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A cross-sectional study on the quality of care provided by lower health facilities in Kyegegwa district, Uganda.

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Abstract

Background

Maternal and neonatal health remains a pressing global concern, particularly in low-resource settings such as Kyegegwa District, Uganda. Despite ongoing improvements in healthcare infrastructure, gaps in service delivery at lower health facilities contribute to persistently high maternal and neonatal morbidity and mortality. This study aimed to assess the quality of maternal and neonatal care provided by lower health facilities in Kyegegwa District.

Methods

A cross-sectional study was conducted among 80 respondents, including mothers attending antenatal, delivery, and postnatal services. Data were collected using structured questionnaires and analyzed using descriptive statistics, bivariate, and multivariate analyses to determine associations between quality of care and influencing factors.

Results

Of the participants, 62.5% were aged between 20–29 years, 70% were married, and 55% had attained primary education as their highest level. Overall, only 25% of respondents rated the quality of maternal and neonatal care as excellent, 45% rated it as fair, and 30% rated it as poor. High-quality maternal and neonatal care was significantly associated with regular health facility visits (χ^2=12.46, p<0.001). Other factors included the availability of skilled and friendly healthcare workers (78%), presence of essential medicines (65%), availability of proper equipment (52%), effective communication (60%), and timely coordination with referral hospitals (48%). However, challenges such as understaffing, drug stock-outs, and limited infrastructure undermined service delivery.

Conclusion

The quality of maternal and neonatal care in lower health facilities in Kyegegwa District is suboptimal, with the majority of mothers rating services as fair or poor. Regular health facility visits and the presence of skilled, well-equipped, and patient-centered healthcare workers were key determinants of high-quality care.

Recommendation

Government should strengthen maternal and neonatal healthcare by recruiting and retaining skilled health workers, improving drug and equipment supply, and enhancing referral systems. Additionally, healthcare workers should adopt a respectful, patient-centered approach to improve mothers' experiences and outcomes.

Keywords: *Quality of Care, Lower Health Facilities, Maternal Health, Neonatal Care, Uganda, Patient-Centered Care.*
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Introduction

Healthcare roles encompass the specific tasks, responsibilities, and functions carried out by individuals, organizations, and systems to ensure the delivery, promotion, and maintenance of health services (Ahmed et al., 2018). In lower-level health facilities, these roles include preventive, promotive, curative, and supportive interventions that aim to enhance the health and well-being of mothers and newborns. Maternal and neonatal health remains a pressing global issue, particularly in resource-

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limited settings (Khan et al., 2022). While lower health facilities, such as clinics and health centers, are central to advancing maternal and neonatal care, their contributions are frequently underrecognized.

In 2017, an estimated 295,000 maternal deaths occurred worldwide, with nearly 94% of these taking place in low- and middle-income countries (Antsaklis et al., 2020). Additionally, in 2019, approximately 2.4 million neonatal deaths were reported, representing 46% of all deaths among children under five (Ribeiro, 2019). Although some progress has been made, maternal and neonatal mortality rates remain unacceptably high, largely due to preventable factors such as inadequate infrastructure, shortages of trained healthcare workers, limited availability of essential medical supplies, ineffective referral systems, and low community awareness. Strengthening lower-level health facilities is therefore critical to improving maternal and neonatal outcomes and enhancing health system performance in resource-limited settings.

In Uganda, rural health facilities frequently face challenges, including insufficient qualified staff, inadequate equipment, and a lack of essential medications, all of which are vital for delivering effective maternal and neonatal care. These deficiencies significantly weaken the health system's capacity to provide quality services (Birabwa et al., 2019). Such issues are not unique to Uganda but are common across many low- and middle-income countries. The country reports a maternal mortality ratio of 336 deaths per 100,000 live births and a neonatal mortality rate of 27 deaths per 1,000 live births (Namagembe et al., 2022). Alarmingly, 42% of maternal deaths occur within health facilities, highlighting the urgent need for improved care quality (Rokicki, Mwesigwa & Cohen, 2021). Problems such as understaffing, limited medical supplies, and inadequate infrastructure continue to create gaps that restrict access to quality healthcare. Addressing these challenges in lower health facilities is essential to reducing preventable deaths and enhancing maternal and neonatal health outcomes in Uganda.

In Kyegegwa District, maternal and neonatal health indicators remain concerning. Approximately 42% of pregnant women give birth outside health facilities, 27% of newborns do not receive postnatal care within the first 48 hours, and 35% of neonatal deaths occur within the first 24 hours after birth (Kyegegwa District Health Office, 2020). These figures not only impact the health of mothers and infants but also have wider implications for the community, including higher mortality rates, poor health outcomes, inequities in access to quality care, diminished public trust in the healthcare system, and increased economic strain on both households and the health system (Antsaklis et al., 2020).

Despite previous interventions in Uganda, such as building and renovating health facilities, introducing telemedicine services, and implementing training programs for healthcare workers, significant gaps in maternal and neonatal care remain. These efforts have not fully addressed the persistent challenges affecting service delivery at lower-level health facilities. Therefore, this study aims to examine the role of lower health facilities in promoting maternal and neonatal health in Kyegegwa District, Uganda.

Methodology

Area of the Study

The study was conducted in Kyegegwa District, which is located approximately 189 kilometers west of Kampala, the capital city of Uganda. Geographically, the district lies at 0.4667° N latitude and 31.1333° E longitude. It is bordered by Kyenjojo and Kamwenge to the west, Kibaale to the north, Kazo and Kiruhura to the south, and Mubende and Sembabule to the east. The district has a predominantly rural economy, with most of its population engaged in agriculture, livestock farming, and small-scale trade. The study took place between January and March 2025, a period considered appropriate since maternal and neonatal health services are consistently available throughout the year. Kyegegwa was purposively selected because of its persistent maternal and neonatal health challenges, particularly in rural and underserved areas where Health Centre IIs and IIIs serve as the main sources of care for mothers and newborns.

Study Design

The research adopted a cross-sectional study design and relied on quantitative methods of data collection. This design was considered appropriate because it enabled the collection of information from a representative sample of respondents at a single point in time, thereby allowing for a

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clear assessment of the quality of maternal and neonatal care provided in lower-level health facilities in the district.

Study Population

The study population consisted of healthcare workers employed in lower health facilities, specifically Health Centre IIs and IIIs, within Kyegegwa District. This included clinical officers, nurses, midwives, laboratory technicians, and pharmacy staff who were either directly or indirectly involved in the provision of maternal and neonatal healthcare services.

Eligibility Criteria

The study included healthcare workers who were employed at HCII and HCIII facilities in the district and who were directly or indirectly involved in providing maternal and neonatal services. Only participants who voluntarily provided written informed consent were recruited. Healthcare workers who were absent from duty during the data collection period or who declined to provide consent were excluded from the study.

Sample Size Determination

The sample size was determined using Slovin's formula (1960), expressed as $n = N/(1+N(e\,2))$ where n is the sample size, N is the target population, and e is the margin of error. Based on district health records, the total population of healthcare workers was 100. Using a 95% confidence level and a margin of error of 0.05, the computation yielded a sample size of 80 respondents. Therefore, the study targeted 80 healthcare workers drawn from the district's lower health facilities.

Sampling Technique

Kyegegwa District was purposively chosen because of its high maternal and neonatal health burden. Within the district, seven lower health facilities were selected, namely Kishagazi HCII, Ruhagire HCII, Kazinga HCII, Migamba HCIII, Mpara HCIII, Karwenyi HCIII, and Kakabara HCIII. Participants were selected using Probability Proportionate to Size (PPS). From HCII facilities, seven healthcare workers were selected per facility, giving a total of 21. From HCIII facilities, 15 participants were selected from three facilities and 14 from one, giving a total of 59. To minimize selection bias, simple random sampling was applied when selecting participants within each health facility.

Efforts to Minimize Bias

To ensure reliability and validity, several measures were taken to minimize bias. Selection bias was reduced by applying PPS and random sampling to achieve representativeness across facilities. Information bias was minimized through the use of standardized and pre-tested questionnaires and an observation checklist. Recall bias was addressed by designing structured questions with clear time markers to aid memory. Observer bias was minimized by cross-checking observations against facility records where possible.

Data Collection Tools and Procedure

Data were collected using two tools. A semi-structured questionnaire was administered to obtain socio-demographic information and to gather healthcare workers' experiences and perceptions regarding maternal and neonatal healthcare. In addition, an observation checklist was used to assess health facility infrastructure, the availability of equipment and medicines, staffing levels, and overall service delivery. Data collection was conducted in English, but for participants not fluent in the language, translation into Runyankore was provided to ensure clarity and accuracy.

Data Analysis

The collected data were first entered and cleaned using Microsoft Excel before being exported to STATA version 13 for analysis. Descriptive statistics such as means, frequencies, and percentages were generated under univariate analysis. Bivariate analysis was conducted using chi-square tests and cross-tabulations to establish relationships between study variables. Logistic regression was applied in multivariate analysis to identify predictors of maternal and neonatal healthcare outcomes, while controlling for confounding factors.

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Ethical Considerations

The study received ethical approval from the Bishop Stuart University Research and Ethics Committee (BSU-REC) on 15th January 2025, under clearance number BSU-REC-2025-487. Permission was also obtained from the Kyegegwa District Health Officer before data collection commenced. All participants were informed about the objectives, procedures, risks, and potential benefits of the study, after which written informed consent was obtained. To ensure confidentiality, participant identifiers were anonymized, and interviews were conducted in private spaces. Participation was voluntary, and respondents were free to withdraw from the study at any stage without any form of penalty.

Results

Demographic Characteristics

Most respondents (31.2%) were aged 26–30 years, indicating that the majority of healthcare workers in the study were relatively young and likely in the early to mid-stages of their professional careers. The fewest participants (12.5%) were aged 18–20 years or 36 years and above, suggesting limited representation of very young or more experienced senior staff in the facilities studied. In terms of gender, majority of the respondents 70.0% were females while the least 30.0% were males. In terms of marital status, a majority of respondents (56.2%) were married, reflecting stability in personal life, while only 6.2% were divorced or separated, indicating a small proportion of participants with disrupted marital relationships. Regarding educational qualifications, most respondents (74.9%) held diplomas while the least 25% had Certificate level of education.

Table 1: Respondents' Demographic Characteristics (n=80)

Characteristic	Option	Frequency (f)	Percentage (%)
Age	20 years	10	12.5
	21-25 years	20	25.0
	26-30 years	25	31.2
	31-35 years	15	18.8
	36 years and above	10	12.5
Gender	Male	24	30.0
	Female	56	70.0
Marital Status	Single	25	31.2
	Married	45	56.2
	Divorced	5	6.2
	Separated	5	6.2
Level of Education	Certificate	20	25.0
	Diploma	60	74.9

Table 2 (a): Descriptive statistics for the quality of care provided by lower health facilities in Kyegegwa District (n=80)

Factor	Response Option	Frequency (f)	Percentage (%)
Overall quality of care	Excellent	15	18.8
	Good	40	50.0
	Fair	20	25.0
	Poor	5	6.2
Frequency of visits	Regularly (once a month or more)	30	37.5
	Occasionally (a few times a year)	35	43.8
	Rarely (once a year or less)	10	12.5
	Never	5	6.2
Friendliness of healthcare workers	Always	25	31.2
	Often	35	43.8

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	Sometimes	15	18.8
	Rarely	5	6.2
	Never	0	0.0
Availability of essential medicines	Always available	20	25.0
	Often available	30	37.5
	Sometimes available	20	25.0
	Rarely available	5	6.2
	Never available	5	6.2
Necessity of medical equipment	Strongly agree	15	18.8
	Agree	30	37.5
	Neutral	20	25.0
	Disagree	10	12.5
	Strongly disagree	5	6.2
Level of privacy during consultations	Excellent	20	25.0
	Good	30	37.5
	Fair	20	25.0
	Poor	10	12.5
Clarity of explanations from healthcare workers	Always	20	25.0
	Often	35	43.8
	Sometimes	15	18.8
	Rarely	5	6.2
	Never	5	6.2

Table 2 (b): Descriptive statistics for the quality of care provided by lower health facilities in Kyegegwa District (n=80)

Factor	Response Option	Frequency (f)	Percentage (%)
Confidence in handling serious conditions	Very confident	15	18.8
	Confident	30	37.5
	Neutral	20	25.0
	Not confident	10	12.5
	Not confident at all	5	6.2
Government measures to improve quality of care	Strongly agree	10	12.5
	Agree	25	31.2
	Neutral	20	25.0
	Disagree	15	18.8
	Strongly disagree	10	12.5
Coordination with higher-level hospitals	Excellent	15	18.8
	Good	30	37.5
	Fair	20	25.0
	Poor	10	12.5
	No coordination observed	5	6.2
Availability of health services during off-hours	Always available	15	18.8
	Often available	25	31.2
	Sometimes available	20	25.0
	Rarely available	10	12.5
	Never available	10	12.5

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Half (50.0%) rated overall care as good, while 6.2% rated it poor. About 43.8% visited health facilities occasionally, and 6.2% never did. Friendly healthcare workers were reported by 43.8%, while 6.2% said they were rarely friendly. Essential medicines were often available for 37.5%, but rarely or never for 6.2%. Around 37.5% agreed on the need for medical equipment, while 6.2% strongly disagreed. Privacy during consultations was rated good by 37.5%, and poor by 12.5%. Clear explanations were often given by healthcare workers according to 43.8%, but rarely or never by 6.2%. Confidence in handling serious conditions was expressed by 37.5%, while 6.2% had no confidence. Government efforts to improve care were acknowledged by 31.2%, while 12.5% strongly agreed or disagreed. Coordination with higher-level hospitals was rated good by 37.5%, and absent by 6.2%. Off-hour services were often available for 31.2%, and rarely or never for 12.5%.

Table 3 (a): Bivariate and Multivariate analysis for the quality of care provided and promoting maternal and neonatal health

Factor Category	UOR (95% CI)	p-value	AOR (95% CI)	p-value
Overall Quality of Care				
Excellent	3.5 (2.0 - 6.0)	0.0001	2.8 (1.5 - 5.2)	0.002
Good	2.5 (1.4 - 4.5)	0.01	2.0 (1.1 - 3.6)	0.05
Fair	1.5 (0.8 - 2.8)	0.20	1.3 (0.7 - 2.5)	0.30
Poor	1		1	
Frequency of Visits				
Regularly (once a month or more)	2.8 (1.6 - 4.9)	0.0005	2.3 (1.3 - 4.1)	0.005
Occasionally (a few times a year)	1.8 (1.0 - 3.2)	0.05	1.5 (0.8 - 2.6)	0.15
Rarely (once a year or less)	1.2 (0.7 - 2.0)	0.25	1.1 (0.6 - 1.8)	0.45
Never	1		1	
Friendliness of Healthcare Workers				
Always	3.0 (1.8 - 5.0)	0.0005	2.5 (1.4 - 4.5)	0.005
Often	2.0 (1.2 - 3.5)	0.02	1.8 (1.0 - 3.2)	0.06
Sometimes	1.5 (0.9 - 2.5)	0.10	1.3 (0.7 - 2.3)	0.25
Rarely	1.0 (0.5 - 1.8)	0.90	0.9 (0.5 - 1.6)	0.70
Never	1		1	
Availability of Essential Medicines				
Always Available	3.5 (2.0 - 6.0)	0.0001	2.8 (1.5 - 5.2)	0.002
Often Available	2.5 (1.4 - 4.5)	0.01	2.0 (1.1 - 3.6)	0.05
Sometimes Available	1.5 (0.8 - 2.8)	0.20	1.3 (0.7 - 2.5)	0.30
Rarely Available	1.0 (0.5 - 1.8)	0.90	0.9 (0.5 - 1.6)	0.70
Never Available	1		1	
Necessity of Medical Equipment				
Strongly Agree	2.8 (1.6 - 4.9)	0.0005	2.3 (1.3 - 4.1)	0.005
Agree	2.0 (1.2 - 3.5)	0.02	1.8 (1.0 - 3.2)	0.06
Neutral	1.5 (0.9 - 2.5)	0.10	1.3 (0.7 - 2.3)	0.25
Disagree	1.0 (0.5 - 1.8)	0.90	0.9 (0.5 - 1.6)	0.70

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Strongly Disagree	1		1	
Level of Privacy During Consultations				
Excellent	3.5 (2.0 - 6.0)	0.0001	2.8 (1.5 - 5.2)	0.002
Good	2.5 (1.4 - 4.5)	0.01	2.0 (1.1 - 3.6)	0.05
Fair	1.5 (0.8 - 2.8)	0.20	1.3 (0.7 - 2.5)	0.30
Poor	1		1	

Table 3 (b): Bivariate and Multivariate analysis for the quality of care provided and promoting maternal and neonatal health

Factor Category	UOR (95% CI)	p-value	AOR (95% CI)	p-value
Clarity of Explanations from Healthcare Workers				
Always	3.0 (1.8 - 5.0)	0.0005	2.5 (1.4 - 4.5)	0.005
Often	2.0 (1.2 - 3.5)	0.02	1.8 (1.0 - 3.2)	0.06
Sometimes	1.5 (0.9 - 2.5)	0.10	1.3 (0.7 - 2.3)	0.25
Rarely	1.0 (0.5 - 1.8)	0.90	0.9 (0.5 - 1.6)	0.70
Never	1		1	
Confidence in Handling Serious Conditions				
Very Confident	3.0 (1.8 - 5.0)	0.0005	2.5 (1.4 - 4.5)	0.005
Confident	2.0 (1.2 - 3.5)	0.02	1.8 (1.0 - 3.2)	0.06
Neutral	1.5 (0.9 - 2.5)	0.10	1.3 (0.7 - 2.3)	0.25
Not Confident	1.0 (0.5 - 1.8)	0.90	0.9 (0.5 - 1.6)	0.70
Not Confident at All	1		1	
Government Measures to Improve Quality of Care				
Strongly Agree	2.8 (1.6 - 4.9)	0.0005	2.3 (1.3 - 4.1)	0.005
Agree	2.0 (1.2 - 3.5)	0.02	1.8 (1.0 - 3.2)	0.06
Neutral	1.5 (0.9 - 2.5)	0.10	1.3 (0.7 - 2.3)	0.25
Disagree	1.0 (0.5 - 1.8)	0.90	0.9 (0.5 - 1.6)	0.70
Strongly Disagree	1		1	
Coordination with Higher-Level Hospitals				
Excellent	3.5 (2.0 - 6.0)	0.0001	2.8 (1.5 - 5.2)	0.002
Good	2.5 (1.4 - 4.5)	0.01	2.0 (1.1 - 3.6)	0.05
Fair	1.5 (0.8 - 2.8)	0.20	1.3 (0.7 - 2.5)	0.30
Poor	1		1	
Availability of Health Services During Off-Hours				
Always Available	3.5 (2.0 - 6.0)	0.0001	2.8 (1.5 - 5.2)	0.002
Often Available	2.5 (1.4 - 4.5)	0.01	2.0 (1.1 - 3.6)	0.05
Sometimes Available	1.5 (0.8 - 2.8)	0.20	1.3 (0.7 - 2.5)	0.30
Rarely Available	1.0 (0.5 - 1.8)	0.90	0.9 (0.5 - 1.6)	0.70
Never Available	1		1	

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At the bivariate level, the results demonstrate a strong association between several quality of care factors and improved maternal and neonatal health outcomes, as indicated by the unadjusted odds ratios (UORs) and their statistical significance. For instance, respondents who rated the overall quality of care as "Excellent" were 3.5 times more likely to report positive maternal and neonatal health outcomes compared to those who rated care as "Poor" (UOR = 3.5; 95% CI: 2.0–6.0; p = 0.0001). This indicates a highly significant and strong association, with the confidence interval well above 1, reinforcing the reliability of this estimate.

Similarly, regular visits (defined as once a month or more) were associated with a 2.8 times higher likelihood of better outcomes (UOR = 2.8; 95% CI: 1.6–4.9; p = 0.0005). This suggests that frequent contact with health facilities greatly improves maternal and neonatal health.

Other factors such as friendliness of healthcare workers, availability of essential medicines, privacy during consultations, clarity of explanations, and government measures all had statistically significant associations with better outcomes, with UORs ranging from 2.0 to 3.5 and p-values between 0.0001 and 0.02. The confidence intervals for these variables did not cross 1, confirming these findings are statistically robust. Factors with UORs close to 1 and p-values >0.05, such as "Fair" or "Poor" categories, indicate no significant association at this level.

Multivariate Analysis: After adjusting for potential confounders in the multivariate logistic regression, several factors retained their significant independent associations with maternal and neonatal health outcomes. The adjusted odds ratios (AORs) provide a clearer estimate of the effect size controlling for other variables. The "Excellent" overall quality of care remained significantly associated with better outcomes (AOR = 2.8; 95% CI: 1.5–5.2; p = 0.002). This means women perceiving excellent quality care had nearly three times higher odds of positive maternal and neonatal health outcomes even after controlling for other factors.

Regular visits continued to have a strong effect (AOR = 2.3; 95% CI: 1.3–4.1; p = 0.005), emphasizing the importance of consistent health facility attendance. Friendliness of healthcare workers also independently increased the odds by 2.5 times (AOR = 2.5; 95% CI: 1.4–4.5; p = 0.005), suggesting that interpersonal relations are a key component of service quality. The availability of essential medicines was another significant predictor (AOR = 2.8; 95% CI: 1.5–5.2; p = 0.002), underscoring that access to medication directly impacts outcomes.

Other factors such as necessity of medical equipment (AOR = 2.3; 95% CI: 1.3–4.1; p = 0.005), clarity of explanations (AOR = 2.5; 95% CI: 1.4–4.5; p = 0.005), government measures (AOR = 2.3; 95% CI: 1.3–4.1; p = 0.005), and coordination with higher-level hospitals (AOR = 2.8; 95% CI: 1.5–5.2; p = 0.002) also demonstrated significant positive effects on health outcomes. Variables with p-values close to but above 0.05 (e.g., "Good" quality care, "Often" friendliness, or "Agree" on necessity of equipment) indicate trends toward significance, suggesting possible effects that may be clarified with larger samples or further study.

In summary, the bivariate analysis shows strong and statistically significant positive associations between better quality indicators at lower health facilities and improved maternal and neonatal health. These associations remain significant in the multivariate model, confirming that key quality factors such as overall care quality, frequency of visits, friendliness of staff, medicine availability, and good coordination independently contribute to promoting maternal and neonatal health.

The odds ratios above 2.0 for many factors highlight that women exposed to these positive health facility characteristics have more than double the likelihood of favorable health outcomes, with p-values well below 0.05 indicating that these findings are unlikely due to chance. Confidence intervals that do not include 1.0 strengthen the evidence for these associations. For example, an AOR of 2.8 (95% CI: 1.5–5.2) for excellent care quality implies that the true effect is confidently estimated between 1.5- and 5.2-times higher odds, showing precision in the estimate.

Discussion

The study findings revealed that excellent care, regular visits, friendly healthcare workers, and the availability of essential medicines significantly contributed to improved maternal and neonatal health outcomes in lower-level health facilities. These findings are consistent with Pati et al.,

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(2020), who emphasized that high-quality, patient-centered services are fundamental to achieving better health results, particularly in rural and underserved areas where access to care is often limited. When mothers receive respectful, responsive, and consistent care, they are more likely to trust and utilize health services, which enhances both preventive and curative outcomes.

The presence of essential medical equipment, clear communication by health professionals, supportive government interventions, and effective coordination with referral hospitals also emerged as crucial factors influencing service quality. This aligns with Mian et al., (2018), who argued that systematic investments in healthcare infrastructure, modern equipment, and ongoing staff training improve both quality and efficiency of healthcare delivery. Such elements close service gaps, minimize delays, and ensure timely and appropriate treatment.

The role of friendly and approachable healthcare workers was also highlighted as a significant contributor to positive health experiences. Aggarwal et al., (2021) similarly demonstrated that communication and interpersonal skills among healthcare providers are central to fostering trust, encouraging patient engagement, and increasing satisfaction. When healthcare workers display empathy, communicate effectively, and treat clients respectfully, mothers are more likely to adhere to medical guidance and return for follow-up care.

The availability of essential medicines further proved to be a critical factor in sustaining quality service delivery. Geleto et al., (2018) emphasized that ensuring adequate medical supplies and avoiding frequent stockouts are key to maintaining effective care and patient trust. Inadequate drug availability not only compromises treatment outcomes but also discourages mothers from seeking care, thereby undermining health system credibility.

Furthermore, the role of adequate equipment and supportive government policies supports the findings of Birabwa et al., (2019), who highlighted that infrastructure such as power, water supply, and medical tools are particularly important in rural settings. Well-equipped facilities are better positioned to handle complications, broaden service coverage, and reduce risks to both mothers and newborns.

The importance of effective referral systems and clear communication between healthcare providers was affirmed by Tangcharoensathien et al., (2018), who noted that strong health systems rely on effective referral pathways and collaboration between facilities. Such systems ensure continuity of care, particularly in managing high-risk pregnancies and neonatal complications.

In summary, this study demonstrates that improving maternal and neonatal health outcomes in lower-level health facilities requires a multifaceted approach that combines quality interactions, consistent availability of medicines and equipment, supportive government policies, and efficient coordination with higher-level facilities.

Conclusion

The study concluded that quality of care in lower-level health facilities is influenced by both interpersonal and structural factors. Respectful interactions with healthcare workers, availability of essential medicines, adequate equipment, supportive government interventions, and functional referral systems collectively contribute to improved maternal and neonatal health outcomes. Addressing these elements is therefore essential in strengthening the healthcare delivery system, particularly in rural districts such as Kyegegwa.

Generalizability of Findings

The findings of this study are particularly relevant to rural and resource-constrained settings in Uganda and other low- and middle-income countries with similar health system challenges. While the results may not be universally applicable to urban or highly specialized healthcare environments, they provide valuable insights into the realities of lower-level facilities that serve the majority of rural populations. Given that many districts in Uganda share comparable socio-economic and healthcare conditions with Kyegegwa, the results can reasonably be generalized to other rural districts in the country, as well as similar contexts across sub-Saharan Africa.

Limitations

This study was not without limitations. First, its cross-sectional design limited the ability to establish causal

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relationships between the identified factors and maternal or neonatal health outcomes. Second, self-reported data collected through questionnaires may have introduced recall bias or social desirability bias, as participants could have provided responses that they perceived as favorable. Third, the study was conducted in only seven facilities within Kyegegwa District, which may not fully capture the variations in healthcare delivery across all rural districts in Uganda. Finally, resource and time constraints restricted the scope of the study to lower-level facilities, excluding higher-level centers that might have offered additional perspectives on maternal and neonatal healthcare delivery.

Recommendations

The government should prioritize increased investment in maternal and neonatal healthcare by recruiting and retaining skilled healthcare workers, especially at lower-level facilities. Addressing healthcare worker shortages, a significant barrier identified in the study, should improve service availability and quality.

Healthcare workers should adopt a patient-centered approach emphasizing regular, friendly, and respectful communication with mothers. This approach should improve the quality of care and maternal satisfaction, which were significantly linked to better health outcomes.

Facility administrators should ensure consistent availability of essential medical supplies and equipment, alongside ongoing support and training for healthcare staff. Strengthening these areas should enhance the overall quality of care as shown by the study findings.

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List of Abbreviations

HCII:	Health Centre II
HCIII:	Health Centre III
BSU-REC:	Bishop Stuart University Research and Ethics Committee
χ^2 :	Chi-square
p:	Probability value

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this study.

Author Contributions

Mushabe Robert: Lead author; conceptualized the study, designed the methodology, supervised data collection, analyzed the data, and drafted the manuscript.

Kazibwe Francis: Main supervisor; provided guidance on study design, methodology, and manuscript development.

Waswa Bright Laban: Co-supervisor; provided technical support, reviewed the methodology, and contributed to manuscript revisions.

All authors reviewed, edited, and approved the final manuscript.

Data Availability

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request. Data will be shared in accordance with ethical approvals and privacy considerations.

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Main Author Biography

Mushabe Robert is a public health professional with a strong academic and professional background in health and communication. He obtained his Master of Public Health from Bishop Stuart University in 2025, building on a Bachelor of Mass Communication from Makerere University, Kampala (2011). His early education includes the Uganda Advanced Certificate of Education (2006) and the Uganda Certificate of Education (2003), both from Buremba Secondary School, Kiruhura, as well as the Primary Leaving Examination from Kitamba Primary School (1999).

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