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Total Quality Management and Healthcare Service Delivery in National Government Referral Hospitals in Kenya

Simon Waithaka[1*], Joanes Kyongo Ph. D[2], Job Omagwa Ph. D[3]

[1*]Doctoral Candidate, School of Business and Economics, Daystar University, Nairobi, Kenya.

[2]School of Business and Economics, Daystar University, Nairobi, Kenya.

[3]School of Business, Economics & Tourism, Kenyatta University, Nairobi, Kenya.

*** Correspondence:** Simon Waithaka

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ABSTRACT: In recent years, the implementation of robust Total Quality Management (TQM) has played a pivotal role in enhancing healthcare service delivery, a crucial factor for the well-being of individuals. In Kenya, despite the existence of established social health mechanisms, healthcare service delivery faces significant challenges. The objective of the study was to examine the effect of Total Quality Management on Healthcare Service Delivery (HSD) in National Government Referral Hospitals in Kenya. The research is grounded in three theoretical frameworks: Stakeholder Theory, Resource-Based View Theory, and Contingency Theory, which explain how internal resources and contextual factors affect healthcare service delivery. Using a positivist philosophy and a descriptive research design, the study targeted a sample of 199 hospital management respondents and 100 patients from National Government Referral Hospitals in Kenya. Data was collected using structured questionnaires and data collection sheets, ensuring validity and reliability through expert reviews

and Cronbach's Alpha. Statistical analyses, including descriptive analysis, factor analysis, and regression analysis, were employed to test the hypotheses and assess the statistical significance of the effects. The findings revealed a positive and statistically significant effect of TQM on healthcare service delivery, with improvements in service outcomes directly linked to its implementation. The study highlights the importance of adopting a comprehensive approach to TQM in healthcare settings, emphasizing the need for continuous improvement practice. The study recommends that hospitals should focus on enhancing service quality through effective management practices, promoting employee engagement, and ensuring consistent service delivery to improve overall patient satisfaction and health outcomes.

Keywords: *Total Quality Management, Healthcare Service Delivery, Stakeholder Theory, Resource-Based View Theory and Contingency Theory.*

1. Introduction

Healthcare service delivery is a central pillar of public health systems, designed to provide safe, timely, and patient centered services that meet the needs of diverse populations. In Kenya, National Government Referral Hospitals (NGRHs) represent the apex of the public healthcare system. They offer highly specialized services, serve as teaching and research institutions, and play a critical role in actualizing national health priorities (Okech & Lelegwe, 2016). Given their scope and responsibility, ensuring quality service delivery in NGRHs is both a strategic necessity and a national imperative.

TQM is a widely recognized framework for achieving service excellence in healthcare. It is a holistic, organization-wide approach to continuous improvement that emphasizes staff involvement, process optimization, and data-driven decisions (Gupta et al., 2023). Key TQM elements—leadership commitment, employee engagement, process standardization, customer focus, and continuous improvement are critical in healthcare, where service quality directly impacts patient outcomes. Globally,TQM has been associated with enhanced healthcare efficiency, patient safety, and satisfaction (Wilkinson et al., 2022; Jani & Chaudhary, 2023). When

effectively implemented, TQM helps healthcare institutions optimize resources, minimize errors, and foster accountability. However, in developing countries such as Kenya, applying TQM in public hospitals faces significant challenges, including infrastructural limitations, staff shortages, and weak implementation frameworks.

In Kenya, the government has invested heavily in healthcare through legislation like the Digital Health Act 2023 and the Social Health Insurance Act 2023, along with increased health budget allocations (Kenya National Bureau of Statistics, 2023). Despite this, NGRHs face ongoing challenges such as long wait times, inconsistent treatment quality, lack of standard procedures, and low patient satisfaction (Nyawira & Wainaina, 2022). Given the strategic role of NGRHs and their operational complexity, implementing strong TQM practices could significantly improve healthcare delivery. However, empirical evidence on TQM's effect in Kenya's NGRHs is limited. This study examines TQM's effect on healthcare service delivery in NGRHs, aiming to identify key practices that enhance hospital performance and patient outcomes.

1.1 Total Quality Management

Alawag et al. (2023) define Total Quality Management (TQM) as a system for planning, managing, and understanding every action involving individuals at all organizational levels to enhance business output quality. Hchaichi (2023) emphasizes the importance of stakeholder involvement by leaders in implementing TQM to achieve desired outcomes. Hussain et al. (2023) assert that quality management is reflected in continuous strategic improvement, while Shire and Oringo (2020) highlight TQM's role in delivering quality services critical to hospital goals. TQM fosters quality awareness, addressing inefficiencies and integrating quality management principles into hospital strategic processes.

Globally, healthcare quality remains a priority for health system stakeholders (Zaid et al., 2020). Hussain et al. (2023) asserts a strong link between quality management by service providers and client focus. Top management must prioritize service improvements and implement strategies that enhance hospital service levels. Quality healthcare includes diagnosis and treatment aligned with current medical guidelines

and patient preferences (Erkan & Unal, 2022). Health workers bear the ethical responsibility to deliver care with minimal risk of failure, making high-quality care a standard in health institutions. Hussein et al. (2021) define quality healthcare as the ability to meet patient needs effectively. Babu and Thomas (2021) note that TQM practices improve staff satisfaction through optimal resource use and cost reduction. This study operationalized TQM using customer focus, continuous improvement, teamwork, and role clarity as key factors.

1.2 Healthcare Service Delivery

Bonciani (2018) defines service delivery as the process of satisfying and delighting customers by providing services effectively and efficiently within a specified period. Aliow et al. (2021) conceptualize service delivery in terms of equipment utilization, highlighting patient waiting time, equipment performance, and equipment idle time as key parameters for measuring utilization in hospitals. In Kenya, the healthcare sector plays a critical role in enhancing the well-being of the population, supporting economic development, and sustaining the national workforce (Kenya National Bureau of Statistics [KNBS], 2023). According to Jepkorir (2021) contends that evaluating service delivery is essential for determining whether organizations meet their strategic goals. Mburu (2020) further notes that organizational deliverables are assessed through predefined indicators such as effectiveness, efficiency, service quality, and environmental responsibility, which include measures like cycle time, productivity, and regulatory compliance.

Compared to global trends, Kenya's health sector is expected to experience rapid growth, contributing approximately 2% to the country's gross domestic product, valued at an estimated USD 2.2 billion (National Treasury of Kenya, 2021). Health service delivery is commonly measured by indicators such as accessibility, service availability, accommodation, acceptance, turnaround time, customer feedback, and the effective provision of services (Mutambi, 2022). These indicators are closely linked to TQM principles. For example, Hunt et al. (2023) notes that the customer satisfaction index may be utilized to assess the level of healthcare service provision. Institutional performance reflects the quality of service delivery, which is influenced by strategic management approaches like TQM. Panya and Abuya (2023) argue that

addressing accessibility, timeliness, and resource allocation is crucial to strengthening universal healthcare. Accordingly, this study adopted four key indicators access to healthcare, turnaround time, equipment utilization, and customer satisfaction index to measure healthcare service delivery.

1.3 Total Quality Management and Healthcare Service Delivery

The healthcare sector is experiencing rapid growth, with both public and private entities focusing on expanding coverage, improving service delivery, and increasing expenditure (Jani & Chaudhary, 2023). Ouma et al. (2020) argue that successful healthcare provision in Kenya depends on effective management strategies, including the implementation of robust Total Quality Management (TQM) systems. Jepkorir (2021) emphasizes that patient access to healthcare, timely and appropriate care, ease of access, and the effectiveness of available resources are key factors in evaluating healthcare system outcomes. According to Upadhyai et al. (2019), service delivery involves the quality execution of services, where quality of care encompasses patient safety, clinical efficacy, and patient experience throughout the service process.

1.4 National Government Referral Hospitals in Kenya

According to the 2010 Kenyan Constitution, the Ministry of Health (MOH) is mandated to manage and progressively maintain standards within the health system. The MOH has adopted policy amendments aimed at achieving universal access to high-quality, affordable, and equitable healthcare (MOH, 2023). In 2013, governance was devolved into two levels: national government and county government (Gwidi & Kilei, 2022). The healthcare system responsibilities were similarly divided, with county governments providing basic healthcare services, while national government hospitals manage national referral facilities, offer technical support to counties, and handle health policy and regulatory functions.

The national government referral hospitals in Kenya include Kenyatta National Hospital, Mathari National Teaching and Referral Hospital, Moi Teaching and Referral Hospital, National Spinal Injury Referral Hospital, and Kenyatta University Teaching and Referral Hospital (MOH, 2023). These hospitals receive support from the national government in infrastructure, human resources, quality assurance, and

research (Kenyan Parliament, 2019). Despite this support, national government referral hospitals continue to face challenges in strategic management, particularly regarding total quality management of referral systems and service dynamics (Omondi et al., 2024).

2. Research Problem

The healthcare sector plays a vital role in promoting the well-being and health of individuals and communities in Kenya (Kenya National Bureau of Statistics [KNBS], 2023). In the 2023/2024 financial year, the Government of Kenya increased the health sector budget allocation from KES 226.4 billion to KES 286.1 billion to support the provision of accessible, affordable, and quality healthcare services. Despite these efforts, healthcare delivery in Kenya has faced persistent challenges for an extended period (KNBS, 2024). Consequently, the government has employed various strategic management dimensions, including Total Quality Management (TQM), to enhance service delivery in the health sector.

The government has also created an enabling environment for investment in healthcare service delivery by funding various programs in National Government Referral Hospitals (NGRHs), with the goal of ensuring services that are cost-effective, accessible, and of high quality (Kenyan Parliament, 2022). Nonetheless, the quality of healthcare service delivery in NGRHs remains suboptimal. Common challenges include overcrowding, service delays, inconsistent standards of care, and low levels of patient satisfaction (Nyawira & Wainaina, 2022). TQM has been recognized as a key contributor to improved service delivery in public hospitals across Kenya, particularly in terms of affordability, physical accessibility, acceptance, accommodation, and service availability (Mutambi, 2022). However, despite the presence of formal coordination mechanisms, the Kenyan health system remains fragmented and misaligned. This fragmentation results in duplicated efforts, increased operational costs, and compromised performance (Nyawira et al., 2023). These persistent service delivery challenges highlight systemic issues, such as the absence of effective quality management frameworks within public hospitals.

The Nairobi County Health Reforms Taskforce emphasized the need for infrastructure improvements and the consistent application of health information technology as critical to improving the performance of healthcare institutions (Kenya News Agency, 2023). While TQM provides a reliable framework for continuous improvement, integrating its principles remains a challenge in Kenyan hospitals. Shire and Oringo (2020) observed that continuous quality improvement practices are not fully institutionalized, indicating a need for greater integration of quality management systems. Key components of TQM, such as customer focus, performance measurement, process standardization, and staff engagement in quality improvement, are often inconsistently implemented in public hospitals (Masaba et al., 2020). This is particularly problematic in NGRHs, which are expected to serve as centers of excellence within the healthcare system. Inadequate quality management in these institutions not only erodes patient trust and outcomes but also undermines the credibility and efficiency of the broader health system.

Although international studies affirm the positive impact of Total Quality Management (TQM) on healthcare performance (Chow et al., 2023; Wilkinson et al., 2022), a significant contextual and empirical gap remains in Kenya. In Kenya, Nyawira et al. (2023) observed that, despite formal coordination mechanisms, healthcare operations and stakeholder behaviors are fragmented and misaligned, leading to higher costs and reduced performance. While the government has increased funding and introduced supportive legislation, effective implementation relies heavily on stakeholder engagement, highlighting the relevance of TQM dimensions. Munene and Muriuki (2024) confirmed a direct link between TQM and service delivery, while Alshourah (2021) found that TQM dimensions accounted for 73% of quality performance variation. However, research on the effect of TQM within Kenya's National Government Referral Hospitals remains limited, a gap this study aim to fill.

3. Scope of the Study

The scope of this study includes both the geographical location and the temporal focus of the research. Specifically, the study examines healthcare service delivery in the five National Government Referral Hospitals (NGRHs) under the management of

the National Government of Kenya (Ministry of Health [MOH], 2023). To enhance the reliability of primary data and provide trend analysis, the study also incorporates secondary data from the past ten years, covering the period 2014–2023.The study identifiesTQM as the independent variable, and healthcare service delivery as the dependent variable. Healthcare service delivery is measured using four indicators: access to healthcare, turnaround time, equipment utilization, and customer satisfaction index. The target population includes all five NGRHs, with the units of analysis being the hospitals themselves. The units of observation consist of hospital management personnel, inpatients, and outpatients. The study focuses on identifying and analyzing effective TQM practices that enhance healthcare service delivery within these institutions. The research was conducted in the year 2024.

4. Justification of the study

Total Quality Management is a strategic management approach that significantly effects on organizational performance and productivity. The systematic integration and alignment of organizational resources are essential for the successful implementation of TQM, ensuring that institutional objectives are achieved effectively. In the context of NGRHs, which involve diverse stakeholders and complex operations, it is critical to examine the specific TQM elements that sustain and advance service delivery. Understanding how various stakeholders are affected by TQM practices and the net healthcare outcomes. Moreover, this study contributes to the broader discourse by offering empirical evidence on the implementation and effectiveness of TQM in Kenya's public healthcare sector. It facilitates comparisons with findings from prior research, both locally and internationally, thereby enhancing the generalizability and relevance of the conclusions. Ultimately, the study seeks to inform policy formulation and operational strategies aimed at improving healthcare service delivery through quality management systems in Kenya's NGRHs.

5. Review of Literature

5.1 Theoretical Framework

This study is anchored on Stakeholder Theory, Resource-Based View Theory (RBVT) and Contingency Theory. These theories provided a multidimensional

perspective on the effect of TQM on healthcare service delivery in Kenya's NGRHs. Stakeholder Theory, developed by Freeman (1984), posits that the success and sustainability of an organization are dependent on how well it manages the interests of all stakeholders who are affected by its operations. In the context of public healthcare service delivery, stakeholders include patients, healthcare professionals, government bodies, and the broader public. According to Rahman et al. (2023), institutions that embed stakeholder-focused practices in their operations often experience improved service outcomes. TQM, as a holistic management approach centered on continuous improvement and customer satisfaction, closely aligns with the principles of Stakeholder Theory. Marcon et al. (2023) assert that Stakeholder Theory enhances the understanding of how different stakeholders are influenced by TQM practices and the resulting net outcomes.The theory enhances the organization's activities and procedures, enabling it to successfully address issues or circumstances that affect its stakeholders (Feng, 2019). Stakeholder expectations highlight the need for TQM to optimize outcomes.

The Resource-Based View Theory (RBVT), originally introduced by Penrose (1959) and later refined by Barney (1991), posits that an organization's competitive advantage stems from internal resources that are valuable, rare, inimitable, and well-organized. In healthcare institutions, TQM can be viewed as a strategic internal resource comprising practices and competencies that enhance efficient service delivery and quality outcomes. Fahy (2005) emphasizes the connection between organizational resources and competitiveness within RBVT. Kyongo et al. (2016) further affirm RBVT's importance in firm-level institutional performance, highlighting the necessity of strategic resource allocation for organizational success. This theory is relevant to the current study as it underscores the role of strategic resource utilization and organizational competencies.

Contingency Theory, initially advanced by Woodward in the 1950s and later developed by Donaldson (2001), posits that there is no single universally effective management approach. Instead, the success of any strategy, including TQM, depends on how well it aligns with an organization's structure, culture, and operational context. According to Gleim et al. (2023), the expected outcomes of an organization

influence its long-term survival. While Contingency Theory is widely applied in research on management accounting, control, and leadership, a key critique is that it assumes organizations exhibit static behavior and overlooks challenges related to organizational growth.

Collectively, these theories informed the conceptual framework of the study. Stakeholder Theory provided the normative foundation by emphasizing the importance of quality from the perspective of stakeholder expectations. The RBVT offered a strategic lens, framing TQM as a core organizational capability that drives institutional performance. Meanwhile, Contingency Theory contributed a practical perspective, highlighting the necessity of aligning quality management practices with the specific context of NGRHs.

5.2 Empirical Review

Empirical research highlights the crucial role of Total Quality Management (TQM) in improving healthcare service delivery. TQM is recognized as a structured, strategic approach that embeds quality into all organizational processes to meet or exceed customer expectations. According to Alawag et al. (2023), TQM involves planning, managing, and enhancing performance through active engagement of personnel at all levels. In healthcare, this approach leads to improved clinical outcomes, higher patient satisfaction, and increased operational efficiency.

Hussain et al. (2023) examined the impact of TQM practices in public hospitals in Jordan using a quantitative study with 222 respondents across 32 hospitals. The study found a strong relationship between TQM components especially customer focus and quality performance, highlighting patient-centered care as crucial to healthcare outcomes. However, inconsistencies in TQM implementation across departments were noted, potentially affecting service uniformity. Despite these valuable insights, the findings may have limited generalizability to Kenya's public healthcare sector due to contextual differences in systems and resources.

Kurdi et al. (2023) investigated the role of lean processes and quality improvement in the UAE healthcare sector. Their findings showed that operational quality enhancements and efficient workflows significantly improved competitive

performance. The study highlighted lean practices such as waste reduction and workflow optimization as key to delivering cost-effective, timely, and reliable healthcare. However, it did not specifically examine the impact of continuous improvement mechanisms on health outcomes, leaving a gap for further research in the context of Kenyan referral hospitals.

Al-Jarrah et al. (2023) investigated the effect of TQM dimensions customer focus, continuous improvement, and strategic planning on client satisfaction within Jordanian Islamic banks. Their findings revealed a statistically significant relationship, underscoring the adaptability of TQM principles across diverse service-oriented sectors beyond healthcare. Building on this, the present study seeks to apply these insights to the healthcare context, specifically targeting public referral hospitals in Kenya, which face distinctive operational and service delivery challenges. Similarly, Alshourah (2021) examined TQM implementation in accredited private hospitals in Jordan and reported that TQM components accounted for 73% of the variance in quality performance, emphasizing factors such as customer focus and quality planning. This study also called for further exploration of additional performance indicators, including sustainability and organizational strategy, alongside comparative analyses between public and private healthcare institutions. While these studies affirm the effectiveness of TQM in private healthcare settings, its application within Kenyan referral hospitals remains insufficiently studied, presenting a conceptual gap that the current research aims to fill.

From an African perspective, Shire and Oringo (2020) highlighted the transformative role of TQM in hospital operations, particularly in fostering quality awareness and aligning institutional practices with patient-centered outcomes. These findings are consistent with Babu and Thomas (2021), who observed that TQM enhances staff morale, reduces operational costs, and promotes service consistency. Their study further noted that healthcare institutions with well-established TQM systems tend to project a positive organizational image and improve healthcare quality through ongoing staff engagement and systematic improvements. However, Hchaichi (2023) cautioned that in many public institutions especially within developing countries the lack of awareness and structured implementation of TQM tools limits their

effectiveness. Moreover, inadequate stakeholder engagement by leadership often results in setbacks to quality improvement efforts, underscoring the critical importance of management commitment for sustaining TQM initiatives.

In summary, the literature offers robust empirical evidence supporting the positive effect of TQM on healthcare service delivery. However, notable gaps persist regarding the implementation of TQM within Kenya's public sector, particularly in NGRHs. This study aims to address this gap by examining how key operational dimensions of TQM: customer focus, continuous improvement, teamwork, and role clarity effect the quality of healthcare service delivery in NGRHs in Kenya.

6. Methodology

6.1 Research Philosophy and Research Design

The study adopted a positivist research philosophy, which emphasizes objectivity, empirical analysis, and measurable outcomes. According to Kouam (2024), the quantitative dimension of positivism is founded on the belief that objective reality is measurable and should be analyzed through quantifiable, outcome-oriented methods. Azegele (2021) similarly argues that the positivist paradigm is suitable for determining the relationship between institutional practices and performance. To ensure a comprehensive understanding of variable effects and minimize errors in data interpretation, a descriptive research design was employed. This design facilitates detailed observation of phenomena and allows for the use of multiple variables in analysis (Boru, 2018). A quantitative approach was utilized, incorporating statistical models to examine the effect of TQM on healthcare service delivery in Kenya's NGRHs. The descriptive design enabled a systematic evaluation of TQM's effects, enhancing the precision and validity of the findings.

6.2. Target Population and Sampling Design

The study focused on five National Government Referral Hospitals in Kenya: Kenyatta National Hospital, Moi Teaching and Referral Hospital, Kenyatta University Teaching Referral and Research Hospital, Mathari National Teaching and Referral Hospital, and National Spinal Injury Referral Hospital (MOH, 2023). The

target population comprised 217 hospital management staff and 100 patients (inpatients and outpatients). Using Slovin's formula with a 5% margin of error, a sample size of 199 management staff was calculated. Additionally, 10 inpatients and 10 outpatients were selected from each hospital, totaling 299 respondents. Stratified random sampling was used for management staff, categorized as directors and supervisors, while patients were selected through convenience sampling.

6.3. Data Collection Instrument, Data Collection Procedures

Structured questionnaires were administered to hospital management and patients to collect data on TQM and healthcare service delivery. Secondary data from hospital records (2013–2024) was also reviewed. Reliability and validity tests confirmed the instruments' accuracy and consistency. Ethical approval and research permits were obtained from ISERC, NACOSTI, the Ministry of Health, and the respective hospital administrations. Research assistants facilitated data collection, aiming for a 75% response rate.

6.4 Data Analysis Plan and Empirical Model

The study employed both descriptive and inferential statistics. Descriptive analysis summarized the data using means and standard deviations, while simple linear regression analysis tested the hypotheses. Diagnostic tests ensured that model assumptions were met. Data analysis was conducted using SPSS and Excel, with findings presented in tables. Results were disseminated through the thesis and relevant journal publications.

To examine the relationship between TQM and healthcare service delivery, regression analysis was utilized. As Saldaña (2021) notes, regression models help identify key variables and their relationships. The following model was used to test the direct relationship between these variables:

$$HSD=\beta_0+\beta_1 X_1 + \varepsilon$$

Where: $\beta_0 =$ Y intercept (constant); β_1 = Regression Coefficients; HSD = Healthcare service delivery; and $X_1 =$ TQM

7. Results and Findings

The study achieved an 80.3% response rate from hospital management, with 122 of 152 questionnaires completed, alongside the targeted 100 patient responses. This response rate is considered adequate (Babbie, 2004; Meyer et al., 2020). Reliability analysis of the 12-item Total Quality Management (TQM) scale yielded a Cronbach's alpha of 0.746, indicating moderate internal consistency. Validity tests showed a Kaiser-Meyer-Olkin (KMO) value of 0.743, classified as "middling" and above the 0.50 threshold, while Bartlett's Test of Sphericity was significant ($\chi^2 = 493.218$, $p < .001$), confirming suitability for factor analysis. These findings demonstrate acceptable reliability and construct validity of the TQM instrument in assessing quality-related outcomes in healthcare service delivery.

7.1 Descriptive Analysis

The construct of the independent variable examined was Total Quality Management (TQM). Respondents evaluated TQM aspects such as Customer focus, Continuous improvement, Teamwork and Clarity of roles. Findings are presented in Tables 1, 2, 3 and 4. Table 1 presents Total Quality Management on customer focus evaluation.

Table 1: Total Quality Management – Customer focus Evaluation

Customer focus	**Mean**	**STD DEV**
Patient satisfaction and experience	4.4	0.81
Feedback on improvement and innovation on services and processes.	4.5	0.62
Measure and monitor patient satisfaction metrics on performance	4.5	0.66
Aggregate score for Customer focus	4.5	0.70

Key: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree

Source: Research data (2025)

As indicated in Table 1, the findings in areas of customer focus respondents agreed that patient satisfaction and monitoring affects the TQM within the hospital. For Aggregate score for customer focus there was strong agreement that patient satisfaction is prioritized in all operations, reflected in a mean score of 4.5 and a standard deviation of 0.70. Table 2 presents descriptive statistics analysis for TQM on continuous improvement.

Table 2: Total Quality Management – Continuous Improvement

	Mean	STD DEV
Assessment impact of continuous improvement initiatives	4.4	0.90
Strategic Continuous improvement initiatives processes	4.5	0.83
Management team provides the necessary resources	4.4	0.88
Aggregate score for Continuous improvement	4.4	0.87

Key: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree

Source: Research data (2025)

As shown in Table 2, findings in the area of continuous improvement, respondents agreed that key performance indicators are regularly monitored to assess the effect of improvement initiatives, with the aggregate score for Continuous Improvement was 4.4, reflecting a solid commitment to ongoing enhancement. Table 3 presents Total Quality Management on Teamwork.

Table 3: Total Quality Management – Teamwork

	Mean	STD DEV
Training and development opportunities	4.5	0.85
Collaboration and teamwork.	4.5	0.86
Feedback on effective teamwork and implement strategies	4.6	0.70
Aggregate score for Team Work	4.5	0.81

Key: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree

Source: Research data (2025)

As indicated in Table 3, the findings regarding teamwork showed an emphasis on ongoing training and development opportunities to enhance teamwork skills with an aggregate score for Team Work was 4.5, indicating a strong culture of collaboration within the facility. Table 4 presents Total Quality Management on clarity of roles.

Table 4: Total Quality Management – Clarity of roles

Clarity of roles	**Mean**	**STD DEV**
Clarity in the organizational structure.	4.5	0.80
Reviews and updates role descriptions to reflect strategic priorities.	4.4	0.87
Training and support to staff	4.5	0.85
Aggregate score for Clarity of roles	4.5	0.84

Key: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree Source: Research data (2025)

As shown in Table 4, the findings concerning the clarity of roles, respondents felt that roles and responsibilities are clearly communicated, achieving overall, the aggregate score for Total Quality Management (TQM) was 4.5, with a standard deviation of approximately 0.80.

7.2 Regression Analysis

Simple Linear regression analysis was conducted to examine the effect of TQM dimensions on healthcare service delivery outcomes. The results of the simple linear regression model are presented in Tables 5,6 and 7. Table 5 presents the model summary of effect of TQM on Healthcare Service Delivery.

Table 5: Effect of Total Quality Management on Healthcare Service Delivery

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.769[a]	.592	.573	8.47218	1.744
a. Predictors: (Constant), Total Quality Management					

Source: Research data (2025)

Table 5 shows a significant positive effect of Total Quality Management (TQM) on healthcare service delivery in National Government Referral Hospitals. The R^2 value of 0.592 indicates that TQM explains 59.2% of the variation in service delivery, with the remaining 40.8% due to other factors outside the study. A p-value of 0.000 ($p < .05$) confirms the statistical significance, highlighting TQM's key role in improving healthcare outcomes

To test for the goodness of fit of the model, ANOVA test was performed. Table 6 shows the ANOVA statistics for Total Quality Management versus Healthcare Service Delivery.

Table 6: Effect of Total Quality Management on Healthcare Service Delivery

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2340.895	1	2340.895	27.756	.000[b]

	Residual	10120.664	120	84.339		
	Total	12461.559	121			
a. Dependent variable: Healthcare service delivery						
b. Predictors: (Constant), Total Quality Management						

Source: Research data (2025)

The ANOVA findings in Table 6 shows the F-Calculated (1, 120) = 27.756 which is greater than F-Critical (1, 120) = 3.96 at 95% confidence level. This indicates that the model used to predict the effect of Total quality Management on healthcare service delivery has goodness of fit and is supported by F= 27.756, p = 0.000 < 0.05. The p-value of 0.000 is less than 0.05, further supporting the significance of the relationship, confirming Total quality management is a strong predictor of healthcare service delivery.

To test the relationship between Total Quality Management and Healthcare Service Delivery the unstandardized coefficients analysis was performed. This hypothesis was tested at 5% significance level by regressing Total Quality Management on healthcare service delivery guided by the equation:

$HSD = \beta_0 + \beta_1 X_1 + \varepsilon$

Where: HSD= Healthcare Service delivery,

β_0 = Constant term , β_1 = Regression Coefficients for Total Quality Management, X_1 = Predictor (Total Quality management), and ε= Error term. Table 7 presents the coefficient for TQM.

Table 7: Effect of Total Quality Management on Healthcare Service Delivery

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	45.287	2.210		20.494	.000

	Total Quality Management	.782	.137	.433	5.711	.000
a. Dependent Variable: Healthcare service delivery						

Source: Research data (2025)

The Table 7 indicates the regression coefficient for the constant term (β=45.287, P=0.000< 0.05) is statistically significant and the coefficient for total quality management β_2= 0.782, P=0.000< 0.05) is similarly significant.

8. Hypothesis Testing

The hypothesis stated in the null form is as follows:

H_{01}: Total quality management does not have a statistically significant effect on healthcare service delivery in National Government Referral Hospitals in Kenya.

To test this hypothesis, a simple linear regression analysis was employed, with TQM as the independent variable and healthcare service delivery in national government referral hospitals as the dependent variable at a 5% significance. The aim was to determine whether TQM has a statistically significant effect on healthcare service delivery. To evaluate the relationship between TQM and healthcare service delivery, a simple linear regression analysis was conducted using unstandardized coefficients. T The regression coefficient for the constant term (β=45.287, P=0.000< 0.05) is statistically significant and the coefficient for TQM (β_2= 0.782, P=0.000< 0.05) is similarly significant. These findings suggest that a one-unit increase in TQM results in a 0.782-unit increase in healthcare service delivery, indicating a statistically significant positive relationship. As a result, the null hypothesis is rejected in favor of the alternative hypothesis, confirming that TQM has a significant positive effect on healthcare service delivery in NGRHs in Kenya.

This hypothesis was tested by regressing TQM's effect on healthcare service delivery guided by the following equation:

$HSD = \beta_0 + \beta_1 X_1 + \varepsilon$

Where: HSD= Healthcare Service delivery,

β_0 = Constant term (45.287),

β_1 = Regression Coefficients for Total Quality Management (0.782),

X_1 = Predictor (Total Quality management), and ε= Error term.

Based on the findings the following equation was derived:

HSD =45.287 + 0.782 X_1

Where HSD = Healthcare service delivery, X_1 = Total Quality Management

9. Discussion

The study found that patient satisfaction was highly prioritized in TQM practices, with a mean score of 4.4 (SD = 0.81), indicating active feedback collection. This supports findings by Nyawira and Wainaina (2022) and Ikegami (2021), who emphasize the role of patient feedback in improving healthcare quality.

Regarding continuous improvement, respondents agreed that key performance indicators (KPIs) were consistently monitored (M = 4.4), reflecting a strong commitment to ongoing enhancement. This aligns with Gupta et al. (2023), who highlight the importance of KPI tracking and resource allocation for improvement initiatives. In terms of teamwork, respondents rated training and development highly (M = 4.5), indicating a collaborative work environment. These findings support Smythe et al. (2024) and Shameela and Sulistiadi (2024), who underscore the role of training and management in promoting effective teamwork.

Regarding role clarity, respondents agreed that roles and responsibilities were well communicated (M = 4.5). This supports findings by Washington and Lewinson (2024), who emphasize the importance of clear role definitions, and Ikegami (2021), who highlights the value of regular role reviews to align with organizational goals.

The study found that TQM had a statistically significant positive effect on healthcare service delivery in Kenya's NGRHs ($p < .05$), reinforcing existing literature on TQM's effectiveness in enhancing service quality and organizational performance. This aligns with findings by Alawag et al. (2023) and Hchaichi (2023), who

emphasize stakeholder involvement and comprehensive TQM approaches in improving service delivery. The results also support the Resource-Based View (RBV) Theory (Utami & Alamanos, 2022) and Stakeholder Theory (Feng, 2019), both of which underscore the need to align strategic decisions with service delivery objectives using available resources competitively. Additionally, the findings are consistent with Contingency Theory (Oyadomari et al., 2023), which highlights the role of management control systems in achieving high standards of service provision.

TQM plays a vital role in continuous improvement (Hussain et al., 2023) and supports the achievement of hospital goals (Shire & Oringo, 2020). It also enhances service quality and employee satisfaction (Zaid et al., 2020; Babu & Thomas, 2021). This study concludes that effective TQM practices significantly improve healthcare service delivery by boosting patient outcomes and creating a positive work environment.

10. Conclusions

This study aimed to examine the effect of TQM on healthcare service delivery in NGRHs in Kenya. The findings revealed a statistically significant positive relationship between TQM practices and healthcare service delivery, with a beta coefficient of 0.782 and a p-value of 0.000. These results indicate that the effective implementation of TQM practices directly enhances service quality and patient satisfaction. The findings underscore the critical role of TQM in improving healthcare service delivery by fostering a culture of continuous improvement, standardization, and patient-centered care. It is evident that TQM frameworks add substantial value to the healthcare sector by elevating service standards and outcomes. The study concludes that the adoption and consistent implementation of TQM practices are essential for advancing the quality of healthcare services in Kenya's national referral hospitals.

11. Recommendations and Policy Implications

Based on the study's findings, several recommendations are proposed to enhance healthcare service delivery through the effective implementation of Total Quality Management (TQM) practices in Kenya's NGRHs: Policymakers to prioritize the

mandatory adoption of standardized TQM frameworks across all healthcare institutions, with a particular emphasis on NGRHs. This can be achieved through the institutionalization of regular audits, performance evaluations, and quality assessments to ensure continuous adherence to TQM principles. The Ministry of Health (MOH) should develop and disseminate comprehensive implementation guidelines and offer technical support to facilitate the integration of quality assurance mechanisms into daily hospital operations.

Hospital administrators to adopt a holistic and systematic approach to the implementation of TQM. This includes the establishment of continuous training and professional development programs aimed at equipping healthcare personnel with knowledge and skills in quality control and improvement. Staff at all levels should be made aware of their roles in delivering high-quality, patient-centered care. Moreover, institutions should implement robust systems for collecting, analyzing, and responding to patient feedback as part of their quality improvement processes.

In line with the study's findings, various theoretical recommendations are suggested for advancing TQM practices. The results emphasize the critical role of key TQM dimensions namely customer focus, continuous improvement, teamwork, and clarity of roles in enhancing healthcare service delivery. Accordingly, future theoretical models in TQM should incorporate these dimensions as essential drivers of organizational performance. Furthermore, it is recommended that scholars integrate innovation as a core component of TQM, with particular attention to how innovation interacts with TQM practices to optimize healthcare outcomes.

12. Areas for future research

Future research is therefore recommended in several key areas. First, comparative studies between public and private healthcare institutions should be conducted to assess the variations in TQM implementation and their effect on healthcare service delivery. Such studies would offer insights into sector-specific strengths, challenges, and best practices. Second, future investigations should explore the effect of external factors on healthcare outcomes. These include government policies, healthcare financing models, and socio-economic conditions that may shape the effectiveness of

TQM practices and overall service delivery. A broader analysis that integrates these contextual variables would provide a more comprehensive understanding of the systemic dynamics affecting healthcare quality in Kenya and similar settings.

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