validity (extent to which the tool measures what it claims to measure) and reliability (extent to which data collection tool consistently measures a given concept) of the data collection tools was ensured.

Research assistants were trained to follow standardized procedures.

3.4.8. Data analysis

Stata v15 software was used for analysis, participant characteristics were summarized as continuous variables (age,): mean, standard deviations, median and categorical variables (e.g. sex, religion, education status, socioeconomic status, marital status, employment status, residence): percentages

For objective 1 which estimated the proportion of postpartum women utilizing postnatal care services in Mbale District, Eastern Uganda;

Numerator (N): number of women enrolled in the study who attended one or more PNC services at facility or community level

Denominator (D): number of women enrolled in the study

Proportion= $N/D \times 100$

Study hypothesis ($H_0=66\%$; $H_a \neq 66\%$) will be tested.

For objective 2 which established the determinants of postnatal care service utilization among postpartum women in Mbale District, Eastern Uganda; bivariate Analysis between independent variables and dependent variable was done and significant association was determined by P-value <0.05 .

Significant variables at bivariate were included in multivariable analysis using modified Poisson regression and determinants were variables with P-values <0.05 at multivariable analysis.

3.5. Qualitative component

3.5.1. Qualitative study design

A descriptive qualitative design was used which provided a straightforward description of participants' experiences and views and helped us to explore barriers, perceptions, and facilitators of postnatal care utilization.

3.5.2. Study participants and recruitment

The study participants for this qualitative study were women in the postpartum period, husbands to postpartum women, midwives and VHTs. The postpartum women for qualitative were identified after analyzing the quantitative data. Facilitators were got from women who had utilized PNC services and these were categorized by age and parity and for barriers were identified from women who had not utilized PNC services.

The husbands of postpartum women who had participated in the study also participated in in-depth interviews because they play a big role in the woman's decision to utilize PNC services. They were purposively identified through the postpartum women.

The midwives participated in focus group discussion as key informants since they participate in provision of PNC services and have information, opinions and reasons for PNC services utilization by women in postpartum period. They were purposively identified from the health facilities within the study area. Selection of the midwives to participate in the study took into consideration seniority such that senior and junior midwives at health center iv and health center iii were selected.

The VHTs participated in focus group discussion as key informants because they participant in provision of PNC services at community level and therefore have information, opinions and reasons that relate to utilization of PNC services by postpartum women. VHTs were selected from the study area and included male and female.

3.5.3. Number of Study Participants

The number of participants for the qualitative study was determined during implementation of the study. The number required to start was determined by the minimum sample size for initial data analysis as described by various scholars (Braun & Clarke, 2021). For this study, the minimum sample size was determined by the number of FGDs and IDIs. Two (2) FGDs for midwives (1), and VHTs (1) comprising seven and eight participants respectively. 14 IDIs for postpartum women and 2 for husbands to postpartum women. Total of 31 participants were interviewed as shown in Table 3.2 below.

Table 3.2: Number of participants per category interviewed

Category	Type of interview	Number of participants per interview	Number of interviews	Total No. of participants
Postpartum women	IDIs	1	14	14
Husbands of postpartum women	IDIs	1	2	2
Midwives	FGD	7	1	7
VHTs	FGD	8	1	8
Total			18	31

For this study the stopping criterion was based on the principle of saturation as described by Guest *et al* (Guest et al., 2006). Initial data analysis was integrated in the process of data collection where a code book was generated and the codes were identified through interview notes and listening to the recordings as data collection was going on. Data saturation was determined when 75% or more of the codes in later interviews are repeated from first interviews.

3.5.3. Data collection procedures and methods

The qualitative study data was collected using two approaches i.e. focus group discussions and in-depth interviews.

The FGDs were conducted using an interview guide (appendix II). The interview guide was developed with open ended semi-structured questions based on *a priori* themes that were derived through literature review, and related to the research question. There was a balance between introductory, thematic, transitional and concluding questions as described by Morgan (David L. Morgan, 1996) and Dawson (Susan Dawson and Lenore Manderson, 1993). The FGD interview

guide was translated into the local language (lumasaba) and pre-tested. Participants for each group were invited after identification and consented. An appropriate venue which was more convenient to all participants was selected which ensured participants comfort, privacy and minimal interactions. Invited participants were provided with transport refund. Each FGD was conducted by one moderator and one recorder. Participants provided the consent for audio recording and written notes. Each FGD lasted approximately 90 minutes.

The IDIs were conducted using IDI interview guide (appendix III). This guide was developed with open ended semi-structured questions that are related to the research question as described by Pahwa et al (Pahwa et al., 2023) and Goering (Goering, 1996). Participants selected for IDIs were contacted and an appointment was made for the date, time and venue for the interview. The IDI was conducted by one person. Each participant consented to audio recording and written record of the interview process. Each IDI lasted approximately 90 minutes. The participants received transport refund.

3.5.4. Ensuring study rigor

Study rigor in this study was achieved through the following:

Study tool was validated by a peer researcher experienced in qualitative research which ensured appropriateness of the questions to the research question.

Member checks: the research team engaged selected participants to validate recorded information to obtain their confirmation that the record is a true reflection of their opinions, experiences and reasons related to utilization of PNC services that they shared during the discussion.

Prolonged engagement was ensured; participants were interviewed until data saturation was achieved. This enabled obtaining detailed and credible information pertaining the research question.

Audit trail in which all FGDs and IDIs sessional recordings were tracked and reviewed by more than one member of the research team which ensured consistence and correctness of some of the key steps like transcription, coding and interpretation.

3.5.5. Qualitative Data analysis approach

The qualitative data transcripts were imported into ATLAS.ti software for analysis. The data were analyzed using content analysis using deductive approach and the following steps were undertaken:

The first step was to read the transcripts repetitively to become immersed in the data, familiar with them and gain a full understanding of the interview data. The second step was to identify meaningful statements from phrases and sentences to generate the initial codes. Through this step, all actual data extracts were coded. Next, these meanings and initial codes were then extracted and placed into a table format to collate each code by analyzing their relevance of them. Once the data had been sufficiently coded, the third step was to identify potential themes and sub-themes by combining all the relevant codes and data extracts into categories. The fourth step was to review and modify themes by comparing the external heterogeneity between themes and internal homogeneity within the themes, including the level of coded data extracts and the entire data as a whole. The final step was to prepare the report by selecting vivid examples. The quote examples were reported in participants' own words without any change to ensure precision

3.6. Ethical considerations

Ethical approval to conduct the study was obtained from Busitema University Faculty of Health Sciences Research and Ethics Committee (BUFHS-REC). We also sought administrative clearance from Mbale district Chief Administrative Officer (CAO). Written informed consent was obtained from all participants to participate in the research and for the interview to be audio recorded. We ensured confidentiality by removing identifiable information from the transcripts. All recorded conversations were deleted from the smartphone after transferring them to a password-protected computer.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter presents the results of the study. This chapter presents the findings of the study on the determinants of postnatal care utilization among postpartum women in Mbale District. The results are organized according to the study objectives and are presented using both descriptive and inferential statistical methods. The qualitative data has been presented using direct quotes from the respondents.

4.2 Participant Characteristics

A total of 654 postpartum women were enrolled. The median maternal age was 25 years IQR of 21-30. About one fifth of the postpartum mothers, 17.4% (114/654) were less than 20 years old, majority 52.6% were aged 20-29 years. The majority (90.8%) were married. About 56.0% had attained primary education. The majority (97.6%) of the participants stayed within 2hrs distance to the health facility 97.6% (638/654) and in most households the husband made the decision on postnatal care utilization 67.1%. (Details in Table 4.1)

Table 4.1: Distribution of postpartum women Socio-demographic characteristics

Characteristic	Frequency (Per cent) N=654
Median maternal age (IQR)	25 (21-30)
Maternal age (years)	
<20	114 (17.4%)
20-29	344 (52.6%)
>30	196 (30.0%)
Maternal education	
Primary	366 (56.0%)
Secondary	255 (39.0%)
Tertiary	33 (5.0%)
Median partner age (IQR)	30 (25-37)
Partner age	

<20	137 (20.9%)
20-35	331 (50.6%)
>35	186 (28.4%)
Partner education	
Primary	270 (41.3%)
Secondary	326 (49.8%)
Tertiary	58 (8.9%)
Marital status	
not married	60 (9.2%)
Married	594 (90.8%)
Wealth index	
Poor	218 (33.4%)
Middle	218 (33.4%)
Rich	216 (33.1%)
Time to health facility	
within 2hrs	638 (97.6%)
above 2hrs	16 (2.4%)
Decision making	
Husband	439 (67.1%)
Self	152 (23.2%)
older relative	63 (9.6%)

4.3 Clinical and obstetric characteristics

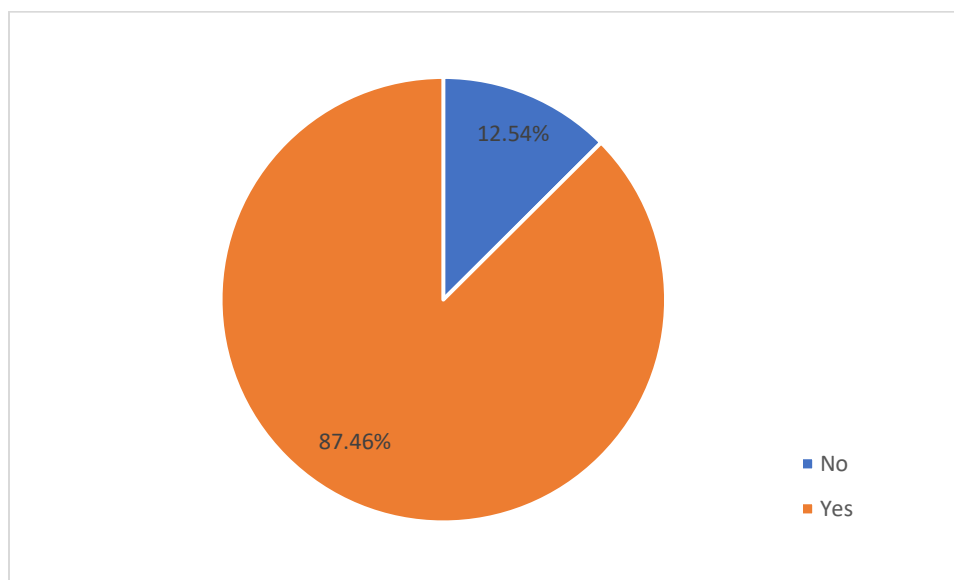
Half (50.0%) the participants were multiparous. Almost all (98.8%) participants attended ANC and majority of the participants had a spontaneous vaginal delivery for their recent birth (80.0%). About 94.6% of the participants gave birth from a health facility and few participants had intrapartum complications 19.1% (125/654) (Details in Table 4.2)

Table 4.2: Distribution of postpartum women by Clinical characteristics

Characteristic	Frequency (Per cent) N=654
Parity	
para one	198 (30.3%)
2-4	327 (50.0%)
5 or more	129 (19.7%)
History of miscarriages	
No	575 (87.9%)
Yes	79 (12.1%)
Antenatal care attendance	
No	8 (1.2%)
Yes	646 (98.8%)
Number of antenatal care visits	
<8	531 (82.2%)
=>8	115 (17.8%)
Mode of birth	
Spontaneous vaginal delivery	523 (80.0%)
Cesarean section	131 (20.0%)
Type of caesarean section	
Emergency	109 (83.2%)
Elective	22 (16.8%)
Place of birth	
Home	35 (5.4%)
Health facility	619 (94.6%)
Recent birth outcome	
Dead	5 (0.8%)
Alive	649 (99.2%)
Type of health facility	
BEmONC	199 (32.1%)
CEmONC	420 (67.9%)

Intrapartum complications		
No	529 (80.9%)	
Yes	125 (19.1%)	
Length of hospital stay after birth		
=<24 hrs	376 (60.7%)	
25-72 hrs	169 (27.3%)	
>72 hrs	74 (12.0%)	
Timing of PNC	Prevalence (%)	CI
Within 24hrs	97.03	0.95-0.98
At 6 days	40.56	0.36-0.45
At 6 weeks	52.97	0.49-0.57

Figure 4.1: Prevalence of postnatal utilization



The prevalence of postnatal care utilization was 87.46% (572/654) (0.85-0.90).

4.4 Facilitators and barriers to postnatal care utilization

In bivariable analysis, the significant determinants of postnatal care utilization included giving birth by cesarean section, developing complications intrapartum and health facility place of giving birth (Details in Table 4.3)

Table 4.3: Bivariable analysis of factors associated with postnatal utilization

Variable	cPR (95%CI)	P-Value
Maternal age (years)		
<20	1.00	
20-29	0.94 (0.87-1.01)	0.086
>30	1.01 (0.93-1.08)	0.893
Maternal education		
Primary	1.00	
Secondary	0.99 (0.93-1.05)	0.631
Tertiary	0.99 (0.88-1.14)	0.987
Partner age		
<20	1.00	
25-35	1.01 (0.93-1.09)	0.869
>35	1.04 (0.96-1.13)	0.326
Partner education		
Primary	1.00	
Secondary	0.95 (0.89-1.01)	0.079
Tertiary	0.98 (0.88-1.08)	0.659
Marital status		
not married	1.00	
Married	1.03 (0.92-1.15)	0.578
Wealth index		
Poor	1.00	
Middle	1.07 (0.99-1.15)	0.070
Rich	1.07 (0.99-1.15)	0.076
Time to health facility		
within 2hrs	1.08 (0.85-1.34)	0.533
above 2hrs	1.00	
Parity		
Para 1	0.94 (0.86-1.01)	0.106

2-4	0.97 (0.90-1.04)	0.348
5 or more	1.00	
History of miscarriages		
No	1.00	
Yes	0.98 (0.89-1.08)	0.705
Antenatal care attendance times		
<8	1.00	
≥8	1.02 (0.94-1.09)	0.688
Mode of birth		
Spontaneous vaginal delivery	1.00	
Cesarean section	1.17 (1.13-1.22)	0.000
Place of birth		
Home	1.00	
Health facility	1.41 (1.09-1.83)	0.008
Recent birth outcome		
Dead	1.00	
Alive	1.46 (0.71-2.99)	0.300
Intrapartum complications		
No	1.00	
Yes	1.09 (1.04-1.16)	0.001

In multivariable analysis, the determinants which were significantly associated with postnatal care utilization included cesarean section mode of delivery, developing intrapartum complications, health facility place of delivery (Details in Table 4.4). Participants who gave birth by cesarean section were 1.16 times likely to receive postnatal care as those who gave birth by spontaneous vaginal delivery (aPR 1.16, 95%CI 1.11-1.22, $p<0.001$). Participants who developed complications intrapartum were 1.09 times likely to receive postnatal care as those who did not develop intrapartum complications (aPR 1.09, 95%CI 1.04-1.16, $p=0.001$).

Table 4.4: Multivariable analysis of factors associated with postnatal utilization

Variable	aPR (95%CI)	P-Value
Maternal age (years)		
<20	1.00	
20-29	0.87 (0.78-0.98)	0.022
>30	0.87 (0.75-1.00)	0.054
Maternal education		
Primary	1.00	
Secondary	1.00 (0.93-1.07)	0.970
Tertiary	1.00 (0.85-1.18)	0.991
Partner age		
<20	1.00	
25-35	1.03 (0.93-1.14)	0.596
>35	1.04 (0.92-1.17)	0.575
Partner education		
Primary	1.00	
Secondary	0.93 (0.87-0.99)	0.039
Tertiary	0.96 (0.84-1.09)	0.500
Marital status		
not married	1.00	
Married	1.01 (0.89-1.14)	0.10
Wealth index		
Poor	1.00	
Middle	1.06 (0.99-1.14)	1.63
Rich	1.06 (0.98-1.15)	1.48
Time to health facility		
within 2hrs	1.09 (0.86-1.39)	0.73
above 2hrs	1.00	
Parity		
Para 1	0.86 (0.75—0.99)	0.03

2-4	0.94 (0.86-1.022)	0.146
5 or more	1.00	
History of miscarriages		
No	1.00	
Yes	0.97 (0.88-1.06)	0.469
Antenatal care attendance times		
<8	1.00	
≥8	1.00 (0.94-1.08)	0.21
Mode of birth		
Spontaneous vaginal delivery	1.00	
Cesarean section	1.16 (1.11-1.22)	<0.001
Place of birth		
Home	1.00	
Health facility	1.28 (1.01-1.61)	0.040
Recent birth outcome		
Dead	1.00	
Alive	1.70 (0.65-4.48)	0.280
Intrapartum complications		
No	1.00	
Yes	1.09 (1.04-1.16)	0.001

4.5 Participants socio-demographics for the qualitative study

This section presents qualitative findings addressing the objective of exploring facilitators and barriers to variations in postnatal care (PNC) utilization among postpartum women in Mbale District, Eastern Uganda. We based on Andersen's behavioral model combined with the Health Belief model that provided deeper sights into the specific psychological and perceptual factors that influence a woman's decision-making process. Themes and sub-themes reflect multi-level influences on PNC uptake, including predisposing factors, beliefs and knowledge, household and gender dynamics, enabling resources (physical, financial, and communication factors), perceived barriers at health facility and community levels and participant-suggested recommendations

A diverse group of **31 participants** drawn from different stakeholder categories relevant to postnatal care participated in the study as displayed in Table 4.5. These included **seven midwives** who participated in a focus group discussion (FGD) of which all actively practicing in maternal health services. Another FGD involved **eight Village Health Team (VHT) members**. In addition, **individual in-depth interviews (IDIs)** were conducted with **14 postpartum women** as well as **two husbands of postpartum women**. Overall, participants reflected a broad range of socio-demographic backgrounds, enhancing the depth and credibility of perspectives captured on postnatal care utilization in the study setting.

Table 4.5: Socio-demographic characteristics of qualitative participants

Characteristic	N (%)
Participant Category	
VHTs	8 (25.8)
Midwives	7 (22.6)
Postpartum women	14 (45.2)
Husbands to postpartum women	2 (6.6)
Age (years)	
<20	3 (9.7)
20-29	12 (38.7)
>30	16 (51.6)

Marital status	
Married	28 (90.3)
Single	3 (9.7)
Religion	
Anglican	20 (64.5)
Catholic	4 (12.9)
Pentecost	6 (19.4)
Moslem	0 (0)
SDA	1(3.2)
Occupation	
None	5 (16.1)
Formal employment	15 (48.4)
Peasant farmer	8 (25.8)
Business	2 (6.5)
Boda rider	1 (3.2)
Level of Education	
Primary	16 (51.6)
Secondary	8 (25.8)
Tertiary	7 (22.6)

4.6: Predisposing Factors

Predisposing factors captured individual-level drivers shaping women's readiness to seek PNC, including beliefs and perceptions about the need for postnatal services, knowledge and awareness (or lack thereof), and the role of health worker instructions and cues for return visits. For example, a woman's prior knowledge or her interpretation of her childbirth experience can strongly determine if she considers a postnatal check-up necessary. These individual factors set the stage for whether PNC is sought at all, before other barriers or facilitators come into play.

4.6.1: Beliefs and Perceptions

Many women often believed that postnatal care is unnecessary after a normal delivery. If both mother and baby appeared healthy, women felt no reason to return to the health facility.

“And when I came to give birth even God was on my side, I just gave birth normally and I didn’t have any problem. No, I didn’t come back (for PNC).” (IDI-Mother-17)

In contrast to normal delivery, participants commonly viewed PNC as necessary mainly for caesarean births, largely due to concerns about wound healing and possible complications. This created a selective interpretation of PNC eligibility in the community only operated mothers felt PNC was really for them, while those with uncomplicated vaginal births did not perceive any need.

“It’s important for those who have been operated because the wound may not be in good condition, so you have to go back so that they check you. But for normal delivery you’re fine.” (IDI-MOTHER-45)

“No. I knew that postnatal services are for the mother who went under operation. Yes, I only knew for the ones who were operated, but if you gave birth normally, you don’t go (back).” (IDI-Mother-23)

4.6.2: Knowledge and Awareness

Some mothers had never heard of PNC or did not understand that the mother requires a postnatal check, whereas others could describe specific postnatal practices and supports. Knowledge was shaped by antenatal education, health worker communication at delivery, and community information channels. This created a pattern where mothers would only visit the facility for child immunization rather than maternal postnatal care.

“After giving birth, they didn’t tell me anything on that they just gave me medicine and then they discharged me.” (IDI-MOTHER-45)

4.6.3: Health Worker discharge Instructions

Mothers often interpreted return visits as necessary **only** when explicitly directed by providers. In many cases, women treated the advice written on their appointment cards or given verbally by the doctor as an authoritative order that they must follow. This perspective highlights how much women rely on provider instructions to signal that PNC is needed.

“I can only come back because it’s a directive from the doctor.” (IDI-MOTHER-16)

4.7: Enabling Factors

Enabling factors included male partner support, physical and financial access to facilities, as well as supportive communication systems (such as emphasis on return dates and follow-up by community health workers). Even if a mother was motivated, she needed practical means and reminders to act on that motivation. For example, if the facility was too far or transport too costly, she might not manage the trip. Conversely, if health workers and VHTs followed up with her, she was more likely to go. This covers the external conditions that either facilitate or hinder the mother in following through with PNC.

4.7.1: Role of male partner/husbands

The role of husbands, significantly influenced postnatal care utilization. Husband permission and support were frequently mentioned as influencing whether transport money was provided, whether the mother felt free to go, and even whether she was reminded of her appointment. In many cases, the husband’s attitude could make or break a mother’s plan to attend PNC. Supportive partners smoothed the way, while unsupportive or indifferent ones created barriers. These findings underscore how gender power relations and domestic support directly affect health-seeking in the postpartum period.

“He didn’t want me to come, but I waited for him when he was coming to town and I also bathed and I came.” (IDI-MOTHER-24)

“On my side he has played a big role because I don’t have a job, so it’s him who gives me transport and also, when I tell him early, it’s him who reminds me whenever I forget... but it depends on how you are connected with your husband.” (IDI-Mother-36)

4.7.2: Role of Community Health Workers (CHWs)

CHWs act as the frontline in keeping new mothers on track with postnatal care. They are supposed to follow-up, monitor mothers who have given birth and remind them their PNC appointments. Effective CHWs follow-up was portrayed as a strong facilitator that reduces forgetfulness and addresses misconceptions at the household level.

“Our main role as village health workers is to make a follow-up. When you stay in the village and you have made serious mapping, you have to know how many mothers are pregnant and how many mothers have given birth in your community. When she has given birth, you have to know have they discharged her from the hospital? You have to do intensive follow-up... and when you do that follow-up, that’s when you will say, ‘No mother, they told you that in these days you should do this, please can you go back (to the hospital).’” (FGD-VHTS)

“Secondly, when we are in the village, we give health education we transform the services that the doctors teach at the health facility into the community and we also do linkages between the hospital and the community. We want to make sure that no one forgets; for example, the issues of nutrition and also breastfeeding the child, we have to teach the mothers. We emphasize that after the mother delivers, ... she should return.” (FGD-VHTS)

4.7.3: Perceived Barriers

Participants described multiple barriers arising from health facility and health systems, as well as from personal attitudes and wider social factors. Often, these obstacles compound one another; for instance, a mother with little family support might also encounter a poorly staffed health facility, making her even less likely to return.

4.7.3.1: Physical and Financial Access

Distance to health facilities and transport-related costs were repeatedly reported as major access barriers, particularly for mothers living far from the health facility where they delivered. For women in remote areas, simply traveling back for PNC can be physically exhausting and financially burdensome, especially so soon after childbirth. Long distances increase the time and cost involved, making a postnatal visit a lower priority amid competing household demands. If a woman has to choose between spending money on transport versus other needs, or if she has no one to help her travel, PNC attendance suffers.

“The reason why I didn’t come back was because I come from far and also that day my husband didn’t have transport.” (IDI-Mother-36)

“Maybe the last one is the issue of transport and I thank my fellow member for that point because someone can give an excuse that I didn’t have transport. So, if the government can look into that issue, then everything will be good.” (FGD-VHTS)

4.7.3.2: Health facility barriers

Health facility-level barriers included lack of designated space for postnatal services, high workload and understaffing, long waiting time, health worker absenteeism in non CEmONC health facilities and general overcrowding. When the health facility is not prepared or equipped to serve postnatal mothers efficiently, women notice the poor quality of service and may decide it’s not worth their effort to come back. Many of these system issues interact: for example, too few staff lead to long waits and overcrowding; lack of a dedicated room leads to hurried exams in inappropriate settings. Collectively, these structural problems at the facility discourage women from utilizing PNC unless they have no other choice.

*“Let me add, sometimes what hinders (PNC) is, structure-wise we are not doing well because **we don't have a postnatal room where we can examine those mothers thoroughly.** We need to do postnatal care, we need an examination room which has a couch, which has machines to take vitals... It has to have many things, but as you look around, most facilities, we don't have a room where we can examine those mothers from.*

We just improvise. So that can also hinder those mothers not to be taken care of.” (FGD-Midwives)).

High workload and competing clinical duties were linked to reduced attention to postnatal clients. At many facilities, the same limited staff are handling deliveries, antenatal clinics, general outpatient duties, and postnatal reviews all at once. This overstretch means postnatal mothers often end up waiting a long time or being hurried through because staff are busy elsewhere. Women described situations where they came for PNC but left without being seen because the provider was tied up with other tasks. Midwives also acknowledged that the person assigned to postnatal clinic is usually multitasking with many activities.

“I took it in a bad way, in that the doctor was very busy and I just said that let me just leave the good thing, I am not feeling bad.” (IDI-MOTHER-23)

“The postnatal midwife... is doing very many things. For example, at my facility a person allocated in the postnatal clinic is having very many activities. By the time we finish those activities, the mothers who have come for check-up are tired... you find that you delay the ones who have come for check-up for six days.” (FGD-Midwives)

Long waiting times were described as costly and even risky for women, especially in contexts where husbands may suspect infidelity or where extended absence leads to domestic conflict. Many participants noted that when women return for PNC, they often spend the entire day at the facility before being seen. This is not only inconvenient, but can also create serious problems at home. In extreme cases, women feared violence from their partners if they came home very late.

“Some women can come early and stay there and wait for too long... the husband can think that you have gone to do your own things.” (IDI-MOTHER-27)

4.7.3.3: Personal Attitudes and Motivation

Participants also described behavioral and motivational factors that reduce adherence to PNC schedules, including **mothers’ own attitudes, forgetfulness, death of the baby and prior negative experiences with health workers**. These are more individual-level barriers they occur

even when external factors might be adequate. Essentially, if a mother does not prioritize PNC, is not reminded, or is discouraged by how she was treated, she may not follow through with return visits.

*“...when these mothers reach home after they have given birth, sometimes **they become lazy**. (But) it’s advisable to go back to the hospital so that they can work on her (check her) so that she can be better....” (FGD-VHTS)*

“My addition was just on the issue of male involvement... If at all these men are told and they know about it like some women may say, ‘I forgot the appointment date’ they (the husbands) will be reminding them and they will really come back.” (FGD-Midwives)

Death of the baby greatly reduced motivation to attend PNC. Losing an infant is devastating, and in such cases, mothers often feel that postnatal clinic is irrelevant especially if their main reason to return would have been for the baby’s check-ups or immunizations. Providers noted that these mothers are still supposed to come for their own health, but most do not.

“No... I didn’t come back for checkups after my baby passed away.” (IDI-Mother-23)

Negative staff behavior such as rudeness, harsh language, or lack of empathy was repeatedly described as discouraging women from returning. Some mothers have experienced disrespectful care during delivery or prior visits, and they remember that when deciding whether to go back. Participants across groups mentioned that certain “tough” or rude health workers scare mothers away from postnatal services.

“Some doctors in the health facility are rude and tough, which can make these mothers fear to come to the health facility.” (IDI-MOTHER-27)

“Another thing... some health workers are very tough on these mothers. So, they end up fearing to go for postnatal.” (FGD-Midwives)

From these qualitative interviews, participants suggested the following recommendations;

1: Strengthen community outreach and education

Respondents emphasized the need for community-based education on the importance of PNC. This included direct outreach by health workers into villages and intensified VHT messaging at the grassroots. The idea is to bring information to mothers where they are, correcting misconceptions like normal delivery means no need for review and informing families about postpartum danger signs and the benefits of postnatal care. By raising awareness in the community, more mothers would seek PNC on their own.

“Maybe (let) doctors go out to the community so that they can teach the mothers the importance of the after-birth services.” (IDI-MOTHER-20)

“I think they need to strengthen the VHTs in the villages so that they can move around the villages spreading the message of the mothers going back to the hospital for postnatal services...” (IDI-MOTHER-27)

2: Address transport and access barriers

Participants proposed solutions such as transport facilitation or refunds to support attendance. The idea is to lessen the financial and logistical burden on mothers, especially those in remote areas or with limited means. Suggestions ranged from the hospital or government providing a small transport stipend on return dates, to community initiatives or partner organizations arranging transport for new mothers.

“What can motivate me and other mothers to come back for services is maybe provision of transport refund and other items... so someone can be motivated to come back because last time she was given some items.” (IDI-MOTHER-27)

3: Improve staffing, supervision, and the PNC service package

Participants especially health workers recommended increasing the number of health workers, improving supervision to reduce absenteeism, and ensuring a comprehensive PNC service package is consistently offered. By adding more staff and making sure they are present and motivated, wait times would decrease and quality would improve.

“I'd like to encourage... for the hospital to add on more health workers so that we can improve on the issue of manpower. Staff are very few, so the services provided to these postnatal mothers who have come back for review is very low, hence making them not get the postnatal services.” (FGD-Midwives)

4: Provide clear, accessible communication materials

Participants proposed developing and distributing written and broadcast communication in both English and local languages (like Lugisu), as well as holding structured counseling sessions (even via radio or online) to improve understanding and adherence. For example, posters or pamphlets in the local language about postnatal care, or radio programs discussing PNC, would spread awareness widely, including to those who are not reached directly by health workers.

“...let them have writings in both English and local language like Lugisu, so that these mothers who don't understand English can also understand the message...” (IDI-MOTHER-27)

“...the ministry maybe could have on-air sessions, like on radios, so that they can teach us how the after-birth services are important... so that the mothers can adhere to them for the best of their health.” (IDI-Mother-17)

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion of results

The study aimed to assess the utilization of postnatal care services among postpartum women in Mbale district. We found that about eight in ten women utilized postnatal care. The key determinants of postnatal care utilization were caesarean section mode of giving birth and developing intrapartum complications.

5.1.1. Prevalence of postnatal utilization

The prevalence of postnatal care utilization was 87.46%. The prevalence according to timing was as follows; within 24 hours was 97.03%, at 6 days was 40.56% and at 6 weeks was 52.97%. The study's 87.46% is higher than the national average reported in UDHS 2022. This could be due to the study's "at least one visit" definition which is broader than the stricter timing-based measure in UDHS. This prevalence is similar to a community based study by Segawa et al in Malawi found a prevalence of 84.8% and also had a sample size of 600 which is within same range with sample size of our study 654 (Sagawa et al., 2021). However, our prevalence is higher than other findings reported elsewhere, for instance a community-based study in Ethiopia found a prevalence of 28.4% (Akibu et al., 2018b), this variation in prevalence could be due the way they defined postnatal care utilization in which they looked at complete postnatal utilization i.e. attending/ receiving all the recommended postnatal care visits and services whereas we looked at utilizing postnatal care services at least once. A high prevalence (97.03%) within 24 hours of giving birth was due to the fact that most women are still in the health facility at the time irrespective of the mode of delivery. At 6 days the prevalence was very low (40.56%) since the mothers are now home and due to the factors, which will be discussed later, are not able to return. At 6 weeks prevalence is still low (52.97%), this is the same time women bring back their children for immunization and when you look at the trends of immunization at 6 weeks are rising steadily but PNC utilization at 6 weeks is low, this means that these women do not receive PNC when they bring children for immunization. This prevalence is good but does not meet the WHO target of 100%. This prevalence is among the higher end in Africa which indicates a high PNC utilization which is life saving and

transformative and very significant to mothers as it indicates that there is early detection of complications, support for breastfeeding, mental health, family planning and reduction in maternal mortality and morbidity. The reported 87.46% prevalence reflects a positive scenario of postnatal care access in the studied population, though it may mask gaps in quality, timing, and completeness of care, which came out as barriers to PNC. When compared to UDHS 2022 and other studies, it underscores the importance of standardizing definitions of postnatal care utilization and improving not just access but also continuity and quality of care. The null hypothesis was rejected because the proportion of women utilizing postnatal care services in Mbale District was significantly different from the national average. The study concluded that PNC utilization in Mbale District was higher than the national average

5.1.2. Facilitators and barriers to postnatal care utilization

Giving birth by cesarean section increased the likelihood of utilizing postnatal care services by 1.16 times as compared with birth by spontaneous vaginal delivery. This finding is consistent with findings of a study in Sierra Leone which found out that the odds of postnatal care utilization were eight times higher among women who gave birth by cesarean section compared to their counterparts that gave birth through vaginally. From the qualitative interviews it came out clearly that women who underwent cesarean section returned for PNC due to the fear of having a wound which needs to be checked while their counterparts who gave birth normally didn't find a need to return for PNC since they and their babies were fine. Another reason was that women who underwent cesarean section spent more time in the health facility and were repeatedly told by different health workers on the importance of returning for PNC. And lastly these women who were operated are discharged by doctors and they took doctors discharge instructions as very important and must be adhered to. Cesarean delivery being a major surgical procedure is associated with higher risks of postoperative complications, prompting more frequent return visits for check-ups. This is good because it helps health care providers to identify possible complications leading to good outcomes. However caesarean section accounts for only about 20% of all deliveries and most mothers deliver by Spontaneous vaginal delivery and end up returning to health facility when complications have developed.

Developing complications during and immediately after giving birth increased the likely hood of utilizing postnatal care services by 1.1 times compared to not developing complications during and immediately after giving birth. This finding is similar to that reported by Konje et al in Tanzania (Konje et al., 2021). This can be explained by the fact that women who experience complications are more likely to seek health care, recognize the importance of follow-up care and easily receive advice from health workers to return for review. In addition, complications may increase concern about one's own health or that of the newborn, which can motivate women to seek postnatal care services more readily than those who do not experience complications.

Place of delivery was also found to affect PNC utilization; it was found that women who delivered from health facility had a natural linkage to PNC since they were told during discharge to return but however during qualitative study it was noted that some women delivered from 13 health facility but were not given clear instructions on returning for PNC and its importance, this was more common with women who had normal delivery and were discharged by midwives. And also to note, some women who delivered in health facility and had good experiences with health workers were motivated to return, however this was the opposite to those who had negative experience with health workers during the time of giving birth.

In comparison to UDHS 2022 findings, cesarean mode of delivery, development of intrapartum complications and health facility place of delivery were consistent with findings of this study however factors like ANC visits ≥ 4 , higher maternal education, urban residence and richer women were linked to higher PNC utilization but were not significant in this study. Other studies had other factors which were not found significant in this study; for example, in Nigeria (NDHS) ANC attendance and urban residence were found to facilitate PNC utilization, in Rwanda, CHW follow up and universal health coverage played a role in increasing PNC uptake.

The qualitative findings reveal that postnatal care utilization in Mbale District is constrained by a complex interaction of individual beliefs, household dynamics, physical and financial barriers, and health system limitations. These barriers significantly undermine timely detection and management of postpartum complications, placing both mothers and newborns at increased risk of morbidity and mortality. A major barrier to PNC utilization is the widespread belief that women who experience a normal vaginal delivery do not require follow-up care since they are fine. Many mothers equated feeling physically well with being medically safe, leading to the perception that

postnatal care is only necessary for caesarean births or when illness occurs. This misconception delays early identification of complications such as postpartum hemorrhage, infections, hypertension, and neonatal conditions that may be asymptomatic in early stages. Poor counseling at discharge and lack of clear explanations about the importance of postnatal visits contributed to low uptake. Many women reported leaving health facilities without being informed that they were expected to return for maternal postnatal review, with emphasis placed instead on infant immunization. Without explicit instructions or written return dates, mothers assumed care had ended. This gap weakens continuity of care and increases the likelihood that maternal health needs go unmet during the critical postpartum period.

Husband permission, financial support, reminders and involvement emerged as a key factor in PNC attendance. In many households, men acted as gatekeepers to healthcare access by controlling transport money and decision-making. Unsupportive or restrictive partners prevented women from attending PNC even when they were willing. This dependence reduces women's autonomy and delays access to care. Distance to health facilities, lack of transport, and inability to afford even small costs posed substantial barriers, particularly for rural women. Physical exhaustion after childbirth combined with long travel distances discouraged return visits. Financial constraints forced families to prioritize immediate household needs over preventive care. These access barriers disproportionately affect poorer women, contributing to inequities in maternal and newborn health outcomes. Health system weaknesses significantly discouraged PNC utilization. These included lack of designated postnatal clinic space, understaffing, high workloads, long waiting times, health worker absenteeism in non CEmONC health facilities and overcrowding. Negative experiences such as rude staff behavior increased fear, frustration, and mistrust of services. When mothers perceive poor service quality and limited benefit, they are less likely to return unless severely ill, resulting in missed opportunities for early intervention and health promotion.

5.2. Strengths and limitations

The use of several approaches for data collection and the triangulation of qualitative and quantitative data are the main strengths of the study because it offers a holistic view for those that ever-used postnatal care. Large sample size increased the power of the study. This study had some limitations. Although the study was conducted within three months postpartum and women's quest to create a good impression about their PNC attendance, this study may have been exposed to

recall and social desirability bias, respectively. Very small number of male participants limits the generalizability of their perspectives. Causality cannot be inferred due to the cross-sectional nature of the study. These limitations were minimized by the use of interviewers who were trained for the study.

5.3. Conclusion

Eight in ten women attended postnatal care but however the prevalence dropped at six days and six weeks. The reported 87.46% prevalence reflects a positive scenario of postnatal care access in the studied population, though it may mask gaps in quality, timing, and completeness of care. Cesarean mode of delivery, developing intrapartum complications and health facility delivery were strong facilitators of PNC utilization. This aligns with findings from UDHS 2022 (Uganda Bureau of Statistics, 2022), Sierra Leone, Tanzania, and globally. The barriers to PNC utilization included individual beliefs and perception that PNC is only for women who underwent caesarean section and unnecessary for those who had normal vaginal birth, lack of knowledge and awareness about PNC services and their importance, lack of clear discharge instructions by health workers, lack of husband support, long distance to health facility, lack of transport, long waiting time, personal attitudes like laziness and forgetfulness, death of baby caused demotivation and prior negative experiences with health workers. Optimization of uptake and utilization of PNC services for mothers and newborns will require the involvement of all stakeholders in the setting. The success of PNC services lies in continuous health education both in communities and health facilities and giving repeated and clear discharge instructions to emphasize the importance of returning for postnatal care.

5.4. Recommendations to strengthen PNC Utilization

- Health education and clear, repeated discharge instructions emphasizing return for PNC and its importance
- There is need to strengthen efforts towards improving PNC utilization at 6 days and 6 weeks for example designating a space in the health facility specifically for PNC and allocating a staff to attend to postnatal mothers to reduce the delay and waiting time. This can also coincide with some of the immunization schedules for the child

- There is need to prepare and equip health facilities so that they are ready to provide quality PNC services and to promptly manage complications in postpartum period
- Discharging officers should be of mothers should be told to remind the mothers the different PNC timetable a mother should follow.

5.5 Recommendations for further study

Another study should be conducted to find look for male partners and get their perspective on PNC since it was noted that they play a big role in facilitating a woman to seek PNC services.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

PROTOCOL TITLE: Determinants of postnatal care utilization among postpartum women in eastern Uganda: a community-based cross-sectional study

PRINCIPAL INVESTIGATOR: Lunyolo Susan

1.PURPOSE: Why is this research study being conducted?

This study will identify the facilitators and barriers to utilization of postnatal care services ie services provided to a woman and baby after birth. This will inform leaders of Mbale district to formulate and implement focused interventions to promote the use of postnatal care services so that it contributes to ending of preventable maternal and perinatal death.

2.INVESTIGATORS: Who is conducting this research study, and where is it being conducted?

This study will be conducted by Lunyolo Susan-Principal investigator (MPH student Busitema University), other investigators are; Professor Julius Wandabwa (Busitema University) and Assoc. Professor Milton Musaba (Busitema University). The study will be conducted in four subcounties of Bungokho South constituency i.e. Bukiende, Bumasike, Busiu and Lukhonge of Mbale district.

3.POPULATION: How are individuals selected for this research study? How many will participate?

This study will recruit women who have given birth within three months irrespective of type, place and outcome of delivery. This research study will recruit over 600 postpartum women. You will be requested to participate in this study while at your home but we may also invite you for further discussions.

4.PERIOD: For how long will this research study take place? How long am I expected to participate in this study?

This study is expected to be carried out over a period of two months. You will be required to participate at two different points that is during personal interviews at your home and group interviews at a selected and convenient venue.

5.PROCEDURES: What will take place in this study? What do I have to do if I am in this research study?

When you agree to participate in the study by signing at the bottom of this form, you will be asked some questions about your health and use of services provided to women and their babies after giving birth. Our trained study team will interact with you will filling a questionnaire then you may be selected to participate in a group discussion during which you will further discuss on facilitators and barriers to use of postnatal care services.

6.RISKS: What are the risks of this research study? What could go wrong?

There are no anticipated harm or risks to you in participating in this study.

7. BENEFITS: What are the benefits of this research study?

There might not be any direct benefit to you from this study. However, we will use the information obtained from you to inform the leaders of Mbale district on the facilitators and barriers to use of postnatal care services which will help them

8. COSTS: What costs are associated with the research study? Will I receive payments/compensation or incentives?

You will not be required to pay to participate in this study. Participation is entirely voluntary and you will also not be paid to participate. You will however be given 20,000 Ugandan Shillings to compensate for your time.

9. PARTICIPANT’S RIGHTS: What are my rights as a research participant?

(a). Voluntariness: Do I have to participate in the research study?

Participation in this study entirely voluntary and refusal to participate will in no way affect current or future postnatal care received.

(b). Alternatives: If I do not want to take part in this research study, what are the other choices?

At any time during the study, you may choose to withdraw this consent and discontinue your participation in this study. To withdraw your consent, you must contact the study personnel.

(c). Withdrawal: Do I have to continue participating in the research study even when I don't want to?

No, you may withdraw your participation at any time with no penalty.

(d). Privacy: How will your privacy be observed?

You will agree with the research assistant on the convenient place within the household which provides privacy to conduct the interview away from other household members.

(e). Confidentiality: How will your data be protected? Who may see, use or share your health information?

Please note that we shall not share any identity of those participating in the study. The information we collect during this study will be kept strictly confidential. Information collected about you will be stored safely and no one but only the responsible researchers will be able to access it. Any information about you will be de-identified to a number instead of a name. It is only researchers who will know what your number is, and we will keep that information under lock and key.

10. CONTACTS: Who do I contact in case of any questions or concerns?

Contact Lunyolo Susan, Principal investigator, MPH student, Busitema University for any other questions or concerns you may have about this study: OR Contact Dr. Richard, Chairperson, Busitema University Faculty of Health sciences Research Ethics Committee (BUFHSREC) on +256 7011544444 for concerns with participants' rights and other ethical-regulatory issues.

DOCUMENTATION AND AUTHORIZATION OF INFORMED CONSENT

What does my signature or thumbprint on this consent form mean?

- I have read this consent form and was given enough time to consider the decision to participate in this study.
- This research study has been satisfactorily explained to me, including possible risks and benefits.
- All my questions were satisfactorily answered.

- I understand that participation in this research study is voluntary and that I can withdraw at any time.
- I am signing this consent form prior to participation in any research activities.
- I give voluntarily my permission to participation in this research study
- I will be provided a copy of the fully signed consent form for my reference

Name of **Participant (PRINT)** Participant's Signature/Thumbprint
Date (DD/MM/YYYY)

Name of **Investigator/Associate (PRINT)** Signature of **Investigator/Associate**
Date (DD/MM/YYYY)

Witness Statement & Signature (If Required)

I confirm that the information in this consent form was accurately explained to, and understood by the participant, parent and/or guardian as required, and that informed consent was voluntarily given.

■ _____

Name of **Witness (PRINT)** Signature of **Witness**
Date (DD/MM/YYYY)

Instruction to the researcher/ research assistant: Circle the participants' responses, write the code of the participant's response appropriately in the box provided and where applicable write the required responses in the spaces provided.

HOUSEHOLD No:

VILLAGE:

PARISH:

SUB-COUNTY:

INTERVIEWER'S INITIALS:.....

SIGNATURE OF INTERVIEWER:.....

DATE:.....

Title: Determinants of Postnatal Care Utilization Among Postpartum Women in Mbale District

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

(Interviewer: Tick responses or write answers in the spaces provided.)

No.	Question	Response Options
101	Date of birth: (Month/Year)	Month: _____ Year: _____ Don't know: _____
102	How old were you at your last birthday?	_____ years

No.	Question	Response Options
103	Have you ever attended school?	1 = Yes: ☐ 2 = No: ☐ → Skip to 106
104	Highest level of education attained:	1 = Primary ☐ 2 = "O" Level ☐ 3 = "A" Level ☐ 4 = Tertiary ☐ 5 = University
105	Highest class/year completed at that level:	_____
106	Has your spouse/partner ever attended school?	1 = Yes ☐ 2 = No ☐ → Skip to 108
107	Spouse's highest level of education:	1 = Primary ☐ 2 = "O" Level ☐ 3 = "A" Level ☐ 4 = Tertiary ☐ 5 = University
108	Religion:	1 = Anglican ☐ 2 = Catholic ☐ 3 = Muslim ☐ 4 = Seventh-Day Adventist ☐ 5 = Pentecostal/Born-Again 6 = Other (specify): _____
109	Marital status:	1 = Never married ☐ 2 = Married/Cohabiting ☐ 3 = Divorced/Separated ☐

No.	Question	Response Options
		4 = Widowed 5 = Other: _____
110	Distance to nearest health facility:	1 = 0–2 km ☐ 2 = 3–5 km ☐ 3 = 6–10 km ☐ 4 = ≥11 km ☐
111	Your occupation:	1 = Unemployed ☐ 2 = Farmer ☐ 3 = Business ☐ 4 = Civil Servant ☐ 5 = Housewife 6 = Other: _____
112	Spouse's occupation:	1 = Unemployed ☐ 2 = Farmer ☐ 3 = Business ☐ 4 = Civil Servant ☐ 5 = Housewife 6 = Other: _____
113	Household sources of income: <i>(Multiple answers allowed)</i>	1 = Crop farming ☐ 2 = Livestock ☐ 3 = Formal employment ☐ 4 = Business ☐ 5 = Remittances 6 = Other: _____

No.	Question	Response Options
114	Main income source for household:	1 = Crop farming ☐ 2 = Livestock ☐ 3 = Formal employment ☐ 4 = Business ☐ 5 = Remittances 6 = Other: _____
115	Who is the head of this household?	1 = Self ☐ 2 = Spouse ☐ 3 = Other: _____
116	Who makes final healthcare utilization decisions?	1 = Self ☐ 2 = Spouse ☐ 3 = Joint (self + spouse) ☐ 4 = Other: _____

SECTION B: REPRODUCTIVE HISTORY

No.	Question	Response Options
201	Have you ever given birth?	1 = Yes ☐ 2 = No ☐ → End interview
202	In which month and year did you give birth to your last born?	Month: _____ Year: _____ Don't know: _____
203	Which number is the last born?	_____

No.	Question	Response Options
204	During pregnancy of your last born, did you see anyone for antenatal care?	1 = Yes ☐ 2 = No ☐
205	Whom did you see?	1= Doctor ☐ 2= Midwife/Nurse ☐ 3= Clinical Officer ☐ 4= Nursing assistant ☐ 5= Traditional birth attendant ☐ 6= VHT ☐
206	Living children residing with you:	Sons: _____ Daughters: _____ (00 if none)
207	Living children not residing with you:	Sons: _____ Daughters: _____ (00 if none)
208	Children born alive but later died:	Sons: _____ Daughters: _____ (00 if none)
209	Total births (Sum Q206-209):	Total: _____

SECTION C: POSTNATAL CARE (PNC) KNOWLEDGE

No.	Question	Response Options
301	Have you heard of care women receive after giving birth (postnatal care)?	1 = Yes ☐ 2 = No ☐ → Skip to Q307
302	How did you hear about postnatal care? (Multiple answers)	1 = Health worker ☐ 2 = Radio/TV ☐ 3 = Friends/Relatives ☐ 4 = Other: _____
303	Which services are offered to mothers after giving birth? (Multiple answers)	1 = Vital signs check ☐ 2 = Family planning ☐ 3 = Nutrition counseling ☐ 4 = Other: _____
304	Which postnatal care services are offered to newborns: (Multiple answers)	1 = Immunization ☐ 2 = Cord care ☐ 3 = Breastfeeding support ☐ 4 = Other: _____
305	Recommended postnatal care visits for mothers:	1 = Once ☐ 2 = 2–3 times ☐ 3 = ≥ 4 times ☐
306	Recommended postnatal care visits for newborns:	1 = Once ☐ 2 = 2–3 times ☐ 3 = ≥ 4 times ☐
307	Do you Know maternal danger signs after birth?	1 = Yes ☐ 2 = No ☐ → Skip to Q401

No.	Question	Response Options
308	List danger signs known: <i>(Multiple answers)</i>	1 = Bleeding ☐ 2 = Convulsions ☐ 3 = Lower Abdominal Pains ☐ 4 = Fever ☐ 5 = Severe headache ☐ 6 = Failing to breastfeed ☐ 7 = Umbilical cord infection ☐ 8 = Other _____

SECTION D: POSTNATAL CARE UTILIZATION

(Questions 35–54 follow the same streamlined format, focusing on the place of delivery, PNC checks, and service providers.)

No.	Question	Response Options
401	Where did you deliver your last baby?	1 = Home (own home) ☐ 2 = Home (other home) ☐ 3 = Public health facility ☐ 4 = Private health facility 5 = Other (specify): _____
402	By which means did you deliver your baby?	1 = Normal vaginal delivery ☐ 2 = caesarean section ☐
403	How long did you stay at the delivery location after birth?	1 = Hours: _____ 2 = Days: _____ 3 = Weeks: _____ 4 = Don't know: _____
404	Was the baby placed skin-to-skin on your chest immediately after birth?	1 = Yes ☐ 2 = No ☐

No.	Question	Response Options
405	Did any health worker check your health before discharge?	1 = Yes ☐ 2 = No ☐
406	When was your first postnatal check?	1 = Within 1 hour ☐ 2 = 1-24 hours ☐ 3 = 1-7 days ☐ 4 = I don't know ☐
407	Who performed this check?	1 = Doctor 2 = Nurse/Midwife ☐ 3 = Clinical Officer ☐ 4 = Nursing Assistant ☐ 5 = Traditional Birth Attendant ☐ 6 = Village Health Team ☐ 7 = Other: _____ ☐
408	After leaving facility, did anyone check your health?	1 = Yes ☐ 2 = No ☐
409	How long after delivery did that check take place?	1 = Hours ☐ 2 = Days ☐ 3 = Weeks ☐ 4 = I don't know ☐
410	Who checked on your health at that time?	1 = Doctor ☐ 2 = Nurse/Midwife ☐ 3 = Clinical Officer ☐ 4 = Nursing Assistant ☐ 5 = Traditional Birth Attendant ☐ 6 = Village Health Team ☐ 7 = Other: _____ ☐

No.	Question	Response Options
411	Where did the check take place?	1 = Home (own home) ☐ 2 = Home (other home) ☐ 3 = Public health facility ☐ 4 = Private health facility 5 = Other (specify): _____
412	When was the baby's first check after discharge?	1 = Hours ☐ 2 = Days ☐ 3 = Weeks ☐ 4 = I don't know ☐
413	Who checked the baby's health after discharge?	1 = Doctor ☐ 2 = Nurse/Midwife ☐ 3 = Clinical Officer ☐ 4 = Nursing Assistant ☐ 5 = Traditional Birth Attendant ☐ 6 = Village Health Team ☐ 7 = Other: _____
414	Where was baby checked from?	1 = Home (own home) ☐ 2 = Home (other home) ☐ 3 = Public health facility ☐ 4 = Private health facility 5 = Other (specify): _____

No.	Question	Response Options
415	During the first two days after baby's birth, did any health care provider do the following	a) Cord examination 1 = Yes ☐ 2 = No ☐ b) Temperature check? 1 = Yes ☐ 2 = No ☐ c) Danger signs counseling? 1 = Yes ☐ 2 = No ☐ d) Breastfeeding counseling? 1 = Yes ☐ 2 = No ☐ e) Breastfeeding observation? 1 = Yes ☐ 2 = No ☐

Closing:

"Thank you for sharing your experiences. This information will help improve maternal and newborn care services in our community."

APPENDIX II: FGD GUIDE

FOCUS GROUP DISCUSSION GUIDE FOR MIDWIVES AND VHTS

DETERMINANTS OF POSTNATAL CARE SERVICE UTILIZATION AMONG POSTPARTUM WOMEN IN EASTERN UGANDA: A COMMUNITY-BASED CROSS- SECTIONAL STUDY

Date of interview

Venue.....

Language of interview.....

Number of participants.....

Participant group:(Circle one) Midwives/ VHTs

Time started.....

Time ended.....

FGD identifier

TEAM INTRODUCTION

Thank you for agreeing to participate in the study of determinants of postnatal care service utilization among postpartum women in eastern Uganda. We are now set to begin our discussion. Let us introduce ourselves so we get to know who is participating in this discussion. I am and I am with you today to lead the discussion. My colleague will be taking notes during the discussion. As I mentioned, the entire session will be audio-recorded. To protect everyone's privacy, we will use numbers only in referring to individuals. Your response will not be linked to you personally, so feel free to say whatever is on your mind. Let's begin this side (moderator points to the right side). Please tell us your name, where you come from and your expectations from this discussion. We will go round like this (moderator demonstrates in a clockwise fashion) until each of us has introduced him/herself.

GROUND RULES

Before we begin, let's remind ourselves of the following rules that each of us should respect if we are to have a meaningful discussion:

1. Participation in the focus group is voluntary.
2. It's alright to abstain from discussing specific topics if you are not comfortable.
3. All responses are valid- there are no right or wrong answers.
4. Please respect the opinions of others even if you don't agree.
5. Try to stay on topic; we may need to interrupt so that we can cover all the material.
6. Speak as openly as you feel comfortable.
7. Avoid revealing very detailed information about your personal health.
8. Help protect others' privacy by not discussing details outside the group.

Section A: Warm up questions

1. Tell me about yourself?
2. How long have you worked or stayed in this health facility or community?
3. Could you briefly tell me about your role and experience working with postpartum women in this community?

Section A: Awareness and Knowledge of PNC Services

4. In your opinion, how aware are postpartum women in this community about the availability and importance of PNC services?
5. What are the common sources of information that women rely on to learn about postnatal care?

Probes: -Do they get information from health facilities, traditional birth attendants, or other community sources?

-Are there any gaps in the information provided to women during pregnancy and after birth?

Section B: Barriers to PNC Utilization

6. What are the main challenges women face in accessing PNC services in this area?

Probes: -Is distance to health facilities a significant barrier?

-Do women often face transportation difficulties, especially in rural areas?

-Do financial constraints, such as costs for transportation or healthcare fees, prevent women from seeking postnatal care?

-Are there cultural or traditional beliefs that influence whether women seek PNC?

7. What is your assessment of the quality of PNC services available at health facilities in Mbale District?

Probes: -Are there any issues with the quality of care that might discourage women from attending PNC visits?

-Do women feel that they receive adequate attention, or are there concerns about overcrowding, wait times, or insufficient care?

Section C: Facilitators of PNC Utilization

8. How do family members, particularly husbands, influence whether women attend PNC appointments?

Probes: -Is there enough community support for women to access PNC services?

-What role do community-based workers like VHTs play in encouraging women to use PNC?

9. What strategies or interventions have you seen that help improve PNC uptake in this community?

Probes: -How effective have community outreach programs been in promoting PNC?

-What role do VHTs or midwives play in educating women about the benefits of PNC?

10. What efforts are made by healthcare providers (e.g., midwives) to encourage women to return for PNC after birth?

Probes: -Are there any counseling or follow-up practices that you use to motivate women to attend PNC visits?

11. How would you describe the healthcare system's approach to postnatal care in this district? Are there any areas of improvement you see?

Probes: -Are there adequate resources, staff, and facilities to provide good PNC services?

-Are there any policies or programs that you think have successfully increased PNC utilization in this community?

Section D: Suggestions for improvement

12. What changes or improvements would you recommend to increase PNC utilization among postpartum women in this district?

Probes: -What can be done to improve the accessibility, affordability, and quality of PNC services?

-How can community involvement, such as through VHTs, be strengthened to support PNC utilization?

Section E: Final thoughts

13. Is there anything else you think is important for us to understand regarding the factors that influence PNC utilization in this community?

Conclusion

Thank you very much for sharing your thoughts and experiences. Your insights are very valuable and will help improve postnatal care services in Mbale District.

If you have any questions or would like to add anything, please feel free to do so.

APPENDIX III: IDI GUIDE

IN-DEPTH INTERVIEW GUIDE FOR POSTPARTUM WOMEN

DETERMINANTS OF POSTNATAL CARE SERVICE UTILIZATION AMONG POSTPARTUM WOMEN IN EASTERN UGANDA: A COMMUNITY-BASED CROSS- SECTIONAL STUDY

Date of interview

Venue.....

Language of interview.....

Time started.....

Time ended.....

In-depth interview identifier.....

PARTICIPANTS' SOCIO-DEMOGRAPHIC INFORMATION

1. Age.....
2. Occupation.....
3. Educational background
4. Category of IDI
 - Postpartum woman

Section A: Introduction

Hello [Participant Name], my name is [Interviewer Name]. We spoke with you previously as part of our study on maternal health. Thank you again for your time then.

Today, I'd like to have a more in-depth conversation with you about your experiences and thoughts on care given to mothers and babies after childbirth, known as postnatal care. The goal is to better understand what helps or hinders women from getting this care. There are no right or wrong answers; we are just interested in your personal story and opinions.

As before, this conversation is confidential, and you can choose not to answer any question or stop the interview at any time. Do I have your permission to continue?

This will feel more like a conversation and will take about 45-60 minutes.

Section B: Knowledge and Perceptions of Postnatal Care

1. In your own words, let's recap on what you understand by postnatal care?

Probes: -When should a woman attend postnatal care after giving birth

-What kind of services are offered during postnatal care

2. In your opinion, how important is postnatal care for mothers and newborns?

Section C: Experiences/ utilization of Postnatal Care Services

3. Did you attend postnatal care after your recent delivery?

4. For those who attended PNC: What was the final factor that made you decide to go for your postnatal check-up? Was it an easy or difficult decision?

Probes: - How would you describe your experience at the facility during your last PNC visit?

-How were the health workers' attitudes and communication?

- Were the services provided helpful to you and your baby? Please explain

5. For those who **did not** attend PNC: Can you walk me through the reasons why you did not go for a postnatal check-up?

Probes: What was the single biggest challenge you personally faced in considering or attending postnatal care?

Section D: Barriers to Postnatal Care Attendance

6. What makes it difficult for mothers to attend postnatal care? (Probes: Distance or transport challenges, cost, health worker attitudes, long waiting times, lack of awareness, cultural beliefs, family influences, household duties)
7. How do community beliefs or norms affect mothers' decisions to attend PNC?
8. Are there any health facility-related issues that discourage women from returning for PNC?

Section E: Facilitators or Motivators for Attendance

9. What factors encourage mothers to attend postnatal care?

Probes: Support from husband/family, good quality of care, positive attitudes of health workers, health education, peer influence, community health workers

10. What could health facilities or communities do to make it easier for mothers to attend PNC?

11. How can awareness about postnatal care be improved in your community?

Section F: Recommendations

12. What changes or improvements would you suggest to increase attendance at postnatal care services?

Probes: - If you were the Minister of Health for a day, what is the one thing you would change to improve care for mothers after they have a baby?

- If you could give advice to the leader of your local health facility about how to get more new mothers to come for check-ups, what would you say?

13. How can health workers, community leaders, and families support mothers to attend PNC?

Section G: Closing

Thank the participant for their time and contribution.

Ask if they have any questions or final thoughts.

APPENDIX IV: IN-DEPTH INTERVIEW GUIDE FOR HUSBANDS TO POSTPARTUM WOMEN

DETERMINANTS OF POSTNATAL CARE SERVICE UTILIZATION AMONG POSTPARTUM WOMEN IN EASTERN UGANDA: A COMMUNITY-BASED CROSS-SECTIONAL STUDY

Date of interview

Venue.....

Language of interview.....

Time started.....

Time ended.....

In-depth interview identifier.....

PARTICIPANTS' SOCIO-DEMOGRAPHIC INFORMATION

5. Age.....

6. Occupation.....

7. Educational background

8. Category of IDI

- Husband to postpartum woman

Introduction to the Interview:

Hello [Participant Name], my name is [Interviewer Name]. Thank you for taking the time to participate in this interview. We are seeking to understand the reasons behind the variations in postnatal care (PNC) utilization among postpartum women in this district. Your insights as a husband to a postpartum woman will help us identify barriers and potential solutions to improve PNC services.

All information shared today will be kept confidential, and your responses will be used to inform improvements in healthcare delivery.

There are no right or wrong answers; we are just interested in your personal story and opinions. This will feel more like a conversation and will take about 45-60 minutes. Do I have your permission to continue?

Section A: Warm up questions

1. Tell me about yourself
2. Could you tell me briefly about your role and experience during pregnancy, birth and after birth period of your wife?

Section B: Knowledge and Perceptions of Postnatal Care

3. In your opinion, what do you understand by postnatal care?

Probe: Can you tell me what services are included in postnatal care?

4. Where did you first learn about postnatal care services?

Probe: How would you describe the quality of this information?

5. In your opinion, why is postnatal care important for a new mother?

Probe: How do you think postnatal care affects the health of the mother and child?

6. Do you know where you/ your wife can access postnatal care in your community?

Probe: What specific services are available?

7. How do you feel about your wife attending postnatal care visits?

Probe: Do you believe postnatal care services are necessary for her well-being? Why or why not?

8. Are there any cultural or community beliefs that influence whether or not women should use postnatal care services?

Probe: How do these beliefs affect your decision or your wife's access to such care?

9. Do your family members or friends encourage or discourage postnatal care for you/your wife?

Probe: How do their views impact your decisions about whether you/ your wife should use postnatal care services?

Section C: Experiences/ utilization of Postnatal Care Services

10. Did your wife receive postnatal care services after childbirth? If yes, how many visits did she make to health facilities?

Probe: Where did she go for postnatal care?

11. What motivated you to ensure that your wife received postnatal care?

Probes: What factors, if any, influenced your decision to take your wife to the health facility for postnatal care?

12. Were there any challenges or barriers you/ your wife encountered when trying to access postnatal care services?

Probe: What were the reasons for these barriers?

Section D: Barriers to Postnatal Care Attendance

13. What makes it difficult for mothers to attend postnatal care? (Probes: Distance or transport challenges, cost, health worker attitudes, long waiting times, lack of awareness, cultural beliefs, family influences, household duties)
14. How do community beliefs or norms affect mothers' decisions to attend PNC?
15. Are there any health facility-related issues that discourage women from returning for PNC?

Section E: Facilitators or Motivators for Attendance

16. What factors encourage mothers to attend postnatal care?
- Probes: Support from husband/family, good quality of care, positive attitudes of health workers, health education, peer influence, community health workers*
17. What could health facilities or communities do to make it easier for mothers to attend PNC?
18. How can awareness about postnatal care be improved in your community?

Section F: Recommendations

19. What changes or improvements would you suggest to increase attendance at postnatal care services?

Probes: - If you were the Minister of Health for a day, what is the one thing you would change to improve care for mothers after they have a baby?

- If you could give advice to the leader of your local health facility about how to get more new mothers to come for check-ups, what would you say?

13. How can health workers, community leaders, and families support mothers to attend PNC?

Section G: Closing

Thank the participant for their time and contribution.

Ask if they have any questions or final thoughts.

APPENDIX V: STUDY TIMELINE

Activity	Output	Responsible Office	2024				2025									
			N	D	J	F	M	A	A	M	J	J	A	S	O	N
Develop and submit Research concept to Department of Public and Community Health for approval	Approved Research Concept	Lunyolo Susan	X	X												
Develop and submit Research proposal to Department of Public and Community Health for approval	Complete Research proposal approved by the Department	Lunyolo Susan	X	X	X	X										
Submit Research Proposal to Higher Degrees Committee for Approval	Approval for the research proposal obtained from HDC	Lunyolo Susan with support of university supervisors					X	X								
Submission of Research proposal to Busitema University Research Ethics committee for ethical approval	Ethical Approval letter obtained from REC	Lunyolo Susan							X	X						
Data collection, cleaning and entry	Appropriate Study data available	Lunyolo Susan Research Assistants									X	X				
Data analysis, and presentation of results	Study Results obtained from the data	Lunyolo Susan with support of supervisor											X	X		

Research Report writing	Draft thesis report	Lunyolo Susan with support of university supervisors															X	X		
Presentation of Research Report to Department for Approval	Research report approved by the department	Lunyolo Susan with support of university supervisors																X	X	
Present and Defend the Thesis report	Thesis report approved by HDC	Lunyolo Susan with support of university supervisors																	X	X
Submission of Final Thesis Report to the University	3 copies of Thesis submitted to the University	Lunyolo Susan with support from the university supervisors																		X

APPENDIX VI: BUDGET

Output	Responsible Office	Resources	Estimated Budget (US\$)	Source	Personnel	Materials & Supplies
Approved Research Concept	Lunyolo Susan	Laptop, internet connection and data, stationery, Attend lecturers	4,000,000	DAAD		4,000,000
Complete Research proposal approved by the Department	Lunyolo Susan	Laptop, internet connection and data, stationery, Attend lecturers	-	Self		

Approval for the research proposal obtained from HDC	Lunyolo Susan with support of university supervisors	Stationery, printing and binding	100,000	Self		100,000
Ethical Approval letter obtained from REC	Lunyolo Susan	Stationery, printing and binding	200,000	Self		200,000
Translation of data collection tools and Data collection	Lunyolo Susan, Research Assistants	Stationery, printing, internet, airtime, allowance for research assistants, transport reimbursement and refreshments for study participants	6,000,000	Self	5,000,000	1,000,000
Data analysis	Lunyolo Susan with support of the supervisors	Laptop, internet, software, meals	1,500,000	Self	1,000,000	500,000
Draft thesis report	Lunyolo Susan with support of the supervisors	Laptop, internet, stationery, meals	1,500,000	Self		1,500,000
Research report approved by the department	Lunyolo Susan with support of the supervisors	Laptop, internet, transport, meals	500,000	Self		500,000
Thesis report approved by HDC	Lunyolo Susan with support of supervisors	Laptop, internet, meals	500,000	Self		500,000

3 copies of Thesis submitted to the University	Lunyolo Susan with support of the supervisors	Stationery, printing, binding	100,000	Self		100,000
Total (UGX)					6,000,000	8,400,000
Total (US\$)					1,622	2,243