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## Service Quality Management Practices and Healthcare Quality in Zambia's First Level Hospitals: Evidence from Chilenje and Matero Hospitals

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### Abstract

**Background:** Healthcare quality remains a critical concern globally, particularly in low- and middle-income countries where healthcare systems continue to face operational and resource-related challenges. This study examined the influence of service quality management practices on healthcare quality at Chilenje First Level Hospital and Matero First Level Hospital in Lusaka District, Zambia. Specifically, the study focused on patient satisfaction, communication, interpersonal care, waiting time, affordability, and patient safety as key dimensions influencing healthcare quality.

**Methods:** A facility-based quantitative cross-sectional study design was employed involving 385 respondents comprising patients, healthcare workers, and hospital management personnel. Data were collected using structured questionnaires based on the SERVQUAL model and Systems Theory. Descriptive statistics, Pearson correlation, and multiple linear regression analyses were conducted using SPSS version 26.

**Results:** The findings revealed that service quality management practices significantly influenced healthcare quality. Patients reported higher levels of satisfaction when healthcare workers demonstrated professionalism, empathy, responsiveness, respectful communication, and clear explanations regarding diagnoses and treatment procedures. Correlation analysis demonstrated strong positive relationships between healthcare quality and interpersonal care, communication, patient satisfaction, and patient safety. Waiting time demonstrated a significant negative relationship with healthcare quality. Regression analysis showed that interpersonal care, communication, patient satisfaction, waiting time, and patient safety significantly predicted healthcare quality ( $R^2 = 0.764$ ,  $p < 0.001$ ).

**Conclusion:** The study concludes that strengthening service quality management practices, particularly communication, interpersonal care, responsiveness, and patient safety, can significantly improve healthcare quality and patient satisfaction in Zambia's First Level Hospitals. However, persistent challenges such as overcrowding, staffing shortages, medicine stockouts, and long waiting times continue to negatively affect healthcare delivery and require urgent policy and management interventions.

**Keywords:** Service Quality; Patient Satisfaction; Healthcare Quality; Interpersonal Care; Communication; Patient Safety; First Level Hospitals; Zambia

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## 1. Introduction

Healthcare quality remains a major global concern because of its direct influence on patient outcomes, healthcare utilization, and population well-being. According to the World Health Organization (WHO), quality healthcare refers to healthcare services that improve desired health outcomes while being safe, effective, timely, efficient, equitable, and people-centered (WHO, 2021). In low- and middle-income countries (LMICs), achieving quality healthcare continues to be challenging due to inadequate resources, workforce shortages, poor infrastructure, and weak healthcare management systems (WHO, 2021; Kruk et al., 2018).

Globally, healthcare systems have increasingly prioritized patient-centered care and service quality improvement as critical strategies for achieving Universal Health Coverage (UHC) (WHO, 2021; Edgman-Levitan and Schoenbaum, 2021). Patient satisfaction has become an important indicator for evaluating healthcare performance because it reflects patients' perceptions and experiences regarding healthcare delivery. Healthcare institutions that maintain high service quality standards are more likely to improve patient trust, healthcare utilization, treatment adherence, and overall health outcomes (Parasuraman et al., 1988; Edgman-Levitan and Schoenbaum, 2021).

The WHO framework on integrated people-centered healthcare emphasizes that quality healthcare should be responsive to patient needs, coordinated across healthcare levels, and focused on improving patient experiences and health outcomes (WHO, 2021).

In sub-Saharan Africa, healthcare systems continue to face significant challenges associated with inadequate infrastructure, staffing shortages, medicine stockouts, and limited financial resources (Ameh et al., 2021; Oleribe et al., 2019). These challenges negatively affect patient satisfaction and healthcare quality. Studies conducted in Ethiopia, Ghana, Nigeria, and South Africa have shown that long waiting times, ineffective communication between healthcare providers and patients, and inadequate responsiveness negatively influence healthcare experiences and patient perceptions regarding healthcare quality (Appiah et al., 2021; Demeke et al., 2022; Odonkor et al., 2021).

In Zambia, the government has continued implementing healthcare reforms aimed at improving healthcare access and quality. The National Health Strategic Plan emphasizes strengthening healthcare management systems, improving service delivery, and promoting patient-centered care (Ministry of Health Zambia, 2022). First Level Hospitals (FLHs) play a critical role within Zambia's healthcare system because they serve as the first point of contact for many patients seeking healthcare services (Ministry of Health Zambia, 2022).

Despite ongoing healthcare reforms in Zambia, limited empirical evidence exists regarding how service quality management practices influence patient satisfaction and healthcare quality within First Level Hospitals. Existing studies have largely focused on healthcare access and infrastructure, with limited attention given to interpersonal care, communication, responsiveness, and patient safety as determinants of healthcare quality. This study therefore sought to examine the influence of service quality management practices on healthcare quality in selected First Level Hospitals in Lusaka District, Zambia.

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## 2. Literature Review

### 2.1. Concept of Service Quality in Healthcare

Service quality refers to the extent to which healthcare services meet or exceed patient expectations and healthcare needs (Parasuraman et al., 1988; WHO, 2021). In healthcare settings, service quality encompasses responsiveness, reliability, empathy, assurance, tangibility, communication, and patient-centeredness (Lee et al., 2024). Quality healthcare services contribute significantly to improved patient satisfaction, treatment adherence, healthcare utilization, patient safety, and overall healthcare outcomes (Edgman-Levitan and Schoenbaum, 2021; Kruk et al., 2018).

The concept of healthcare service quality has gained increasing attention globally due to its direct relationship with healthcare performance and Universal Health Coverage (UHC). According to the World Health Organization (WHO), quality healthcare should be safe, effective, timely, efficient, equitable, integrated, and people-centered (WHO, 2021). Healthcare systems that prioritize service quality are more likely to improve patient trust and population health outcomes (Kruk et al., 2018; WHO, 2021).

The SERVQUAL model developed by A. Parasuraman, Valarie Zeithaml, and Leonard Berry remains one of the most widely used frameworks for evaluating service quality across healthcare settings. The model identifies five major

dimensions of service quality: reliability, assurance, responsiveness, empathy, and tangibility (Parasuraman et al., 1988).

Within healthcare environments, these dimensions significantly influence patient perceptions regarding healthcare quality and healthcare experiences (Al-Borie and Damanhour, 2013; Odonkor et al., 2021). Reliability refers to the ability of healthcare providers to deliver accurate, dependable, and consistent healthcare services (Parasuraman et al., 1988). Assurance involves the competence, professionalism, courtesy, and trustworthiness demonstrated by healthcare workers (Al-Borie and Damanhour, 2013). Responsiveness relates to the willingness of healthcare providers to provide prompt assistance and timely healthcare services (Demeke et al., 2022). Empathy reflects individualized attention and concern for patients' healthcare needs, while tangibility relates to the physical infrastructure, medical equipment, cleanliness, and appearance of healthcare facilities (Parasuraman et al., 1988).

Studies conducted in LMICs demonstrate that responsiveness, communication, and empathy are among the strongest predictors of patient satisfaction in public healthcare facilities (Odonkor et al., 2021; Demeke et al., 2022). Similarly, research by Hassan Mohammed Al-Borie and Ayman Mohammed Damanhour (2013) established that service quality dimensions significantly influence patient trust and satisfaction in healthcare institutions.

## **2.2. Patient Satisfaction and Healthcare Quality**

Patient satisfaction is widely recognized as an important indicator of healthcare quality because it reflects patients' perceptions and experiences regarding healthcare services received. Satisfied patients are more likely to adhere to treatment plans, revisit healthcare facilities, comply with medical advice, and recommend healthcare services to others (Batbaatar et al., 2017; Johnson et al., 2023). Consequently, patient satisfaction has become a key measure for evaluating healthcare system performance globally.

Patient satisfaction is influenced by several factors including waiting time, communication, healthcare worker attitudes, responsiveness, privacy, cleanliness, confidentiality, continuity of care, and availability of medicines and medical equipment. According to Edgman-Levitan and Schoenbaum (2021), healthcare institutions that prioritize patient-centered care are more likely to improve healthcare experiences and clinical outcomes.

Research conducted in Ethiopia found that effective communication between healthcare providers and patients significantly improved patient satisfaction levels and treatment adherence (Tesfaye et al., 2021). Similarly, studies conducted in Ghana and Nigeria established that respectful treatment, shorter waiting times, and provider empathy positively influenced patient experiences and perceptions regarding healthcare quality (Appiah et al., 2021; Odonkor et al., 2021).

## **2.3. Interpersonal Care and Communication**

Healthcare provider communication and interpersonal relationships significantly influence patient experiences, treatment adherence, and healthcare outcomes (Street et al., 2009; Tomlinson et al., 2021). Effective communication enables patients to understand their diagnoses, treatment procedures, medication instructions, and preventive healthcare recommendations. Poor communication often results in misunderstanding, dissatisfaction, treatment non-adherence, anxiety, and reduced trust in healthcare providers (Tomlinson et al., 2021).

Patient-provider interaction remains a central component of patient-centered healthcare. According to the Institute of Medicine (2001), patient-centered care involves respecting patients' preferences, values, emotional needs, and involvement in decision-making processes. Positive interactions between healthcare workers and patients improve healthcare experiences and contribute to better clinical outcomes (Edgman-Levitan and Schoenbaum, 2021; Street et al., 2009).

Studies conducted in sub-Saharan Africa indicate that patients highly value empathy, respect, attentiveness, responsiveness, professionalism, and effective communication from healthcare providers (Odonkor et al., 2021; Appiah et al., 2021). Patients who receive clear explanations regarding their conditions and treatments generally report higher satisfaction levels compared to those who experience poor communication and neglect (Demeke et al., 2022).

Similarly, a study conducted in South Africa found that healthcare worker attitudes significantly influenced patient trust and healthcare utilization in public healthcare facilities (Mabaso et al., 2021). Research further demonstrates that compassionate and respectful healthcare delivery improves psychological comfort, patient confidence, and satisfaction levels (Edgman-Levitan and Schoenbaum, 2021; Beach et al., 2006).

Positive interpersonal relationships between healthcare workers and patients therefore contribute significantly to improved healthcare experiences and patient satisfaction. Consequently, healthcare worker attitudes, communication skills, professionalism, and emotional intelligence remain critical components of healthcare quality improvement initiatives.

#### 2.4. Patient Safety and Healthcare Quality

Patient safety remains a fundamental component of healthcare quality. According to the World Health Organization (WHO), patient safety refers to the prevention of errors and adverse effects associated with healthcare delivery (WHO, 2022). Safe healthcare practices help reduce medical errors, hospital-acquired infections, medication errors, surgical complications, and adverse healthcare outcomes (Slawomirski et al., 2017; WHO, 2022).

Research indicates that healthcare facilities with strong patient safety cultures demonstrate improved healthcare outcomes, reduced mortality rates, lower healthcare costs, and higher patient satisfaction levels (WHO, 2022). Patient safety culture involves shared values, attitudes, competencies, and behaviors that prioritize patient protection and continuous quality improvement (Sammer et al., 2010; WHO, 2022).

In low-resource healthcare settings, patient safety challenges are often associated with inadequate staffing, poor infrastructure, limited medical supplies, weak infection prevention systems, and inadequate quality assurance mechanisms (Kruk et al., 2018; Oleribe et al., 2019). Samuel et al. (2019) found that healthcare worker shortages and inadequate healthcare resources significantly compromise patient safety practices in public hospitals.

Similarly, research conducted in LMICs indicates that medication stockouts, overcrowding, diagnostic errors, and inadequate clinical supervision contribute significantly to preventable adverse healthcare outcomes (Kruk et al., 2018). Strengthening patient safety mechanisms is therefore essential for improving healthcare quality in public healthcare facilities.

#### 2.5. Theoretical Framework

This study was guided by the SERVQUAL model and Systems Theory. The SERVQUAL model provided a framework for evaluating service quality dimensions such as responsiveness, empathy, reliability, assurance, and communication. The framework was appropriate because it emphasizes patient perceptions regarding healthcare service delivery (Parasuraman et al., 1988; Al-Borie and Damanhour, 2013).

Systems Theory was used to explain the interconnectedness of healthcare management practices, healthcare workers, infrastructure, patients, and healthcare outcomes. According to Systems Theory, healthcare institutions operate as interconnected systems in which changes within one component influence the functioning of the entire system (von Bertalanffy, 1968; Meadows, 2008). Improving healthcare quality therefore requires coordinated management practices, adequate staffing, effective communication systems, and efficient service delivery mechanisms (Best et al., 2012; WHO, 2021).

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### 3. Materials and Methods

A facility-based quantitative cross-sectional study design was employed to examine the relationship between Service Quality and healthcare quality in Zambia's FLHs. The study was conducted in two purposively selected public FLHs which were Chilenje and Matero FLHs in Lusaka District, selected based on patient volume, geographic representation (urban and peri-urban), and scope of services offered.

The sample size was determined using Cochran's formula for estimating sample sizes for large populations at a 95% confidence level and 5% margin of error, yielding a targeted sample size of 385 respondents comprising 168 patients, 189 clinical staff, and 28 hospital administrators.

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where;

- n = sample size of the unknown population
- z = Selected critical value of desired confidence level

- $p$  = Estimated proportion of an attribute that is present in the population
- $d$  = The desired level of precision

Data was collected using a structured, self-administered questionnaire developed from established literature on health systems performance, Service Quality, and healthcare quality. The instrument was pretested on a subset of 15 respondents to ensure clarity, contextual relevance, and content validity, with subsequent refinements made accordingly. All items were measured on a 5-point Likert scale. Reliability analysis demonstrated high internal consistency (Cronbach's  $\alpha = 0.89$ ), while content and construct validity were confirmed through expert review and factor analysis.

Completed questionnaires were screened for completeness, and data were double entered into SPSS version 26 to minimize entry errors. Data cleaning procedures included checks for missing values, outliers, and inconsistencies, with minimal missing data handled using listwise deletion. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize respondent characteristics and key study variables which included waiting time, service affordability, resource availability, and patient satisfaction.

Inferential analysis involved Pearson correlation to assess the strength and direction of bivariate relationships between Service Quality indicators and healthcare quality. Multiple linear regression analysis was subsequently conducted to identify significant predictors of healthcare quality and quantify the relative contribution of Service Quality, with standardized beta coefficients ( $\beta$ ) and the coefficient of determination ( $R^2$ ) used to evaluate model performance and explanatory power.

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## 4. Results

### 4.1. Socio-Demographic Characteristics of Respondents

The study involved 385 respondents drawn from Matero and Chilenje First Level Hospitals. Of the respondents, 52.5% were from Matero First Level Hospital while 47.5% were from Chilenje First Level Hospital. The majority of respondents were non-management healthcare workers (49.09%), followed by patients (43.64%) and hospital management personnel (7.27%).

The findings further revealed that most healthcare workers possessed diploma-level qualifications (33.9%), while others held undergraduate degrees, master's degrees, doctoral qualifications, certificates, and other professional qualifications. Most healthcare workers had worked at the study sites between three and six years (37.79%), suggesting substantial institutional experience within the facilities.

Regarding professional categories, nurses constituted 21.66% of respondents, general workers accounted for 24.88%, while medical doctors represented 6.91% of respondents. Among the patient respondents, 68.5% were outpatients while 31.5% were inpatients requiring hospital admission.

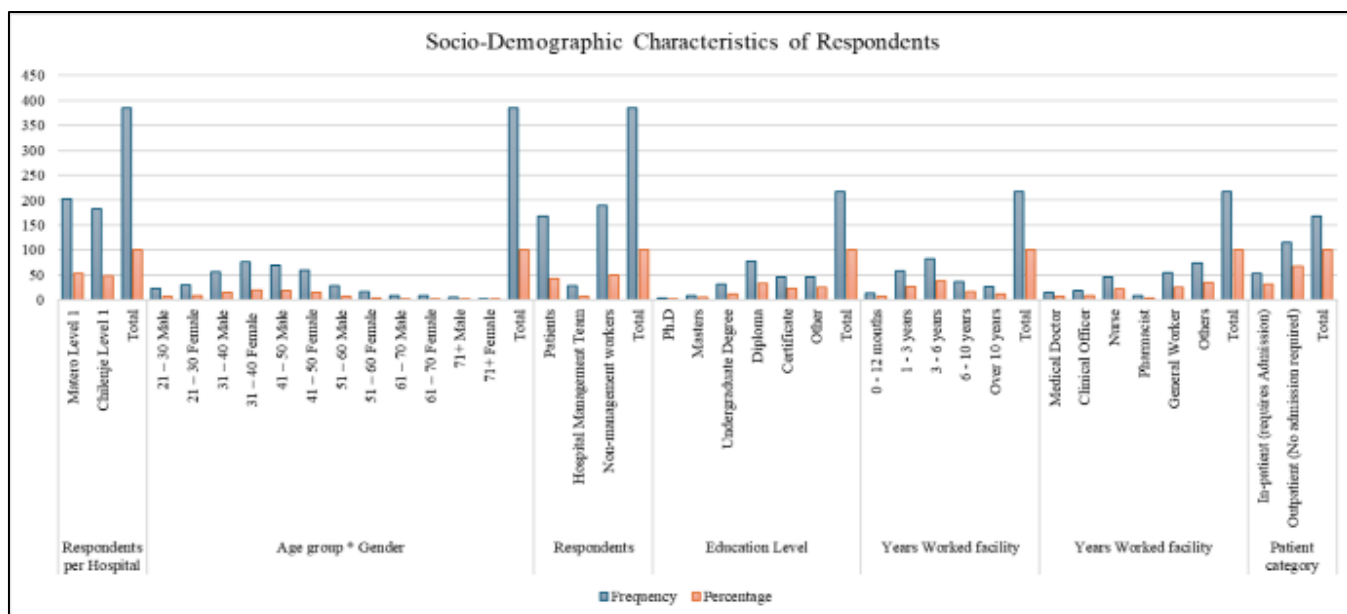


Figure 1 Socio-demographic Characteristics of the Study Participants

#### 4.2. Patient Satisfaction Levels

The findings showed that the majority of patients were moderately satisfied with healthcare services received at the two hospitals. Half of the patients (50.0%) rated healthcare services as “good,” while 13.7% rated the services as “excellent.” However, 25.6% and 10.7% rated healthcare services as “poor” and “very poor,” respectively.

Patients expressed satisfaction with healthcare worker professionalism, politeness, respect, privacy, and general medical care. High satisfaction levels were particularly observed regarding doctor and nurse politeness, health advice provided, and clarity regarding medical care and laboratory results.

However, concerns were raised regarding waiting times, overcrowding, and medicine availability. Waiting time recorded relatively lower satisfaction levels compared to other service dimensions, suggesting operational inefficiencies within the healthcare facilities.

Table 1 Overall rating of Satisfactory Levels by Patients

Description	N	Percentage
Excellent	23	13.7%
Good	84	50.0%
Poor	43	25.6%
Very Poor	18	10.7%
Total	168	100.0%
Mean	2.67	
Standard Deviation	0.84	

**Table 2** Satisfaction levels with several services offered by the FLHs

Factors	Respondents	Median	Standard Deviation	Fully dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Fully satisfied	Total
				Factors					
Waiting time.	Patients	3.0	1.62	58	22	5	48	35	168
Affordability.	Patients	4.0	1.02	6	6	20	54	82	168
Doctor: politeness, and respect.	Patients	5.0	0.72	2	3	4	28	131	168
Nurses: politeness, and respect.	Patients	5.0	0.76	2	4	5	33	124	168
General workers: politeness, and respect.	Patients	5.0	0.76	3	4	0	33	128	168
Privacy.	Patients	5.0	0.68	1	4	3	29	131	168
Health advice.	Patients	5.0	0.61	1	1	4	38	124	168
Clarity about medical care.	Patients	5.0	0.75	3	2	3	47	113	168
Clarity on laboratory test results.	Patients	5.0	0.63	1	1	6	33	127	168
TOTAL				154	271	84	446	273	

### 4.3. Interpersonal Care and Communication

The study established that interpersonal care and communication significantly influenced patient satisfaction and perceptions regarding healthcare quality. Patients who received clear explanations regarding their medical conditions and treatment procedures reported significantly higher satisfaction levels.

The majority of patients (98.2%) indicated that they did not experience challenges understanding explanations regarding their conditions and treatment procedures. Respectful treatment, empathy, attentiveness, and responsiveness from healthcare workers positively influenced patient experiences. Patients generally rated medical and nursing services positively. Doctor and nursing services received high ratings, suggesting positive patient perceptions regarding professionalism and interpersonal care. However, pharmacy services received comparatively lower ratings, potentially due to medicine stockouts and delays in accessing prescribed medications.

**Table 3** Challenges understanding explanations on the condition and treatment of patients

Description	Frequency (n)	Percent (%)
Yes	3	1.8
No	165	98.2
Total	168	100.0

#### 4.4. Safety Practices

The study established that patient safety practices significantly influenced healthcare quality perceptions. Patients who perceived healthcare environments as safe, organized, and responsive reported higher satisfaction levels compared to those who experienced delays and inadequate care coordination.

The findings further revealed relatively low levels of reported diagnostic and prescription errors, incorrect prescriptions, and failure to diagnose conditions. Most patients indicated that they did not experience inaccurate diagnoses or incorrect prescriptions, suggesting positive perceptions regarding patient safety practices within the selected hospitals. Nevertheless, some patients reported concerns regarding incomplete diagnoses and delays in receiving services, highlighting the need for strengthening quality assurance and patient safety systems within public healthcare institutions.

**Table 4** Condition of results received from the doctors and Nurses

Diagnostic/Prescription Error	YES n (%)	NO n (%)	Not Applicable n (%)	Mean	SD
Inaccurate or incomplete disease diagnosis	4 (2.4)	111 (66.1)	53 (31.5)	2.29	0.506
Inaccurate or incomplete surgical diagnosis	0 (0.0)	2 (1.2)	166 (98.8)	2.99	0.109
Inaccurate or incomplete condition diagnosis	0 (0.0)	9 (5.4)	159 (94.6)	2.95	0.226
Inaccurate or incomplete injury diagnosis	0 (0.0)	20 (11.9)	148 (88.1)	2.88	0.325
Inaccurate or incomplete infection diagnosis	2 (1.2)	34 (20.2)	132 (78.6)	2.77	0.447
Incorrect prescription	4 (2.4)	164 (97.6)	0 (0.0)	1.98	0.153
Failed to diagnose a condition	3 (1.8)	165 (98.2)	0 (0.0)	1.98	0.133

#### 4.5. Correlation Analysis

A Pearson correlation analysis was conducted to examine relationships between service quality dimensions and healthcare quality outcomes in the selected First Level Hospitals.

The findings revealed a strong positive relationship between patient satisfaction and quality healthcare ( $r = 0.742, p < .01$ ). Interpersonal care demonstrated the strongest positive relationship with healthcare quality ( $r = 0.801, p < .01$ ), followed by communication ( $r = 0.776, p < .01$ ) and safety practices ( $r = 0.689, p < .01$ ).

Conversely, waiting time demonstrated a significant negative relationship with healthcare quality ( $r = -0.618, p < .01$ ), indicating that increased waiting times negatively affected patient satisfaction and perceptions regarding healthcare quality.

The findings therefore suggest that improved communication, interpersonal care, affordability, and patient safety significantly contribute to improved healthcare quality within public healthcare facilities.

**Table 5** Correlation Analysis

Variables	Quality Healthcare	Patient Satisfaction	Waiting Time	Affordability	Interpersonal Care	Communication	Safety
Quality Healthcare	1.000						
Patient Satisfaction	0.742**	1.000					
Waiting Time	-0.618**	-0.590**	1.000				
Affordability	0.521**	0.498**	-0.455**	1.000			
Interpersonal Care	0.801**	0.765**	-0.455**	0.510**	1.000		
Communication	0.776**	0.721**	-0.420**	0.482**	0.730**	1.000	
Safety	0.689**	0.640**	-0.350**	0.410**	0.620**	0.655**	1.000

*p* < .001

**4.6. Regression Analysis**

Regression analysis was conducted to determine the predictive influence of service quality dimensions on healthcare quality in the selected First Level Hospitals.

The model summary indicated that the regression model explained approximately 76.4% of the variation in healthcare quality outcomes ( $R^2 = 0.764$ ), suggesting strong explanatory power.

Interpersonal care emerged as the strongest predictor of healthcare quality ( $\beta = 0.341, p < .001$ ), followed by communication ( $\beta = 0.298, p < .001$ ), waiting time ( $\beta = -0.243, p < .001$ ), patient satisfaction ( $\beta = 0.214, p < .001$ ), and safety practices ( $\beta = 0.201, p < .001$ ).

The negative coefficient for waiting time indicates that longer waiting periods significantly reduce patient satisfaction and perceptions regarding healthcare quality. Affordability demonstrated a positive but statistically insignificant relationship with healthcare quality.

The regression equation derived from the findings was as follows:

$$\text{Quality Healthcare} = 0.512 + 0.221(\text{Satisfaction}) - 0.198(\text{Waiting Time}) + 0.109 (\text{Affordability}) + 0.318 (\text{Interpersonal Care}) + 0.276 (\text{Communication}) + 0.187 (\text{Safety})$$

The regression findings demonstrate that strengthening interpersonal care, communication, responsiveness, and patient safety practices can significantly improve healthcare quality and patient satisfaction within Zambia’s First Level Hospitals.

**4.7. Model Summary**

**Table 6** Regression Analysis

Model	R	R2	Adjusted R2	Std. Error
1	0.874	0.764	0.755	0.412

Below is the analysis of the regression coefficients in determining the individual influence of each service quality dimension on the quality of healthcare in FLHs.

**Table 7** Regression Coefficients

Variables	B	Std. Error	Beta ( $\beta$ )	t	Sig.
(Constant)	0.512	0.184	-	2.783	.006
Patient Satisfaction	0.221	0.072	.214	3.069	.003**
Waiting Time	-0.198	0.061	-.243	-3.246	.001**
Affordability	0.109	0.058	.112	1.879	.062
Interpersonal Care	0.318	0.075	.341	4.240	.000***
Communication	0.276	0.069	.298	4.000	.000**
Safety	0.187	0.066	.201	2.833	.005**

$$\text{Quality Healthcare} = 0.512 + 0.221 (\text{Satisfaction}) - 0.198 (\text{Waiting Time}) + 0.109 (\text{Affordability}) + 0.318 (\text{Interpersonal}) + 0.276 (\text{Communication}) + 0.187 (\text{Safety})$$

## 5. Discussion

The findings of this study demonstrate that service quality management practices significantly influence patient satisfaction and healthcare quality in Zambia's First Level Hospitals (FLHs). The findings are consistent with previous studies conducted in sub-Saharan Africa which established that healthcare worker responsiveness, empathy, professionalism, and effective communication positively influence healthcare experiences and patient satisfaction (Mukumang et al., 2021; Odonkor et al., 2021). These findings suggest that patient perceptions regarding healthcare quality are strongly shaped by interpersonal interactions and the ability of healthcare workers to respond effectively to patient needs.

The findings further confirm the importance of patient-centered care within public healthcare institutions. Patients highly value respectful communication, responsiveness, timely service delivery, empathy, and clear explanations regarding treatment procedures. Poor communication, inadequate responsiveness, and prolonged waiting times negatively influence patient perceptions regarding healthcare quality and overall healthcare experiences (Alnemer et al., 2020). These findings support the patient-centered care framework, which emphasizes respect for patients' preferences, emotional support, effective communication, and responsiveness as critical determinants of healthcare quality.

The results regarding communication and interpersonal care are consistent with studies conducted in Ethiopia, Ghana, and Nigeria which established that effective communication between healthcare providers and patients significantly improves patient experiences, treatment adherence, and trust in healthcare systems (Appiah et al., 2021; Tesfaye et al., 2021; Demeke et al., 2022). Patients who clearly understand their diagnoses, treatment procedures, and medication instructions are more likely to comply with medical recommendations and develop confidence in healthcare providers. Effective communication therefore remains an essential component of healthcare quality improvement and patient-centered service delivery.

The findings also established that patient safety practices significantly influence healthcare experiences and healthcare quality perceptions. Patients reported higher satisfaction levels when healthcare environments appeared organized, hygienic, safe, and responsive to patient needs. This finding aligns with previous studies emphasizing that strong patient safety cultures contribute significantly to improved healthcare outcomes, reduced medical errors, and increased patient satisfaction (WHO, 2022; Kruk et al., 2018). Healthcare institutions that prioritize infection prevention, accurate diagnosis, medication safety, and adherence to clinical guidelines are more likely to improve patient trust and healthcare quality outcomes.

Despite positive findings regarding professionalism and interpersonal care among healthcare workers, the study identified several operational challenges affecting healthcare delivery within public hospitals. These challenges included overcrowding, staffing shortages, medicine stockouts, inadequate infrastructure, and prolonged waiting times. Similar findings have been reported across many LMICs where constrained healthcare resources negatively affect healthcare quality and patient satisfaction (Bamidele et al., 2020).

The strong negative relationship between waiting time and healthcare quality suggests that healthcare facilities should prioritize operational efficiency and strengthen service delivery systems to reduce delays in patient care. Long waiting

times may increase patient frustration, reduce confidence in healthcare systems, and negatively affect perceptions regarding service quality. Similarly, strengthening medicine supply chains, improving workforce capacity, and enhancing healthcare infrastructure are essential for improving healthcare quality and patient satisfaction within Zambia's public healthcare sector.

From a theoretical perspective, the findings support the SERVQUAL model developed by A. Parasuraman and colleagues, particularly the dimensions of responsiveness, empathy, assurance, and reliability. Patients demonstrated higher satisfaction levels when healthcare workers provided respectful communication, timely services, professionalism, and individualized attention. The findings further support patient-centered care theory, which emphasizes that healthcare quality extends beyond clinical effectiveness to include patient experiences, communication, emotional support, and responsiveness to patient needs.

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## 6. Conclusion

This study established that service quality management practices significantly influence patient satisfaction and healthcare quality in First Level Hospitals in Lusaka District, Zambia. The findings revealed that patient-centered care, interpersonal communication, responsiveness, empathy, and patient safety practices positively contribute to patient satisfaction and healthcare quality outcomes.

The study further demonstrated that interpersonal care, communication, and patient safety were among the strongest predictors of healthcare quality, while long waiting times negatively affected patient experiences and satisfaction levels.

Despite positive findings regarding healthcare worker professionalism, healthcare delivery within the selected hospitals continues to be affected by operational challenges including overcrowding, staffing shortages, medicine stockouts, and long waiting times. Addressing these challenges is essential for improving healthcare quality and achieving Universal Health Coverage in Zambia.

The study therefore concludes that strengthening service quality management practices within First Level Hospitals can significantly improve patient satisfaction, healthcare experiences, and healthcare outcomes.

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## Compliance with ethical standards

### *Acknowledgments*

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### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of ethical approval*

Ethical approval was obtained from the University of Lusaka Research Ethics Committee and the National Health Research Authority (NHRA). Permission was also obtained from the participating hospitals.

### *Statement of informed consent*

Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were maintained throughout the study.

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