Service Quality Delivery in Prenatal Services and Patient Satisfaction in Public Health Institutions in Minna Metropolis, Niger State

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Abstract

Patient satisfaction in prenatal services is a critical issue in public health institutions, yet the role of service quality dimensions in shaping satisfaction remains unclear. This study examines the impact of four key service quality dimensions—tangibles, reliability, responsiveness, and empathy—on patient satisfaction in prenatal care at public health institutions in Minna Metropolis, Niger State. Using a sample of pregnant women, statistical analysis was conducted to assess the significance of each dimension. The results indicate that tangibles (physical facilities, equipment, and staff appearance) had a negative but statistically insignificant impact on satisfaction (path coefficient = -0.047, p = 0.364). In contrast, reliability (the ability to deliver consistent and accurate services) had a positive and significant effect (path coefficient = 0.179, p = 0.001). Responsiveness (prompt service and willingness to help) negatively influenced patient satisfaction (path coefficient = -0.303, p = 0.034), suggesting delays or inadequate responses reduce satisfaction. Empathy (care and understanding from healthcare providers) had a positive and significant impact (path coefficient = 0.372, p = 0.051). The findings highlight that while tangibles are less critical, responsiveness and empathy are decisive in enhancing patient satisfaction. The therefore recommends that the Public health institutions in Minna should prioritize improving healthcare providers' responsiveness and empathetic behavior to enhance the overall quality of prenatal care services.

Keywords: Service quality delivery, prenatal services, public health Institution and patient satisfaction.

1.0 Introduction

Patient satisfaction in public health institutions, particularly in maternal healthcare services such as prenatal and postnatal care, remains a critical challenge. In Nigeria,

pregnant women often experience dissatisfaction due to inadequate healthcare infrastructure, long waiting times, insufficient medical personnel, and poor service delivery. These issues not only affect their healthcare experiences but also contribute to poor maternal and infant health outcomes. The World Health Organization (WHO, 2021) has identified poor service quality, lack of access to skilled healthcare providers, and inadequate facilities as key factors exacerbating maternal mortality in sub-Saharan Africa.

Recognizing these challenges, governments and policymakers have made various efforts to improve maternal healthcare services. Initiatives such as the Midwives Service Scheme (MSS), increased budgetary allocations for maternal health, and the establishment of more healthcare centers aim to address these shortcomings. Additionally, prior research (e.g., Sadeghi et al., 2018; Choudhury and Tripathi, 2020) has highlighted the importance of service quality dimensions—such as reliability, responsiveness, and empathy—in enhancing patient satisfaction. However, despite these efforts, patient dissatisfaction persists due to gaps in service delivery, inadequate implementation of healthcare policies, and continued infrastructural deficiencies.

Thus, ensuring effective service quality delivery in maternal healthcare remains a pressing concern. This study seeks to explore how key service quality dimensions—tangibles, reliability, responsiveness, and empathy—impact patient satisfaction in prenatal services at public health institutions in Minna Metropolis, Niger State. By examining these factors, this study aims to provide insights that can guide improvements in service delivery and maternal health outcomes.

2.0 Literature Review

2.1. Conceptual Review

The quality of healthcare services significantly influences maternal and child health outcomes, particularly in prenatal and postnatal care. This review examines five key dimensions of service quality—Tangibles, Reliability, Responsiveness, Assurance, and Empathy—and their impact on patient satisfaction and healthcare effectiveness. Tangibles refer to the physical environment, cleanliness, medical equipment, and availability of essential maternal health resources (Parasuraman et al., 1988). A well-maintained healthcare setting fosters patient confidence, while poor infrastructure and inadequate medical equipment contribute to dissatisfaction and adverse health outcomes (Ameh et al., 2012). Reliability is the ability of healthcare providers to consistently deliver accurate, timely, and dependable services (Zeithaml et al., 1990). This includes skilled professionals, adherence to clinical protocols, and timely interventions. Inconsistencies in service delivery can negatively affect maternal health and increase

mortality risks (Sadeghi et al., 2018). Responsiveness relates to the willingness of healthcare staff to assist and promptly address the needs of pregnant women (Parasuraman et al., 1988). Timely medical attention, proactive communication, and reduced waiting times enhance patient satisfaction and encourage healthcare utilization (Afulani et al., 2019). Poor responsiveness, such as long waiting times and dismissive attitudes, can significantly reduce patient trust in the healthcare system (Pillay et al., 2011). **Assurance** reflects the competence, professionalism, and credibility of healthcare providers, which instills confidence in patients (Zeithaml et al., 1990). Skilled and knowledgeable practitioners improve maternal healthcare experiences, while a lack of assurance can lead to fear, anxiety, and reduced healthcare-seeking behavior (Anwar et al., 2018). Empathy involves the level of care, understanding, and personalized attention given to pregnant women (Dagger et al., 2007). Healthcare providers who actively listen and offer emotional support contribute to a positive patient experience, encouraging adherence to medical recommendations (Sharma & Shukla, 2020). Women who feel understood and cared for by their healthcare providers are more likely to follow medical advice and report higher satisfaction with their care (Ogunjimi et al., 2019).

The conceptual framework for this study is built upon the Service Quality (SERVQUAL) model, which measures service quality across five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988). In the context of pre- and post-natal services, these dimensions can be adapted as follows: Tangibles, Reliability, Responsiveness, Assurance and Empathy:
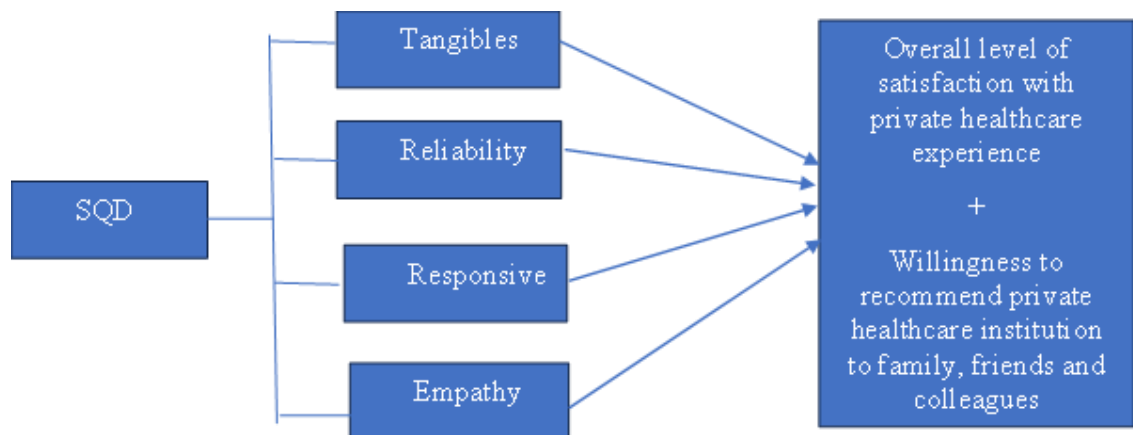

Figure 1: Study's Conceptual Framework
Source: Researcher's conception (2025)

Patients satisfaction, the dependent variable, is evaluated by assessing the overall experience of pregnant women with these service dimensions. A higher level of

satisfaction is expected when service quality meets or exceeds patient expectations. The framework highlights the relationship between service quality and patients satisfaction, which is central to improving maternal health outcomes.

2.2 Theoretical Literature Review

Several theoretical perspectives underpin the relationship between service quality and patients satisfaction in healthcare settings. Amongst the lot, Consonance Theory most directly speaks to this study.

i. Consonance Theory

This was developed in 2017 by Bernado Oliver Arde, a registered nurse and scholar from the Philippines (Arde, 2017). The theory posits that patient satisfaction is the outcome of the level of congruence between the patient's expectations of the quality of care to be received in the hospital and the actual level of care received (Dinsa *et al.*, 2022). The level of congruence between expectations and actual experience is hypothesized to affect the patient's health outcomes and perceived quality of care received at the hospital (Dinsa *et al.*, 2022). The theory emphasizes the role nurses play in ensuring patient satisfaction, and suggests that a satisfied patient will be more likely to follow the instructions of the medical personnel and thus get better quickly while also recommending the healthcare institution to his circle of family, friends and colleagues thus increasing the patronage of the hospital and its revenue stream (Dinsa *et al.*, 2022).

The postulates of consonance theory best suit this study's conceptualization of patient satisfaction and is thus selected to underpin this study's theoretical framework. Specifically, patients have certain quality expectations of the public health institution they utilize in terms of physical facilities (tangibles), dependable services (reliability), prompt services (responsiveness) and individualized attention from the healthcare professionals (empathy). The extent to which these patients feel that these quality expectations are met will determine their level of overall satisfaction with the actual medical services received as well as affect their willingness to recommend the hospital to others.

2.3 Empirical Review

The study reviews the relevant empirical studies on four dimensions of service quality delivery and their impacts of patient satisfaction as outlined in the objectives of the study. A study by Akinmoladun and Oludare (2021) found that the physical environment and the availability of modern medical equipment significantly contributed to patient satisfaction among antenatal clients in public hospitals in Nigeria. This finding is

consistent with previous research by Zeithaml et al. (2018), who emphasized the importance of physical evidence in healthcare settings. However, while Zeithaml et al. (2018) argued that tangibles are crucial for overall patient satisfaction, other studies (e.g., Adekeye et al., 2020) suggest that while tangibles are important, they might not be as significant as other service quality dimensions like reliability and responsiveness in influencing patient satisfaction. The reliance on tangibles as a primary determinant of satisfaction may overlook more subjective and personal aspects of care, which could be equally or more influential for pregnant women in pre-natal care settings. Therefore, while tangibles have an important role, they must be considered in conjunction with other service quality factors such as responsiveness and empathy to fully understand their impact on patient satisfaction. In the context of pre-natal care, reliability encompasses consistency in the provision of medical services, accurate diagnosis, and the regular availability of staff.

A recent study by Obembe et al. (2023) found a positive and significant relationship between the reliability of service delivery and patient satisfaction in public health institutions. This study suggests that when pregnant women receive consistent, accurate, and dependable services, their level of satisfaction increases. Similarly, studies by Ali et al. (2020) and Nwosu and Nwachukwu (2022) corroborate this finding, indicating that reliability in service delivery improves patients' overall satisfaction. However, in contrast to the findings of Obembe et al. (2023), some studies have found that reliability alone may not be sufficient to satisfy pregnant women if it is not accompanied by other dimensions such as responsiveness or empathy (e.g., Ogunyemi, 2021). This indicates that while reliability is a significant predictor of satisfaction, it should not be overemphasized to the exclusion of other service quality attributes. Therefore, to enhance patient satisfaction in pre-natal services, it is important to balance reliability with responsiveness and empathy, ensuring a holistic approach to service delivery.

On responsiveness, Raji and Tijani (2020) reported that responsiveness has a significant and positive effect on patient satisfaction in public health institutions in Nigeria, particularly for pregnant women in antenatal care. This finding aligns with the results from studies in other regions, such as those by Lee et al. (2021), who found that responsiveness significantly influenced patient satisfaction in South Korea's public health institutions. However, a study by Akintoye and Olatunji (2019) noted that the level of responsiveness in Nigerian public health institutions may vary greatly depending on the institutional resources and staff workload, suggesting that responsiveness can be constrained by factors such as insufficient staff and overcrowded healthcare facilities. Despite the positive association between responsiveness and satisfaction, the challenge remains in ensuring that responsiveness is consistently delivered, particularly in resource-poor settings. Therefore, increasing responsiveness in pre-natal services

requires not only addressing institutional constraints but also training healthcare staff to prioritize timely and effective communication with pregnant women.

In furtherance to the above, Salihu et al. (2022) noted that empathy was found to be a significant predictor of patient satisfaction among pregnant women attending public health institutions. The study emphasized that empathetic interactions were essential for ensuring that pregnant women felt valued and supported throughout their antenatal visits. This aligns with previous research by Ferreira et al. (2020), who argued that empathy was a major determinant of satisfaction in healthcare services across different patient groups. However, a study by Olaoye et al. (2020) suggested that empathy alone might not be enough to ensure high levels of patient satisfaction, particularly when other factors like accessibility and service efficiency are lacking. While empathy is undeniably important, it must be combined with the other dimensions of service quality to create a more comprehensive service experience. For pregnant women in public health institutions, the integration of empathy with reliability, responsiveness, and tangible elements can significantly enhance overall satisfaction.

3.0 Methodology

The study employs survey research design because it is research approach allows the use of survey instruments to generate first-hand data to establish the relationship between service quality and patient satisfaction this research design befits the nature of this study because the study examines the impact of service quality and patient satisfaction and the required data for this study was generated from the field, hence the choice of survey research design (Bloomfield and Fisher, 2019).

3.1 Population and sample size of the Study

The population for this study is the total number of pregnant women who registered for antenatal service in the last nine months and patronized the Public health institutions in the study area (Minna metropolis). The total population of pregnant women registered in Minna Metropolis in the last nine months is 1005 (Niger State Hospital Management Board) Considering this study's survey approach, the sample size for the study using Taro Yemani formula is 338.

3.2 Method of Data Collection

A close-ended questionnaire (was employed to collect data using a 'wait and collect' approach to ensure that the selected pregnant and post-natal women fill the questionnaire immediately and return it to the researcher in one sitting to ensure a high response rate. The questionnaire has three sections, with Section A collecting demographic data (name of ministry/department/agency, name of public hospital or clinic, age group, marital

status, and gender), section B collecting data on the four service-quality proxies (tangibles, reliability, responsiveness, and empathy) and section C collecting data on patient satisfaction. Sections B and C required respondents to indicate their level of agreement with the statements based on a five-point Likert scale, with 1 being 'strongly disagree' and 5 beings 'strongly agree'. The service quality and patient satisfaction items were adapted from (Ahmed *et al.*, 2017).

3.3 Method of Data Analysis

The study adopted a partial least squares structural equation modeling (PLS-SEM) approach to analyze the data. Due to its ability to estimate and evaluate a full conceptual model rather than just testing individual hypotheses, PLS-SEM offers numerous well-known advantages over other techniques like traditional regression analysis

3.4 Model Specification

The statistical model for this study's analysis is expressed as follows:

$$PS = bo + b_1 Tan + b_2 Rel + b_3 Res + b_4 Emp + £ …… (3.1)$$

(adapted from Dam and Dam (2021) considering its coverage of the study's variables)

$$PS = \beta_0 + \beta_1 T + \beta_2 R + \beta_3 Re + \beta_4 E + \mu …… (3.2)$$

Where PS = Patient Satisfaction; Tan = Tangibles, Rel = Reliability, Res = Responsiveness, Emp = Empathy, μ= Error term. β_0 = constant or the value of the dependent variable when all the predictor variables are zero (0) β_1 - β_4 = the estimated regression coefficient of predictor variables.

4.0 Results and Discussion

4.1 Table 1.0 : Distribution of Selected Public Health Institutions in Minna Metropolis and Number of Women Registered for Prenatal Services in the last 9 months

WARD(MINNA METRPOLIS)	CLINIC/HOSPITAL /PRIMART HEALTH CARE CENTRE (PUBLIC HEALTH INSTITUTIONS)
Limawa 'A' Ward	Family Support Program Primary Health Clic
Limawa 'A' Ward	Old Airport Road Clic
Makera Ward	Minna General Hospital
Nassarawa 'B' Ward	Police Clic Minna
Nassarawa 'C' Ward	Anguwan Biri Primary Health Care
Nassarawa 'C' Ward	Autabarde Primary Health Care
Nassarawa 'C' Ward	Tayi Health Clic (Chanchaga)
Sabon Gari Ward	A/Kuje UBE School Clic
Sabon Gari Ward	Abdulsalam Qtrs Clic
Tudunwada North Ward	Kanfanyi Primary Health Centre

Tudunwada North Ward	M.i wushishi clic
Tudunwada North Ward	Primary Health Care Centre Kafintela
Tudunwada South Ward	Primary Health Care Tunga
Tudunwada South Ward	Sauka Kahuta Primary Health Care
Tudunwada South Ward	Shakwata Primary Health Centre
Tudunwada South Ward	Tunga Sabon Titi Health Centre

Source: Author's field survey (2025)

4.2 Model Fitness

Table 2.0 Model Fit

Fit Index	Value
SRMR	0.065
Duls	0.084
Chi-Square	123.47 (p = 0.063)
RMSEA	0.072
GFI	0.88
AGFI	0.85

Source: Author's Fieldwork (2025)

Table 2.0 . presents the model fit indices as shown in the table all the indicators have moderate to high values indicating a model fit.

4.3 Table 3.0 VIF Multicollinearity statistics for inner model

Variable	Patients Satisfaction
Patients Satisfaction	
Empathy	1.924
Reliability	1.449
Responsiveness	1.995
Tangibles	1.284

Source: Author's Fieldwork (2025)

As shown in Table 3.0 , the Variance Inflation Factor (VIF) values for the predictor variables, namely Empathy, Reliability, Responsiveness, and Tangibles, about the outcome variable, patient satisfaction, are 1.924, 1.449, 1.995, and 1.284, respectively. It is worth noting that a statistical VIF value greater than 10 is generally considered indicative of collinearity issues, which can lead to challenges in estimating the distinct impact of each predictor on the outcome variable. However, in this specific analysis, the obtained VIF values are all below 5, indicating that collinearity is not a concern in the presented data. Consequently, the model was able to accurately demonstrate the individual contributions of each predictor variable to the outcome variable without any complications arising from collinearity.

4.4 Hypothesis Testing

Table 4.0 Summary of t-statistics and p-values for hypothesis testing

	Path Coefficient	Sample mean	Standard deviation	t statistic	p values	Remark
Tangibles - patients Satisfaction	-0.047	-0.048	0.052	0.907	0.364	Accepted
Reliability - patient Satisfaction	0.179	0.186	0.056	3.216	0.001	Rejected
Responsiveness - Patient satisfaction	-0.303	0.299	0.069	4.368	0.034	Accepted
Empathy - Patient satisfaction	0.372	0.372	0.058	6.42	0.051	Accepted

Source: Author's Fieldwork (2024)   (Note: *Significant at $p \leq 0.05$)

4.5 Discussion of the Results

In Table 4.0 Tangibles do not affect patient satisfaction in public health institutions in Minna Metropolis, Niger State. The sample mean of the predictive variable "Tangibles" in the original data is -0.047. The study determined that there is no statistically significant relationship between "Tangibles" and "Patients Satisfaction." This conclusion is supported by multiple factors: the t-statistic (0.907) is relatively small, the path coefficient is negative (-0.047), and the p-value (0.364) exceeds the common significance level of 0.05. As a result, the null hypothesis was accepted, leading the study to conclude that "Tangibles" do not have a statistically significant impact on patient satisfaction in public health institutions in Minna Metropolis, Niger state.

The finding reveals that tangibles do not affect patient satisfaction in public health institutions in Minna Metropolis, Niger state, this indicates that the public health institutions are yet to achieve the optimal expectations in terms of modern equipment required, appealing facilities, and professional appearance required of health workers. This finding is in contrast with the study of Ahmed *et al.* (2017) on patent satisfaction in Iran.

The predictive variable "Reliability" has a sample mean of 0.179 in the original data. The study found that the relationship between "Reliability" and "Patient Satisfaction" was statistically significant with a t-statistic of 3.216, a path coefficient of 0.179, and a p-

value of 0.001. the null hypothesis was thus rejected and the found a statistical relationship between reliability and patient satisfaction in public health institutions in Minna Metropolis, Niger state.

The finding on Reliability revealed a positive relationship between reliability and patient satisfaction in public health institutions in Minna Metropolis, Niger state. The positive and significant relationship between reliability and patient satisfaction in public health institutions in the Minna metropolis suggests that pregnant women place a high value on consistent and dependable healthcare services. This finding is consistent with the study of Ahmed *et al.* (2017) in the healthcare sector and Pakurár *et al.* (2019) in the Jordanian banking sector; reliability deepens the trust of customers in service delivery by their service provider, and this subsequently enhances the satisfaction of customers and sustained competitive advantage.

On Responsiveness, the study found that the relationship between "Responsiveness" and "Patients Satisfaction" was statistically insignificant with a t-statistic of 4.368, a path coefficient of 0.303 and a high p-value (less than 0.034). the study thus accepts the null hypothesis and reject the alternative which states that there is a statistical relationship between responsiveness and patient satisfaction in public health institutions in Minna Metropolis, Niger state. The findings revealed a negative statistical relationship between responsiveness and patient satisfaction in public health institutions in Minna Metropolis, Niger state. This finding is not consistent with the study of Ahmed *et al.* (2017); and Nahida-Afroz (2019) in private clinics. Patient satisfaction can be achieved through the willingness of service providers to hasten services to meet patient needs in the most timely manner.

The predictive variable "Empathy" has a sample mean of 0.372 in the original data. The study found that the relationship between "Empathy" and "Patient Satisfaction" was statistically insignificant with a t-statistic of 6.42, a path coefficient of 0.372, and a very high p-value of 0.051. Based on this, the study accepts the null hypothesis and establishes that Empathy has an insignificant statistical effect on patient satisfaction in public health institutions in Minna Metropolis, Niger state.

The finding revealed a positive statistical effect of empathy on patient satisfaction. The positive but insignificant relationship between empathy and patient satisfaction in public health institutions in the Minna metropolis implies that customers are not highly valued and have less empathetic interactions with healthcare providers. This finding suggests that health institutions that do not demonstrate a genuine understanding of patients' concerns, emotions, and individual needs are more likely not to contribute positively to overall patient satisfaction with antenatal services. This is consistent with the study of Ahmed *et al.* (2017) in Iranian healthcre sector; Walsh *et al.* (2019) in haalthcare sector; Vencataya *et al.* (2019) in te banking industry.

5.0 Conclusion and Recommendations
5.1 Conclusion
The study concludes that the practice of quality service delivery and its dimensions, namely Empathy, Reliability, and Responsiveness, have demonstrated a significant explanatory effect on patient satisfaction in relation to antenatal services in Minna Metropolis. The findings show that out of the four variables, only Reliability was found to be statistically significant because the patient believe that the government hospital has more qualified and reliable health workers (doctors and nurses). Further, variables such as tangibles (hospital facilities), reliability and are weak resulting in a lack of confidence in the services of public health institutions. Cleanliness of environments, care, and professionalism in handling patients especially pregnant women on antenatal are essential to satisfaction.

5.2 Recommendations
Based on the findings, the study recommends that all public health institutions implement a framework to assess their physical components and conduct periodic evaluations of the tangible components. .
All public health institutions listed should ensure a robust system for efficient scheduling procedures that minimize waiting times for patients. This could include optimizing appointment booking processes, utilizing electronic systems for scheduling, and maintaining clear communication channels with patients regarding appointment confirmations and changes.

Public health institutions should ensure the engagement of qualified personnel and establish training and development programs that prioritize empathic communication skills, active listening, and the ability to empathize with patients to better comprehend their concerns and emotions.

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