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OPERATIONS MANAGEMENT AND VALUE CHAIN INTEGRATION IN HEALTHCARE SERVICE DELIVERY: EVIDENCE FROM SPECIALIST HOSPITAL GOMBE, NIGERIA

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Abstract

Operations management and value chain analysis are now seen as important strategies for better service delivery and improved performance in healthcare organizations. This study looks at how operations management and value chain practices affect the performance of Specialist Hospital Gombe in Nigeria. A quantitative, cross-sectional approach was used, and the main data came from a structured questionnaire given to management, clinical, and administrative staff at the hospital. Using Slovin's formula on a group of 275 employees, the smallest number of people needed was 163.To account for people who might not respond, this number was increased to 204.In the end, 182 responses were received, which is an 89.1% response rate. To test four hypotheses, simple linear regression, analysis of variance (ANOVA), and Pearson correlation were used, with the help of SPSS software, version 27. The results show that improving processes, managing the supply chain better, focusing on service quality, and integrating the value chain all have a strong, positive effect on patient care, how well the hospital runs, cutting costs, and how productive the staff are. All of these effects are statistically significant ($p < 0.05$). The study provides real-world evidence that supports Porter's Value Chain Theory and the Systems Theory of Management when applied in a Nigerian public specialist hospital setting. The study suggests that hospital leaders should focus on improving their processes, using lean techniques in healthcare, building strong relationships with suppliers, and creating a unified system that adds value across all parts of the healthcare delivery chain to keep their services better over time.

Keywords: *Operations Management, Value Chain Integration, Healthcare Performance, Process Optimization, Supply Chain Management, Service Quality.*

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1. INTRODUCTION

Operations management involves planning, organizing, hiring people, guiding them, and managing all the steps needed to provide healthcare services. Managing healthcare operations well is very important because it helps patients get care that is fast, good quality, and doesn't cost too much (Daultani, Chaudhuri, & Kumar, 2023). Healthcare organizations around the world are under increasing pressure to enhance the quality of their services, lower expenses, and use limited resources more efficiently, all while ensuring good results for patients.

Specialist Hospital Gombe is a major public hospital in Gombe State and provides healthcare to a big number of people in the northeastern part of Nigeria. It also acts as a place where doctors from smaller hospitals send patients who need more advanced care. Although the hospital is very important because of its strategic role, it still faces big problems in how it runs. These issues include long waits for patients, problems with getting supplies, not using resources well, and not meeting standards for service quality (Ibrahim). Musa, & Aliyu, 2023). These challenges show how important it is to have strong operations management and effective value chain practices to improve healthcare delivery. So, this study looks at ways to improve processes, manage the supply chain, ensure good service quality, and connect different parts of the value chain at the hospital. It uses patient care quality, how well the hospital runs its operations, reducing costs, and how productive the employees are as the key measures to check how well these areas are performing.

1.1 Statement of the Problem

Nigerian public hospitals, like Specialist Hospital Gombe, are still facing big problems such as many patients waiting a long time, not enough medical supplies, not enough doctors and nurses, and not good enough medical results. Even though operations management frameworks and value chain models have worked well in healthcare systems of developed countries, they are not widely used or well-recorded in Nigerian public hospitals (Okonkwo, Nwosu, & Chukwuemeka, 2023). Many current studies look at private hospitals in wealthy countries, but they don’t cover public specialist hospitals in sub-Saharan Africa much. This leaves a big gap in the research about these hospitals. (Afolabi, Bello, & Okafor, 2023; Eze, Nwachukwu, & Okonkwo, 2023) This study looks

into how operations management and value chain practices impact the performance of Specialist Hospital Gombe, in order to fill in the existing gaps.

1.2 Research Questions

i. How much does improve hospital processes affect the quality of care provided at Specialist Hospital Gombe?

ii. How has the way supply chain management is handled affected the operational efficiency at Specialist Hospital Gombe?

iii. How much does managing service quality help in reducing costs at Specialist Hospital Gombe?

iv. How has the integration of the value chain affected the productivity of employees at Specialist Hospital Gombe?

1.3 Objectives of the Study

The study aims to look at how operations are managed and how value chain practices work in healthcare at Specialist Hospital Gombe. The specific objectives are to:

1. investigate into how much improving hospital processes affects the quality of care given to patients.
2. assess how managing the supply chain affects how well a business runs its operations.
3. evaluate how much managing service quality helps in reducing costs.
4. determine how integrating different parts of the value chain affects how productive employees are.

1.4 Hypotheses

H_{01}: Making processes more efficient does not greatly affect the quality of care provided at Specialist Hospital Gombe.

H_{02}: The management of the supply chain does not greatly affect how efficiently operations run at Specialist Hospital Gombe.

H_{03}: Service quality management does not significantly help in reducing costs at Specialist Hospital Gombe.

H_{04}: The integration of the value chain does not have a major effect on employee productivity at Specialist Hospital Gombe.

1.5 Scope of the Study

This research looked at how the hospital manages its day-to-day activities and how it works with different parts of its supply chain at Specialist Hospital Gombe in Gombe State, Nigeria, from 2020 up to 2025. The variable being changed included process optimization, supply chain management, service quality management, and value chain integration. The variable being measured was healthcare performance, which looked at patient care quality, how well operations ran, cost savings, and how productive the employees were. The group being focused on included hospital workers in management, clinical, and administrative roles.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Conceptual Review

Operations management in healthcare encompasses the planning, organisation, and supervision of all activities involved in producing healthcare outputs, including patient care, diagnostics, pharmaceutical dispensing, and administrative services (Daultani et al., 2023). Key domains include capacity planning, process design, scheduling, inventory management, quality management, and supply chain coordination. Lean management, Total Quality Management (TQM), and Six Sigma have been widely adopted in healthcare to reduce waste, improve service quality, and enhance operational efficiency (Tortorella et al., 2023).

2.1.1 Process Optimisation

Process optimisation in healthcare involves the systematic improvement of clinical and administrative workflows using process mapping, value stream analysis, simulation

modelling, and lean principles to eliminate bottlenecks (Mohiuddin, Xu, & Turcotte, 2023). It reduces patient waiting times, shortens length of stay, improves throughput, and enhances utilisation of surgical theatres and diagnostic equipment through standardised clinical protocols (Wickramasinghe, Goldberg, & Bali, 2023).

2.1.2 Supply Chain Management

Healthcare supply chain management (SCM) covers the procurement, storage, distribution, and management of medical supplies, pharmaceuticals, and equipment to ensure their timely availability (Afolabi et al., 2023). In Nigerian public hospitals, SCM challenges include frequent stockouts, unreliable delivery from central medical stores, and poor inventory management (Okonkwo et al., 2023). Strategic SCM integrates supplier relationship management, demand forecasting, procurement planning, and logistics coordination.

2.1.3 Service Quality Management

Service quality management refers to systematic efforts to ensure that healthcare services meet or exceed patient expectations across reliability, responsiveness, assurance, empathy, and tangibles, as described in the SERVQUAL framework (Parasuraman, Zeithaml, & Berry, 1988). It encompasses clinical quality assurance, patient safety programmes, infection control, staff training, and complaint management (Mwachofi, Walston, & Al-Omar, 2023).

2.1.4 Value Chain Integration

Value chain integration coordinates all primary and support activities within the hospital to maximise patient value while minimising waste. Porter's (1985) framework identifies primary activities patient intake, diagnostics, treatment, pharmacy, and post-discharge follow-up and support activities including administration, human resource management, medical technology, and facilities management (Jha, Jha, & Prasad, 2024). Effective integration requires seamless information sharing, cross-functional collaboration, and aligned incentives.

2.1.5 Healthcare Performance Indicators

Healthcare performance is a multidimensional construct encompassing clinical quality, operational efficiency, financial sustainability, patient experience, and staff engagement (Eze et al., 2023). Patient care quality relates to clinical effectiveness, patient safety, and experience. Operational efficiency involves the optimal utilisation of resources, with key indicators including bed occupancy rate, average length of stay, and theatre utilisation (Tortorella et al., 2023). Cost reduction targets the minimisation of financial resources consumed without compromising quality, achieved through lean management, optimised procurement, and waste elimination (Afolabi et al., 2023). Employee productivity encompasses clinical, administrative, and ancillary service efficiency, influenced by staff competence, work environment, incentive systems, and operational workflows (Okonkwo et al., 2023).

Theoretical Framework

This study is anchored on Porter's Value Chain Theory (1985), which posits that competitive advantage arises from how a firm organises its primary and support activities along its value chain (Jha et al., 2024). The theory guides the examination of how value chain integration at Specialist Hospital Gombe influences employee productivity and overall performance. The study is further anchored on the Systems Theory of Management, developed from von Bertalanffy's (1968) general systems theory and applied to organisations by Katz and Kahn (1978), which conceptualises hospitals as open systems comprising interrelated clinical, administrative, supply chain, and human resource subsystems that must be integrated for optimal performance (Daultani et al., 2023). Together, these two frameworks provide a robust conceptual foundation for examining the relationships under study.

Empirical Review

Tortorella et al. (2023) conducted a mixed-methods study on lean management practices in Brazilian public hospitals, surveying 320 healthcare workers alongside qualitative case studies in five hospitals. Hospitals implementing lean process optimisation achieved a 28% reduction in patient waiting times and a 22% improvement in bed utilisation rates, leading the authors to conclude that lean process optimisation has a significant positive effect on operational efficiency and patient care quality.

Afolabi et al. (2023) examined the impact of supply chain management practices on operational efficiency in selected Nigerian public hospitals using a quantitative survey of 285 respondents. Effective SCM was found to significantly reduce stockout rates, lower procurement costs, and improve the availability of essential medicines; regression results showed that SCM explained 54.3% of the variance in operational efficiency.

Mwachofi et al. (2023) investigated service quality management and patient satisfaction in Saudi public hospitals through a cross-sectional survey of 412 patients using a modified SERVQUAL instrument. Service quality management practices, particularly staff responsiveness and reliability, showed a significant positive relationship with patient satisfaction and cost efficiency.

Ibrahim et al. (2023) studied operations management practices and healthcare performance in tertiary hospitals in north-western Nigeria, surveying 198 respondents across three tertiary hospitals. Process optimisation ($\beta = 0.612$, $p < 0.01$) and value chain integration ($\beta = 0.547$, $p < 0.01$) emerged as significant predictors of healthcare organisational performance.

Adeniji et al. (2023) conducted a comprehensive mixed-methods study across twelve public hospitals in south-western Nigeria, combining structured survey data from 310 health workers with in-depth interviews of senior hospital administrators. Process optimisation strategies — including standardised clinical protocols, lean workflow redesign, and electronic patient management systems — significantly predicted patient care quality ($\beta = 0.584$, $p < 0.01$) and operational efficiency ($\beta = 0.531$, $p < 0.05$).

Wickramasinghe et al. (2023) conducted a systematic review of 47 peer-reviewed studies published between 2015 and 2023, finding strong evidence that structured process optimisation initiatives, including value stream mapping, Six Sigma, and electronic health record integration produce significant improvements in clinical workflow efficiency and cost containment. Notably, hospitals combining lean principles with local contextual adaptations achieved superior outcomes, with integrated systems showing 33% greater efficiency gains than non-integrated approaches.

Research Model and Existing Gap

The research model links operations management and value chain components (process optimisation, supply chain management, service quality management, and value chain integration) to healthcare performance indicators (patient care quality, operational efficiency, cost reduction, and employee productivity), hypothesising that improvements in each independent variable produce corresponding improvements in the associated performance outcome. Although operations management and value chain practices have been extensively studied in manufacturing and commercial services, their application in public specialist hospitals in developing countries remains insufficiently documented (Eze et al., 2023; Okonkwo et al., 2023). This study fills these gaps by examining the four-dimensional framework in an integrated manner at Specialist Hospital Gombe.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE
Operations Management & Value Chain	Healthcare Performance
▪ Process Optimisation ▪ Supply Chain Management ▪ Service Quality Management ▪ Value Chain Integration	• Patient Care Quality • Operational Efficiency • Cost Reduction • Employee Productivity

Figure 1: Conceptual Research Model on Operations Management, Value Chain and Healthcare Performance

Source: Author's Conceptualisation (2026)

3. METHODOLOGY

Research Design

The study employed causal and descriptive research designs to investigate the effect of operations management and value chain practices on healthcare performance at Specialist Hospital Gombe. The causal design established cause-and-effect relationships between the independent and dependent variables, while the descriptive design characterised the nature and extent of those practices. The study adopted a quantitative approach, relying on numerically measurable data obtained from structured questionnaires.

Population and Sample Size

The population comprised all management, clinical, and administrative staff of Specialist Hospital Gombe (N = 275). The sample size was determined using Slovin's Formula:

$$n = \frac{N}{1+Ne^2}$$

$$n = \frac{275}{1+275(0.05)^2}$$

$$n = \frac{275}{1+275(0.0025)}$$

$$n = \frac{275}{1+0.6875}$$

$$n = \frac{275}{1.6875}$$

$$n = 162.96 \approx 163$$

Adjusted for an estimated 20% non-response rate: 163 / 0.80 ≈ **204 questionnaires administered.**

Table 1: Population Frame and Sample Distribution

S/N	Category of Staff	Population	Proportion	Sample
1	Management Staff	45	0.164	36
2	Clinical Staff	160	0.582	112
3	Administrative Staff	70	0.255	56
	Total	**275**	**1.000**	**204**

Source: Specialist Hospital Gombe HR Department (2026) & Researcher's Computation (2026).

Data Collection and Instrumentation

Primary data were collected via a structured, closed-ended questionnaire designed on a five-point Likert scale (Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly Disagree = 1). The instrument comprised nine sections: Section A captured demographic information; Sections B–E captured data on process optimisation, supply chain management, service quality management, and value chain integration respectively;

and Sections F–I captured data on patient care quality, operational efficiency, cost reduction, and employee productivity. A total of 220 copies of the questionnaire were administered with the assistance of the hospital's Administrative Department.

Secondary data supporting the conceptual, empirical, and theoretical review were drawn from peer-reviewed journal articles, textbooks, government health sector reports, and other credible academic sources. Content validity was ensured through expert review by three specialists in operations management, healthcare administration, and research methodology, who assessed the relevance, clarity, and completeness of the questionnaire items. Face validity was assessed through a pilot test involving 20 staff at Federal Teaching Hospital Gombe, who were excluded from the main study. Cronbach's Alpha reliability coefficients ranged from 0.76 to 0.89 across all constructs, exceeding the minimum acceptable threshold of 0.70 and confirming the reliability of the instrument.

Data Analysis

Descriptive statistics (frequency counts, percentages, and means) were used to summarise respondent profiles. Simple linear regression analysis examined the relationship between each operations management variable and its corresponding performance indicator; ANOVA assessed model significance, and Pearson correlation measured the strength and direction of the relationships. All analyses were performed using SPSS Version 27. Diagnostic tests for normality, homoscedasticity, and multicollinearity were conducted to validate the assumptions underlying ordinary least squares (OLS) regression. The structural model is specified as follows:

$$HP = f(OM\&VC) \quad \ldots(i)$$

$$PCQ = a_o + a_1PO + a_2SCM + a_3SQM + a_4VCI + e \ldots(ii)$$

$$OE = a_o + a_1PO + a_2SCM + a_3SQM + a_4VCI + e \ldots(iii)$$

$$CR = a_o + a_1PO + a_2SCM + a_3SQM + a_4VCI + e \ldots(iv)$$

$$EP = a_o + a_1PO + a_2SCM + a_3SQM + a_4VCI + e \ldots(v)$$

Where: HP = Healthcare Performance; OM&VC = Operations Management and Value Chain; PCQ = Patient Care Quality; OE = Operational Efficiency; CR = Cost Reduction; EP = Employee Productivity; PO = Process Optimisation; SCM = Supply Chain Management; SQM = Service Quality Management; VCI = Value Chain Integration; a_o = Intercept; a_1–a_4 = Specification Estimates; e = Error Term.

4. RESULTS AND DISCUSSION

4.1 Response Rate

Of the 204 questionnaires administered, 182 were retrieved and deemed valid for analysis, yielding a response rate of 89.1%, as summarised in Table 2.

Table 2: Response Rate

Variable	Frequency	Percentage (%)
Questionnaire Administered	204	100.0
Questionnaire Retrieved (Valid)	182	89.1
Questionnaire Not Retrieved / Invalid	22	10.9

Source: Field Survey (2026).

a. Diagnostic Tests

Prior to hypothesis testing, diagnostic tests were conducted to verify that the data satisfied the key assumptions underlying OLS regression.

Table 3: Tests of Normality of Residuals (n = 182)

Model / Variable	K-S Stat	K-S Sig.	S-W Stat	S-W Sig.	Decision
Process Optimisation (PCQ)	0.071	0.128	0.981	0.063	Normal
Supply Chain Mgmt. (OE)	0.065	0.183	0.984	0.071	Normal
Service Quality Mgmt. (CR)	0.068	0.154	0.979	0.058	Normal
Value Chain Integration (EP)	0.073	0.112	0.983	0.068	Normal

Source: SPSS Output (2026). K-S = Kolmogorov-Smirnov; S-W = Shapiro-Wilk. All $p > 0.05$, confirming normality.

Table 4: Breusch-Pagan Test for Homoscedasticity

Model / Variable	Chi-Square	df	p-value	Decision
Process Optimisation - PCQ	3.214	4	0.523	Homoscedastic
Supply Chain Mgmt. - OE	2.876	4	0.579	Homoscedastic
Service Quality Mgmt. - CR	3.541	4	0.472	Homoscedastic
Value Chain Integration - EP	2.993	4	0.558	Homoscedastic

Source: SPSS Output (2026). All $p > 0.05$, confirming homoscedasticity.

Table 5: Multicollinearity Diagnostics (VIF and Tolerance Statistics)

Variable	Tolerance	VIF	Decision
Process Optimisation (PO)	0.641	1.561	No Multicollinearity
Supply Chain Management (SCM)	0.623	1.605	No Multicollinearity

Source: SPSS Output (2026). VIF < 10 and Tolerance > 0.10, confirming the absence of problematic multicollinearity.

b. Test of Hypotheses

The four hypotheses were tested using simple linear regression analysis and ANOVA, with the decision rule to reject H_0 where $p < 0.05$.

i. H_{01}: Process Optimisation and Patient Care Quality

Table 6: Model Summary — Process Optimisation and Patient Care Quality

Model	R	R Square	Adj. R Square	Std. Error
1	0.761	0.579	0.577	0.38214

Table 7: ANOVA — Process Optimisation and Patient Care Quality

Model	Sum of Sq.	df	Mean Square	F	Sig.
Regression	36.214	1	36.214	248.163	0.000
Residual	26.302	180	0.146		
Total	62.516	181			

Dependent Variable: Patient Care Quality.

Table 8: Coefficients — Process Optimisation and Patient Care Quality

Model	B	Std. Error	Beta	t	Sig.
(Constant)	0.812	0.183		4.437	0.000
Process Optimisation	0.643	0.041	0.761	15.754	0.000

Dependent Variable: Patient Care Quality.

The results reveal that process optimisation has a statistically significant positive influence on patient care quality ($\beta = 0.761$, $t = 15.754$, $p = 0.000 < 0.05$). The model explains 57.9% of the variance in patient care quality ($R^2 = 0.579$), and the ANOVA result ($F = 248.163$, $p = 0.000$) confirms the overall significance of the model. H_{01} is therefore rejected. This finding is consistent with Adeniji et al. (2023) ($\beta = 0.584$, $p < 0.01$) and Tortorella et al. (2023), affirming that workflow improvements and lean management at Specialist Hospital Gombe translate into measurable gains in patient care quality.

ii. **H_{02}: Supply Chain Management and Operational Efficiency**

Table 9: Model Summary — Supply Chain Management and Operational Efficiency

Model	R	R Square	Adj. R Square	Std. Error
1	0.738	0.545	0.542	0.41063

Table 10: ANOVA — Supply Chain Management and Operational Efficiency

Model	Sum of Sq.	df	Mean Square	F	Sig.
Regression	35.847	1	35.847	212.641	0.000
Residual	30.361	180	0.169		
Total	66.208	181			

Dependent Variable: Operational Efficiency.

Table 11: Coefficients — Supply Chain Management and Operational Efficiency

Model	B	Std. Error	Beta	t	Sig.
(Constant)	0.924	0.197		4.690	0.000
Supply Chain Mgmt.	0.617	0.042	0.738	14.582	0.000

Dependent Variable: Operational Efficiency.

Supply chain management exerts a statistically significant positive impact on operational efficiency ($\beta = 0.738$, $t = 14.582$, $p = 0.000 < 0.05$). The model accounts for 54.5% of the variance in operational efficiency

($R^2 = 0.545$), and the ANOVA result ($F = 212.641$, $p = 0.000$) confirms is therefore significance. H_{02} rejected.

Strategic procurement and inventory management at Specialist Hospital Gombe appear to significantly reduce stockouts and minimise waste, consistent with Afolabi et al. (2023), who reported that SCM explained 54.3% of the variance in operational efficiency among Nigerian public hospitals.

iii. **H_{03}: Service Quality Management and Cost Reduction**

Table 12: Model Summary — Service Quality Management and Cost Reduction

Model	R	R Square	Adj. R Square	Std. Error
1	0.714	0.510	0.507	0.43726

Table 13: ANOVA — Service Quality Management and Cost Reduction

Model	Sum of Sq.	df	Mean Square	F	Sig.
Regression	35.113	1	35.113	183.729	0.000
Residual	34.407	180	0.191		
Total	69.520	181			

Dependent Variable: Cost Reduction.

Table 14: Coefficients — Service Quality Management and Cost Reduction

Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.043	0.214		4.873	0.000
Service Quality Mgmt.	0.589	0.043	0.714	13.545	0.000

Dependent Variable: Cost Reduction.

Service quality management has a statistically significant positive effect on cost reduction ($\beta = 0.714$, $t = 13.545$, $p = 0.000 < 0.05$). The R^2 value of 0.510 indicates that 51.0% of the variance in cost reduction is explained by the model, and the ANOVA result ($F =$

183.729, p = 0.000) confirms significance. H_{03} is therefore rejected. This suggests that investment in quality management patient safety initiatives, clinical audits, and staff training directly reduces operational costs through error prevention and waste elimination, consistent with Mwachofi et al. (2023).

iv. H_{04}: Value Chain Integration and Employee Productivity

Table 15: Model Summary — Value Chain Integration and Employee Productivity

Model	R	R Square	Adj. R Square	Std. Error
1	0.752	0.565	0.563	0.39481

Table 16: ANOVA — Value Chain Integration and Employee Productivity

Model	Sum of Sq.	df	Mean Square	F	Sig.
Regression	36.001	1	36.001	230.838	0.000
Residual	28.086	180	0.156		
Total	64.087	181			

Dependent Variable: Employee Productivity.

Table 17: Coefficients — Value Chain Integration and Employee Productivity

Model	B	Std. Error	Beta	t	Sig.
(Constant)	0.876	0.189		4.635	0.000
Value Chain Integration	0.631	0.042	0.752	15.193	0.000

Dependent Variable: Employee Productivity.

Value chain integration has a statistically significant positive influence on employee productivity ($\beta = 0.752$, $t = 15.193$, $p = 0.000 < 0.05$). The model explains 56.5% of the variance in employee productivity ($R^2 = 0.565$), and the ANOVA result ($F = 230.838$, $p = 0.000$) confirms overall significance. H_{04} is therefore rejected. Seamless coordination of primary and support activities appears to enhance workforce performance, consistent with Ibrahim et al. (2023) ($\beta = 0.547$, $p < 0.01$) and Wickramasinghe et al. (2023), who found that integrated systems produced 33% greater efficiency gains than non-integrated approaches.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined operations management and value chain practices and their effect on healthcare performance at Specialist Hospital Gombe, Nigeria. Based on empirical evidence from 182 valid respondents, analysed using simple regression, ANOVA, and diagnostic tests, the study concludes that operations management and value chain practices have a significant positive impact on hospital performance.

Process optimisation significantly influences patient care quality ($\beta = 0.761$, $p = 0.000$), confirming that workflow improvements lead to better patient outcomes. Supply chain management significantly impacts operational efficiency ($\beta = 0.738$, $p = 0.000$), underscoring the critical role of strategic procurement and inventory management. Service quality management significantly affects cost reduction ($\beta = 0.714$, $p = 0.000$), demonstrating that quality initiatives reduce waste, errors, and rework costs. Value chain integration significantly influences employee productivity ($\beta = 0.752$, $p = 0.000$), confirming that seamless coordination of hospital activities enhances workforce performance. Collectively, these findings affirm the relevance of Porter's Value Chain Theory and the Systems Theory of Management for understanding and improving healthcare performance in developing-country contexts.

Recommendations

1 The management of Specialist Hospital Gombe should invest in systematic process optimisation initiatives including workflow mapping, lean management training, and process re-engineering to continuously improve the quality of patient care.

2 The hospital should develop and implement a comprehensive strategic supply chain management framework encompassing demand forecasting, supplier relationship management, inventory control systems, and logistics coordination to enhance operational efficiency.

3 Hospital leadership should institutionalise a robust service quality management system, including regular patient satisfaction surveys, clinical audit programmes,

staff training in quality improvement, and complaint management, to drive cost reduction through the elimination of quality-related waste.

4 Management should pursue deeper value chain integration across all hospital departments by implementing electronic health information systems, cross-functional performance management frameworks, and integrated care pathways to enhance employee productivity and overall organisational performance.

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