

# TOTAL QUALITY MANAGEMENT PRACTICES AND SERVICE DELIVERY IN PUBLIC HOSPITALS IN PLATEAU, KADUNA, AND BENUE STATES IN NIGERIA

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**Abstract:** Total Quality Management (TQM) has evolved into a crucial paradigm for enhancing organizational efficiency and customer satisfaction worldwide, with its relevance growing particularly in healthcare systems. Nigeria's healthcare system is marked by substantial performance deficits, particularly in public hospitals, where inefficiencies and suboptimal service delivery are prevalent. This has resulted in low patient satisfaction, with the country ranking poorly in global health system assessments, such as the World Health Organization's rankings. The healthcare sector in Nigeria is challenged by systemic issues that hinder effective service delivery, contributing to its low standing among global health systems. This study examined the effect of total quality management practices on service delivery in public hospitals in Plateau, Kaduna, and Benue states in Northern Nigeria. The study adopted a descriptive survey design where a sample of 384 constituting health professionals, administrators and patients was utilized. Using generalized linear regression analysis, the study analyzed data collected from public hospitals to assess the significance of these TQM practices. The findings indicated that employee involvement, communication, and cultural change have significant positive effects on service delivery, while customer focus and technology adoption showed positive but insignificant effects. Leadership had a negative but insignificant effect on public hospital service delivery in Plateau, Kaduna, and Benue states in Nigeria. The study concluded that a multifaceted approach prioritizing employee empowerment, effective communication, and cultural adaptability is necessary to improve service delivery. The study recommends that the government should implement strategies that empower healthcare staff. This can include regular training programs, participatory decision-making processes, and open communication channels. By promoting a culture of inclusivity and transparency, hospitals can improve employee morale and motivation, leading to better service outcomes.

**Keywords:** Total Quality Management, Service Delivery, Public Hospitals, Northern Nigeria.

## 1.0

## INTRODUCTION

### 1.1 Background to the Study

Total Quality Management (TQM) has emerged as a vital framework for improving organizational efficiency and customer satisfaction globally, with its application increasingly significant in healthcare systems. With its focus on continuous improvement, customer satisfaction, and the involvement of all employees in the quality enhancement process, TQM remains crucial in addressing the rising demands for high-quality healthcare services (Sroor, 2022). In high-income countries, TQM practices have been widely adopted, contributing to enhanced patient outcomes and operational efficiency (Al Yami, *et al.*, 2024). According to Vanker (2024), 23% of United States patients were said to be satisfied with the healthcare cost in 2010, the rate dropped to 21%

in 2015 but increased further to 30% in 2020 and eventually declined to 19% in 2023. Furthermore, the Institute for Healthcare Improvement and NORC (2017) observed that 31% of Americans experience medical errors in someone else's care. Similarly, in the United Kingdom, 60% of the patients were said to be satisfied with the National Health Service (NHS) in 2015 with the rate dropping to 24% in 2023 (Vanker, 2024). Additionally, due to the ineffective total quality management in the healthcare system, Elliott, Camacho, Jankovic, Sculpher and Faria (2021) found that 237 million medication errors occur at some point in time in England. These statistics suggest that despite efforts to improve healthcare quality through various initiatives, including Total Quality Management (TQM), significant gaps remain in both patient satisfaction and safety outcomes.

In Africa, healthcare systems grapple with issues of inefficiency, poor infrastructure, and limited funding, with TQM increasingly seen as a solution to these problems. The financial constraints severely limit healthcare funding, with many African countries spending below the recommended 15% of their national budgets on health (World Health Organization, 2023). This underfunding leads to deteriorating infrastructure and a lack of adequate medical supplies, worsening an already critical situation. According to Ducit Blue Solutions (2023), only 62.3% of feasible quality care is achieved across Africa, indicating room for improvement through TQM interventions. Countries like Namibia, Mauritius, and Seychelles have shown higher quality of care indices above 80%, suggesting that effective TQM practices lead to better healthcare outcomes (Ducit Blue Solutions, 2023). However, the implementation of TQM in African healthcare is uneven, and constrained by systemic challenges such as inadequate staff training and resource allocation. Although some countries have shown advancements, challenges such as resistance to change, limited training, and resource constraints often hinder full implementation, particularly in low- and middle-income countries (LMICs).

In Nigeria, the healthcare system faces significant performance gaps, especially in public hospitals. The country's health sector is characterized by inefficiencies, suboptimal service delivery, and poor patient satisfaction, ranking 187th out of 191 countries in the World Health Organization's global health system rankings (WHO, 2020). Public hospitals in the northern region face peculiar challenges that exacerbate the need for effective TQM practices. The region has a high disease burden, with maternal mortality rates of 576 deaths per 100,000 live births, significantly above the national average of 512 (Nigerian Bureau of Statistics, 2022). Public hospitals in the area struggle with inadequate funding, insufficient healthcare personnel, and outdated medical equipment, leading to poor service delivery outcomes. Jibril *et al* (2024) revealed that only 31.1% of clients are satisfied with the services offered by PHC in Kaduna. The absence of structured quality management practices further compounds these issues, resulting in inefficiencies and unmet patient expectations. While the Nigerian government has introduced reforms to improve healthcare delivery, such as the Basic Healthcare Provision Fund (BHPF), these efforts often fall short due to weak implementation mechanisms.

The implementation of Total Quality Management (TQM) practices in public hospitals in Kaduna, Plateau and Benue states in Northern Nigeria presents a significant challenge to improving service delivery and patient satisfaction. Despite the critical need for enhanced healthcare quality, many public hospitals in these states suffer from inadequate infrastructure, insufficient funding, and a lack of trained personnel, which hinder effective service delivery (World Health Organization, &

World Bank, 2018). The disjointedness between health policy initiatives and actual practice results in inconsistencies in care quality across facilities leading to only a small percentage of these public hospitals meeting basic quality standards, hence resulting in low patient satisfaction rates and diminished trust in healthcare services. Additionally, the absence of a robust TQM framework contributes to poor employee engagement and high turnover rates among healthcare workers, further exacerbating the challenges faced by these institutions (Artac Ozdal & Oyebamiji, 2020). The lack of effective leadership and accountability within hospital management structures stifles innovation and responsiveness to patient needs (Ducit Blue Solutions, 2023). This study, therefore, seeks to explore the effect of total quality management practices on service delivery in public hospitals in Plateau, Kaduna, and Benue states in Nigeria.

## **2.0**

## **LITERATURE REVIEW**

### **2.1 Conceptual Clarification**

#### **2.1.1 Total Quality Management (TQM)**

The evolution of the concept of total quality management varies across different sectors. According to the American Society for Quality (ASQ) (2024), TQM is described as a management system for a customer-focused organization that engages all employees in continual improvement of processes, products, services, and the culture in which they operate. Similarly, Corporate Finance Institute (2024) defined TQM as a comprehensive approach to organizational management that focuses on achieving quality excellence in every aspect of operations, promoting continuous improvement and teamwork to eliminate defects and enhance overall performance. In another perspective, Thakur (2022) articulated that TQM is a philosophy centered on improving quality across operations and producing higher-quality products with fewer defects. Furthermore, Dihadjo and Ellitan (2021) defined TQM as a systematic approach that emphasizes the integration of quality management into the organization's culture, focusing on customer needs and leveraging data-driven decision-making to foster continuous improvement.

Additionally, Anafo and Appiah-Nimo (2018) considered total quality management primarily to cultivate an organizational culture that prioritizes the continuous enhancement of the quality of products or services provided to customers. Omore (2022) elaborated on TQM to mean the culture upheld by an organization that primarily seeks to improve customer satisfaction while consistently enhancing the quality of services to meet and surpass customer expectations and needs. Given this, the study defined TQM as a comprehensive management approach aimed at enhancing the quality of healthcare services through continuous improvement and customer satisfaction. This emphasizes the involvement of all employees, from top management to frontline staff, in the pursuit of quality excellence, fostering a culture where every member of the organization is committed to improving processes, products, and services.

#### **2.1.2 Service Delivery**

Recent definitions of service delivery illustrate its complexity and significance across various sectors. Ponsignon, Smart, and Maull (2011) defined service delivery as the comprehensive process through which businesses provide services to their customers, encompassing all interactions from initial contact to follow-up. Ruwanika and Maramura (2024) further elaborated on this concept, describing service delivery as the provision of benefits and satisfactions derived from municipal activities, with a strong emphasis on enhancing the effectiveness and efficiency of public service delivery. Motsi, Gumbe, Muzondo, and Makudza (2023) offered a governmental perspective by defining service delivery as the provision of products or services by government

bodies to their communities. Conversely, Seyitoglu and Ivanov (2020) characterized service delivery as a framework designed to facilitate regular interactions between vendors and customers throughout the entire service provision process.

Moreover, Enaifoghe (2022) argued that service delivery encompasses both tangible and intangible services, emphasizing its broad applicability across different sectors. Ndebele and Lavhelani (2017) expanded on this notion by asserting that effective service delivery is crucial for guaranteeing a standard quality of life; inadequate provision can pose risks to public safety and environmental integrity. These definitions illustrate that service delivery is not merely about providing services but also involves ensuring that those services are delivered in a manner that meets or exceeds customer expectations while contributing positively to community well-being. This study describes service delivery as the systematic process through which public hospitals provide healthcare services to patients and communities, encompassing all aspects of care from initial contact to follow-up. This includes not only the provision of medical treatment but also health promotion, disease prevention, and rehabilitation, ensuring that services are tailored to meet the diverse needs of the population.

## **2.2 Theoretical Framework**

The study was anchored on the theoretical postulations of Deming (1986). The theory is founded on several core principles, including the system of profound knowledge, which encompasses an understanding of systems, variation, psychology, and the nature of knowledge itself. A fundamental tenet of this theory is the assertion that enhancing quality is primarily a management responsibility and that tackling systemic issues yields greater benefits than merely concentrating on individual performance.

Deming's 14 key management points, which advocate for a long-term vision and the cultivation of a culture dedicated to continuous learning, are essential components of this approach (Deming, 1986). The strengths of this theory lie in its comprehensive focus on systems and processes, promoting proactive identification and resolution of issues while emphasizing the importance of employee empowerment and teamwork. However, its general nature may necessitate considerable adaptation to fit specific industries, and organizations resistant to change may find it challenging to implement the cultural shifts required in public hospitals.

Deming's theory holds significant relevance for enhancing service delivery in these public hospitals. These hospitals frequently encounter systemic challenges such as limited resources, inefficiencies, and inconsistent service quality. Therefore, by incorporating total quality management practices public hospitals stand a chance of minimizing variations in service quality, improving collaboration among staff members, and fostering ongoing enhancements in patient care processes in Nigeria.

## **2.3 Empirical Review**

Omokanye and Adepoju (2024), assesses the influence of health information management practices on the quality of health information management service delivery in OAUTHC Ile-Ife, Osun State Nigeria. A descriptive survey research design was conducted where 317 respondents were sampled. Findings from the study showed that the majority of the respondents asserted that the quality of health information management practice in this institution is satisfactory (28.43%) and very satisfactory (68.30%). The study also showed that the greatest HIM service quality the

patients and other service seekers enjoyed in the hospital is service reliability with an average response rate of a mean 2.69. It is concluded from the study that health information management (HIM) practices have a great influence on the overall quality of healthcare services.

Mahatlhe, Litheko and Solomon (2023), examines whether TQM can be employed as a management tool to improve service delivery to land claimants in Mahikeng (North West Province), South Africa. A non-probability purposive sampling method for the quantitative method was used. Findings revealed that land claimants were dissatisfied with the level of service rendered by the Department of Agriculture, Land Reform, and Rural Development (DALRRD), as a result of ineffective communication on the process that should be followed to submit claims. Achieng and Misuko (2023) examined the influence of total quality management (TQM) practices on quality services in the healthcare sector in Nairobi County, Kenya. Using regression techniques of analysis, findings revealed that customer focus, quality improvement, employee involvement and management support significantly affect quality services in the healthcare sector in Nairobi County, Kenya.

Omore (2022) examines the influence of Total Quality Management practices on quality services in the healthcare sector in Nairobi County, Kenya. The study adopted multinomial logistic regression analysis where data was collected from 115 respondents from a healthcare workforce population of 1,652. The study found that customer focus, quality improvement, employee involvement and management support significantly promoted service quality. The study concluded that there is a significant relationship between TQM practices and quality services in the healthcare sector in Nairobi County, Kenya. Mutambi (2022) investigated the effects of total quality management practices on the operational performance of the private health sector in Kenya. The regression model demonstrated that customer focus showed a positive significant regression effect; top management support showed a positive insignificant effect; education and training showed a positive and significant regression effect; while continuous improvement had a significant effect. The study concludes that TQM influences service delivery within the ISO-certified hospitals in Nairobi.

Wandie and Muathe (2022), determines the effect of total quality management application on the quality-of-service delivery across public hospitals in Kenya. The research applied a descriptive approach to the target population of 1718 respondents. The sampling approach for the study was a stratified random technique that selected a sample of 250 participants. The findings indicated that employee involvement, technology adoption, continual advancement, and client focus affect service delivery across various public hospitals in Kenya significantly. Muchunu (2022) established the relationship between total quality management practices and service delivery at the Kenya Revenue Authority. Adopting content analysis findings revealed that total quality management practices impacted service delivery. They included customer focus, staff training, culture, and leadership. The study also concluded that the TQM practices (customer focus, employee training, culture, and leadership) resulted in efficient service delivery at the Kenya Revenue Authority.

Al Shraah, Abu-Rumman, Al Madi, Alhammad and AlJboor (2022), investigates the impact of total quality practices on knowledge management (KM) processes across a Social Security Corporation (SSC) in Jordan. The two-stage approach of structural equation modeling (SEM) was employed.

Findings noted that six out of seven independent factors relating to quality management practices were confirmed to have a significant impact on the knowledge management processes (KMPs). Abdi and Singh (2021) explored the effect of total quality management (TQM) practices on nonfinancial performance (NFP) in the automotive engineering industry in Ethiopia. Using data gathered from 500 respondents via questionnaire, structural equation modeling was utilized. Findings displayed that only two factors (employee involvement and innovation) were contributing to the NFP.

Murenga and Njuguna (2020) establishes the effect of total quality management practices on service delivery at Horizon Offices Limited, Kenya. 129 respondents were utilized and a self-administered semistructured questionnaire was issued. Using regression analysis, the study concluded that total quality management practices (employee involvement, technology adoption, continuous improvement and cultural change) significantly influenced the quality of service delivery at Horizon Offices Limited, Kenya. Mwikali and Bett (2019) examined the effect of total quality management practices on service delivery at The Nairobi Hospital, Kenya. The study adopted a descriptive research design targeting all employees at the Nairobi Hospital. Using regression analysis, the study established that customer focus, employee empowerment, communication and top management have significant effects on the service delivery at the Nairobi hospital.

Anafo and Appiah-Nimo (2018) assesses the effect of total quality management on service quality delivery at Kotoka International Airport in Accra. The research deployed Pearson's correlation test, and Confirmatory Factor Analysis (CFA) with the findings noting that TQM (asset management and quality assurance) had a significant positive effect on service quality. The study reveals that the level of service quality delivered at GACL is satisfactory, with Tangibles being the highest. It also suggests that the level of TQM is appreciably high. However, the level of service quality delivered did not lead to high satisfaction.

Existing studies have examined TQM practices and service delivery in various sectors, particularly in Kenya, emphasizing factors like customer focus and technology adoption. However, these findings cannot be generalized to Northern Nigeria due to its unique socio-economic context. Limited research, such as Omokanye and Adepoju (2024), has explored quality practices in Nigerian hospitals but not the broader impact of TQM on service delivery. This highlights the need for focused research on TQM's influence in public hospitals in Plateau, Kaduna, and Benue states in Nigeria.

### **3.0**

## **METHODOLOGY**

### **3.1 Research Design**

Research design is the general strategy for bridging conceptual research issues with relevant and helpful empirical research. According to Creswell (2014), it is a research manual that offers detailed directions on how to carry out a research project. The adoption of this design depends on a thorough analysis of current phenomena. This study adopted a descriptive survey design. Atmowardoyo (2018) sensitively highlighted that such a design describes the actual phenomenon under inquiry with as much precision as possible, linking the importance of the design to this survey. The features of the participants in the inquiry are highlighted because this study is more interested in what happened than in how or why it happened (Nassaji, 2015).

### **3.2 Area of the Study**

The study was conducted in three northern states in Nigeria; Plateau, Kaduna and Benue states. The choice of these states arose from the fact that Plateau, Kaduna, and Benue states have witnessed significant healthcare challenges which at some point in time crowded the public hospitals. More so, these states have continually been the center of violent activities like banditry and other religious crises. These states have been identified as having public hospitals that struggle with issues such as inadequate infrastructure, insufficient staffing, and varying levels of service quality, which directly impact patient care and satisfaction (Ogbonna, Okafor, Ejim, Samuel, Grace & Chiadichiem, 2016).

### **3.3 Population of the Study**

The population describes the full understanding of the elements that the researcher intends to draw valid conclusions from. It involves every component of the narrowly defined topic of investigation. According to Saunders, Lewis and Thornhill (2009), these factors have some observable traits related to the research under investigation. Further, Kothari (2014) argued that a target population includes the research subjects from whom the researcher collects information. Therefore, the population for this study involved healthcare professionals, administrators and patients.

### **3.4 Sampling and Sample Size**

Sampling size refers to the practical strategies a researcher uses to select a population sub-group to be studied rather than the full population as a whole (Kabir, 2016). It comprises choosing portions of the inquiry from which the researcher makes inquiries and uses those answers to make generalizations about the entire study population. This study adopted stratified random sampling. Stratified random sampling improves the overall accuracy of survey results by reducing variability within each stratum (Quirk, 2023). Given this, the researcher employed Cochran's formula to determine the sample size to be investigated as the formula takes into account the case of an unknown population of the study. The formula is stated as:

$$n = \frac{z^2 pq}{e^2}$$

Where;  $n$  is sample size;  $z$  is the critical value of the confidence level;  $p$  is estimated proportion of an attribute that is present in the population;  $q = 1 - p$ ;  $e$  is the desired level of significance.

Given  $p = 0.5$ , confidence interval = 95%, with a 5% significance level, the calculation for the sample size with an unknown population is given as:  $p = 0.5$ ;  $q = 1 - 0.5$ ;  $e = 0.05$ ;  $z = 1.96$  substituting the values into the formula:

$$n = \frac{1.96^2 (0.5)(0.5)}{0.05^2}$$

$$n = \frac{3.8416 * 0.25}{0.0025}$$

$$n = \frac{0.9604}{0.0025}$$

$$n = 384.16$$

Sample size = 384

### **3.5 Data Collection Instrument**

The data collection instrument utilized for this investigation is a questionnaire. The questionnaire is a structured survey tool designed to gather information directly from the participants. The investigation depended on a structured questionnaire as an instrument of data collection from the sampled respondents. This is accredited to the questionnaire type that is more likely to elicit more

organized answers and permit practical suggestions. The questionnaire is advantageous since it is quick to administer, simple to evaluate, and time-efficient (Gillham, 2007). The usage of this questionnaire assists in minimizing the number of similar responses to acquire more diverse answers from the respondents.

### **3.6 Data Collection Procedure**

The administration of the questionnaire was done with the aid of a research assistant. Prior to the collection of the information by the research assistant, time and caution were taken to ensure that the assistants understood the information on the questionnaire clearly to enable better explanation to the respondents where the need may arise. The information collected using the questionnaires was through the drop-and-pick method.

### **3.7 Method of Data Analysis**

The method of data analysis involves the tools used in collecting, cleaning, transforming, and modeling data to discover useful information, inform conclusions, and support decision-making. It involves a wide range of techniques and tools that are used to extract meaning from data and communicate insights to stakeholders. According to Sohrabi, Rossouw, and Steven (2016), data analysis comprises evaluating, organizing, and presenting the collected data to increase the use of field information. This study adopted generalized linear model estimation for analysis. This is due to the flexible extension of ordinary linear regression used in statistics. It generalizes linear regression by allowing the relationship between the response variable and predictors to be defined through a link function (Hastie & Pregibon, 2017). The key components of a GLM include a random component specifying the response variable's distribution, a linear predictor, and a link function that transforms the expected response to the linear predictor (Salinas, Montesinos, Hernández & Crossa, 2023). The GLM assumes that the response variable is conditionally independent given the predictors, and the variability of the response is related to the mean through the specified probability distribution and link function. In most cases, the distribution belongs to the exponential distribution family. The linear predictor is a function of the explanatory variables, expressed as  $\eta = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$  and a link function that transforms the expectations of the dependent or response variable to the linear predictors. Shafrin (2019) stated that the link function describes the relationship between the linear predictor and the distribution function mean based on the functional relationship. Based on this, the functional relationship concerning total quality management practices and service delivery in public hospitals in the selected northern states is expressed as:

$$SD_i = \exp(\beta_0 + \beta_1 EE_i + \beta_2 CF_i + \beta_3 CM_i + \beta_4 LS_i + \beta_4 TA_i + \beta_4 CC_i) + \varepsilon_i$$

Where; SD is service delivery; EE represents employee involvement; CF is customer focus; CM is communication; LS represents leadership; TA is technology adoption and CC represents cultural change.

## **4.0**

## **RESULTS**

### **4.1 Data Presentation and Analysis**

This section of the study presents the results of the generalized linear model that estimates the effect of total quality management practices on service delivery in the study location. The analysis made use of 379 questionnaires retrieved from the field. The outcomes are presented in Table 1.



**Table 1:** Information of the Respondents

Gender	Frequency	Percent		Frequency	Percent
Male	215	56.7	<b>Educational Level</b>		
Female	164	43.3	Secondary	54	14.2
<b>Total</b>	<b>379</b>	<b>100.0</b>	Certificate/Diploma	138	36.4
<b>Age</b>			Undergraduate	143	37.7
Less or equal to 20	85	22.4	Postgraduate	44	2.1
21-30	128	33.8	<b>Total</b>	<b>379</b>	<b>100.0</b>
31-40	100	26.4	<b>Years of Experience</b>		
41-50	42	11.1	Less than 5 years	21	5.5
51-60	16	4.2	6-10 years	82	21.6
Above or equal 61	8	2.1	11-15 years	176	46.4
<b>Total</b>	<b>379</b>	<b>100.0</b>	Above 15 years	100	26.4
			<b>Total</b>	<b>379</b>	<b>100.0</b>

Source: Field Survey, 2025

Table 1 indicated the information of the respondents where it revealed that 56.7% of the respondents were male, while 43.3% were female, indicating male predominance. In terms of age, 22.4% were 20 years or younger, 33.8% were aged 21-30, 26.4% were aged 31-40, 11.1% were aged 41-50, 4.2% were aged 51-60, and only 2.1% were aged 61 or older, showing that the majority (60.2%) were between 21 and 40 years old. Regarding educational qualifications, 14.2% had secondary education, 36.4% held certificates or diplomas, 37.7% had undergraduate degrees, and only 11.6% had postgraduate qualifications, reflecting a workforce with a moderate to high level of education. For years of experience, only 5.5% had less than five years of experience, while 21.6% had six to ten years, 46.4% had eleven to fifteen years, and 26.4% had more than fifteen years of experience, indicating that the majority (72.8%) had over a decade of professional experience in their roles. These outcomes highlight predominantly young, educated, and experienced workforce in the public hospitals studied. The outcome of the generalize linear model are reported in table 2.

**Table 2:** Dependent Variable: Service Delivery

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.665997	0.272310	2.445729	0.0145
EE	0.486144	0.095424	5.094574	0.0000
CF	0.097790	0.072440	1.349938	0.1770
CM	0.357711	0.106942	3.344903	0.0008
LS	-0.164954	0.090741	-1.817852	0.0691
TA	0.220392	0.118200	1.864567	0.0622
CC	0.153083	0.077190	1.983192	0.0473
Quasi-LR statistic	69.34956			
Prob(Quasi-LR stat)	0.000000			

Source: Field Survey, 2025

The model in Table 2 used an Exponential Mean Quasi-likelihood with an Identity link function. Convergence was achieved after 7 iterations, indicating a stable solution. The dispersion was computed using Pearson Chi-Square, which is appropriate for quasi-likelihood models. The overall

model fit is significant, as evidenced by the Quasi-LR statistic of 69.34956 with a p-value of 0.000000, suggesting that the model as a whole is statistically significant in explaining variations in service delivery in the public hospitals in Plateau, Kaduna, and Benue states in Northern Central, Nigeria.

Findings in Table 4.1 indicated that employee involvement (EE) has a positive and significant ( $\beta=0.486144$ ;  $p < 0.0001$ ) effect on service delivery. This suggests that increased employee involvement is associated with improved service delivery in the hospitals. Conversely, customer focus (CF) further displayed a positive and insignificant coefficient of 0.097790 ( $p = 0.1770$ ) denoting that improvement in customer focus would insignificantly lead to an increase in service delivery in these public hospitals. With a coefficient of 0.357711 ( $p = 0.0008$ ), communication (CM) also showed a significant positive effect on service delivery. This implies that effective communication appears to enhance service delivery significantly.

Leadership (LS) disclosed a negative and insignificant coefficient of -0.164954 ( $p = 0.0691$ ). This means that as leadership increases or improves service delivery tends to decrease in the public hospitals. The findings revealed that technology adoption (TA) with a coefficient of 0.220392 ( $p = 0.0622$ ) showed a positive and insignificant effect on service delivery. This implies that improvement in technology adoption would enhance service delivery insignificantly in these hospitals. The outcome designated that cultural change (CC) has a coefficient of 0.153083 ( $p = 0.0473$ ), suggesting a positive and significant effect on service delivery. This implies that cultural changes in the hospitals lead to improved service delivery.

## **4.2 Discussions**

The findings on the effect of total quality management practices on service delivery in public hospitals in Plateau, Kaduna, and Benue states, Nigeria highlighted the critical role of employee involvement. The significant positive effect of employee involvement on service delivery, suggests that empowering employees through participatory decision-making processes enhances morale and motivation, leading to improved service outcomes. This is particularly relevant in the Nigerian context, where public healthcare faces challenges such as weak institutional capacity and poor funding, making employee engagement a vital strategy for improving service delivery. The involvement of employees provides better depth and commitment in addressing systemic challenges and enhances patient care. These findings resonate with the studies of Abdi and Singh (2021); Omore (2022); Wandie and Muathe (2022) and Achieng and Misuko (2023) who all emphasized the importance of employee involvement in healthcare settings, where employee satisfaction and participation are crucial for delivering high-quality services.

The findings also discovered that customer focus had a positive but insignificant effect on service delivery in public hospitals in Plateau, Kaduna, and Benue states in Nigeria. This outcome highlights the challenges faced by these institutions in implementing effective customer-centric strategies. This insignificance may be attributed to systemic issues such as resource constraints, inadequate infrastructure, and limited capacity to tailor services to meet patient needs effectively. In resource-constrained environments, hospitals often prioritize basic service delivery over more customer-focused approaches, which require significant investment in training and infrastructure. Additionally, cultural and societal factors in Northern Nigeria might influence how patients perceive and interact with healthcare services, further complicating the implementation of

customer-focused strategies. Therefore, while customer focus is intuitively beneficial, its impact remains marginal in these settings, suggesting a need for broader systemic reforms to enhance service delivery. The findings contrast with findings from Omore (2022), and Mutambi (2022) and Achieng and Misuko (2023), which showed that customer focus significantly affects service quality in the healthcare setting. This suggests that the effectiveness of customer focus may vary contextually.

Communication disclosed a positive and significant effect on service delivery in public hospitals in Plateau, Kaduna, and Benue states in Northern Nigeria, emphasizing the importance of effective communication in healthcare settings. This result is consistent with the findings of Mwikali and Bett (2019) who found that communication significantly impacts service delivery at The Nairobi Hospital in Kenya. Effective communication in healthcare settings improves patient care by ensuring that information is accurately conveyed among staff and between healthcare providers and patients, leading to better service outcomes. In the context of Northern Nigeria, where healthcare infrastructure and resources may be limited, robust communication systems help mitigate these challenges by facilitating efficient service delivery and improving patient satisfaction.

Leadership showed a negative and insignificant effect on service delivery in public hospitals in Northern Nigeria, especially given the critical role leadership typically plays in healthcare settings. This result may suggest that certain leadership styles or practices in these hospitals are not conducive to improving service delivery. The findings align with the findings of Mahmud *et al.* (2022) who indicated that leadership styles like transactional leadership are prevalent but do not necessarily predict quality service delivery. However, the findings conflicted with the findings of Afolabi (2022) who highlighted the importance of effective leadership in healthcare, emphasizing the need for styles that motivate staff and enhance patient care. The findings could be due to leadership styles that inadvertently hinder service delivery, possibly by imposing strict controls that limit employee autonomy or failing to align with the specific needs of public hospitals in Northern Nigeria. This underlines the need for leadership training and adaptation to improve service delivery in these settings.

The outcome uncovered that technology adoption had a positive but insignificant effect on service delivery in public hospitals in Northern Nigeria. This outcome reflects the broader challenges in the country's healthcare sector. Despite the potential of technology to enhance healthcare services, its adoption remains limited due to systemic issues such as inadequate infrastructure, insufficient digital literacy, and lack of access to necessary equipment and internet connectivity, particularly in rural areas. Many hospitals in Nigeria still rely on paper-based systems, and the adoption of electronic medical records (EMRs) and other digital health tools is slow. These barriers hinder the full realization of technology's benefits in improving service delivery, making it difficult to achieve significant impacts from technology adoption alone. Therefore, while technology holds promise for enhancing healthcare, addressing these underlying challenges is crucial for its effective integration and impact on service delivery in Northern Nigeria. The findings disagreed with the findings by Wandie and Muathe (2022) and Murenga and Njuguna (2020) in Kenya found that technology adoption significantly influences service delivery. This contrasts with the insignificant effect observed in Northern Nigeria, suggesting that contextual factors such as infrastructure and digital literacy may differ significantly between the two regions.

Cultural change denoted a positive and significant effect on service delivery in public hospitals in Northern Nigeria. The outcome highlights the importance of adapting organizational culture to improve healthcare outcomes. This result aligns with the studies of Murenga and Njuguna (2020) and Muchunu (2022) that highlighted the role of culture in enhancing service delivery. In Northern Nigeria, cultural changes help address socio-cultural barriers that affect healthcare delivery, such as diverse health belief systems and communication challenges. As a result of incorporating a more patient-centered and efficient work environment, cultural changes lead to improved service delivery, which is crucial given the region's poor health indices. This accentuates the need for hospitals to embrace cultural adaptability as a strategic tool for enhancing service quality and patient satisfaction.

## **5.0 Conclusion and Recommendations**

### **5.1 Conclusion**

This study uncovered knowledge depth into the effect of total quality management (TQM) practices on service delivery in public hospitals in Plateau, Kaduna, and Benue states in Northern Nigeria. Notably, employee involvement and communication were identified as having significant positive effects on service delivery, emphasizing the critical role of empowering employees and fostering effective communication within healthcare settings. Conversely, customer focus and technology adoption exhibited positive but statistically insignificant effects, which may be attributed to systemic constraints such as limited resources and inadequate infrastructure. The negative but statistically insignificant effect of leadership suggests potential issues with leadership styles that could impede service delivery. However, cultural change demonstrated a positive and significant impact, highlighting the importance of adaptable organizational cultures. These findings indicate that enhancing service delivery in public hospitals in Northern Nigeria necessitates a comprehensive strategy that prioritizes employee empowerment, effective communication, and cultural adaptability, while also addressing systemic barriers to maximize the benefits of customer focus and technology adoption.

### **5.2 Recommendations**

Given the above conclusion, the study recommends that:

- i.** The government should implement strategies that empower healthcare staff. This can include regular training programs, participatory decision-making processes, and open communication channels. By promoting a culture of inclusivity and transparency, hospitals can improve employee morale and motivation, leading to better service outcomes. Additionally, establishing clear communication protocols can help ensure that information is accurately conveyed among staff and between healthcare providers and patients, enhancing overall service quality.
- ii.** The government should focus on addressing the systemic challenges that hinder the effective implementation of customer focus and technology adoption in public hospitals. This includes investing in infrastructure development to support technology integration, such as electronic medical records and telemedicine services. Furthermore, training programs should be implemented to enhance digital literacy among healthcare staff, enabling them to effectively utilize technology to improve patient care. For customer focus, hospitals should develop strategies to better understand and meet patient needs, such as through feedback mechanisms and patient-centered care models.

iii. The government should promote leadership training programs that emphasize participatory and supportive leadership styles. These styles can help create an environment where employees feel valued and empowered to contribute to service delivery improvements. Additionally, fostering cultural adaptability is crucial for enhancing service delivery. This can be achieved by promoting organizational cultures that are responsive to changing healthcare needs and patient expectations, ensuring that hospitals remain agile and effective in delivering high-quality services.

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## APPENDIX

### Section A: Personal Attributes

1. Gender: a. Male ( ) b. Female ( )
2. Age:  $\leq 20$  ( ) 21 - 30 ( ) 31 – 40 ( ) 41 – 50 ( ) 51 – 60 ( )  $\geq 61$  ( )
4. Level of education: a. Secondary ( ) b. Certificate/Diploma ( ) c. Undergraduate ( ) d. Post Graduate ( )
5. For how long have you been working in the hospital? Less than 5 years ( ) 6-10 years ( ) 11-15 years ( ) above 15 years ( )

### Section B: Total Quality Management Practices

Tick the option that best explained your perception

#### Employee Involvement

1. How frequently do you participate in team meetings focused on quality improvement initiatives in your hospital? A) Never B) Occasionally (1-2 times a year) C) Regularly (3-5 times a year) D) Frequently (more than 5 times a year)

2. To what extent do you feel your suggestions and feedback are valued in the decision-making processes related to quality management? A) Not at all valued B) Somewhat valued C) Mostly valued D) Completely valued

3. How confident are you in your ability to contribute to quality improvement initiatives within your department? A) Not confident at all B) Slightly confident C) Moderately confident D) Very confident

**Customer Focus**

1. How well do you believe your hospital understands the needs and expectations of patients? A) Not at all well B) Somewhat well C) Mostly well D) Extremely well

2. How often are patient feedback and satisfaction surveys utilized to improve services in your hospital? A) Never B) Occasionally (1-2 times a year) C) Regularly (3-5 times a year) D) Frequently (more than 5 times a year)

3. To what extent do you feel that patient care processes in your hospital prioritize customer service and satisfaction? A) Not at all prioritized B) Somewhat prioritized C) Mostly prioritized D) Completely prioritized

**Communication**

1. How effective do you find the communication channels within your hospital for sharing information related to quality improvement initiatives? A) Very ineffective B) Somewhat ineffective C) Somewhat effective D) Very effective

2. How often do you receive updates or information about changes in policies or procedures that affect patient care and quality management? A) Never B) Occasionally C) Regularly D) Frequently

3. To what extent do you feel comfortable expressing your ideas or concerns regarding quality management to your supervisors or management? A) Not at all comfortable B) Slightly comfortable C) Moderately comfortable D) Very comfortable

**Leadership**

1. How would you rate the commitment of hospital leadership to implementing Total Quality Management practices? A) Very low commitment B) Low commitment C) High commitment D) Very high commitment

2. To what extent do you believe that leaders in your hospital encourage employee participation in quality improvement initiatives? A) Not at all B) To a small extent C) To a moderate extent D) To a great extent

3. How effectively do leaders in your hospital communicate the vision and goals related to quality improvement to staff? A) Very ineffectively B) Somewhat ineffectively C) Somewhat effectively D) Very effectively

**Technology Adoption**

1. How would you rate the level of technology adoption in your hospital for improving patient care and service delivery? A) Very low B) Low C) Moderate D) High

2. How often do you receive training on new technologies or systems implemented in your hospital? A) Never B) Occasionally C) Regularly D) Frequently

3. To what extent do you believe that the adoption of technology has improved the quality of services provided to patients in your hospital? A) Not at all B) To a small extent C) To a moderate extent D) To a great extent

**Cultural Changes**



1. How receptive do you feel your hospital's staff is to changes aimed at improving quality management practices? A) Very unresponsive B) Somewhat unresponsive C) Somewhat responsive D) Very responsive
2. To what extent do you believe that a culture of continuous improvement is promoted within your hospital? A) Not at all promoted B) Slightly promoted C) Moderately promoted D) Strongly promoted
3. How often do you participate in initiatives or activities that encourage cultural change towards quality improvement in your hospital? A) Never B) Occasionally C) Regularly D) Frequently

**Service Delivery**

1. How would you rate the overall quality of service delivery in your hospital? A) Very poor B) Poor C) Good D) Excellent
2. How effectively does your hospital respond to patient complaints and feedback regarding service delivery? A) Very ineffectively B) Somewhat ineffectively C) Somewhat effectively D) Very effectively
3. To what extent do you believe that TQM practices have improved the efficiency of service delivery in your hospital? A) Not at all B) To a small extent C) To a moderate extent D) To a great extent