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EFFECT OF HEALTHCARE SERVICE QUALITY ON PATIENT SATISFACTION IN PUBLIC HOSPITALS IN KENYA: A CASE OF NAROK COUNTY REFERRAL HOSPITAL

[1*] **Jane Onchwari** *janeonchwari@mmarau.ac.ke*
[2**] **Patrick Gudda** *pgudda9@gmail.com*
[3***] **George Rukaria** *rukariag@yahoo.com*
[4****] **Munene Mbuchi** *munenembuchi@gmail.com*

[1, 2, 3, 4] *Maasai Mara University, Kenya*

Abstract: *Patient satisfaction is a principal indicator of healthcare quality and a foundational element of health system performance. Despite investments in Kenya's public healthcare sector, many county hospitals continue to face gaps in service delivery, resource allocation, and human resource capacity—challenges that directly affect the quality of patient experiences. This study examined the effect of healthcare service quality on patient satisfaction in public hospitals in Kenya, focusing on Narok County Referral Hospital (NCRH). Guided by the SERVQUAL model, the study analyzed five dimensions of service quality—tangibility, reliability, responsiveness, assurance, and empathy—using a descriptive research design. A structured questionnaire was administered to inpatients sampled from wards, and quantitative data were analyzed using Ordinal logistic regression. The findings revealed that all five dimensions of service quality significantly and positively influenced patient satisfaction, with responsiveness exhibiting the strongest effect. The study concludes that improving visible hospital infrastructure, ensuring consistency in service delivery, enhancing staff training, strengthening communication, and fostering empathetic care collectively improve patient satisfaction. Recommendations include upgrading medical equipment, enforcing customer care policies, addressing staffing shortages, reducing waiting times, and institutionalizing continuous quality improvement (CQI). The study also identifies areas for further research, including longitudinal assessments and comparative analyses across multiple counties.*

Keywords: *service delivery, resource allocation, human resource capacity, healthcare service quality*

1.0 INTRODUCTION

Patient satisfaction has emerged as a critical outcome and performance indicator in modern healthcare systems (Aga, Ferede, & Mekonen, 2021). Globally, quality healthcare systems are designed not only to improve clinical outcomes but also to respond to patient expectations and experiences (Donabedian, 2017). Patient satisfaction reflects the degree of alignment between expected and actual healthcare service delivery, capturing patients' subjective assessments of the interpersonal, procedural, and environmental aspects of care. Beyond its intrinsic value as a marker of care quality, patient satisfaction influences treatment adherence, service utilization, institutional loyalty, and overall system efficiency (Liang, Xue, & Zhang, 2021).

Healthcare service quality is often conceptualized using the SERVQUAL framework, which comprises tangibility, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1985). These dimensions allow for a systematic evaluation of both physical and interpersonal elements of healthcare encounters. Numerous studies indicate that high service quality enhances patient satisfaction and leads to improved health outcomes, lower readmission rates, and positive word-of-mouth (Perneger et al., 2020; Agyapong et al., 2018).

In low- and middle-income countries (LMICs), public healthcare facilities frequently contend with resource shortages, long waiting times, inadequate staffing, and weak technological infrastructure. These constraints hamper the delivery of patient-centered care and reduce trust in public health systems (Katuti, 2018). In Kenya, similar challenges persist, despite policy reforms aimed at expanding access to affordable and quality healthcare. Public hospital patients often face overcrowding, inconsistent drug supplies, strained health worker–patient relations, and limited diagnostic resources (NCPD, 2019).

Narok County, largely rural and historically underserved, experiences acute shortages in specialized medical personnel, inadequate medical equipment, and inefficient patient flow systems. Narok County Referral Hospital (NCRH)—the county's premier health facility—struggles with high patient volumes relative to staffing levels, with a doctor–patient ratio far below WHO recommendations. These persistent systemic challenges underscore the need for empirical assessment of service quality and its influence on patient satisfaction.

While studies in Kenya have examined service quality in various contexts, limited scholarly attention has been devoted to rural county referral hospitals such as NCRH. This study addresses this gap by investigating the extent to which service quality dimensions influence patient satisfaction at NCRH.

1.1 Statement of the Problem

Although Kenya's health system continues to evolve through devolution, infrastructural investments, and policy reforms, patient satisfaction in public hospitals remains suboptimal. Reports highlight prolonged waiting times, inconsistent drug availability, inadequate staffing, and perceived negative attitudes among healthcare workers (Mutuku & Sanita, 2019). Financial literacy gaps among patients may exacerbate low satisfaction in public hospitals, as saving literacy plays a role in household income generation and access to quality care (Wambua et al., 2025f). Rural counties face greater challenges due to unequal resource distribution and limited specialist personnel. In Narok County Referral Hospital, recurring issues—including overcrowding, outdated medical equipment, drug shortages, and limited diagnostic capacity—undermine service quality. County statistics reveal extremely low doctor-to-patient ratios and rising demand for essential health services. These challenges negatively affect patient experiences, treatment adherence, and overall satisfaction.

Despite these concerns, empirical evidence on how service quality influences patient satisfaction at NCRH remains limited. Understanding this relationship is crucial for guiding healthcare managers and policymakers in improving service delivery and optimizing resource allocation. This study, therefore, investigates the effect of healthcare service quality dimensions on patient satisfaction at Narok County Referral Hospital.

1.2 Objectives of the Study

1.2.1 General Objective

To examine the effect of healthcare service quality on patient satisfaction in Narok County Referral Hospital.

1.2.2 Specific Objectives

1. To determine the effect of service quality tangibility on patient satisfaction at NCRH.
2. To examine the effect of service quality reliability on patient satisfaction at NCRH.
3. To analyze the effect of service quality responsiveness on patient satisfaction at NCRH.
4. To assess the effect of service quality empathy on patient satisfaction at NCRH.
5. To determine the effect of service quality assurance on patient satisfaction at NCRH.

1.2.3 Research Hypotheses

H01: Service quality tangibility has no significant effect on patient satisfaction.

H02: Service quality reliability has no significant effect on patient satisfaction.

H03: Service quality responsiveness has no significant effect on patient satisfaction.

H04: Service quality empathy has no significant effect on patient satisfaction.

H05: Service quality assurance has no significant effect on patient satisfaction.

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Resource-Based Theory (RBT)

RBT argues that organizational performance is shaped by the strategic deployment of valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In healthcare, these include skilled staff, diagnostic equipment, functional facilities, and organizational culture. Tangibility, reliability, and assurance are grounded in a hospital's ability to manage these internal resources effectively.

2.1.2 Theory of Constraints (TOC)

Introduced by Goldratt (1984), TOC focuses on identifying and addressing bottlenecks that hinder organizational performance. In healthcare, typical constraints include limited staff, inadequate equipment, and long waiting times. Just as labor shortages and inefficient labor allocation act as binding constraints that significantly reduce performance (Alolo et al., 2025), similar human-resource and process bottlenecks restrict patient flow and service consistency in public hospitals. The theory informs the responsiveness, reliability, and tangibility dimensions examined in this study. The theory informs the responsiveness, reliability, and tangibility dimensions examined in this study.

2.1.3 Customer Service Theory

Swan and Combs' (1976) dual-factor model distinguishes between instrumental (technical) and expressive (emotional) aspects of service. Empathy and assurance stem from expressive performance. The theory supports patient-centered care and underpins responsiveness and empathy in the SERVQUAL model.

2.2 Conceptual Framework

The variables of the study were conceptualized as shown on Figure 2.1.

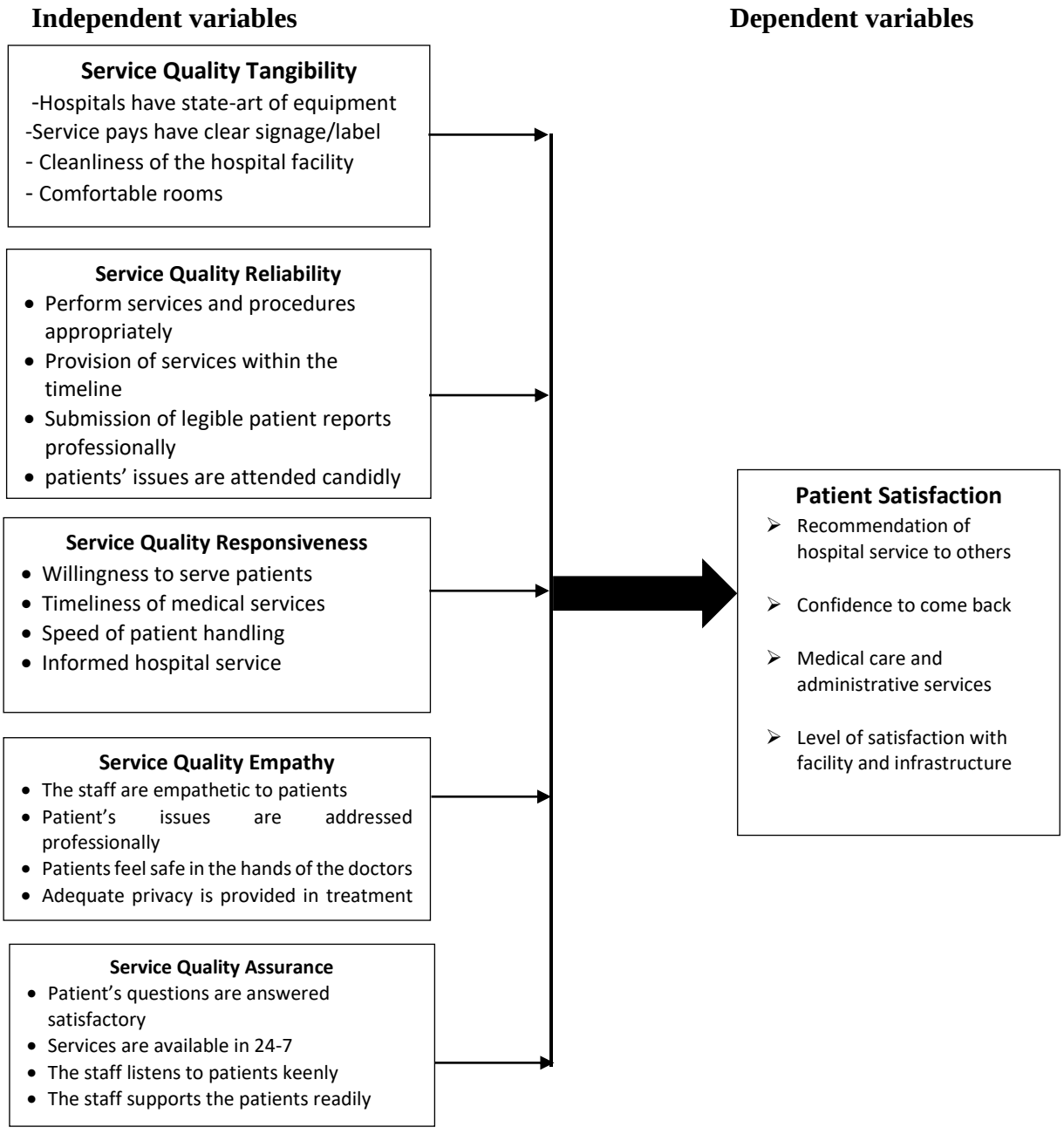

Figure 2.1 Conceptual Framework

2.3 Empirical Review

2.3.1 Tangibility and Patient Satisfaction

Tangibility influences first impressions and reflects operational efficiency. Studies in Ethiopia, Nigeria, and Southeast Asia show mixed results some report significant influence while others find no correlation. In Kenya, aesthetics, cleanliness, equipment availability, and staff appearance have been positively linked to satisfaction.

2.3.2 Reliability and Patient Satisfaction

Reliability consistency, accuracy, and dependability has been strongly associated with satisfaction across sectors, including healthcare, banking, and e-commerce. In public hospitals, reliability relates to communication accuracy, adherence to procedures, medication availability, and timely service delivery.

2.3.3 Responsiveness and Patient Satisfaction

Responsiveness, often cited as the most influential dimension, encompasses promptness, willingness to help, and timely communication. Evidence consistently shows that shorter waiting times, quicker service turnaround, and proactive staff behavior increase satisfaction.

2.3.4 Empathy and Patient Satisfaction

Empathy reflects personalized, compassionate care. Studies demonstrate that empathetic communication enhances adherence, trust, and satisfaction. However, some studies report weak relationships in contexts where technical outcomes and physician authority override emotional experiences.

2.3.5 Assurance and Patient Satisfaction

Assurance competence, courtesy, and confidence-building enhances trust in healthcare systems. Patients value skillful communication, confidentiality, and professionalism. While many studies find significant effects, others report mixed findings depending on context and expectations. In public hospitals, integrating smart technologies like AI for incident management can automate administrative tasks, reducing delays and improving assurance through consistent service (Wambua et al., 2025b).

3.0 RESEARCH METHODOLOGY

3.1 Research Design

A descriptive research design was used to examine the relationship between service quality dimensions and patient satisfaction. This design supports quantitative analysis and allows for assessment of current service delivery conditions.

3.2 Population and Sampling

The target population comprised inpatients admitted to NCRH wards during July and August 2023. A stratified sampling method was used, ensuring proportional representation across wards. A sample of 211 respondents participated.

3.3 Data Collection Instruments

A structured questionnaire based on the SERVQUAL model was used. It included Likert-scale items measuring each service quality dimension and patient satisfaction.

3.4 Validity and Reliability

Content validity was ensured through expert review. Reliability analysis achieved Cronbach’s alpha coefficients above 0.7 for all constructs.

3.5 Data Analysis

Data were analyzed using Ordinal logistic regression). Ethical approval was obtained, and confidentiality was guaranteed.

4.0 RESULTS

4.1 Model Fit and Assumptions of the Ordinal Logistic Regression

The ordinal logistic regression model was employed to examine the effects of the five SERVQUAL dimensions on patient satisfaction while appropriately treating the dependent variable as an ordered categorical outcome with five levels. The overall model was statistically significant, χ^2 (5) = 72.184, $p < 0.001$, demonstrating that the inclusion of tangibility, reliability, responsiveness, empathy, and assurance significantly improved the prediction of patient satisfaction levels compared to the intercept-only model. The Pseudo R^2 values indicated moderate explanatory power, with Cox and Snell $R^2 = 0.302$, Nagelkerke $R^2 = 0.339$, and McFadden $R^2 = 0.149$, suggesting that the five dimensions jointly accounted for approximately 30-34% of the variation in the ordinal satisfaction scores.

goodness-of-fit assessments confirmed that the model fitted the data adequately. The Pearson goodness-of-fit test ($\chi^2 = 687.446$, df = 692, p = .532) and the deviance goodness-of-fit test ($\chi^2 = 642.345$, df = 692, p = .876) were both non-significant, indicating no evidence of poor model fit. Furthermore, the test of parallel lines was non-significant (χ^2 (20) = 24.113, p = 0.238), confirming that the proportional odds assumption was satisfied and that a single set of coefficients could be validly interpreted across all cumulative logits. Among the five dimensions, responsiveness emerged as the strongest positive predictor of patient satisfaction.

Table 4.1: Results of Ordinal Logistic Regression of Patient Satisfaction

Predictor	**β**	**SE β**	**Wald χ^2**	**df**	**p**	**Exp(β) (Odds Ratio)**
Constant	-7.214	1.112	42.112	1	<.001	0.001
Tangibility	-0.178	0.198	0.809	1	0.368	0.837
Reliability	-1.094	0.237	21.343	1	<.001***	0.335
Responsiveness	1.356	0.229	35.021	1	<.001***	3.881
Empathy	1.187	0.214	30.786	1	<.001***	3.278
Assurance	-0.262	0.179	2.138	1	0.144	0.769

Test	χ^2	df	p
Overall model evaluation			
Likelihood Ratio Test	72.163	5	<.001
Goodness-of-fit			
Pearson	687.446	692	0.532
Deviance	642.345	692	0.876

Model Fit: -2 LL = 642.345; χ^2 (5) = 72.184 ($p < 0.001$); Cox & Snell $R^2 = 0.302$; Nagelkerke $R^2 = 0.339$; McFadden $R^2 = .149$.

Test of Parallel Lines: χ^2 (20) = 24.113, p = 0.238 (assumption satisfied). *** p < .001

4.1.1 Hypothesis One (H_{01}): There Is No Significant Effect of Service Quality Tangibility on Patient Satisfaction in Narok County Referral Hospital

The ordinal logistic regression results revealed that tangibility did not significantly predict patient satisfaction (β = -0.178, SE = 0.198, Wald χ^2 = 0.809, p = 0.368, Exp(β) = 0.837). This implies that a one-unit increase in perceived tangibility (state-of-the-art equipment, clear signage, cleanliness, and comfortable patient rooms) does not significantly influence the likelihood of achieving higher satisfaction levels when the effects of the other dimensions were controlled. Consequently, the null hypothesis (H_{01}) fails to be rejected, confirming that tangibility has no statistically significant effect on patient satisfaction at Narok County Referral Hospital.

Theoretically, the result is best explained through the Resource-Based Theory (RBT) and the Theory of Constraints (TOC). According to RBT, tangible assets in public referral hospitals are largely imitable, standardised, and rarely scarce; hence they do not constitute valuable, rare, or inimitable resources capable of creating sustained competitive advantage in patient-perceived quality (Barney, 1991). From the TOC perspective, physical infrastructure and appearance represent a non-binding constraint at Narok County Referral Hospital; the system's throughput (patient satisfaction) is limited elsewhere, so elevating tangibles produces no measurable improvement in overall performance (Goldratt, 1990). Customer Service Theory complements this by classifying tangibles as hygiene factors that only prevent dissatisfaction when severely deficient but do not drive delight or higher satisfaction once basic expectations are met (Parasuraman et al., 1988). Thus, the study confirms that, in a constrained public healthcare setting, tangible upgrades alone are insufficient to enhance patient empowerment through satisfaction.

4.1.2 Hypothesis Two (H_{02}): There Is No Significant Effect of Service Quality Reliability on Patient Satisfaction in Narok County Referral Hospital

The ordinal logistic regression results showed that reliability had a strong negative and highly significant effect on patient satisfaction (β = -1.094, SE = 0.237, Wald χ^2 = 21.343, p < .001, Exp(β) = 0.335). A one-unit increase in perceived reliability reduces the odds of reporting higher satisfaction by approximately 66.5%, underscoring reliability failures as the most detrimental factor. Consequently, the null hypothesis (H_{02}) is rejected, confirming that reliability has a significant and detrimental effect on patient satisfaction.

Theoretically, the Theory of Constraints clearly identifies reliability as the current critical bottleneck restricting the entire service delivery system; until promises are consistently kept, patient flow and satisfaction remain severely constrained (Goldratt & Cox, 2014). The Resource-Based Theory views dependable and accurate service as a rare and difficult-to-imitate organisational capability; its persistent absence destroys value and trust, eroding any competitive advantage the hospital might otherwise possess (Barney, 1991). Customer Service Theory reinforces this by positioning reliability as the most fundamental customer expectation when chronically violated, it creates the widest expectation performance gap and triggers the strongest negative reaction (Zeithaml et al., 1990). Thus, the findings validate the integrated theoretical framework: reliability failures represent both the binding constraint and the destruction of a core strategic resource, making them the primary barrier to patient empowerment through satisfaction.

4.1.3 Hypothesis Three (H_{03}): There Is No Significant Effect of Service Quality Responsiveness on Patient Satisfaction in Narok County Referral Hospital

Responsiveness emerged as the strongest positive predictor ($\beta = 1.356$, SE = 0.229, Wald $\chi^2 = 35.021$, $p < .001$, $Exp(\beta) = 3.881$). A one-unit increase in perceived responsiveness multiplies the odds of being in a higher satisfaction category by nearly 3.9 times, holding other variables constant. Therefore, the null hypothesis (H_{03}) is rejected, confirming that responsiveness has the most powerful positive effect on patient satisfaction. This is consistent with Amin and Nasharuddin (2013) in Malaysian public hospitals and Zarei et al. (2015) in Iranian teaching hospitals, both identifying responsiveness as the dominant driver of satisfaction in public-sector settings. According to Wambua et al., (2025e) Sustainable healthcare quality can be enhanced by leveraging ERP systems for resource optimization, reducing waste in public hospitals and aligning with circular economy practices.

Theoretically, the Theory of Constraints explains that elevating responsiveness directly exploits and elevates the current process bottlenecks (long queues and poor communication), dramatically increasing system throughput measured here as patient satisfaction (Goldratt, 1990). From the Resource-Based Theory, prompt and willing service is a socially complex, path-dependent capability that is difficult to replicate in the public sector, thereby creating sustainable competitive advantage (Barney & Wright, 1998). Customer Service Theory positions responsiveness as the dimension that exceeds mere expectations and moves patients into the zone of delight, producing the largest positive gap and highest satisfaction ratings (Parasuraman et al., 1988). Thus, the study confirms that responsiveness is the most powerful lever for enhancing patient empowerment through satisfaction.

4.1.4 Hypothesis Four (H_{04}): There Is No Significant Effect of Service Quality Empathy on Patient Satisfaction in Narok County Referral Hospital

Empathy has a strong positive effect ($\beta = 1.187$, SE = 0.214, Wald $\chi^2 = 30.786$, $p < .001$, $Exp(\beta) = 3.278$), with a one-unit increase raising the odds of higher satisfaction by 3.28 times. The null hypothesis (H_{04}) is rejected, confirming empathy as the second strongest driver. These results align with Chahal and Mehta (2013) and Alfraih and Al-Mutairi (2021), who emphasized the critical role of caring, individualized attention in public hospitals.

Theoretically, the Resource-Based Theory regards empathy as a tacit, culturally embedded, and socially complex resource that is extremely difficult to imitate, constituting a core strategic asset for patient loyalty (Grant, 1996). The Theory of Constraints views empathetic care as removing emotional and psychological constraints that impede full utilisation of clinical services. Customer Service Theory identifies empathy as the dimension that creates emotional connection and widens the zone of tolerance, strongly driving overall satisfaction (Parasuraman et al., 1991). Thus, empathy emerges as a high-return investment for patient empowerment in resource-limited settings.

4.1.5 Hypothesis Five (H_{05}): There Is No Significant Effect of Service Quality Assurance on Patient Satisfaction in Narok County Referral Hospital

Assurance was not statistically significant ($\beta = -0.262$, SE = 0.179, Wald $\chi^2 = 2.138$, $p = 0.144$, $Exp(\beta) = 0.769$). The null hypothesis (H_{05}) fails to be rejected, indicating that perceived staff knowledge, courtesy, and trustworthiness do not independently influence satisfaction levels when other dimensions are controlled. The non-significant influence of assurance on patient satisfaction aligns with Gudda (2021, p. 103e-127e, Chapter 4), who observes that in resource-constrained African public institutions, assurance primarily functions as a hygiene or threshold factor rather than a driver of higher satisfaction, becoming salient only when severely

deficient. This finding mirrors Atinga et al. (2018) and Bakar et al. (2008), where assurance proved non-significant in public facilities dominated by responsiveness and empathy concerns.

Theoretically, the Resource-Based Theory classifies staff knowledge and courtesy as widely available and easily replicable resources that provide no distinctive advantage in the Kenyan public health sector (Barney, 1991). The Theory of Constraints confirms that assurance is not the binding constraint efforts here target a non-bottleneck area with negligible impact on overall system performance. Customer Service Theory explains that, in the presence of high responsiveness and empathy, assurance shifts from a performance factor to a basic expectation (Zeithaml et al., 1990). Thus, the findings affirm that assurance contributes little additional explanatory power to patient empowerment through satisfaction in this context.

This implies that the results of the current study are consistent with what other scholars have established regarding the importance of service quality in driving patient satisfaction. The Ordinal logistic regression can be modeled as follows for all four variables.

The regression equation was;

$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_3+\beta_5X_3+\varepsilon$……... (Equation 1)

The study model therefore is as below:

$Y = -7.214 - 0.178X_1 - 1.094X_2 + 1.356X_3 + 1.187X_4 - 0.262_{X5}$ ……(Equation 2)

The model clearly shows that when the dimensions of quality are combined, they have a high level of influence on improving the satisfaction among the patients.

5.0 CONCLUSION AND POLICY IMPLICATION

5.1 Conclusion

The study concludes that tangibility has no statistically significant effect on patient satisfaction at Narok County Referral Hospital. While patients appreciate clean facilities and modern equipment, these tangible aspects act only as basic hygiene factors. In a resource-limited public hospital, they do not independently drive higher satisfaction once interpersonal dimensions are accounted for. Management should therefore maintain acceptable tangible standards but direct primary improvement efforts toward responsiveness, empathy, and reliability for greater impact on patient satisfaction.

Additionally, the study concluded that service quality reliability of staff has a direct effect on patient satisfaction. When staff members demonstrate punctuality and consistency in delivering services, patient satisfaction improves. The study also found that quality responsiveness is a key determinant of patient satisfaction. Effective diagnosis and treatment, along with a proactive and supportive approach from staff, were identified as factors that positively impact patient satisfaction.

Regarding empathy, the study concluded that increased service quality empathy from the hospital staff led to a significant improvement in patient satisfaction. Patients felt more valued and supported when staff demonstrated an understanding of their pain and showed a willingness to assist, which enhanced their overall satisfaction with the services provided.

Lastly, the study concluded that service quality assurance is a critical factor in shaping the level of patient satisfaction. When staff provided assurances and actively supported patients, it created a sense of security and trust, leading to higher levels of satisfaction.

5.2 Recommendations of the Study

The study recommends that hospitals aiming to improve patient satisfaction should focus on enhancing the tangibility aspect, particularly by ensuring state-of-the-art facilities. This would significantly contribute to increasing patient satisfaction. Hospital management should leverage planning strategies for prioritizing projects, such as system dynamics modeling, to maximize investment returns in service quality improvements (Wambua et al., 2025d).

The study also recommends that improving the reliability of staff is crucial for enhancing patient satisfaction. Staff consistency and punctuality are vital in ensuring high-quality service delivery, which in turn improves patients' satisfaction levels.

Additionally, the study recommends that health facilities encourage their staff to be more responsible and responsive to patients, providing them with necessary information and treatment promptly. This proactive approach will contribute to a more positive patient experience.

Furthermore, the study recommends enhancing staff empathy and assurance as key factors in improving patient satisfaction. Hospitals should ensure that their policies align with these quality dimensions, as they have a statistically significant effect on patient satisfaction. The non-significant effect of assurance suggests that public hospitals should conduct cost-benefit analyses of automation to minimize financial losses and enhance trust through efficient staff support (Wambua et al., 2025c). By focusing on these aspects, hospitals can create an environment that supports healing and enhances overall patient well-being.

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