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Referral of intrapartum mothers attending the maternity unit at Bwikhonge Health Center III, Bulambuli District. A cross-sectional study.

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Abstract

Background: Intrapartum referral is an important component of maternal healthcare aimed at ensuring mothers with obstetric complications receive timely and appropriate management. This study assesses the maternal and health system factors contributing to intrapartum referrals among mothers.

Methodology: A descriptive cross-sectional study design using quantitative methods was conducted among 44 respondents using a convenience sampling method. Data were collected using a structured questionnaire and analyzed using descriptive statistics. Findings were presented in tables, figures, frequencies, and percentages.

Results: The study found that most (54.5%) of the respondents attended four or more ANC visits and (60%) received education on danger signs during pregnancy. Most (63.6%) understood why they were referred, while the majority (81.8%) did not require permission before seeking referral care. Regarding health system factors, more than half (52.3%) reported that health workers clearly explained the referral process. However, most (65.9%) were not given referral notes or forms, and half (50%) used motorcycles as a means of transport during referral. Most (63.6%) received immediate care on arrival at the referral facility, and the majority (95.5%) reported that referral improved their condition. Maternal awareness, ANC attendance, understanding of referral reasons, and trust in referral facilities positively influenced referral compliance. However, inadequate referral documentation, poor communication, and limited emergency transport services negatively affected the referral process.

Conclusion: Maternal referral compliance was generally good, but documentation, communication, and emergency transport gaps require urgent strengthening.

Recommendations: Health workers should strengthen maternal education and ensure proper referral documentation and communication. Health facilities and the Ministry of Health should improve emergency transport systems and strengthen referral coordination between facilities.

Keywords: Referral, intrapartum mothers, maternity unit, Bwikhonge health center III, Bulambuli district.
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1. Background

Referral is a component of the broader maternal referral system, which ensures that women with complications during pregnancy, labour, or childbirth are managed at an appropriate level of care that is capable of handling their obstetric condition (Ijaiya et al., 2025).

Globally, maternal and neonatal health remains a major public health concern despite decades of interventions aimed at improving outcomes (Moller et al., 2019). More than 260000 women died in 2023 due to pregnancy and childbirth-related causes, most of which were preventable with timely access to skilled care and effective referral systems (Ngozi, 2026). Annually, roughly 1.2 million of the world's 2.5 million newborn deaths happen specifically during childbirth, emphasizing that the intrapartum stage represents a crucial window for targeted maternal healthcare interventions (Ariff et al., 2016). Hence, timely and appropriate obstetric referral systems are essential in preventing both maternal and neonatal morbidity and mortality globally.

In developed countries, maternal and neonatal mortality rates are significantly lower due to well-established health systems, strong referral networks, and availability of emergency obstetric care. In these countries, efficient communication systems, skilled personnel, and functional transport mechanisms ensure that complications identified during labour are promptly referred and managed at higher-level facilities; hence, adverse outcomes from intrapartum complications are relatively rare in these settings compared to low- and middle- income countries (Zewde, 2022).

In sub-Saharan Africa, newborn deaths account for approximately 50% of all under-five mortality, and many of these deaths are linked to delays in accessing appropriate intrapartum care and referral services (Avelino et al., 2025). Weak referral systems, long distances to facilities, inadequate transport, and shortages of skilled health workers all contribute to poor outcomes among mothers requiring referral during labour in these developing countries (Ijaiya et al., 2025).

Studies in East Africa indicate that delays in seeking care, reaching referral facilities, and receiving appropriate treatment are common and significantly affect outcomes among intrapartum mothers (Yihune Teshale et al., 2025). In Uganda, maternal and neonatal health outcomes remain a major public health concern despite recent notable progress. Although the country made gradual improvements, maternal mortality remains high at 170-336 deaths per 100000 live births, which is still far above the global target of less than 70 per 100000 live births (Birabwa, 2025). This translates to thousands of preventable maternal deaths annually, with a lifetime risk of maternal death of about 1 in 66 women. Similarly, perinatal mortality is estimated at about 38 per

1000 pregnancies, indicating a substantial burden of deaths occurring around the time of labour and delivery (Ali et al., 2023).

Despite the importance of timely referral in improving maternal and neonatal outcomes, limited local evidence exists regarding the specific factors influencing referral of intrapartum mothers at Bwikhonge Health Center (HC) III in Bulambuli District. Hence, understanding these factors is essential for strengthening referral systems, improving quality of care, and ultimately reducing maternal and neonatal morbidity and mortality in the district. This study assesses the maternal and health system factors contributing to intrapartum referrals among mothers.

2. Methodology

2.1 Study Design

A quantitative descriptive cross-sectional study design was used.

2.2 Study Area

The study was conducted at Bwikhonge Health Center III, a primary government health facility in Bulambuli district providing preventive and promotive health services, outpatient care, maternity services with antenatal and postnatal care, inpatient care for common simple conditions, and basic laboratory services. The setting is predominantly rural and agricultural, with many residents facing barriers to accessing healthcare due to distance and transportation challenges. Hence, Bwikhonge HC IV was a good site for understanding attitudes and how patients use and navigate the referral system, including referral patterns for conditions that cannot be managed at the HC III level. On average, the maternity unit registers 50 patients weekly.

2.3 Study Population

The study population comprised all the maternity mothers at Bwikhonge HC III who had consented to participate in the study.

2.4 Sample Size Determination

The sample size was determined using Kish and Leslie (survey sampling, 1965) statistical formulae:

$no = (Z^2pq)/e^2$

Where n0 = representative sample of proportions, Z = Z-score for confidence level (1.96 for 95%), p = estimated proportion of the attribute, q = 1 – p, e = margin of error (0.05)

$q = 1-p = 1-0.5 = 0.5$

Hence; $n0 = ((1.96)^2*0.5*0.5)/(0.05)^2$

$=384.1 \approx 384$

So the representative sample ≈384

However sample size (n) was, $n= 1+ (n0 -1)/N$

$= 384/8.66 = 44.4 \approx 44$

Hence, the study sample size was 44

2.5 Sampling Technique

Convenience sampling method was used with a goal of identifying the participants' information desired for my study.

2.6 Sampling Procedure and Rationale

All eligible participants who were available at any time of the day and at their convenience were recruited to take part in the study. On each visit, 11 respondents were sampled for 4 days to reach a sample size of 44 to participate in the study.

2.7 Data Collection Method

A structured questionnaire was administered to mothers in the maternity unit to assess the use of the patient satisfaction feedback tool. This was a guided, administered questionnaire to accommodate patients with limited literacy and to ensure completeness of responses. The questionnaire was prepared in both English and Luganda.

2.8 Data Collection Tools

The study used a semi-structured, administered questionnaire. The questionnaire contained sections on the demographic data of the respondents, the individual factors, and the health system factors.

2.9 Data Collection Procedure

After approval from both the Mild May Institute of Health Science Research and Ethics Committee and the Bulambuli District Research and Ethics Committee, there was introduction to the participants were introduced by the in-charge of Bwikhonge Health Center III. Thereafter, there was a thorough explanation to the respondents of the purpose of the study and the possible risks involved; consent was then sought from the respondents, and thereafter questionnaires were issued to the respondents individually. The time to answer the questionnaire was strictly 15-20 minutes to avoid losing the respondents' concentration. Filled questionnaires were checked and edited before being considered for final use.

2.10 Dependent Variable

Intrapartum referral among mothers attending maternity at Bwikhonge Health Center III.

2.11 Independent Variables

Maternal factors influencing intrapartum referral among Mothers attending maternity at Bwikhonge Health Center III.

Health system factors influencing intrapartum referral among Mothers attending maternity at Bwikhonge Health Center III.

2.12 Data Quality Control

2.12.1 Pre- Testing

To ensure that the collected data were relevant to the purpose of the study and objectives, the questionnaires were first pre-tested on 20 pregnant mothers at Buyembe Health Center III, which is at a similar level to Bwikhonge and serves a similar population, to check the strength of the tool.

2.12.2 Training of Research Assistants

Training of research assistants was done prior to data collection to ensure uniformity and accuracy. This was done based on their ability to communicate in both English and the local language, familiarity with the hospital setting, and having experience in data collection. These were oriented on the title of the study, objectives, study methodology, their roles, and professional conduct. They were further trained

on the data collection tool, ethical considerations, interview techniques, and they engaged in a role-play practical session. This was strictly done in 1 day.

2.13 Inclusion Criteria

All mothers attending maternity services at Bwikhonge HC III who had consented to participate in the study were enrolled.

2.14 Exclusion criteria

Mothers in the active stage of labour.

2.15 Ample Time

Adequate time was allocated to ensure systematic data collection and analysis. This was to enhance the accuracy and reliability of data.

2.16 Standard Operating Procedure

Standard operating procedures were developed and followed to ensure consistency, accuracy, and reliability of data throughout the study. These were used to guide all stages of research. During data collection, completed questionnaires were reviewed daily by the principal investigator for completeness and accuracy. Regular supervision and spot checks were conducted to minimize errors and ensure adherence to the SOPs. Data entry was done using standardized coding with double data entry and validation checks where applicable. Data cleaning was also performed to identify and correct inconsistencies, missing values, and outliers prior to analysis.

2.17 Data Management

Data from the study was thoroughly checked and validated for completeness and then was stored in a database established using Microsoft Excel. A password was used to prevent unauthorized access to the database. The data was also backed up on a flash drive and hard disk before and after analysis. Data on the questionnaire was kept under lock and key, while electronically stored data was password protected.

2.18 Data Analysis

The data was also first cleaned, organized, and checked for any gaps, after which it was converted into codes and later transferred to Microsoft Excel 2017 and SPSS computer programs for presentation of tables and figures. Responses for open-ended questions were summarized and given themes before tallying them for analysis.

2.19 Ethical Considerations

After the approval of the proposal by the school research and ethics committee, an introductory letter was then taken to the In-charge, Bwikhonge HC III, for permission, followed by an introduction to the patients and an explanation of the purpose of the study as well as the objectives. Consent was thereafter obtained from the respondents. However, the respondents' contact identity was kept anonymous throughout the study; codes were used to identify the respondents. Furthermore, there was limited access to the completed instruments for confidentiality.

3. Results

3.1 Demographic Data of the Respondents

Table 1

Shows the demographic characteristics of the respondents, n=44.

Variables	Response	Frequency (f)	Percentage (100%)
Age group	26-35 years	20	45.5%
	18-25 Years	18	40.9%
	36-45 years	6	13.6%
Marital Status	Cohabiting	72	66.7%
	Married	36	33.3%
Level of Education	Secondary	21	47.7%
	Primary	15	34.1%
	Tertiary	8	18.2%
Occupation	Business	62	57.4%
	House wife	30	27.8%
	Employed	16	14.8%
Distance to Nearest Health Facility	5-10 KM	22	50.0%
	<5 km	12	27.3%
	>10 km	10	22.7%
Total		44	100%

Table 1 shows that the most 45.5% of the participants were aged between 26-35 years while the least 6(13.6%) were aged 36-45 years. The table further reveals that the majority, 72(66.7%), of the respondents were cohabiting, whereas the minority, 36(33.3%), were married. Regarding level of education, most, 21(47.7%), had secondary education, while the least, 8(18.2%), had tertiary education. In relation to occupation, most 62(57.4%) of the respondents were

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engaged in business, whereas the least 16(14.8%) were employed. The findings also indicate that half 22(50%) of the respondents stayed 5-10 km from the nearest health facility, while the least (10; 22.7%) stayed more than 10 km away.

3.2 Maternal Factors contributing to Intrapartum Referrals

Figure 1

Showing ANC visits during current pregnancy attendance, n=44.

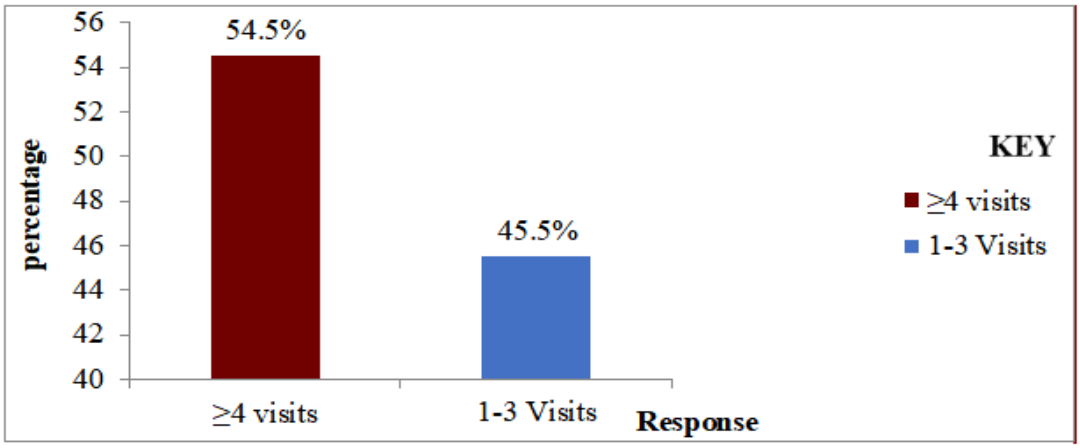


Figure 1 shows that most, 24(54.5%), attended 4 or more ANC visits during the current pregnancy, while the rest, 20(45.5%), attended 1-3 visits.

Figure 2

Shows whether participants received education on danger signs in pregnancy, n=44.

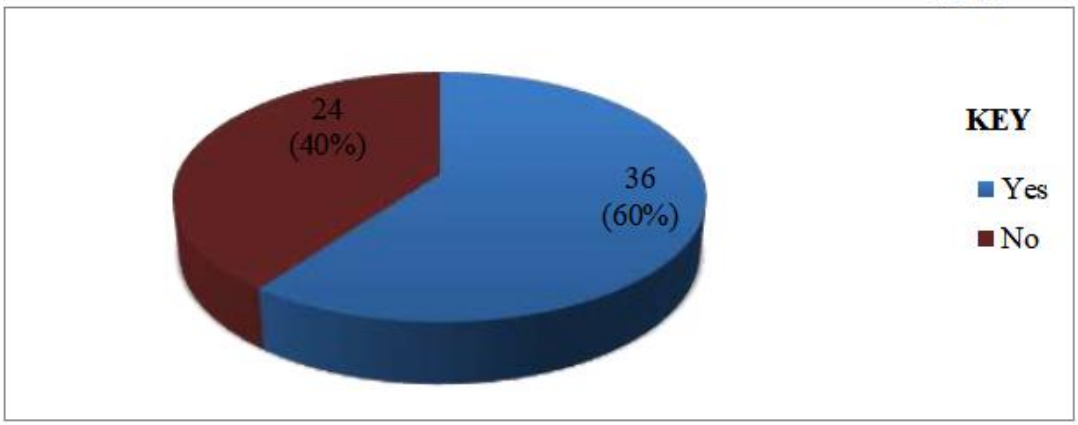


Figure 2 indicates that most, 36(60%), of the participants received education on danger signs in pregnancy, while the rest, 24(40%), did not.

Table 2

Shows the Maternal Factors Contributing to Intrapartum Referral, n=44.

Variables	Response	Frequency (f)	Percentage (%)
Did you understand why you were referred	Yes	28	63.6%
	No	16	36.4%
Didyouneedpermission from someone before going?	No	36	81.8%
	Yes	08	18.2%
How long did it take to decide to go after being told?	Within an hour	18	40.9%
	Immediately	16	36.4%
	After several hours	10	22.7%
	Yes	26	59.1%
Do you trust the referral facility to provide good care?	No	18	40.9%
Total		44	100%

Table 2 shows that most 28(63.6%) of the respondents understood why they were referred, while the least 16(36.4%) did not understand. The majority, 36(81.8%), did not need permission from someone before going, whereas the minority, 8(18.2%), needed permission. Regarding the time taken to decide after being told, most 18(40.9%) decided within an hour, while the least 10(22.7%) decided after several hours. Most 26(59.1%) trusted the referral facility to provide good care, whereas the least 18(40.9%) did not trust the referral facility.

3.3 Health System Factors Contributing to Intrapartum Referral

Table 3

Shows the health system factors contributing to intrapartum referral, n=44.

Variables	Response	Frequency (f)	Percentage (%)
Did the health worker explain the referral process clearly?	Yes	23	52.3%
	No	21	47.7%
Were you given a referral note/form?	No	29	65.9%
	Yes	15	34.1%
Was communication made to the referral facility before your arrival?	Don't Know	18	40.9%
	No	16	36.4%
	Yes	10	22.7%
What means of transport was used?	Motor Cycle	22	50%
	Private car	18	40.9%
	Ambulance	04	9.1%
Total		44	100%

Table 3 shows that more than half, 23(52.3%), of the respondents reported that the health worker explained the referral process clearly, while the least, 21(47.7%), reported that the process was not clearly explained. The findings further reveal that the most, 29(65.9%), were not given a referral note or form, whereas the least, 15(34.1%), were given a referral note or form. Regarding communication to the referral facility before arrival, most, 18(40.9%), reported that they did not know whether communication was made, while the least, 10(38.5%), reported that communication was made. The table also indicates that the half 22(50%) of the respondents used motorcycles as the means of transport, whereas only 4(9.1%) used an ambulance.

Figure 3

Shows whether they received care on arrival immediately, n=44.

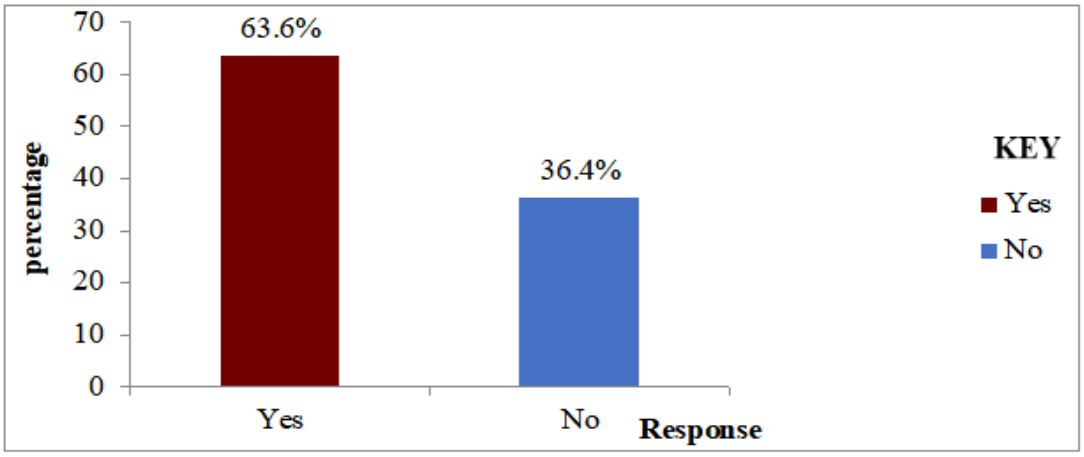


Figure 3 shows that most (28, 63.6%) of the participants reported to receive care on arrival immediately, while the rest (16, 36.4%) did not receive it.

Figure 4

Shows whether the referral improved their condition, n=44.

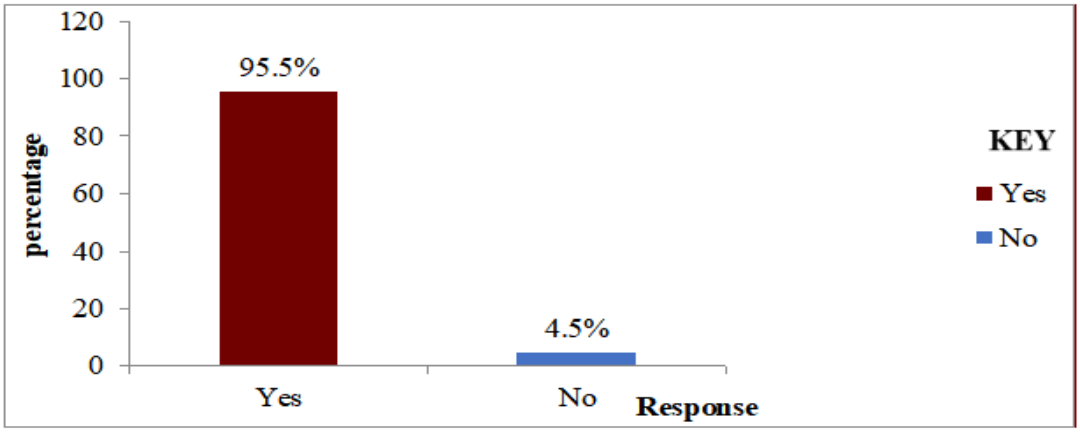


Figure 4 indicates that the majority, 42(95.5%), of the respondents reported that referral improved their condition, while the rest, 2(4.5%), said it did not improve their condition.

4. Discussion

4.1 Socio-demographic characteristics of the respondents

Findings of this study revealed that most 45.5% of the respondents were aged between 26-35 years. This implies that the majority of mothers referred during the intrapartum period were within the active reproductive age group, which is associated with high fertility and increased utilization of maternity services. Women in this age group are more likely to experience labour and delivery complications requiring referral because they constitute the largest proportion of childbearing mothers attending health facilities.

The findings further showed that the majority 66.7% of the respondents were cohabiting. This indicates that most women had partners who could potentially influence health-seeking decisions, financial support, and referral compliance. Partner involvement may positively affect decision-making during obstetric emergencies, especially where transport or financial assistance is required. This finding is in line with the study by Yulyati and Yuliwati (2023) in Indonesia, which reported that family support significantly influenced referral success among obstetric mothers because supportive partners facilitated faster decision-making and timely referral compliance.

Regarding education level, most 47.7% of the respondents had secondary education. This implies that a considerable proportion of mothers had attained moderate educational status, which may have enhanced their understanding of health information, danger signs, and the importance of referral services. This finding is similar to Morrison (2023), who reported that knowledgeable mothers had better awareness of obstetric emergencies and timely utilization of referral services. The similarity may be because education increases health literacy and understanding of maternal health risks.

The findings also showed that most 57.4% of the respondents were engaged in business. This suggests that many mothers had some source of income which could support transport and medical expenses during referral. Financial independence may reduce delays in seeking referral care. However, despite income-generating activities, transport and other indirect costs may still remain barriers to referral completion, especially among low-income households.

The study also revealed that half 50% of the respondents lived 5-10 km from the nearest health facility. This indicates that distance remains a challenge in accessing timely obstetric referral services. This finding is consistent with Kananura et al. (2017) in Eastern Uganda, who found that mothers feared referral because of long distances and high transport costs. Similarly, Assefa and Berhane (2020) in Ethiopia reported that distance contributed to referral delays despite ambulance availability. The similarity may be due to inadequate transport infrastructure and poor accessibility to higher-level health facilities in many low-resource settings.

4.2 Maternal factors contributing to intrapartum referrals

The study found that most 54.5% of the respondents attended four or more ANC visits during the current pregnancy. This implies that the majority of mothers had relatively good contact with healthcare providers during pregnancy, which may have improved early identification of obstetric risks and facilitated timely referral during labour. The findings are consistent with Gebrehana Belay et al. (2020) in Ethiopia, who found that inadequate ANC attendance was associated with increased complications requiring referral. Similarly, Ikamari (2020) in Kenya reported that mothers who attended fewer than four ANC visits had lower knowledge regarding referral indications and procedures. The similarity may be because ANC visits improve maternal awareness and preparedness for emergencies.

The study also showed that most 60% of the respondents received education on danger signs in pregnancy. This indicates that health education during ANC was relatively effective in improving mothers' awareness of obstetric complications. This finding agrees with Morrison (2023), who reported that awareness of obstetric emergencies increased timely utilization of emergency referral services. Likewise, Geleto et al. (2019) found that women with poor knowledge of obstetric complications were more likely to delay seeking referral care. The similarity in the findings could be attributed to the role of maternal education and ANC counseling in improving health-seeking behavior.

Findings of this study indicated that most 63.6% of the respondents understood why they were referred. This suggests that healthcare providers gave some level of explanation regarding referral indications, which may have increased mothers' cooperation and reduced fear during transfer. Understanding the reason for referral can improve confidence in the healthcare system and encourage compliance. This finding is supported by Yulyati and Yuliwati (2023), who emphasized that awareness and understanding of referral needs influence successful referral outcomes. The study also revealed that the majority 81.8% of the respondents did not need permission from anyone before going for referral. This implies that many mothers had autonomy in making healthcare decisions, which likely reduced delays in referral compliance. This finding differs from Nuamah et al. (2016) in Ghana, where many women required husbands' permission before accepting referrals. The difference may be due to changing gender roles, increased women's empowerment, and improved awareness regarding maternal health services in Uganda.

Regarding decision-making time after referral advice, 40.9% decided within an hour. This indicates relatively prompt decision-making among mothers once referral was recommended. Quick decisions are essential in preventing complications during labor. The findings are in agreement with Yulyati and Yuliwati (2023), who reported that faster decision-making significantly improved referral success among obstetric mothers. The similarity may be because awareness of obstetric risks encourages mothers and families to seek timely care.

The study also found that most 59.1% trusted the referral facility to provide good care. This suggests that confidence in higher-level facilities positively influenced referral acceptance and utilization because mothers who trust referral facilities are more likely to comply with referral advice promptly. This finding is consistent with Nuamah et al. (2016) in Ghana, where most women believed healthcare providers at referral facilities were competent enough to solve their problems. However, the findings contrast with Lusambili et al. (2020) in Kenya and Kananura et al. (2017) in Uganda, where mothers feared neglect and mistreatment at referral facilities. The difference may indicate improvements in respectful maternity care and quality of obstetric services in the study setting.

4.3 Health system factors contributing to intrapartum referrals

The study revealed that more than half 52.3% of the respondents reported that health workers clearly explained the referral process. This indicates that communication between healthcare providers and mothers was moderately effective because clear explanation of referral procedures may reduce anxiety, improve understanding, and increase compliance with referrals. The findings are similar to Morrison (2023), who emphasized that proper communication and understanding of referral needs improve utilization of emergency obstetric referral services. However, most 65.9% of the respondents were not given a referral note or form. This implies weaknesses in referral documentation and continuity of care between facilities. This finding is consistent with Sharew et al. (2025), who reported that poor referral documentation and lack of standard referral forms negatively affected referral appropriateness and effectiveness in Ethiopia. The similarity may be due to limited adherence to referral guidelines and inadequate supervision within lower health facilities.

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Regarding communication to the referral facility before arrival, most 40.9% reported that they did not know whether communication was made. This suggests poor coordination and inadequate communication systems between referring and receiving facilities. Failure to communicate before referral can delay preparedness and management of obstetric emergencies upon arrival. This finding agrees with Okonofua et al. (2023), who identified poor communication and lack of feedback between facilities as major barriers affecting obstetric referral systems. Similarly, Sharew et al. (2025) reported that weak coordination contributed to ineffective referrals. The similarity in the results may be attributed to inadequate referral communication infrastructure and limited accountability mechanisms.

The study further revealed that half 50% of the respondents used motorcycles as the means of transport. This indicates that ambulances were either insufficient or inaccessible, forcing mothers to rely on commercial transport during emergencies. The findings are similar to Kananura et al. (2017), who found that transport challenges and high costs affected obstetric referral compliance in Uganda. Likewise, Nabulo et al. (2023) identified lack of transport as a major barrier affecting referral experiences. The similarity in findings may result from inadequate emergency transport systems in low-resource settings. However, 63.6% of the participants reported receiving care immediately upon arrival at the referral facility. This implies that the receiving facilities were relatively responsive in handling referred obstetric mothers, which may contribute to improved maternal outcomes. Prompt management reduces complications associated with delayed obstetric care. This finding differs from studies in Ethiopia by Assefa and Berhane (2020), where most mothers experienced delays in receiving care at referral facilities.

Findings of this study revealed that the majority 95.5% of the respondents reported that referral improved their condition. This indicates that the referral system was generally effective in managing obstetric complications and improving maternal outcomes. Effective referrals ensure mothers receive specialized care that may not be available at lower facilities. The findings support Okonofua et al. (2023), who reported that strengthening referral systems and quality of intrapartum care improved maternal outcomes. Similarly, Zakumumpa et al. (2024) found that facilities practicing respectful maternity care had higher referral acceptance and better experiences among mothers. The similarity may be due to improved quality of care and timely management increase patient satisfaction and clinical outcomes following referral.

4.4 Limitations

Recall bias, as some mothers did not accurately remember all the circumstances surrounding their referral during labour, especially if the referral occurred under stressful or emergency conditions. This affected the accuracy of the information collected.

5. Conclusion

Maternal factors such as ANC attendance, knowledge of danger signs, understanding reasons for referral, timely decision-making, and trust in referral facilities positively influenced intrapartum referral utilization among mothers. Most mothers attended four or more ANC visits, received education on danger signs, and understood why they were referred, which promoted timely referral compliance.

Health system factors significantly influenced intrapartum referrals. Although some mothers reported clear explanation of the referral process and immediate care on arrival, major gaps existed in referral documentation, communication between facilities, and emergency transport services. Most mothers were not given referral forms and relied on motorcycles for transport during referral.

6. Recommendations

Health workers should strengthen health education on obstetric danger signs and birth preparedness during ANC visits.

Health workers should provide clear explanations about referrals and ensure referral forms are properly completed and issued.

Health facilities should improve communication and coordination between referring and receiving facilities.

Management should ensure availability of ambulances and adequate emergency obstetric services.

Government, through the Ministry of Health, should strengthen implementation of standardized referral guidelines and improve maternal referral transport systems.

Further studies should be conducted on barriers affecting effective intrapartum referral services in different settings.

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List of abbreviations

WHO – World Health Organization
ANC – Antenatal Care
HC – Health Center

Source of funding

The study was not funded.

Conflict of interest

No conflict of interest declared.

Author contributions

GA: Conceptualization, Methodology, Investigation, Writing-original draft.
HN: Data curation, Formal analysis, Visualization.
FS: Formal analysis, Visualization.
IPN: Writing review and editing
JFN: Supervision, Validation.
All authors: Approved the final version of the manuscript and agreed to be accountable for the work.

Data availability

Data is available upon request.

Informed consent

Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

Author biography

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