

**Factors associated with utilisation of postnatal care services in Lwengo sub-county, Lwengo district, Uganda: A cross-sectional study.**

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**ABSTRACT****Introduction**

Postnatal care is the support provided to mothers and their newborns from the time of birth up to six weeks afterward. This period is crucial because many mothers and babies die during these weeks. Despite being a vital part of mothers' and children's health, postnatal care (PNC) continues to be one of the most neglected aspects of reproductive health programs.

**Objective**

The primary aim of the study was to investigate the factors associated with the utilization of post-natal care services from 2002 to 2025 in Lwengo sub-county, Lwengo District.

**Methods**

The study was conducted in Lwengo Sub-County. A total of 370 mothers participated in this research. Quantitative data were gathered through questionnaires with 250 mothers, while qualitative data were obtained via semi-structured interviews and focus group discussions with 120 mothers and healthcare workers, using Simple Random Sampling. Quantitative data were analysed by logistic regression, and qualitative data by content from descriptions by participants.

**Results**

Mothers who did not know the PNC services they were supposed to receive after birth were 59% less likely to attend compared to mothers who knew the services offered after delivery. Mothers who had no check-ups at a health facility while pregnant were 65% less likely to attend the PNC services compared to those who had check-ups during pregnancy. The qualitative analysis of interviews reported the major obstacles to uptake for the PNC services by mothers from the key informant interviews included a lack of knowledge about PNC services, a lack of designated rooms purposely for postnatal services, and the behaviour of some midwives towards the mothers.

**Conclusion**

57.6% of participants used PNC services. Key determinants included awareness of PNC, proximity to health facilities, and facility readiness.

**Recommendations**

Deploying more midwives, improving facility infrastructure, and enhancing community education on PNC by the Government of Uganda.

**Keywords:** Postnatal care, Post-Birth Services, Knowledge, Content, Focus Group discussions, Interviews.

**Submitted:** 2025-08-20

**Accepted:** 2025-08-30

**Published:** 2025-09-01

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**Background**

Postnatal care is the support provided to mothers and their babies from the time of birth up to six weeks afterward. This care is very critical because many maternal and neonatal deaths occur during this period. Postnatal care (PNC) is a critical component of Maternal and Child Health, yet it remains one of the weakest areas in reproductive health programs. Globally, in 2017, a total of

295,000 mothers worldwide died due to complications arising during the postpartum period. In contrast, high-income countries like the UK have well-established PNC systems that ensure mothers and newborns receive comprehensive support immediately after birth. In London, for instance, mothers delivering at birth centers are monitored by midwives, provided with breastfeeding guidance, and discharged within 6-8 hours if there are no

complications. The 2022 Uganda Demographic and Health Survey found that the Maternal Mortality Ratio (MMR) is 189 per 100,000 live births, while the Neonatal Mortality Rate (IMR) is 22 per 1,000 live births. These figures significantly exceed the targets set by the National Development Plan III and Sustainable Development Goal 3, which aim for an MMR of 70 per 100,000 and an IMR of 12 per 1,000 live births. In Lwengo Sub-county, the use of postnatal care services remains low, and there is limited evidence available to assess the factors influencing their utilization in this area of Lwengo District.

Globally, in 2017, a total of 295,000 mothers worldwide died due to complications arising during the postpartum period (Tigist et al., 2024). In contrast, high-income countries like the UK have well-established PNC systems that ensure mothers and newborns receive comprehensive support immediately after birth. In London, for instance, mothers delivering at birth centers are monitored by midwives, provided with breastfeeding guidance, and discharged within 6-8 hours if there are no complications. For more complex cases, mothers are transferred to postnatal wards for 24-48 hours, where they receive additional care, including newborn examinations and labelling for identification. Home births are also supported, with midwives offering postnatal visits and health visitors providing long-term support until the child reaches school age (NHS Digital, 2018).

In Sweden, postnatal care plays a crucial role in supporting a healthy transition to motherhood, fostering mother-infant bonding, and promoting successful breastfeeding. While mothers and their families greatly appreciate this care, it is frequently an area where parents express lower satisfaction compared to other aspects of maternity services (Panellmogen, Whyte et al., 2024).

Additionally, in the 1970s, healthy women in Sweden typically remained in the hospital for at least a week after giving birth. Today, however, many are discharged just six hours after delivery without staying in postnatal care units. Instead, they care for themselves and their newborns at home, often with support from their partners. As a result, the duration of postnatal care stays in Sweden has significantly declined over time (Panellmogen, Whyte et al., 2024).

In Africa, however, PNC is often influenced by cultural practices, which can hinder timely and effective care. Many communities observe traditions such as keeping mothers and newborns indoors for the first month, delaying healthcare-seeking behaviors, and engaging in harmful practices like discarding colostrum or applying unsafe substances to the umbilical stump. These practices contribute to high maternal and neonatal mortality rates, with half of maternal deaths occurring within the first week postpartum, primarily due to hemorrhage and sepsis (WHO, 2018).

The postnatal period is the most delicate time for both mothers and newborns. Inadequate care during this period can lead to death, disability, or missed opportunities to promote healthy behaviors. For mothers, the leading causes of mortality during this period include hemorrhage (34% of deaths) and sepsis (10% of deaths). For newborns, delays in seeking care can be fatal, as illnesses often progress rapidly within the first few hours of life. Despite these dangers, a large number of women in Africa still deliver outside the health facilities, making it difficult to provide effective PNC services.

In Ethiopia, for example, fewer than 6% of women give birth in health facilities, and only 10% receive PNC within two days after childbirth. Likewise, in Tanzania, just 10.4% of mothers and newborns receive comprehensive postnatal care. This low coverage is influenced by factors such as antenatal care (ANC) attendance, the location of delivery, and whether the pregnancy was planned or wanted (Kante et al., 2015).

In Uganda, PNC coverage is particularly low, with significant regional disparities. According to the Uganda Demographic Health Survey (2016), PNC coverage stands at 54.3% nationally, but this varies widely, from 38.9% in Bunyoro to 77% in Kampala. The 2022 Uganda Demographic and Health Survey reported a Maternal Mortality Ratio (MMR) of 189 per 100,000 live births and a Neonatal Mortality Rate (IMR) of 22 per 1,000 live births. These figures are significantly higher than the targets set by the National Development Plan III and Sustainable Development Goal 3, which aim for an MMR of 70 per 100,000 and an IMR of 12 per 1,000 live births by the year 2030, in pursuit of ensuring good health for all. Postnatal care non-utilization is one of the contributing factors to these high numbers because mothers and newborns remain at risk of dying up to six weeks post-delivery if not provided with good care.

Barriers to PNC utilization in Lwengo and similar settings are multifaceted. Individual-level factors include lack of awareness, financial constraints, and cultural norms that discourage facility-based care. Health system barriers include inadequate infrastructure, staffing shortages, and long distances to health facilities (Nankwanga, 2004). A study conducted in Mulago and Mengo Hospitals highlighted additional challenges, such as a lack of education, employment, and decision-making power among women, as well as insufficient knowledge about available PNC services like physiotherapy, counselling, and growth monitoring (Nankwanga, 2004).

Addressing these barriers requires a multi-pronged approach. Community education campaigns are essential to raise awareness about the importance of PNC and dispel harmful cultural practices. Health systems must be strengthened to ensure services are accessible, affordable, and of high quality. This includes deploying more

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midwives, improving facility infrastructure, and making sure that services are provided in a respectful, private, and confidential manner. Additionally, involving women in decision-making processes and addressing socioeconomic barriers, such as transport costs and childcare responsibilities, are critical to improving PNC utilization (Nankwanga, 2004).

Lwengo District, with a population of 299,367, including 72,499 women of childbearing age, has alarmingly low PNC utilization rates. Health facilities in the district, such as Lwengo Health Centre IV and St. Aloysius Ngobya HC II, report utilization rates as low as 0% at six days and 3.5% at six weeks (hmis.health.go.ug).

Post natal care service utilization has remained a significant problem across Lwengo sub-county despite key interventions put in place by government of Uganda such as; Result based financing to pay health workers every mother who attends post- natal care services at six days and six weeks, capture of mothers during immunization sessions at six weeks, capture of mothers during child health days in April and October every year, giving mothers return date of sixth day post-delivery, engaging Village Health Teams to carry out home visiting and refer mothers to nearby health facilities but all the above have failed to yield good results and the post-natal care coverage has persistently remained at 4.9 % at six days and 26.9% at six weeks in Lwengo sub-county (hmis.health.go.ug).

In conclusion, while high-income countries like the UK have robust PNC systems, many African countries, including Uganda, face significant challenges in providing timely and effective postnatal care. Cultural practices, health system weaknesses, and socioeconomic barriers contribute to low PNC utilization, resulting in high maternal and neonatal mortality rates. Tackling these challenges calls for coordinated action from governments, healthcare systems, and communities to guarantee that mothers and newborns receive the essential care they need during this vital time.

## Objective

The primary aim of this study was to investigate the factors associated with the utilization of post-natal care services from 2002 to 2025 in Lwengo sub-county, Lwengo District.

## Methodology

### Study Design

A cross-sectional research design was used because data collection was done once, and both quantitative and qualitative approaches were employed. Quantitative Research involved a cross-sectional study among Women of Childbearing Age (15-49 years) who delivered within a period of 10 years before data collection. It also involved Health Workers who attend to mothers.

Qualitative Research involved getting data through interviews and Focused Group Discussions among Women of Childbearing Age (15-49 years). It also involved Health Workers who attend to mothers.

## Study Setting

This Study took place in the communities of Lwengo sub-county in 2024. This is 30 km from Masaka city and consists of seven parishes, including: Mbiriizi, Kito, Nakyeniyi, Nkunya, Kyawagonya, Kalisizo, and Musubiro Parish. The most common people were farmers. They grow foods such as matooke, corn, beans, ground nuts, and onions, where they get a source of income and food to keep their family healthy. Lwengo Sub-County has a Health Center IV, three Health Center III and Level II health centers, allowing access to health facilities, and 76% of the entire population lives within a 5 km radius of the health facilities.

The total area of the district is approximately 1023.736m<sup>2</sup>. The general role and topography fall in the marsh of the valley, including streams that flow into the marsh. Most parts of the district are scattered with bare Hills.

## Study Population

The study population was female community members of Lwengo sub-county aged 15 to 49 years who gave birth during the period of 2002 to 2025.

## Eligibility Criteria

### Inclusion Criteria

Female permanent residents of Lwengo Sub-County, aged 15-49 years old, who accepted to participate in the study. Women aged 15-49 years were selected because they are called Women of childbearing age.

### Exclusion Criteria

Women under the age of 15, over the age of 49 years, and women who had never given birth.

## Bias Management

The research employed triangulation by collecting data from different communities and ensured that interviews were conducted in a neutral and open environment.

## Sampling Method

Simple Random Sampling was employed. A Sampling frame was drawn to select the parishes that constituted Lwengo-Sub-County.

Another sampling frame was drawn, and all villages were listed in each of the seven selected communities above. A small paper was folded again to select two villages from each community, following random principles. A total of 18 villages were selected, for which participants were

selected. Each household received the number, small documents were summarized, and 370 households were selected, with only one participant selected from each household. This was representative of the entire community in Lwengo sub-county.

This study was conducted in all the selected households to represent the entire community of Lwengo Sub-county. The researcher used Slovin's (1960) sample size assessment formula as follows:

$$n = N / (1 + Ne^2)$$

Where n = Sample size

N = Population Size

e = margin of error (5% or 0.05)

The population size of Women of childbearing age in Lwengo Sub-county was projected to be 5000 based on UBOS, 2014.

$$n = 5000 / (1 + 5000 (0.05)^2)$$

$$= 5000 / (1 + 5000 (0.0025))$$

$$= 5000 / 12.5$$

$$= 5000 / 13.5$$

$$= 370 \text{ participants}$$

## Description of the Variables

Independent variables included mothers' age, marital status, residence and education level, level of income, religion, locality, distance and knowledge on benefits, parity of mothers, access to information by mothers, health workers' knowledge on PNC, health workers' practice during ANC and delivery, maternal experience during ANC and delivery, maternal health status, and waiting time.

Dependent variables included utilization of post-natal care services, categorized as 1-Utilised, 0- Not Utilized.

## Data Collection Methods

Data collection was done using questionnaires, interviews, and focused group discussions. Data from **250** participants was collected using questionnaires, and data from **50** participants from interviews, and **70** participants from Focused Group Discussions, making a total of **370** participants. The steps to answer questionnaires, interviews, and focus group discussions were explained. I, the researcher, distributed questionnaires, read and wrote for those who were unable to do this. A questionnaire was given to each participant to read and fill out for themselves. The questionnaires were both in English and Luganda.

The researcher also used interviews and focused group discussions to collect data from participants. We ensured an explanation of the guidelines to follow for participants in advance.

## Data Collection Tools

The following methods and tools were employed.

Questionnaire Surveys – Questionnaires, Interviews – Interview guide, and Focus Group Discussions – Focus Group Discussion guide.

These tools were all translated into Luganda because the majority of the participants spoke Luganda.

## Ethical Considerations

Bishop Stuart University Research Ethics Committee (BSU-REC-2023-312) first approved our study on 15th February 2024, and an introductory letter was given to us. Permission from the Chief Administrative Officer of Lwengo District was sought before going to health facilities and communities. Participants signed a form of consent declaration, which showed the purpose of the study and the method of data collection. Participants did not mention their names in the survey to avoid personal identity.

Participants were informed of the research goals and contributions to improving Maternal and Child Health.

The researcher confirmed that participants' privacy was respected and that their personal information was confidential.

The researcher sought permission from the Office of the Chief Administrative Officer of Lwengo District. The permission was granted to me, and I proceeded to the communities and health facilities of Lwengo Sub-county to collect data.

## Data Management and Analysis

### Quantitative Data Management and Analysis

Data collection was performed; questionnaires were cross-checked for completeness daily before storage. Capturing of data was done using EpiData software. Data from the completed questionnaires were cleaned, revised, and entered into the computer with STATA.

Questionnaires were collected, and the accuracy of quantitative data was confirmed by the researcher.

The scripts were reviewed and encoded by researchers. First, each script was analyzed to identify similar and frequently displayed terms or incidents. The analytical process was confirmed by researchers. The identified incidents or terms were then compared to incidents from other scripts. Finally, similar or different incidents or terms were split into categories to draw a concept. Data was analyzed using STATA.

Data analysis was performed at three levels: univariate, bivariate, and multivariate analysis. Only variables at threshold  $P < 0.25$  qualified for further analysis in the multivariate analysis. Variables with an independent association with postnatal care services at a p-value less

than or equal to 0.05 were considered to be associated with postnatal care utilization.

Logistic regression was used because the dependent variable (Utilization of post-natal care services) was Utilized/Not Utilized or binary, dichotomous variable.

Multivariate Logistic regression was carried out to examine the association between the potential factors and non-utilization of post-natal care services.

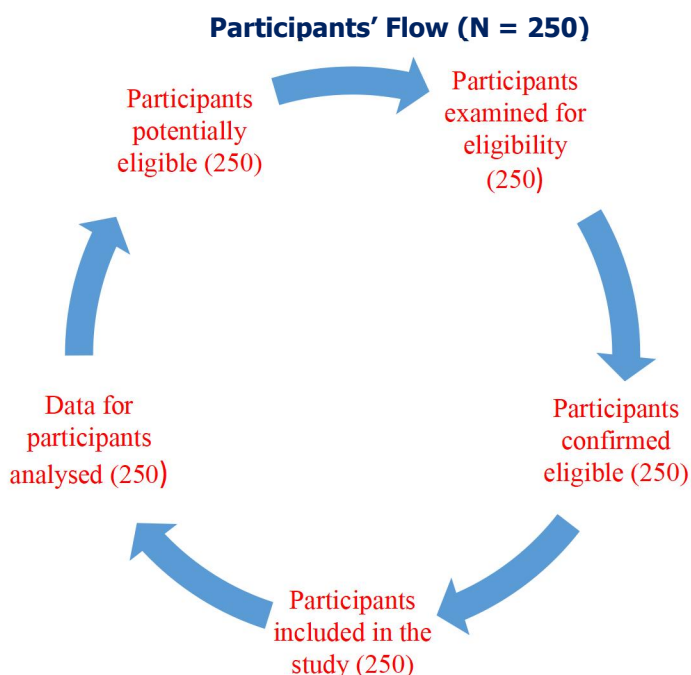
### Qualitative Data Management and Analysis

Data was analyzed by content from the descriptions by participants.

### Result Presentation

Tables, figures, graphs, and pie charts were used to present the results.

## Results



## Socio-demographic Characteristics of Participants

**Table 1: Socio-demographic and Socio-economic characteristics of participants (N = 250)**

		N (%)
Characteristics		
Age (years)	<18	14 (5.60)
	18 – 24	110(44.00)
	25- 49	126 (50.40)
Marital status	Single	25 (10.00)
	Married/cohabiting	219 ( 87.60)
	Widowed	6 ( 2.40)
Religion affiliation	Catholic	108(43.20)
	Anglican	53 (21.20)
	Moslem	52 (20.80)



	Born again	35 (14.00)
	Others	2 ( 0.80)
Education level	None	30 (12.00)
	Primary	100(40.00)
	Secondary	97 (38.80)
	Tertiary	19 (7.60)
	Others	4 ( 1.60)
Residence	Rural	174( 69.60)
	Urban	76 (30.40)
Distance from the health facility (km)	1-2	91(36.40)
	3-5	99 (39.60)
	6-10	44(17.60)
	>10	16(6.40)
Occupation	Peasant farmer	150 (60.00)
	Business woman	59 (23.60)
	Health worker	12 (4.80)
	Teacher	8 (3.20)
	Others	21 (8.40)

The Quantitative data were collected using questionnaires from Women of childbearing age who gave birth in the past twenty-three years preceding the data collection and health workers who attended to mothers seeking post-natal care services, and the data were analyzed using descriptive statistics and bivariate and multivariate logistic regression analysis.

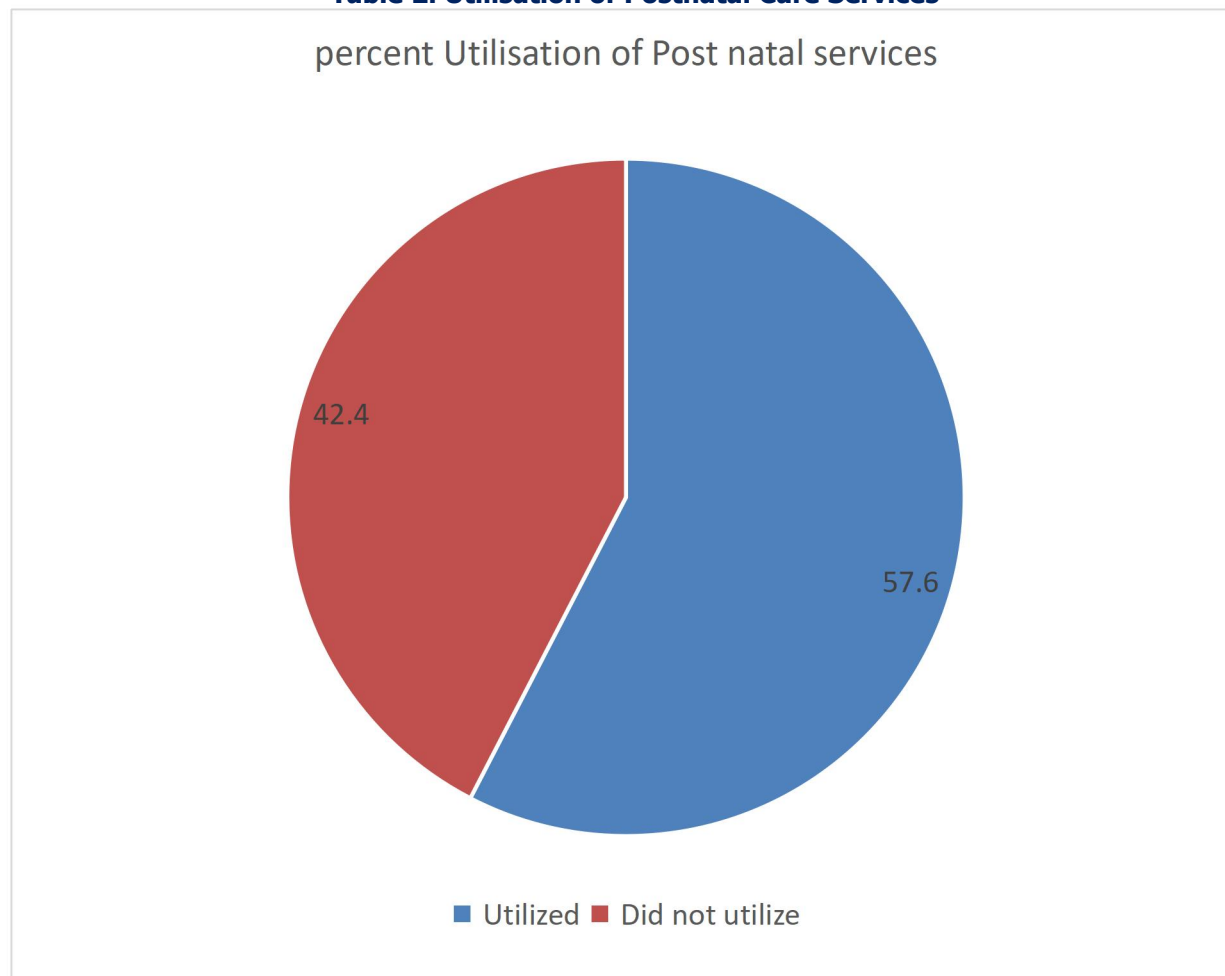
Qualitative data were obtained by using semi-structured interviews and focused group discussions among Women of Bearing Age who gave birth in the past twenty-three years preceding the data collection and health workers who attend to mothers seeking post-natal care services.

### Utilisation of Postnatal Care Services in the six weeks after delivery in Lwengo Sub-County

A total of 250 mothers of reproductive age (15-49) years were included in the analysis of quantitative data. Note that the data for 120 participants was analyzed per content, and their data was received using a qualitative data collection method, that is, interviews (50 participants) and focused group discussions (70 participants), making a total of 370 participants. Seven focus group discussions were held, each with 10 mothers. Mothers first consented to participate in the study.

Out of 250 participants, 144(57.6%) utilized the postnatal care services, and 106(42.6%) did not utilize postnatal care services, as shown in *Figure 2*.

**Table 2. Utilisation of Postnatal Care Services**



### Socio-demographic characteristics of participants

Results in table 2 revealed that the majority were participants in the age group 25-49 years, 126 (50.4%), Married/cohabiting, 219 (87.6%), affiliated to Roman catholic religion 108(43.2%), had completed primary level of education 100(40%), residing in a rural setting, 174(69.6%), Distance from the health facility, 3-5 km, 99 (39.6%), and the majority of the participants were peasant farmers 150(60.0%) and majority of their husbands were self-employed. Results further revealed that on average, each woman had 4 pregnancies and 3 live births, mean  $\pm$  standard deviation  $[3.468 \pm 2.09$  vs.  $3.228 \pm 2.1]$ .

**Table 3. Socio-demographic and Socio-economic characteristics of participants (N = 250)**

Page   8		N (%)
Characteristics		
Age (years)	<18	14 (5.60)
	18 – 24	110(44.00)
	25- 49	126 (50.40)
Marital status	Single	25 (10.00)
	Married/cohabiting	219 ( 87.60)
	Widowed	6 ( 2.40)
Religion affiliation	Catholic	108(43.20)
	Anglican	53 (21.20)
	Moslem	52 (20.80)
	Born again	35 (14.00)
	Others	2 ( 0.80)
Education level	None	30 (12.00)
	Primary	100(40.00)
	Secondary	97 (38.80)
	Tertiary	19 (7.60)
	Others	4 ( 1.60)
Residence	Rural	174( 69.60)
	Urban	76 (30.40)
Distance from the health facility (km)	1-2	91(36.40)
	3-5	99 (39.60)
	6-10	44(17.60)
	>10	16(6.40)
Occupation	Peasant farmer	150 (60.00)
	Businessman/woman	59 (23.60)
	Health worker	12 (4.80)
	Teacher	8 (3.20)
	Others	21 (8.40)



**Socio-demographic and Socio-economic characteristics of participants (N = 250) cont.**

		N (%)
Characteristics		
Present occupation of your husband	None	34 (13.60)
	Self-employed	148 (59.20)
	Health worker	10 (4.00)
	Central government employee	14 (5.60)
	Local government employee	44 (17.60)
Number of Pregnancies had (Mean $\pm$ SD)		3.468 $\pm$ 2.09
live births altogether (Mean $\pm$ sd)		3.228 $\pm$ 2.1

**Factors Associated with Utilisation of Postnatal Care Services in Lwengo Sub-County, Lwengo District, Uganda**

**Bivariate logistic regression model analysis.**

Logistics regression showed that education level was associated with utilisation of postnatal care services. Mothers who completed a tertiary level of education were 3.24, 95% CI (1.00, 10.48) times more likely to attend PNC compared to their colleagues who had never participated in formal education. (UOR = 3.24; 95%CI (1.00, 10.48; p = 0.050), 95%CI: (1.29, 4.08), p = 0.005). Compared with those with knowledge of postnatal care services after the availability of services (UOR = 0.27, 95% CI: (0.13, 0.56), p = 0.000). Results also showed that mothers who were not checked at a health facility when pregnant: (0.102, 0.904), p = 0.032). Mother who delivered the baby

through Caesarean section 2.45, 95% (1.09, 5.49) p=0.029. Mothers who described obstetric services as a very bad experience during childbirth were 81% less likely to use postnatal care services (UOR = 0.19, 95% CI: (0.06, 0.66), p = 0.009). Furthermore, mothers who delivered in health facilities with no designated space for postnatal care services = 0.24, 95% CI (0.12 - 0.47); finally, 0.49(0.26- 0.93) were aware. Of the available guidelines regulating postnatal Care Services. Unknown participants were 51% less likely to utilise Postnatal Care Service (UOR = 0.49, 95% CI: (0.26 0, 93) P = 0.029).

**Table 4. Bivariate analysis for factors associated with Utilisation of postnatal Care Services in Lwengo Sub-County, Lwengo District, Uganda**

Characteristics	Category				
		Attended PNCS n (%)	Did not attend PNCS n(%)	UOR(95%CI)	P-value
Age (years)	<18	10(6.94)	4 ( 3.77 )	1	
	18 – 24	63(43.75)	47(44.34)	0.54(0.16 1.82)	0.316
	25- 49	71(49.31)	55(51.89)	0.52(0.15 1.73)	0.285
Marital status	Single	15(10.42)	10(9.43)	1	
	Married/cohabiting	128 ( 88.89)	91(85.85)	0.94(0.40 2.18)	0.881
	Widowed	1 ( 0.69)	5 ( 4.72)	0.13(0 1.32)	0.085

Religion	Catholic Anglican Moslem Born again	65( 45.14) 28 (19.44) 32 ( 22.22) 19 (13.19)	65 (45.14) 28(19.44) 32 (22.22) 19(13.19)	1 0.78(0.40 1.50) 1.11(0.56 2.18) 0.82(0.38 1.77)	0.450 0.767 0.616
Education level	None Primary Secondary Tertiary	14( 9.72) 59 (40.97) 54 (37.50) 17 (11.81)	16(15.09) 41(38.68) 43(40.57) 6 (5.66)	1 1.64(0.72 3.74) 1.43(0.63 3.26) 3.24(1.00 10.48)	0.235 0.389 <b>0.050</b>
Residence	Rural Urban	90(62.50) 54 (37.50)	84(79.25) 22(20.75)	1 2.3(1.29 4.08)	<b>0.005</b>
Distance from the health facility (km)	1-2 3-5 6-10 >10	56(38.89) 48(33.33) 31(21.53) 9 ( 6.25)	35(33.02) 51(48.11) 13(12.26) 7 ( 6.60)	1 0.58(0.33 1.04) 1.49(0.68 3.23) 0.80 (0.27 2.35)	0.072 0.312 0.690
Occupation	Peasant farmer Business Health worker Teacher	76(52.78) 37(25.69) 10(6.94) 21(14.58)	74(69.81) 22(20.75) 2 (1.89 ) 8 (7.55)	1 1.63(0.88 3.04) 4.87(1.03 22.97) 2.56(1.07 6.13)	0.117 <b>0.046</b> <b>0.036</b>
Present occupation of your husband	None Self-employed Health worker Central government employee Local government employee	18(12.50) 83(57.64) 8 (5.56) 10(6.94) 25(17.36)	16(15.09) 65( 61.32) 2( 1.89) 4(3.77) 19(17.92)	1 1.13(0.54 2.40) 3.56(0.66 19.26) 2.22(0.58 8.49) 1.17(0.48 2.88)	0.740 0.141 0.243 0.733
Total Number of Pregnancies had	Average total number of pregnancies $\pm$ (standard deviation)	3.468 $\pm$ 2.09		0.97(0.85 1.09)	0.565
Total Number of live births	Average total number of live births $\pm$ (standard deviation)	3.228 $\pm$ 2.1		0.96(0.85 1.08)	0.509
Characteristics	Category				
		Attended PNCS n (%)	Did not attend PNCS n(%)	UOR(95%CI)	P-value
Knowledge of postnatal care services is typically acquired after delivery.	1. Yes 2. No	43(29.86) 101(70.14)	11(10.38) 95(89.62)	1 0.27(0.13 0.56)	<b>0.000</b>
Source of information about	1. Doctor 2. Midwife	10(18.18) 39(70.91)	2 (7.69) 21(80.77)	1 0.37(0.07 1.85)	0.227

PNC	3. Nurse	6 ( 10.91)	3 (11.54)	0.40(0.05 3.12)	0.382
Having check-ups at a Health facility when you were pregnant	1. Yes 2. No	136 ( 96.45) 5 ( 3.55)	91( 89.22) 11 ( 10.78)	1 0.30(0.102 .904)	<b>0.032</b>
Method of delivery	1. Normal vaginal delivery 2. Caesarean section	110 ( 80.29) 27 (19.71)	90(90.91) 9 (9.09)	1 2.45(1.09 5.49)	<b>0.029</b>
Transport cost to get to the Health facility (UGX)	Average transport cost (Mean±sd) Min max	121151.1 ± 127995.7 1000 600,000		1.00(0.99 1.00)	0.321
Paid fees for PNCS provided	1. Yes 2. No	39(34.21) 75(65.79)	19 (26.39) 53 (73.61)	1 0.68(0.36 1.32)	0.263
Amount of fees paid for PNCS provided	Average fees for PNCS (Mean±sd) Min max	76588.24 ± 77441.12 1000 300000		0 1.00(0.99 1.00)	0.403
Difficulty in finding the money to meet the cost of postnatal services	1. Very difficult 2. Quite difficult 3. Not difficult 4. I did not try	25(25.00) 34 (34.00) 30 (30.00) 11(11.00)	24 (37.50) 18(28.13) 17(26.56) 5 ( 7.81)	1 1.81(0.81 4.04) 1.69(0.74 3.84) 2.11(0.64 6.99)	0.145 0.206 0.221
Means of transport used to get to the Health facility	1. Walk 2. Public transport (Bus, taxi, and motorcycle) 3. Bicycle 4. Private vehicle	8 (28.79 ) 86 (65.15) 3 (2.27) 5 (3.79)	16(17.02) 69 (73.40) 4 (4.26) 5 (5.32)	1 0.52(0.27 1.02) 0.32(0.06 1.57) 0.42(0.11 1.66)	0.057 0.160 0.216
Characteristics	Category				
		Attended PNCS n (%)	Did not attend PNCS n(%)	UOR(95%CI)	P-value
Any problem(s) facing after delivery that prevented you from going to receive postnatal services	1. Yes 2. No	14(10.29) 122 (89.71)	11(11.96) 81(88.04)	1 1.18(0.51 2.74)	0.694
Description of the maternity services when you delivered and afterwards	1. Very good 2. Good 3. Bad 4. Very bad	51(43.22) 52(44.07) 11( 9.32) 4 ( 3.39)	27(33.75) 36(45.00) 6 (7.50) 11(13.75)	1 0.77(0.41 1.44) 0.97(0.32 2.91) 0.19(0.06 0.66)	0.405 0.958 <b>0.009</b>
What was done that prevented you from attending postnatal	1. Shouted at me 2. They did not teach me well	4 (7.41) 24 (44.44)	8 (13.33) 25 (41.67)	1 1.92(0 .51 7.22)	0.334

services	3. Examined me roughly 4. Did not come when called	7 (12.96) 19 ( 35.19)	10(16.67) 17(28.33)	1.4(0.30 6.53) 2.24(0.57 8.77)	0.669 0.249
Any cultural factors that prevent you from attending postnatal services	1. Yes 2. No	4 ( 3.25) 119(96.75)	2 (2.41) 81 (97.59)	1 0.73(0.13 4.11)	0.725
Any designated room for the provision of post-natal care services	1. Yes 2. No	110(87.30) 16(12.70)	58(62.37) 35(37.63)	1 0.24(0.12 0.47)	<b>0.000</b>
Any policies in place that regulate post-natal care services	1. Yes 2. No	43(34.68) 81(65.32)	19(20.88) 72(79.12)	0.49(0.26 0.93)	<b>0.029</b>

*\*Statistically significant ( $p \leq 0.05$ ) at bivariate analysis*

### Summary Bivariate analysis

The section focused on determining the association between the uptake of post-natal care services among mothers in Lwengo sub-county, Lwengo district, and the socio-demographic, health facility-related barriers, community-related barriers, and health system factors. It presents the bivariate analysis results carried out using logistic regression analysis, presenting the unadjusted/ crude estimates. The bivariate analysis showed that the uptake of post-natal care services is associated with level of education, residence, occupation, Knowledge of the postnatal care services supposed to be received after delivery, Having check-ups at a Health facility when they were pregnant, Method of delivery, Description of the maternity services when delivered and after wards, health facilities with designated room for provision of post-natal care services and availability of policies put in place which regulates post-natal care service utilisation. Other factors were not significantly associated with uptake of post-natal services.

### Multivariate logistic regression analysis

Multivariate analysis was performed to assess which factor was associated with uptake of post-natal care services more than the other. The section presents the multivariate analysis results that were carried out using the multivariable logistic regression. A threshold of  $p < 0.2$  was set at the bivariate level of analysis. Variables that met the threshold were used for further analysis in multivariate analysis. The strength of the relationship between independent and outcome variables at a 95% confidence interval was determined by comparing adjusted odds ratios (AOR). A value  $\leq 0.05$  was considered statistically

significant for multivariate analysis. A reference category was selected for each categorical variable.

The multivariate analysis showed that mothers who did not know the postnatal services they were supposed to receive after delivery were 59% less likely to attend post-natal care services compared to mothers who knew the services offered after delivery (Adjusted Odds Ratio (AOR) = AOR=0.41; 95%CI (0.17- 0.99);  $p = 0.049$ ). Furthermore, mothers who had no check-ups at a Health facility when they were pregnant were 65% less likely to attend the post-natal care services compared to those who were checked up during pregnancy (AOR=0.35; 95%CI (0.06, 0.78);  $p=0.035$ ). The multivariate analysis further revealed that mothers whose mode of delivery was Caesarean section were 1.8 times more likely to utilize the post-natal services compared to those delivered by normal vaginal delivery (AOR = 1.8; 95%CI (0.34 - 0.94);  $p=0.019$ ).

Health facilities without designated rooms for post-natal care services, their clients or mothers were 67% less likely to utilize the post-natal care services compared to those health facilities with designated rooms purposely for post-natal care services (AOR = 0.33; 95%CI(0.15 - 0.69);  $p=0.004$ ). Other factors were not significantly associated with uptake of post-natal services.

### The qualitative analysis of the focus group discussions.

#### The following contents were discussed.

On the knowledge about post-natal services supposed to be received after delivery, mothers who had knowledge reported "Vaccination of the baby at six weeks, family planning services, nutritional assessment for babies, blood pressure taking, HIV/AIDS testing services, and

monitoring”. However some of mothers were not aware or had no knowledge about the services that they were supposed to receive after delivery, they said “oh my God, we did not know that we were supposed to receive postnatal care services!” They also mentioned about appropriate health education about postnatal care services which were not given by midwives”. **On the issue of designated rooms for Post Natal services, mothers stated that** “they felt comfortable with health facilities that designate rooms purposely for post-natal services, however some health facilities, Midwives use one room for both antenatal examination and again for postnatal care services!” They further commented about the need for the government to construct more rooms, recruit more health workers and stock enough medicines in the health facilities”.

### Key informants

In this study, the major obstacles to uptake for the post-natal care services by mothers from the key informant interviews included a lack of knowledge about post-natal services, a lack of designated rooms purposely for postnatal services, and the behaviour of some Midwives towards the mothers.

“Midwives did not explain to mothers the benefits of attending the postnatal care service.”

(Key informant 1).

“Health workers from public facilities ask for money from some mothers, and this hinders the uptake of the post-natal care services” (key informant 10).

**On the side of the Poor conduct of Midwives towards the mothers**, this was expressed by some key informants, “they ignore patients when they fail to give them money, midwives did not come to my rescue while called up, midwives shouted at me and some midwives are rude and do not give mothers the attention they deserve and health workers take long to attend to the mothers who need their attention” (key informant 8).

**On the issue of the quality of the post-natal services**, the key informants had this to say

“The quality would not be bad, but midwives are few; when an emergency case comes, they are left unattended, hence spending a lot of time at the health facility (key informant 9)

“The delay of midwives to attend to mothers affects the quality of the post-natal care services given” (key informant 6).

Further, some key informants revealed that “health workers from public health facilities sell mama kits to mothers before delivery” (key informant 13).

“In fact, the quality was compromised by failure of midwives to health educate mothers about post-natal care services” (key informant 20).

**Table 5. Multivariable logistic regression analysis of factors associated with uptake of postnatal care services in Lwengo Sub-County, Lwengo District, Uganda**

Variable	Utilization of PNCS		
	Adjusted odds ratio (95% CI)	odds	p-value
<b>Residence</b>			
Rural	1		
Urban	1.58(0.78 3.16)		0.201
<b>Education level</b>			
None	1		
Primary	3.0(0.88 10.29)		0.080
Secondary	1.5(0.44 5.13)		0.522
Tertiary	3.8(0.49 28.85)		0.199
<b>Occupation</b>			
Peasant farmer	1		
Business	1.5(0.57 4.04)		0.409
Health worker	0.82(0.15 4.38)		0.820
Teacher	2.12(0.68 6.59)		0.191

<b>Knowledge of postnatal care services is typically acquired after delivery.</b>		
Yes	1	
No	0.41(0.17 0.99)	<b>0.049 **</b>
<b>Having check-ups at a Health facility when you were pregnant</b>		
Yes	1	
No	0.35(0.06 0.78)	<b>0.035**</b>
<b>Method of delivery</b>		
Normal vaginal delivery	1	
Caesarean section	1.8(0.34 0.94)	<b>0.019 **</b>
<b>Description of the maternity services when you delivered and afterwards</b>		
Very good	1	
Good	0.73(0.32 1.72)	0.482
Bad	0.72(0.19 2.68)	0.621
Very bad	0.23(0.05 1.05)	0.057
<b>Any designated room for the provision of post-natal care services</b>		
Yes	1	
No	0.33(0.15 0.69)	<b>0.004 **</b>
<b>Any policies in place that regulate post-natal care services</b>		
Yes	1	
No	0.83(0.41 1.66)	0.596

**\*\*Statistically significant ( $p \leq 0.05$ ) at multivariate analysis**

## Discussion

### Socio-demographic Characteristics of Participants

The study highlighted a range of factors that influence the use of postnatal care services in Lwengo Sub-county. One key observation is that postnatal care utilization tends to increase with age among women of reproductive age, likely because older women have gained more knowledge and experience regarding the importance of maternal health. Marital status showed that married or cohabiting women were more inclined to utilize postnatal care services, likely because of the support they receive from their partners.

Due to their closer proximity and simpler access to medical facilities, mothers living in urban areas were more inclined to utilize postnatal care services compared to those residing in rural regions.

### Having check-ups at a Health facility when mothers were pregnant.

The bivariate analysis revealed that the uptake of postnatal care services depended on factors such as education level, place of residence, occupation, awareness of the postnatal care services expected after delivery, attendance at health

facility check-ups during pregnancy, method of delivery, experiences with maternity services during and after delivery, availability of designated rooms for postnatal care in health facilities, and the presence of policies regulating postnatal care service utilization. Other factors showed no significant association with access to postnatal care services.

The findings showed that mothers who did not attend health facility check-ups during pregnancy were 65% less inclined to utilize postnatal care services compared to those who had regular check-ups. This aligns with a study by Izudi and Amongin (2017), which investigated factors affecting early postnatal care attendance among Ugandan mothers and found that only around 19% of women attended check-ups during pregnancy (Izudi & Amongin, 2017).

According to the Reproductive, Maternal, Child, Adolescent, and Healthy Aging (RMNCAH) Sharpened Plan 2022/23–2026/27, an 80% coverage for antenatal care (ANC) and a 70% coverage for postnatal care (PNC) are recommended to achieve positive health outcomes.



### Knowledge of postnatal care services is typically acquired after delivery.

Regarding knowledge of postnatal services expected after delivery, mothers who were informed mentioned services such as baby vaccination at six weeks, family planning, nutritional assessments for infants, blood pressure monitoring, HIV/AIDS testing, and ongoing health checks. However, some mothers were unaware or lacked knowledge about the postnatal care they should have received, expressing surprise with comments like, “Oh my God, we didn’t know we were supposed to receive postnatal care services!”

The study also shows that mothers’ awareness of postnatal care services provided by health facilities is linked to their use of these services. The findings revealed that mothers who were unaware of the postnatal services they should receive after delivery were 59% less likely to attend postnatal care compared to those who were knowledgeable about the services available. The results of this study are in line with those of Li Chen et al. (2014), who explored the quality of postnatal care services and reasons for their low uptake. Their research showed that among women who completed the postnatal care survey, only 8% received a home visit within the first week after childbirth, and only 24% accessed postnatal care within 42 days. Of those who received care, 37% were counseled on infant feeding, and 32% received instructions on cord care. Additionally, 24% reported their newborns were examined for jaundice, while 18% received advice on recognizing danger signs and ensuring proper thermal care. Among the 991 women who did not seek postnatal care within 42 days, 65% said they were unaware of the services, and 24% believed they were unnecessary.

The Reproductive, Maternal, Child, Adolescent, and Healthy Aging (RMNCAH) Sharpened Plan 2022/23–2026/27 prioritizes a revised Health Facility Catchment Area Planning and Action (CAPA) approach to empower communities to actively participate in improving their health, alongside a long-term strategy for sustainable enhancements in nurturing care. Key actions include training health and community health workers to implement and coordinate the CAPA model, harmonizing and promoting a comprehensive RMNCAH Social Behavioral Communication Change strategy that integrates information and communication technology and addresses health determinants, identifying and engaging underserved, disadvantaged, and marginalized populations, and strengthening the delivery of an integrated community health service package focused on health promotion,

education, and increasing demand for maternal, neonatal, and child health services.

### Method of delivery

The study also revealed that the mode of delivery had an impact on postnatal care service utilization. Mothers who delivered through Caesarean section were 1.8 times more likely to access postnatal care compared to those who had a normal vaginal birth. These results are in line with findings from Sitrin et al. (2015), which showed higher postnatal care usage among women who had Caesarean deliveries. Similarly, Dhaher et al. (2008) suggested this could be attributed to the perceived increased risk following a Caesarean birth. Supporting this, studies conducted in Zambia and Malawi found that women who had Caesarean sections often returned to health facilities for wound assessment (Sitrin et al., 2015).

### Any designated room for the provision of post-natal care services.

Regarding designated rooms for postnatal services, mothers expressed that they felt more comfortable in health facilities that have specific rooms reserved for postnatal care. However, some noted that in certain facilities, midwives use the same room for both antenatal exams and postnatal services. They also emphasized the need for the government to build additional rooms, hire more healthcare workers, and ensure that health facilities are well-stocked with medicines.

The availability of a designated room specifically for postnatal care services was another factor linked to the utilization of postnatal care. The study found that mothers attending health facilities without dedicated postnatal care rooms were 67% less likely to use these services compared to those at facilities with such rooms. These findings are consistent with research by Ndugga et al. (2020) on early postpartum care, which showed that mothers were more likely to attend postnatal services at health facilities that had designated rooms for postnatal care. The study also highlighted that there is significant potential to improve early postpartum care for women delivering at health facilities.

### Generalizability of Results

Data was gathered from communities in Lwengo Sub-county, resulting in a small study population and context-specific findings. While these results may be difficult to generalize globally, they can be applied more broadly to postnatal mothers in Uganda, as mothers across the country share similar socio-demographic characteristics and

encounter comparable conditions in their communities and healthcare facilities.

### Conclusion

The study established that 57.6% of participants utilized the Post Natal Care Services, which was basically at six weeks, not six days. It further revealed that the main reason for attending at six weeks was to vaccinate the babies. Mothers who did not know the PNC services they were supposed to receive after delivery, mothers who had no check-ups at a Health facility when they were pregnant, mothers whose mode of delivery was Caesarean section, and Health facilities without designated rooms for post-natal care services, were statistically significant to the uptake of post-natal care services among participants in Lwengo Sub-County, Lwengo District.

The study results showed that health facilities without designated rooms for post-natal care services, their clients or mothers were 67% less likely to utilize the post-natal care services compared to those health facilities with designated rooms.

The results revealed that mothers who had no check-ups at a Health facility when they were pregnant were 65% less likely to attend the post-natal care services compared to those who had check-ups during pregnancy.

Stock out of medicines at health facilities hindered mothers from attending PNC services.

The study was in agreement with Anderson's Behavioral Model, which predicted that a sequence of predisposing factors like age, education, marital status, occupation, enabling factors like distance from the health facility, and need factors like maternal experience at the health facility influence a person's utilization of health services.

### Recommendations

The following recommendations may increase the utilization of post-natal care services.

There is a need for the Government of Uganda, through the Ministry of Health, to recruit more midwives because the ones available are few and are unable to provide the full package of Maternal and Child Health care services as required.

The Ministry of Health, through the Quality Assurance department, is required to strengthen the implementation of client satisfaction surveys to receive timely feedback from clients for prompt action regarding the quality of health care services offered at health facilities.

The government of Uganda, through the Ministry of Health, requires planning and prioritizing the construction of stand-alone post-natal care rooms at every health facility to ease

the offerance of PNC and to lessen the waiting time for mothers.

Midwives are required to educate mothers about the importance of attending post-natal care services during antenatal care service provision.

Government of Uganda, through the Ministry of Health, National Medical Stores, and Joint Medical Stores, requires the procurement of enough medicines and other supplies for health facilities to avoid stockouts, as it came out strongly as one of the reasons contributing to non-utilization of postnatal care services at health facilities.

Awareness programs need to be implemented at the parish level, targeting women, men, and influential leaders to sensitize communities about the importance of post-natal care attendance.

### Recommendations for Future Research

Factors associated with home delivery by Traditional Birth Attendants need to be researched because mothers who had delivered from home were less likely to attend Post Natal Care Services from a health facility, and they would also delay taking their babies for immunization.

Extortion of money from clients was identified as a big intervening factor as far as service delivery is concerned, hence it needs to be investigated, and mitigation measures sought.

### Acknowledgement

I would like to acknowledge the Almighty God for enabling me to go through this study period. I would also like to acknowledge Bishop Stuart University and the Department of Public Health for providing me with an opportunity to study at the University and for giving me an enabling atmosphere that has made it possible to complete the course successfully.

Special thanks go to my lecturers and supervisors, Waswa Bright Laban, Associate Professor Gershom Atukunda, and Professor Kazibwe Francis, who gave me the professional support and guidance throughout the course.

Special thanks also go to my family: Dad, Mr. Kiwanuka Pius Ssalongo, Mother, Nansamba Gertrude Nalongo, and all my siblings. Husband Fred, Friends: Mr. Mukasa Ronald, Mr. Mayanja Fred, Mr. Ssetuba Habiba. Children: Emmanuel and Bibian, who missed their mother's love while away for studies at the University.

### List of Acronyms and Abbreviations

AMU

Alongside Maternity Units

### Original Article

ANC  
Antenatal care  
AOR  
Adjusted odds ratio  
EPNC  
Early postnatal care  
FMU  
Free Maternity Units  
IMR  
Infant Mortality Ratio  
MMR  
Maternal Mortality Ratio  
NDP  
National Development Plan  
NMR  
Neonatal Mortality Ratio  
PFV  
Postpartum Family Visits  
PNC  
Postnatal care  
SDGs  
Sustainable Development Goals  
UOR  
Unadjusted odds ratio  
WHO  
World Health Organization

Susta

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### Source of Funding

There was no other form of financial funding, as the research was financed by the researcher.

### Conflict of Interest

The authors declare no conflict of interest in this research.

### Authors' Contribution

NC = Nakityo Constasio

GA= Gershom Atukunda

WBL= Waswa Bright Laban

NC, GA, and WBL did the initial design of the study, NC carried out data collection, NC, WBL carried out data analysis, and NC, GA & WBL reviewed the final manuscript.

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**Student's Journal of Health Research Africa**

**e-ISSN: 2709-9997, p-ISSN: 3006-1059**

**Vol.6 No. 9 (2025): September 2025 Issue**

**<https://doi.org/10.51168/sjhrafrica.v6i9.2057>**

### Original Article

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### Publisher Details:

**Student's Journal of Health Research (SJHR)**

**(ISSN 2709-9997) Online**

**(ISSN 3006-1059) Print**

**Category: Non-Governmental & Non-profit Organization**

**Email: [studentsjournal2020@gmail.com](mailto:studentsjournal2020@gmail.com)**

**WhatsApp: +256 775 434 261**

**Location: Scholar's Summit Nakigalala, P. O. Box 701432, Entebbe Uganda, East Africa**

