Hindawi

Research Article

Determinants of Maternal Satisfaction with the Quality of Childbirth Services in a University Hospital in Kumasi, Ghana: A Cross-Sectional Study

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Introduction. Rendering quality childbirth services that lead to higher levels of maternal satisfaction is an important goal of every health institution. Despite efforts at enhanced client satisfaction over the years, there are still some quality concerns for health policymakers and managers to address. This study sought to assess maternal satisfaction with childbirth services at a university hospital in Kumasi, Ghana. *Methods*. We conducted a facility-based cross-sectional study among women in postnatal wards after delivery at the University Hospital, Kwame Nkrumah University of Science and Technology. They were recruited using a systematic sampling method, and their perspective about the quality of childbirth services was assessed using a service quality (SERVQUAL) tool. Linear regression analysis was performed to identify the relationship between SERVQUAL attributes and maternal satisfaction. Statistical significance was set at p value < 0.05 at a 95% confidence interval. *Results*. Of the 277 participants interviewed, 79.8% (221) were satisfied with the childbirth services. Delays (49.5%), unprofessional conduct from health workers (7.2%), poor facilities (10.8%), and an inadequate number of skilled staff (15.5%) were identified as the challenges mothers encountered at the facility. After adjusting for all the components of the SERVQUAL model, reliability (adjusted $\beta = -3.28$, $p = 0.001$) and empathy (adjusted $\beta = 2.21$, $p = 0.028$) were the most significant predictors of maternal satisfaction with childbirth services. *Conclusion*. Majority of postnatal women were generally satisfied with the overall childbirth services they received at the University Hospital. The service quality components that significantly predicted maternal satisfaction with childbirth services were "reliability" and "empathy."

1. Introduction

Rendering quality maternal health services that lead to higher levels of client satisfaction is an important goal of every health institution that provides maternal care. Over the years, client satisfaction has become one of the prime concerns of health managers. Currently, client satisfaction with service provision is used to measure the quality of service both within and outside the health system [1, 2]. The provision of good-quality services often assures continuous uptake of services [3].

Multiple factors influence maternal satisfaction with childbirth services and provide ways by which health facilities can improve childbirth services [1]. These include poor staff attitude, the high cost of healthcare services, long waiting times, a policy of paying for health services, frequent referrals to higher-level hospitals, inadequate healthcare staff, and lack of ambulances at health facilities [4–6]. The confidence of pregnant women is negatively affected when they experience dissatisfaction with childbirth services throughout their healthcare encounters; this also influences maternal-neonatal well-being [7]. Dissatisfaction with childbirth services can increase the risk of developing postpartum depression and anxiety, resulting in an aversion to future birth in health facilities [8]. Effective and frequent communication with the healthcare worker, paying attention to the needs of the mother, and receiving timely care have been noted as determinants of maternal satisfaction with childbirth services [9]. In sub-Saharan Africa, mothers' educational level, income level, maternal age, and distance to health facilities have been reported to significantly influence maternal satisfaction with childbirth services [10–12].

There has been a tremendous improvement in service delivery and utilization of healthcare services in the last decade in lower- and middle-income countries [13]. These improvements include the provision of free maternal healthcare services, accessibility, and timeliness in receiving the right care for all pregnant women [14, 15]. Despite these achievements, in sub-Saharan Africa, achieving an increased perception of quality service delivery, which is patient-centred, remains a mirage. One of these hurdles is to identify the key determinants that affect maternal satisfaction with childbirth services [13, 16]. Inadequate skilled birth delivery, inadequate facilities (resources), and inadequate essential medicines have been reported as some of the barriers affecting maternal satisfaction in low-resource settings [17–19]. These barriers tend to affect the quality of services provided. For instance, a study reported that mothers accessing antenatal and postnatal services were not satisfied with the services they received due to the poor attitude of the healthcare workers, long waiting time, and inadequate healthcare professionals [20, 21].

In Ghana, some studies that have been conducted on client satisfaction focused on the choice of delivery methods and patient satisfaction in general [22, 23]. In Ketu South Municipality, Ghana, Amu and Nyarko found that mothers were dissatisfied with the attitude of healthcare workers and procedures for drug administration [24]. In rural Northern Ghana, a study reported that mothers were dissatisfied with the delivery room because it was small and also served other purposes aside from delivery which invaded their privacy [25]. The present study sought to assess the extent of maternal satisfaction with childbirth services and associated factors using the service quality (SERVQUAL) model. In Ghana, few studies have adopted the SERVQUAL model to assess patient satisfaction with healthcare delivery [5, 26, 27]. However, the SERVQUAL model has not been explored extensively to assess maternal satisfaction with childbirth services in Ghana. Hence, it is important to reveal key aspects of the SERVQUAL model that influence the quality of childbirth services in a public university hospital in Ghana. This will help to highlight the key areas that require improvement. Assessing maternal satisfaction with childbirth services is key to improving the quality of care in health facilities [28] as this can positively influence the utilization of maternal and child health services [29].

2. Methods

2.1. Study Setting and Design. A cross-sectional study design was employed to assess maternal satisfaction with childbirth services among postnatal mothers at the Kwame Nkrumah University of Science and Technology Hospital (KNUST Hospital) located in Kumasi, Ghana, from July 2021 to November 2021. Specifically, the hospital is located on the university campus in the Oforikrom Municipality and has a catchment population of over 300,000. The facility has the status of a district hospital with a bed capacity of 120. The maternity wing alone has a bed capacity of eighteen and is run by two obstetricians and gynecologists, two medical officers, eleven midwives, and one pharmacist. Data from the records department of the hospital in 2021 showed that over 7633 pregnant women accessed antenatal care at the hospital while they recorded 1,210 deliveries out of which 378 were by caesarian section.

2.2. Study Population. The study population comprised postnatal women in the hospital and those who were aged 18-49 years old, had delivered in the hospital, and were in the postnatal wards awaiting possible discharge home. Postnatal women who did not attend antenatal care at the hospital and were referred from another health facility were excluded.

Averagely, the hospital recorded twenty-four deliveries in a week from January 2021 to July 2021. This translated into 3 to 4 deliveries daily (about 7 to 8 deliveries in two days). It was therefore estimated that 3 mothers will be recruited at the postnatal ward on each day (21 in a week).

2.3. Sample Size Estimation and Sampling. The Charan and Biswas formula [30] (sample size $= (Z^2 (P)(1 - P))/E^2$) was used to calculate the sample size for the study. Based on a 95% confidence interval, a 5% allowable margin of error, a percentage of 80.7% [31], and a 15% nonresponse rate, a total of 277 participants were recruited for this study.

Z is the number relating to the degree of confidence. The standard score for the confidence interval of 95% is 1.96. P is an estimate of the proportion of study participants with an attribute of 80.7% in the Akatsi South District, Ghana. E is the allowable margin of error which is 5%.

$$\text{Sample size} = \frac{(1.96)^2(0.807)(1 - 0.807)}{(0.05)^2} \, x \, 15\%,$$

$$\text{Sample size} = \frac{(3.842)(0.807)(0.193)}{0.0025}, \quad (1)$$

$$\text{Sample size} = 277.$$

Systematic sampling was used to select eligible mothers in the postnatal wards. Study participants were carefully selected after screening all the mothers at the postnatal wards to ensure they all met the inclusion criteria. The folders of the mothers in the postnatal wards were retrieved and arranged from top to down; the folder of the woman that delivered first in a day was placed on top and followed in order of the time of delivery. The sampling interval (n^{th} folder) to pick a folder was determined by dividing the total number of deliveries (609) in the past six months before the data collection by the estimated sample size (277). The first folder to pick was determined using balloting, and the subsequent folders were selected at the interval (n^{th} folder) until the estimated sample size was obtained.

2.4. Data Collection Instrument and Process. Data collection was done in the heat of the coronavirus disease (COVID-19) pandemic in Ghana, and preventive measures such as wearing a nose mask, regular handwashing, and social distancing between the participants and the principal investigator or research assistants were observed. The data were collected using the electronic version of a structured questionnaire through Open Data Kit (ODK). The questionnaire (see Supplementary File (available here) captured demographic data such as maternal age, relationship status, employment status, and level of education, the five SERVQUAL dimensions [32], and client satisfaction (the overall satisfaction with services they received during and after childbirth at the facility). In this study, the overall maternal satisfaction with childbirth services was measured by asking participants their overall perception of the services they received. This measure had a binary response of "satisfied" or "not satisfied."

The SERVQUAL model is a validated tool that has been adopted in several studies [33–36] to measure patient satisfaction with services. The SERVQUAL model measures the gap in the quality of the service (the variations between the patient's expectations and perception). It has five dimensions, tangibles (the appearance of the environment, facilities, health workers, and equipment), reliability (ability to deliver the service promised), responsiveness (ability to help the patient and provide the services on time), empathy (care and provision of necessary attention to client), and assurance (the knowledge and ability of the health workers to provide the right care and being able to inspire trust). The model measures these dimensions based on the perceptions of the client. The SERVQUAL model was adopted for this study due to its effectiveness in measuring patient satisfaction with services and identifying the key quality factors associated with patient satisfaction. It can also give a holistic view of the quality of childbirth services rendered. Cron-

bach's alpha coefficient reliability test was used to measure the internal consistency and reliability of the SERVQUAL tool as it has been tested and demonstrated in previous studies [33, 37–39].

A three-member team, comprising the principal investigator and two research assistants with experience in childbirth services and questionnaire administration, administered the questionnaire in the local Twi language and also in English for non-Twi speakers. The research assistants were trained, over two days, on research ethics and the use of the data collection instrument. Emphasis was placed on the translation of the questionnaire into Twi and back-translation into English to ensure consistency and uniformity in how the questions were asked. The questionnaire was piloted in another facility that is actively involved in childbirth services to improve the quality of the data. The pretest included the SERVQUAL scale, and this was done to test the adaptability of the scale in the study setting. The pretest revealed that the scale was easy to understand the items and would be able to serve the intended purpose. Appropriate corrections were made to the data collection instrument before it was used in the study.

The schedules for data collection were done in consultation with ward in-charge in order not to disrupt daily ward rounds, medical treatment, and procedures. The administered questionnaires were checked daily for completeness and accuracy and also for internal consistency by the principal investigator.

2.5. Data Analysis. The data were extracted from the ODK in an excel file format and exported to Stata version 14 (Stata Corp, TX, USA) for analysis. The internal validity of the SERVQUAL model for this study was measured using Cronbach's alpha coefficient reliability test (Table 1).

Pearson's correlation and linear regression analysis were used to determine associations between the dimensions of the SERVQUAL model and maternal satisfaction with childbirth services. We adjusted for SERVQUAL dimensions and sociodemographic characteristics in model 2 of the linear regression analysis. Statistical significance was set at p values < 0.05 at a 95% confidence interval.

2.6. Ethical Considerations. Ethical approval was provided by the Committee on Human Research Publication and Ethics, School of Medicine and Dentistry, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana (reference number: CHRPE/AP/201/21).

The aim, benefits, risks, and consequences of the study were explained to all study participants by the investigators before recruitment. Participants were told they could withdraw at any time without any consequences. All study participants either signed or thumb printed an informed consent before recruitment.

3. Results

3.1. Demographic Characteristics of Study Participants. Over half (55.6%) of the study participants were between the ages of 20 and 29 years. The mean age of study participants was

TABLE 1: Descriptive statistics of the SERVQUAL dimensions scores.

Scale dimension	Total	Min	Max	Mean	SD	RC
Tangibility	277	0	25	10.09	3.36	0.839
Reliability	277	0	25	10.25	3.67	0.888
Responsiveness	277	0	14	5.93	2.17	0.858
Assurance	277	0	15	6.19	2.56	0.860
Empathy	277	0	15	5.88	2.26	0.900

SD: standard deviation; RC: reliability coefficient.

29.2 years (±5.2) with a minimum age of 20 years and a maximum age of 45 years. Approximately 70.0% of the study participants were married, and over 42.6% had secondary-level education. Over two-thirds (68.2%) of the study participants were in the informal sector (Table 2).

3.2. Descriptive Statistics of SERVQUAL Model and Maternal Satisfaction with Childbirth Services.
Of the 277 participants interviewed, 79.8% (221) of them were satisfied with childbirth services (Table 3). The mean scores for the five components of the SERVQUAL scale were tangibility (10.09), reliability (10.25), responsiveness (5.93), assurance (6.19), and empathy (5.88) (Table 1).

Approximately half (51.6%) of the study participants were willing to continue to access maternal and child healthcare at the facility. Study participants cited delays (49.5%), unprofessional conduct from health workers (7.2%), poor facilities (10.8%), and an inadequate number of skilled staff (15.5%) as the challenges they encountered at the facility. The study participants indicated that the challenges can be addressed by increasing the staff strength (50.9%), expanding the facility (58.1%), and establishing a complaint desk (53.4%) (Table 3).

3.3. Influence of Service Quality Attributes and Maternal Satisfaction with Childbirth Services.
All five dimensions of the SERVQUAL model correlated significantly with maternal satisfaction with childbirth services (Table 4).

In model 1 (unadjusted *coefficients β*), all five dimensions of the SERVQUAL model were significantly associated with maternal satisfaction with childbirth services ($p < 0.001$). In model 2 (adjusted *coefficients β*), after adjusting for all the five dimensions of the SERVQUAL model and sociodemographic characteristics, reliability (adjusted $\beta = -3.28$, $p = 0.001$) and empathy (adjusted $\beta = 2.21$, $p = 0.028$) were the most significant predictors of maternal satisfaction with childbirth services. The unadjusted R^2 was 0.153. This shows that the model explained 15.3% of variations in maternal satisfaction with childbirth services (Table 5).

4. Discussion

Patient satisfaction is one of the most important aspects of the healthcare delivery system that aims at providing quality services that meet the expectations of the patients. To achieve this, there is the need to put in place some comprehensive structures as well as put in maximum output at the

TABLE 2: Sociodemographic characteristics of study participants.

Variables	Frequency ($N = 277$)	Percentage (%) (range)
Age (years)		
20–29	154	55.6
30–39	113	40.8
≥40	10	3.6
Mean (±SD)	29.2 (±5.2)	20–45
Relationship status		
Married	194	70.0
Single	26	9.4
Cohabiting	57	20.6
Level of education		
Basic	89	32.1
Secondary	118	42.6
Tertiary	70	25.3
Religion		
Christian	222	80.1
Muslim	55	19.9
Employment status		
Formal	59	21.3
Informal	189	68.2
Unemployed	29	10.5

SD: standard deviation.

workplace. The outcome of the present study suggests that maternal satisfaction with childbirth services was high. The study showed that "reliability" and "empathy" were the key predictors of maternal satisfaction with childbirth services among this cohort of postnatal mothers.

The present study revealed that 79.8% of the participants were satisfied with childbirth services. About 51.6% of the participants indicated their willingness to continue to access healthcare at the facility. These findings are comparable to studies conducted in the Upper East Region of Northern Ghana and Ethiopia where about 77.0% and 74.8% of postnatal mothers, respectively, were satisfied with childbirth services [20, 27]. However, they are at variance with the findings of studies in Kenya (54.5%) [40] and Ethiopia (45.0%) [41]. The variations in the findings could be due to national and regional differences in the quality of services provided and variations in the sociodemographic characteristics of the clients which may influence their expectations. Again, these studies [40, 41] measured maternal satisfaction using a 5-point Likert scale while the present study measured maternal satisfaction with a single question with a response of "satisfied" or "not satisfied."

Additionally, the findings of the present study revealed that study participants encountered challenges such as unprofessional conduct of skilled staff, poor facilities, and an inadequate number of skilled staff. These challenges could explain the reason why some of the study participants (20.2%) were not satisfied with the quality of childbirth services they received at the facility. The conduct of healthcare professionals has been found to influence maternal satisfaction with childbirth services [24, 42]. Staff attitude is one of the most important aspects of childbirth services. This

TABLE 3: Maternal satisfaction with childbirth services among study participants.

Variables	Frequency ($N = 277$)	Percentage (%)
Overall satisfaction		
Satisfied	221	79.8
Not satisfied	56	20.2
Willingness to continue to access maternal and child healthcare		
Do not know	29	10.5
Least willing	12	4.3
Less willing	12	4.3
Very willing	81	29.2
Willing	143	51.6
Challenges encountered at the facility[a]		
Delays	137	49.5
Unprofessional conduct from health workers	20	7.2
Poor facilities	30	10.8
Inadequate number of skilled staff	43	15.5
Ways challenges can be addressed[a]		
Increase staff strength	141	50.9
Expand the facility	161	58.1
Establishment of a complaint desk	148	53.4

[a]Multiple responses: responses were counted more than once per respondent. Poor facilities: uncleaned washroom and inadequate space for delivery.

TABLE 4: Correlation of SERVQUAL dimensions and maternal satisfaction with childbirth services among study participants.

	R	T	RS	A	E	PS
Reliability (R)	1					
Tangibility (T)	0.750**	1				
Responsiveness (RS)	0.800**	0.716**	1			
Assurance (A)	0.707**	0.730**	0.696**	1		
Empathy (E)	0.810**	0.766**	0.798**	0.818**	1	
Patient satisfaction (PS)	-0.353**	-0.305**	-0.287**	-0.301**	-0.259**	1

**Correlation is significant at the 0.001 level.

TABLE 5: Bivariable and multivariable linear regression analysis of the factors associated with maternal satisfaction with childbirth services among study participants.

	Model 1			Model 2		
	Coefficients β	t	Sig.	Coefficients β	t	Sig.
Reliability	-0.04	-6.26	<0.001	-0.04	-3.28	0.001
Tangibility	-0.04	-5.32	<0.001	-0.01	-1.02	0.308
Responsiveness	-0.05	-4.96	<0.001	-0.01	-0.17	0.868
Assurance	-0.05	-5.23	<0.001	-0.03	-1.78	0.077
Empathy	-0.05	-4.44	<0.001	0.05	2.21	0.028
Unadjusted R^2				0.153		
Prob > F				<0.001		

Model 1: unadjusted. Model 2: adjusted for SERVQUAL dimensions and sociodemographic characteristics such as age, relationship status, and level of education.

implies that in setting up structures to improve childbirth services, the conduct of staff should not be left out as it equally has a significant influence on satisfaction with childbirth services. The implication of this is the increased need for healthcare workers to be trained in customer service and increased awareness of positive attitudes and work ethics as well as the institution of a reward-punishment system for excellent and poor conduct. The influence of poor

facilities and inadequately skilled staff on maternal satisfaction with childbirth services has also been discussed in the literature [24, 43]. The present study is similar to a study that reported the influence of logistics and infrastructure on satisfaction with delivery services [24].

Identifying the key predictors of satisfaction with childbirth services is important for policies and practices. The findings of the present study revealed that "reliability" and "empathy" were the most significant predictors of maternal satisfaction with childbirth services. "Reliability" was found to be the most significant predictor of maternal satisfaction with childbirth services among this cohort. This implies that the most significant factor in improving maternal satisfaction with childbirth services is the ability to deliver the services promised accurately and dependably. The results of the multiple linear regression analysis revealed that "reliability" was significantly associated with maternal satisfaction with childbirth services. That is, at any particular point in time, a facility should be able to deliver the services based on its core mandate accurately and at all times. This is in line with the findings of a study that reported that "reliability" had a significant effect on maternal satisfaction with childbirth services [24]. In that study, they found that patients that had good reliability scores were about 3 times more likely to be satisfied with childbirth services compared with those who did not have good reliability scores [24]. The findings of this study highlight the importance of "reliability" in the provision of quality childbirth services.

The "empathy" dimension was also found to be a significant predictor of maternal satisfaction with childbirth services in the present study. The effect of the "empathy" dimension of service quality on patient satisfaction has been previously explored [27, 44]. The implication of this is that showing empathy towards patients accessing childbirth services from this facility influenced their level of satisfaction with childbirth services. The results of the multivariate linear regression analysis showed that an increase in the "empathy" dimension of the facility increased the satisfaction of study participants with childbirth services. Mothers accessing childbirth services become satisfied and comfortable with services if health workers show them concern and emotion and pay more attention to them. Some studies [45, 46] have reported some empathy-related aspects such as care and good attitudes from healthcare professionals as determinants of satisfaction with care. This finding shows the importance of paying critical attention to the "empathy" of healthcare workers in the facility in setting out strategies to improve childbirth services.

5. Limitation

Due to the use of a quantitative approach, the present study was unable to explore the various factors that might have influenced participants' satisfaction with childbirth services. The present study was conducted in one site and this limits the generalizability of the study findings. Another limitation of this study is that we could not account for data on mothers who lost their babies (they were discharged home before we reported to the facility) as this could affect the overall maternal satisfaction with childbirth services. This

is because their experiences may be different from mothers that delivered live babies. This study's inability to include information about the mother's delivery method (spontaneous vaginal delivery or caesarean section) is noted as a study limitation because it may influence the level of satisfaction with childbirth services.

6. Conclusion

The findings of the present study revealed a considerable level of maternal satisfaction with childbirth services among women accessing childbirth services. The conduct of healthcare professionals, poor facilities, and an inadequate number of healthcare professionals were some of the challenges that study participants faced at the healthcare facility with childbirth services. The service quality components that significantly predicted maternal satisfaction with childbirth services were "reliability" and "empathy." It is therefore important to put in interventions such as regularly training staff on reliability and how to show empathy towards patients with equitable distribution of healthcare workers across the various units or wards to improve on the existing maternal satisfaction with childbirth services.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

We confirm that the authors have no conflict of interest to declare.

Authors' Contributions

VA, DAO, AM, and EOD were involved in the study design and conceptualization. VA, NKAB, GA, OKOA, and SI were involved in the data collection. DAO, JO, NKAB, and AM were involved in the data analysis and interpretation. All the authors were involved in writing and reviewing the manuscript. All the authors read and gave their approval for the current state of the manuscript for publication.

Acknowledgments

Supplementary Materials

Supplementary File: the questionnaire (data collection tool) that was used to collect study data. *(Supplementary Materials)*

References

[1] I. Gungor and N. K. Beji, "Development and psychometric testing of the scales for measuring maternal satisfaction in

normal and caesarean birth," *Midwifery*, vol. 28, no. 3, pp. 348–357, 2012.

[2] O. L. Abodunrin, A. A. Adeomi, and O. A. Adeoye, "Clients' satisfaction with quality of healthcare received: study among mothers attending infant welfare clinics in a semi-urban community in South-western Nigeria," *Sky Journal of Medicine and Medical Sciences*, vol. 2, no. 7, pp. 45–051, 2014.

[3] V. Matthews, G. Schierhout, J. McBroom et al., "Duration of participation in continuous quality improvement: a key factor explaining improved delivery of type 2 diabetes services," *BMC Health Services Research*, vol. 14, no. 1, pp. 1–12, 2014.

[4] W. Gudu and B. Addo, "Factors associated with utilization of skilled service delivery among women in rural northern Ghana: a cross sectional study," *BMC Pregnancy and Childbirth*, vol. 17, no. 1, pp. 1–10, 2017.

[5] D. A. Amporfro, M. Boah, S. Yingqi et al., "Patients satisfaction with healthcare delivery in Ghana," *BMC Health Services Research*, vol. 21, no. 1, pp. 1–13, 2021.

[6] S. Ofei-dodoo, "Patient satisfaction and treatment outcomes of primary care practice in Ghana," *Ghana Medical Journal*, vol. 53, no. 1, pp. 63–70, 2019.

[7] N. Leap, J. Sandall, S. Buckland, and U. Huber, "Journey to confidence: women's experiences of pain in labour and relational continuity of care," *Journal of Midwifery & Women's Health*, vol. 55, no. 3, pp. 234–242, 2010.

[8] V. Bertucci, M. Boffo, S. Mannarini et al., "Assessing the perception of the childbirth experience in Italian women: a contribution to the adaptation of the childbirth perception questionnaire," *Midwifery*, vol. 28, no. 2, pp. 265–274, 2012.

[9] P. Jha, M. Larsson, K. Christensson, A. Skoog, and M. Larsson, "Satisfaction with childbirth services provided in public health facilities: results from a cross- sectional survey among postnatal women in Chhattisgarh, India," *Global Health Action*, vol. 10, no. 1, p. 1386932, 2017.

[10] W. Sayed, D. Eldeen, M. A. Elaal, H. S. Mohammed, A. M. Abbas, and K. M. Zahran, "Maternal satisfaction with delivery services at tertiary university hospital in upper Egypt, is it actually satisfying?," *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, vol. 7, no. 7, pp. 2547–2552, 2018.

[11] K. T. Gashaye, A. Tesfahun, T. Id, and G. Shiferaw, "Client satisfaction with existing labor and delivery care and associated factors among mothers who gave birth in university of Gondar teaching hospital; Northwest Ethiopia: institution based cross-sectional study," *PLoS One*, vol. 14, no. 2, pp. 1–15, 2019.

[12] D. Eziawdres, W. Worku, and M. Taye, "Maternal satisfaction with delivery services and its associated factors among mothers who gave birth at public health centers in Yeka sub city, Addis Ababa, Ethiopia," *Health Services Insights*, vol. 14, 2021.

[13] Z. Dettrick, S. Firth, and E. J. Soto, "Do strategies to improve quality of maternal and child health care in lower and middle income countries lead to improved outcomes? A review of the evidence," *PLoS One*, vol. 8, no. 12, pp. 1–9, 2013.

[14] P. A. Dalinjong, A. Y. Wang, and C. S. E. Homer, "The implementation of the free maternal health policy in rural northern Ghana: synthesised results and lessons learnt," *BMC Research Notes*, vol. 11, no. 1, pp. 1–6, 2018.

[15] U. Haruna, G. Dandeebo, and S. Z. Galaa, "Improving access and utilization of maternal healthcare services through focused antenatal care in rural Ghana: a qualitative study," vol. 2019, Article ID 9181758, Advances in Public Health, 2019.

[16] E. R. van Teijlingen, V. Hundley, A. M. Rennie, W. Graham, and A. Fitzmaurice, "Maternity satisfaction studies and their limitations: "what is, must still be best"," *Birth*, vol. 30, no. 2, pp. 75–82, 2003.

[17] G. A. Bulto, D. B. Demissie, T. L. Tasu, and G. A. Demisse, "Mother's satisfaction with the existing labor and delivery care services at public health facilities in west Shewa zone, Oromia region, Ethiopia," *BMC Pregnancy Childbirth*, vol. 20, no. 1, pp. 1–12, 2020.

[18] R. C. Nesbitt, T. J. Lohela, A. Manu et al., "Quality along the continuum: a health facility assessment of intrapartum and postnatal care in Ghana," *PLoS One*, vol. 8, no. 11, pp. 1–10, 2013.

[19] J. Sumankuuro, J. Crockett, and S. Wang, "Perceived barriers to maternal and newborn health services delivery: a qualitative study of health workers and community members in low and middle-income settings," *BMJ Open*, vol. 8, no. 11, p. e021223, 2018.

[20] T. Melese, Y. Gebrehiwot, D. Bisetegne, and D. Habte, "Assessment of client satisfaction in labor and delivery services at a maternity referral hospital in Ethiopia," *The Pan African Medical Journal*, vol. 17, pp. 76–79, 2014.

[21] P. Turkson, "Perceived quality of healthcare delivery in a rural district of Ghana," *Ghana Medical Journal*, vol. 43, no. 2, pp. 65–70, 2009.

[22] M. V. Dzomeku, "Maternal satisfaction with care during labour: a case study of the Mampong-Ashanti district hospital maternity unit in Ghana," *International Journal of Nursing and Midwifery*, vol. 3, no. 3, pp. 30–34, 2011.

[23] K. K. Adjei, K. Kikuchi, S. Owusu-Agyei et al., "Women's overall satisfaction with health facility delivery services in Ghana: a mixed-methods study," *Tropical Medicine and Health*, vol. 47, no. 1, pp. 41–49, 2019.

[24] H. Amu and S. H. Nyarko, "Satisfaction with maternal healthcare services in the Ketu south municipality, Ghana: a qualitative case study," *BioMed Research International*, vol. 2019, Article ID 2516469, 6 pages, 2019.

[25] P. A. Dalinjong, A. Y. Wang, and C. S. E. Homer, "Are health facilities well equipped to provide basic quality childbirth services under the free maternal health policy? Findings from rural northern Ghana," *BMC Health Services Research*, vol. 18, no. 1, pp. 1–9, 2018.

[26] P. A. A. K. Turkson, "Client satisfaction survey of healthcare delivery in rural Ghana using service quality measurement (SERVQUAL) approach," *Ghana Social Science Journal*, vol. 6, pp. 217–235, 2009.

[27] J. O. Essiam, "Service quality and patients satisfaction with healthcare delivery: empirical evidence from patients of the out patient department of a public university hospital in Ghana," *European Journal of Business and Management*, vol. 5, no. 28, pp. 52–63, 2013.

[28] World Health Organization, *Standards for improving quality of maternal and newborn care in health facilities*, WHO, 2016.

[29] M. O. Audo, A. N. P. Ferguson, and P. K. Njoroge, "Quality of health care and its effects in the utilisation of maternal and child health services in Kenya," *East African Medical Journal*, vol. 82, no. 11, pp. 547–553, 2005.

[30] J. Charan and T. Biswas, "How to calculate sample size for different study designs in medical research?," *Indian Journal of Psychological Medicine*, vol. 35, no. 2, pp. 121–126, 2013.

[31] L. S. Tuglo, C. Agbadja, C. S. Bruku et al., "The association between pregnancy-related factors and health status before

and after childbirth with satisfaction with skilled delivery in multiple dimensions among postpartum mothers in the Akatsi South District, Ghana," *Frontiers in Public Health*, vol. 9, pp. 1–12, 2022.

[32] A. Parasuraman, V. A. Zeithaml, and L. Berry, "SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality," *Journal of Retailing*, vol. 64, no. 1, pp. 12–40, 1988.

[33] A. B. Zun, M. I. Ibrahim, and A. A. Hamid, "Level of satisfaction on service quality dimensions based on SERVQUAL model among patients attending 1 Malaysia clinic in Kota Bharu, Malaysia," *Oman Medical Journal*, vol. 33, no. 5, pp. 416–422, 2018.

[34] T. Fatima, S. A. Malik, and A. Shabbir, "Hospital healthcare service quality, patient satisfaction and loyalty," *International Journal of Quality & Reliability Management*, vol. 35, no. 6, pp. 1195–1214, 2018.

[35] K. Owusu Kwateng, R. Lumor, and F. O. Acheampong, "Service quality in public and private hospitals: a comparative study on patient satisfaction," *Int J Healthc Manag.*, vol. 12, no. 4, pp. 251–258, 2019.

[36] N. Vatolkina, E. Gorbashko, N. Kamynina, and O. Fedotkina, "E-service quality from attributes to outcomes: the similarity and difference between digital and hybrid services," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 6, no. 4, 2020.

[37] H. S. Al-neyadi, S. Abdallah, and M. Malik, "Measuring patient's satisfaction of healthcare services in the UAE hospitals: using SERVQUAL measuring patient's satisfaction of healthcare services in the UAE hospitals: using SERVQUAL," *International Journal of Healthcare Management*, vol. 11, pp. 1–10, 2016.

[38] M. Umoke, P. C. I. Umoke, I. O. Nwimo et al., "Patients' satisfaction with quality of care in general hospitals in Ebonyi state, Nigeria, using SERVQUAL theory," *SAGE Open Medicine*, vol. 8, no. 1, 2020.

[39] T. Aghamolaei, T. E. Eftekhaari, S. Rafati et al., "Service quality assessment of a referral hospital in southern Iran with SERVQUAL technique: patients' perspective," *BMC Health Services Research*, vol. 14, no. 1, pp. 1–5, 2014.

[40] C. M. Gitobu, P. B. Gichangi, and W. O. Mwanda, "Satisfaction with delivery services offered under the free maternal healthcare policy in Kenyan public health facilities," *Journal of Environmental and Public Health*, vol. 2018, Article ID 4902864, 9 pages, 2018.

[41] T. Reta and L. Tadesse, "Satisfaction with childbirth services given in public health facilities: a cross-sectional survey in Ethiopia," *Journal of Women's Health*, vol. 10, no. 540, pp. 1–7, 2021.

[42] B. Bellows, C. Kyobutungi, M. K. Mutua, C. Warren, and A. Ezeh, "Increase in facility-based deliveries associated with a maternal health voucher programme in informal settlements in Nairobi, Kenya," *Health Policy and Planning*, vol. 28, no. 2, pp. 134–142, 2013.

[43] M. Tetui, E. K. Ekirapa, J. Bua, A. Mutebi, R. Tweheyo, and P. Waiswa, "Quality of antenatal care services in eastern Uganda: implications for interventions," *The Pan African Medical Journal*, vol. 13, pp. 1–15, 2012.

[44] A. Ahenkan and K. Aduo-Adjei, "Predictors of patient satisfaction with quality of healthcare in university hospitals in Ghana," *Hospital Practices and Research*, vol. 2, no. 1, pp. 9–14, 2017.

[45] G. S. Avortri, A. Beke, and G. Abekah-Nkrumah, "Predictors of satisfaction with child birth services in public hospitals in Ghana," *International Journal of Health Care Quality Assurance*, vol. 24, no. 3, pp. 223–237, 2011.

[46] A. Awuahpeprah, "Determinants of patients' satisfaction at Sunyani Regional Hospital, Ghana," *International Journal of Business and Social Research (IJBSR)*, vol. 4, no. 1, pp. 96–108, 2014.