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Research Article

Skilled Birth Attendance and Quality of Life among Young Mothers in Eastern Uganda: Evidence from a Cross-Sectional Study

Nakkazi Joan [1,3*], Odoki Martin [1,3,4], Frank Pio Kiyingi [1], Miisa Nanyingi [2], Miph Musoke [1,3]

[1] School of Post Graduate Studies and Research, Nkumba University, Entebbe, Uganda

[2] Faculty of Health Sciences, Uganda Martyrs University, Uganda

[3] Department of Applied Sciences, School of Sciences, Nkumba University, Entebbe, Uganda

[4] Department of Microbiology and Immunology, School of Medicine, Health & Life Sciences, King Ceasor University, Kampala, Uganda

*** Correspondence:** Nakkazi Joan, School of Post Graduate Studies and Research, Nkumba University, Entebbe, Uganda, +256(0)782375383

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Abstract

Introduction: Skilled birth attendance (SBA) is a proven intervention for reducing maternal and newborn morbidity and mortality through the prevention and management of childbirth complications. While its survival benefits are well established, less is known about its association with health-related quality of life (HRQoL), an important indicator of women's physical, psychosocial and social well-being. Evidence on this relationship remains limited among young mothers in low resource settings such as Uganda. This study examined the association between SBA and HRQoL among young mothers aged 10-24 years in Eastern Uganda.

Methods: A cross-sectional study was conducted among 967 young mothers in Kamuli, Pallisa, and Ngora districts. Participants were young mothers aged 10–24 years who had delivered within the previous two years. Data were collected using structured interviewer-administered questionnaires. HRQoL was assessed using the WHOQOL-BREF tool on a five-category self-rated scale. Descriptive statistics summarized participant characteristics, chi-square tests and One way ANOVA explored bivariate associations, and ordered logistic regression estimated the relationship between SBA and HRQoL. Skilled birth attendance was defined as delivery assisted by a trained and accredited health professional (doctor, nurse or midwife) in accordance with WHO recommendations.

Results: Most respondents were aged 18–24 years (91.3%), married (75.8%), and had prior pregnancy experience (90.4%). Bivariate analysis demonstrated that skilled birth attendance (SBA) utilization

was significantly associated with several key factors, including age ($\chi^2(1)=5.75$, p=0.017), religion ($\chi^2(1)=18.09$, p<0.001), knowledge of maternal healthcare services ($\chi^2(1)=26.84$, p<0.001), seeking care immediately ($\chi^2(1)=38.82$, p<0.001), perceived quality of care ($\chi^2(3)=71.90$, p<0.001), and previous pregnancy complications ($\chi^2(1)=6.91$, p=0.009). These findings indicate that younger mothers, those lacking awareness, and those reporting poorer care experiences were less likely to deliver with assistance of skilled birth attendant. An ordered logistic regression analysis further established that utilization of SBA was a significant predictor of health-related quality of life (HRQoL) ($z = 4.12$, $p < 0.001$). Young mothers who delivered with the assistance of a skilled birth attendant had significantly higher odds of reporting better HRQoL compared to those who did not (OR = 1.761, 95% CI [1.345, 2.306]), implying that SBA users were approximately 1.76 times more likely to fall into a higher HRQoL category. The overall model was statistically significant (LR $\chi^2(1) = 17.01$, $p < 0.001$), although the pseudo-R^2 of 0.006 suggests limited explanatory power. Nonetheless, the findings highlight the independent contribution of SBA to improved maternal well-being, underscoring its importance in enhancing quality of life among young mothers.

Conclusion: Skilled birth attendance was positively associated with better HRQoL among young mothers in Eastern Uganda. Expanding equitable access to skilled delivery care may enhance physical safety, emotional well-being, and overall quality of life for this vulnerable population.

Keywords:
Skilled birth attendance; health-related quality of life; young mothers; Uganda

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Introduction

Improving maternal health remains a global public health priority, yet maternal mortality continues to disproportionately affect low and middle-income countries, particularly in Sub-Saharan Africa which accounted for nearly 70% of the estimated maternal deaths in 2020 [1]. Skilled birth attendance (SBA), defined as childbirth assisted by accredited health professionals such as midwives, nurses, or doctors, is a key intervention for reducing maternal and newborn mortality through timely management of obstetric complications and referral for emergency care [2].

Although the survival benefits of SBA are well established, maternal health extends beyond preventing death and morbidity. Health-related quality of life (HRQoL), which encompasses physical, psychological, social, and overall perceptions of well-being [3], has increasingly been recognized as an important outcome of maternal healthcare. Positive childbirth experiences characterized by safe delivery, respectful maternity care, emotional support, and effective pain management may enhance HRQoL, whereas negative childbirth experiences may have lasting adverse effects on women's well-being.

In Uganda, utilization of SBA remains sub-optimal among adolescents and young mothers who frequently encounter barriers such as poverty, limited decision-making autonomy, transport challenges and fear of mistreatment within health facilities [4]. While previous studies have consistently demonstrated that skilled delivery improves maternal survival and reduces obstetric complications [5], little evidence exists on whether SBA is also associated with better health-related quality of life (HRQoL) among young mothers in low resource settings. Addressing evidence gap is important because improving maternal health requires not only ensuring survival but also promoting positive physical, psychological and social well-being after child-birth. Therefore, this study examined the association between skilled birth attendance and HRQoL among young mothers aged 10–24 years in Eastern Uganda.

Methods

Study Design and Setting

This study employed a cross-sectional analytical design, which is appropriate for examining associations between exposures and outcomes at a single point in time. It was conducted in three districts of Eastern Uganda-Kamuli, Pallisa, and Ngora-selected to represent diverse socio-cultural and health system contexts. These districts include both rural and peri-urban communities, providing variation in access to maternal health services and skilled birth attendance.

Study Population

The study population consisted of young mothers aged 10-24 years who had experienced pregnancy and childbirth. A total of 967 participants were enrolled. Inclusion criteria required that participants had delivered within the past two years and resided in the study districts. Mothers who were critically ill or unable to provide informed consent were excluded. This age group was chosen because adolescents and young women face unique vulnerabilities, including higher obstetric risks, stigma, and limited autonomy in healthcare decision-making. Skilled birth attendance was defined as delivery assisted by an accredited health professional (doctor, nurse or midwife) trained in managing normal childbirth and recognizing, managing or referring obstetric complications in accordance with WHO recommendations. Deliveries conducted by traditional birth attendants or unskilled persons were classified as non-skilled birth attendance.

Sampling and Recruitment

A multistage sampling strategy was employed to ensure representativeness of young mothers aged 10-24 years in Eastern Uganda. First, the three districts (Kamuli, Pallisa and Ngora) were purposively selected because they represent predominantly rural settings with relatively high adolescent fertility and varying levels of maternal health service utilization. This was followed by random selection of the clusters within each district, and within the selected clusters, eligible young mothers were identified with the assistance of village health teams (VHTs), and local leaders, and households were visited, to recruit eligible mothers using a systematic approach guided by locally developed sampling frames until the required sample size was achieved (approximately 32–33 participants per cluster), resulting in a total sample of 984 respondents, after accounting 21.8% non-response rate. The sample size was determined using the Lwanga and Lemeshow (1991) formulae for comparing proportions, assuming P_1=0.5 and P_2=0.6 with 95% confidence (Z=1.96) and 80% power (Z=0.84).

Ethical procedures were followed, with written informed consent obtained from respondents aged 18–24 years, and assent along with parental/guardian consent obtained for those below 18 years.

Data Collection

Data were collected using structured interviewer-administered questionnaires which had an item rated Content Validity Index of 94.63%. In addition, the questionnaire had a Cronbach alpha of 0.9191 which was considered to be good [6].

The tool was developed in English and translated into local languages (Lusoga, Ateso, Lugwere) to ensure comprehension. It captured socio-demographic characteristics, obstetric history, utilization of skilled birth attendance, maternal healthcare experiences, and self-rated health-related quality of life (HRQoL). HRQoL was measured using the WHOQOL-BREF instrument and this study analysis utilized the global quality-of-life item (Question 1: "How would you rate your quality of life?") as the primary outcome measure. The global quality-of-life item was selected a priori because it provides an overall assessment of perceived quality of life and aligned directly with the study objective of examining overall HRQoL rather than domain-specific functioning. Responses ranged from very poor to very good. Data collectors were trained midwives and social scientists, supervised by field coordinators to ensure consistency and quality.

Data Management and Analysis

Completed questionnaires were checked daily for completeness and accuracy, then entered into a secure database. Data were analyzed using Stata version 18.5. Descriptive statistics summarized respondent characteristics and HRQoL scores. Chi-square tests and ANOVA explored bivariate associations and ordered logistic regression estimated the relationship between SBA and HRQoL.

Ethical Considerations

Ethical approval was obtained from the Clarke International University Research Ethics Committee (CIUREC; CLARKE-2025-1675), and the Uganda National Council for Science and technology (UNCST; UNCST HS6459ES). Permission to conduct the study was granted by district health offices. Written informed consent was obtained from participants aged 18 years and above, while assent and parental/guardian consent were secured for minors. Confidentiality was maintained by anonymizing data and restricting access to research staff only.

Results

A total of 967 young mothers aged 10-24 years participated in the study. The majority of respondents were aged 18-24 years (91.3%), while a smaller proportion 8.7% were aged 10-17 years. Most respondents were married (75.8%), followed by single mothers (15.4%) and those cohabiting (7.8%). Regarding education, 61.3% had attained primary education, 26.2% had secondary or higher education, and 12.5% had no formal education. Majority of the respondents were catholics 33.9%, followed by Anglicans 31.9%, while the least were from Baptist 0.10%, Isamasia 0.52% and traditionalist 0.62% respectively. A higher proportion of respondents had experienced a previous pregnancy (90.4%). Respondents were drawn from Kamuli (34.7%), Ngora (34.4%), and Pallisa (30.8%) districts as shown in Table 1.

Table 1. Socio-demographic and reproductive characteristics of young mothers aged 10-24years in Eastern Uganda (N=967)

Variable	Category	Frequency	Percentage (%)
Age Group	10–17 years	84	8.69
	18–24 years	883	91.31
Marital Status	Married	733	75.80
	Single	149	15.41
	Cohabiting	75	7.76
	Widow	8	0.83
	Widower	2	0.21
Education Level	Non-formal	121	12.51
	Primary	593	61.32
	Secondary	225	23.27
	Tertiary	26	2.69
	University	2	0.21
Religion	Anglican	309	31.95
	Catholic	328	33.92
	Pentecostal	176	18.20
	SDA	24	2.48
	Muslim	118	12.20
	Baptist	1	0.10
	Isamasia	5	0.52
	Traditionalist	6	0.62
Previous Pregnancy	No	93	9.62
	Yes	874	90.38
District	Kamuli	336	34.75
	Ngora	333	34.44
	Pallisa	298	30.82

Source: Field Data 2025

The bivariate chi-square analysis in Table 2 revealed significant associations between several socio-demographic, young mother factors and skilled birth attendance (SBA) utilization among young mothers aged 10–24 years. Age group was significantly associated with SBA ($\chi^2(1) = 5.75$, $p = 0.017$), with younger adolescents aged 10–17 years showing lower utilization (7.54% yes) compared to those aged 18–24 years (92.46% yes), indicating disparities in utilization of SBA among younger mothers.

Table 2. Bivariate analysis showing the association between socio-demographic and Young Mother Factors and Skilled Birth Attendance Utilization among young mothers aged 10-24years in Eastern Uganda

Indicator	Response		Skilled Birth Attendance			
		Total (n)	No (%)	Yes (%)	χ^2 (df)	p-value
Age Group	10–17	84	12.8	7.54	5.75 (1)	0.017
	18–24	883	87.2	92.46		
Religion	Non-Christian	130	22.27	10.98	18.09 (1)	0
	Christian	837	77.73	89.02		
Knowledge of Maternal Health-Services	No	51	12.32	3.31	26.84 (1)	0
	Yes	916	87.68	96.69		
Seek Care Immediately	No	380	57.82	34.13	38.82 (1)	0
	Yes	587	42.18	65.87		
Quality of Care	Excellent	129	11.85	13.76	71.90 (3)	0
	Good	439	25.12	51.06		
	Fair	364	53.08	33.33		
	Poor	35	9.95	1.85		
Past Pregnancy Complications	No	637	73.46	63.76	6.91 (1)	0.009
	Yes	330	26.54	36.24		

Source: Field Data 2025

Religion also showed a strong association with SBA ($\chi^2(1) = 18.09$, $p < 0.001$), where christian mothers had notably higher utilization (89.02%) compared to non-Christians (10.98%). Knowledge of maternal healthcare services was similarly significant ($\chi^2(1) = 26.84$, $p < 0.001$), as mothers with knowledge demonstrated substantially higher SBA utilization (96.69%) than those without (3.31%), highlighting the importance of awareness in influencing delivery choices.

Behavioral and experiential factors exhibited even stronger associations with SBA utilization. Seeking care immediately after recognizing a problem was highly significant (χ^2 (1) = 38.82, $p < 0.001$), with young mothers who sought care promptly showing higher utilization (65.87%) compared to those who delayed (34.13%). Perceived quality of care had the strongest association (χ^2 (3) = 71.90, $p < 0.001$), with SBA utilization highest among those reporting good (51.06%) and excellent (13.76%) care, while markedly lower levels were observed among those reporting fair (33.33%) and poor (1.85%) care. Additionally, past pregnancy complications were significantly associated with SBA (χ^2 (1) = 6.91, $p = 0.009$), with higher utilization among those who had experienced complications (36.24%) compared to those who had not (63.76%). Overall, these findings indicate that SBA utilization is strongly influenced by knowledge, perceived quality of care, prompt health-seeking behavior, and prior pregnancy experiences, alongside socio-demographic factors such as age and religion.

The one-way ANOVA results indicated that health-related quality of life (HRQoL) varied significantly across several young mother characteristics, although not all factors were influential. Age group did not show a statistically significant difference in HRQoL, with identical mean scores for both 10–17 years and 18–24 years (mean = 2.92), F (1, 965) = 0.00, $p = 0.953$, confirming that perceived well-being was consistent across age categories; this was supported by equal variances (Bartlett's $p = 0.740$). In

contrast, religion demonstrated a significant association with HRQoL, with Christians reporting higher mean scores (2.96) compared to non-Christians (2.69), F (1, 965) = 6.62, p = 0.010, under conditions of homogeneous variance (p = 0.945). Knowledge of maternal healthcare services showed a positive but non-significant trend, where those with knowledge reported higher HRQoL (mean = 2.94) compared to those without (mean = 2.65), F (1, 965) = 3.38, p = 0.066, suggesting a potential but inconclusive relationship between awareness and well-being.

Behavioral and experiential factors showed stronger associations with HRQoL. Seeking healthcare immediately after recognizing a problem was significantly associated with better HRQoL, with proactive young mothers reporting higher mean scores (3.07) compared to those who delayed care (2.69), F (1, 965) = 28.91, p < 0.001, although variance inequality was noted (Bartlett's p = 0.002). Perceived quality of care emerged as the most influential factor, with substantial differences across categories—excellent (mean = 3.60), good (3.25), fair (2.35), and poor (2.26)—F (3, 963) = 82.70, p < 0.001, indicating a strong gradient effect under acceptable variance conditions (p = 0.133). Additionally, previous pregnancy complications significantly influenced HRQoL, with lower scores among those who experienced complications (mean = 2.78) compared to those who did not (mean = 3.00), F (1, 965) = 8.30, p = 0.004. Overall, the findings demonstrate that HRQoL among young mothers is primarily shaped by care experiences, health-seeking behavior, and prior health conditions rather than age, underscoring the importance of quality care and proactive engagement with health services.

Table 3. Bivariate analysis showing the association between socio-demographic and Young Mother Factors on Health-Related Quality of Life among young mothers aged 10-24years in Eastern Uganda

Factor	Total (n)	Category	Mean (Quality of life)	F(df)	p-value
Age Group	84	10–17	2.92	0.00 (1,965)	0.953
	883	18–24	2.92		
Religion	130	Non-Christian	2.69	6.62 (1,965)	0.010
	837	Christian	2.96		
Maternal Health-Service Knowledge	51	No	2.65	3.38 (1,965)	0.066
	916	Yes	2.94		
Seek Health Care Immediately	380	No	2.69	28.91 (1,965)	0.000
	587	Yes	3.07		
Quality of Care Received	129	Excellent	3.6	82.70 (3,963)	0.000
	439	Good	3.25		
	364	Fair	2.35		
	35	Poor	2.26		
Experience of Complications in the last pregnancy	637	No	3	8.30 (1,965)	0.004
	330	Yes	2.78		

Source: Field Data 2025

Table 4 shows the association between skilled birth attendance and health-related quality of life among young mothers aged 10–24 years in Eastern Uganda. Young mothers who delivered with skilled birth attendance generally reported higher quality of life compared to those who did not. For example, a larger proportion of young mothers who delivered with skilled birth attendance rated their quality of life as "Good" (40.48% vs 21.8%) or "Very Good" (3.57% vs 1.9%), while fewer reported "Poor" (26.32% vs 32.7%) or "Neither Poor nor Good" (18.92% vs 29.86%). The differences in the distribution of quality-of-life categories were statistically significant (χ^2 = 30.27, df = 4, p < 0.001), indicating that skilled

Table 4. Bivariate analysis showing the association between Skilled Birth Attendance and health-related quality of life among young pregnant mothers aged 10-24years in Eastern Uganda

Health-related Quality of Life	Skilled Birth Attendance		χ^2 (df) / F	p-value
	No (%)	Yes (%)		
Very Poor	13.74	10.71	30.2747 (4)	0.000
Poor	32.7	26.32		
Neither Poor nor Good	29.86	18.92		
Good	21.8	40.48		
Very Good	1.9	3.57		
Mean (SD)	2.65 (.97)	3.00 (1.11)	16.32	0.0001

Source: Field Data 2025

birth attendance is associated with better perceived quality of life. Similarly, the mean quality of life score was higher among young mothers who received skilled birth attendance (3.00 ± 1.11) than those who did not (2.65 ± 0.97), and this difference was significant (F = 16.32, df = 1, 965, p = 0.0001). These results highlight the critical role of skilled birth attendance in enhancing maternal well-being and overall quality of life. Delivery under the supervision of trained health professionals likely contributes to improved physical health outcomes through timely management of obstetric complications, reduced risk of maternal morbidity and mortality, and better postnatal care. In addition, skilled attendance may provide psychological reassurance, emotional support, and health education, thereby improving mental and emotional well-being. The substantially poorer quality-of-life outcomes among mothers who delivered without skilled assistance underscore the vulnerabilities associated with home deliveries and unskilled care, particularly among adolescents and young mothers. Therefore, strengthening health system capacity, improving access to skilled delivery services, and addressing socio-cultural and economic barriers to facility-based delivery are essential strategies for improving maternal health and quality of life in Eastern Uganda.

An ordered logistic regression analysis was conducted to examine the relationship between skilled birth attendance and health-related quality of life among young mothers aged 10–24 years in Eastern Uganda. The findings indicate that skilled birth attendance is a statistically significant predictor of quality of life ($z = 4.12$, $p < .001$). Young mothers who delivered with the assistance of a skilled birth attendant had significantly higher odds of reporting better health-related quality of life compared to those who did not (OR = 1.761, 95% CI [1.345, 2.306]). This implies that young mothers who utilized skilled birth attendance were approximately 1.76 times more likely to be in a higher category of quality of life.

The overall model was statistically significant (LR χ^2 (1) = 17.01, $p < .001$), indicating that skilled birth attendance contributes significantly to explaining variation in quality-of-life outcomes. However, the pseudo-R^2 value of .006 suggests that the explanatory power of the model is relatively low, implying that additional factors such as antenatal care utilization, postnatal care access, socio-demographic characteristics, and individual health behaviors may also influence quality of life.

Despite the modest explanatory power, the statistically significant relationship highlights the independent importance of skilled birth attendance in improving maternal well-being. Skilled delivery care may enhance quality of life through timely identification and management of obstetric complications, reduction of maternal and neonatal risks, provision of immediate postnatal care, and psychological reassurance during childbirth. These findings underscore the importance of strengthening access to skilled birth attendance as a key strategy for improving maternal health outcomes.

Table 5. Ordered logistic Regression analysis showing the relationship between Skilled Birth Attendance and health-related quality of life among young pregnant mothers aged 10-24years in Eastern Uganda (n=967)

Predictor / Parameter	OR	SE	z	p	95% CI Lower	95% CI Upper
Skilled Birth Attendance (Yes)	1.761	0.242	4.120	< .001	1.345	2.306
Cut 1	—	0.142	—	—	-1.914	-1.359
Cut 2	—	0.122	—	—	-0.257	0.223
Cut 3	—	0.126	—	—	0.615	1.108
Cut 4	—	0.216	—	—	3.451	4.296

Model fit: $\chi^2(1) = 17.010$, $p < .001$
Log likelihood: −1355.414
Pseudo R^2: .006
Note. OR = odds ratio; CI = confidence interval. Dashes (—) indicate not applicable for threshold parameters.
Source: Field Data 2025

Discussion

This study demonstrates a significant positive association between skilled birth attendance (SBA) and health-related quality of life (HRQoL) among young mothers in Eastern Uganda. Mothers who delivered under skilled care were more likely to report good or very good HRQoL compared to those who did not. These findings extend the established evidence that SBA reduces maternal mortality [2] by showing that its benefits also encompass broader dimensions of maternal well-being, including emotional recovery and social functioning.

Our results align with Gabrysch and Campbell (2009), who found that women are more likely to seek facility delivery when they perceive safety and competence. In this study, young mothers who accessed SBA reported higher HRQoL, suggesting that reassurance and confidence during childbirth contribute to perceived well-being. Similarly, Afulani et al. (2019) emphasized that respectful maternity care strongly shapes satisfaction, and our findings support this by highlighting the importance of provider attitudes, privacy, and emotional support for young mothers.

The association between SBA and reduced complications also mirrors findings from Ethiopia, where Tura et al. (2014) reported that skilled attendance lowers risks of obstructed labor, hemorrhage, and sepsis. Better physical recovery may explain the higher HRQoL observed among SBA users in our study. Neal et al. (2018) further noted that adolescent mothers face heightened anxiety and poorer outcomes; our findings suggest that SBA may mitigate these vulnerabilities by providing professional support and reducing fear during labor.

However, not all literature converges with our results. While Bohren et al. (2015) documented that disrespectful maternity care discourages facility births, our study did not directly measure mistreatment, yet it acknowledges that abusive care could undermine HRQoL gains. Divergent findings also exist regarding the magnitude of SBA's impact. For instance, some studies in sub-Saharan Africa report stronger associations between SBA and maternal well-being, whereas our study found only a modest proportion of HRQoL variation explained ($R^2 = 0.017$). This suggests that while SBA is important, maternal well-being is multidimensional and shaped by broader socio-economic, psychological, and health system factors [7].

Critically, this modest explanatory power underscores the need to interpret SBA as one determinant among many. Factors such as antenatal and postnatal care utilization, household support, health literacy, and socio-economic security likely interact with SBA to shape HRQoL. Thus, while SBA remains a cornerstone of safe motherhood, comprehensive interventions that integrate respectful care, adolescent-responsive services, and broader social support systems are essential for sustained improvements in maternal well-being.

Because skilled birth attendance referred to the participants' most recent previous pregnancy, the observed association should be interpreted as reflecting the relationship between previous maternity care experiences and current perceived quality of life rather than evidence of a direct causal effect.

From a policy perspective, increasing SBA utilization among young mothers requires addressing structural barriers such as transport, birth preparedness, and fear of mistreatment. Expanding SBA coverage without ensuring respectful, youth-responsive care risks perpetuating inequities. Although the findings provide useful evidence for similar rural districts in Eastern Uganda, caution should be exercised when generalizing the results to urban settings or other regions. Overall, this study supports a paradigm shift from evaluating maternity services solely by survival outcomes toward inclusion of well-being indicators such as HRQoL, which better capture the lived experiences of mothers.

Limitations

This study has several limitations. First, its cross-sectional design precludes causal inference between skilled birth attendance and HRQoL. Second, HRQoL was assessed using the global WHOQOL-BREF item rather than the four domain scores, providing a broad measure of perceived quality of life but not domain-specific functioning. Third, SBA referred to the most recent previous pregnancy among multiparous participants and therefore reflects previous maternal healthcare experiences rather than care received during the current pregnancy. In addition, the self-reported maternal healthcare utilization may have been subject to recall bias. Fourth, the study acknowledges that recruitment through community health workers and local leaders may have underrepresented young mothers who were socially isolated or less connected to community structures, thereby introducing potential selection bias. Finally, because participants were recruited from three districts in Eastern Uganda, findings may not be generalizable to all young mothers in Uganda.

Conclusion

Promoting SBA remains critical for improving maternal outcomes, but comprehensive interventions addressing broader social, psychological, and health system determinants are essential to achieve sustained improvements in quality of life among young mothers in Eastern Uganda.

Competing Interests

The authors have declared that no competing interests exist.

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Authors' Contributions

NJ conceptualized and designed the study. OM, FPK, MN and MM participated in data analysis and methodology alignment. All authors contributed to the drafting, critical review, editing, and final approval of the manuscript.

Consent for Publication

All participants provided informed consent for participation and publication. Consent was documented within the informed consent form, which included explicit agreement that anonymized data and results could be published and disseminated among relevant stakeholders.

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