The role of strategic capabilities on the relationship between supplier benchmarking and quality of health care services among private hospitals in Western Kenya

Walumbe Titus[1]
Dr. Yusuf Kibet[2]
Prof. Christopher Ngacho[3]
Dr. Caleb Akuku[4]

[1]walumbetitus@gmail.com
[2]ykibet2017@gmail.com
[3]cngacho@yahoo.com
[4]cnakuku@gmail.com

[1]https://orcid.org/0009-0009-7379-3455
[2]https://orcid.org/0000-0001-9287-5653
[3]https://orcid.org/0000-0001-8433-5307
[4]https://orcid.org/0000-0002-3285-9958

[1]PhD Student Kisii University, [2]Lecturer Moi University, [3,4]Lecturer Kisii University, [1,2,3,4]Kenya

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ABSTRACT

Private hospitals adopt effective health care supply chain management practices (SCM) without exception to supplier benchmarking to promote their advancement of quality health care. In this regard, private hospitals manage their supply chain strategically to reduce cost of operation, improve service quality, improve patient safety and generate adequate revenue. However, there are mixed findings on the link between supply bench marking and quality of health care services which provided a gap for further interrogation. Therefore, the general objective of the study was to analyze the moderating role of strategic capabilities on the relationship between supplier bench marking and quality of health care services among private hospitals in Western Kenya. This study was premised on resource dependency and service quality theories. The study used the explanatory cross-sectional research design. A target population of 880 employees in private health hospitals in Western Kenya was adopted. The study determined the sample size of 335 respondents by use of Krejcie and Morgan 1970 formular and considered a non-response rate of 20%. The study used multistage sampling technique with questionaire to collect data. Quantitative data was analyzed using descriptive and inferential statistics through SPSS version 25.0 software. Regression analysis showed supplier benchmarking significantly predicts healthcare quality ($B=0.726$ $p<0.001$). Hierarchical regression revealed that adding strategic capabilities increased R^2 from 0.474 to 0.588, with strategic capability ($B=0.191$, $p<0.01$) and the interaction term ($B=0.046$, $p<0.05$) significantly moderating the relationship. The interaction effects demonstrate that strategic capabilities enhance the impact of supplier benchmarking on healthcare quality, confirming their moderating role in private hospitals in Western Kenya. In conclusion, this indirect and direct link highlights the importance of efficient, well-managed supply benchmarking in supporting and enhancing the overall quality of healthcare services. The study recommends that Private hospitals aiming to maintain competitiveness and deliver of high-quality healthcare services must enhance their supplier benchmarking practices by aligning them with strategic capability-oriented policies. This study provides an evidence-based framework linking supplier benchmarking and strategic capabilities in promoting the delivery of quality healthcare services.

Keywords: Strategic Capabilities, Supplier Benchmarking, Private Hospitals, Quality of Health Care Services, Western Kenya

I. INTRODUCTION

The dynamics in the health care sector have raised the bar for health systems to produce better health outcomes and greater social value (Kruk et al., 2018). In this regard, provision of quality health care services has become a mantra for many hospitals for customer retention and profitably. The reverse remains a recipe for customer dissatisfaction, reduction in competitive advantage and eventual collapse of private hospitals. Therefore, private hospitals try to achieve zero defects through continuous effort to improve the quality of their health care service delivery system (Gbadeyan et al., 2017). These has yielded an increasing need by private hospitals administrators to adopt effective health care supply chain management practices (SCM) to promote their advancement of quality health care (Reda et al, 2020). This qualifies the place of supplier benchmarking which help organizations identify high-performing suppliers and inform decision-making in logistics optimization, aligning well with these prioritized factors (Hossain & Thakur, 2021). However, due to the rapid advancement in medical technology, the global healthcare supply chain is under severe

pressure thwarting the sustainability of the quality health care system (Bhaskar et al., 2020). But staying on the current trajectory would compromise on delivery of quality health care services eulogizing the need for effective SCM practices by the health sector. Thus supplier benchmarking yields meaningful benefits only when accompanied by strategic capabilities in logistics management, technology integration, and sustainable practices.

In this regard, hospitals are making efforts to ensure that quality health care is delivered to the patient in order to influence outcomes with respect to hospital performance and patient satisfaction (Hussain et al., 2019). Quality of health care is the degree to which health care services for individuals and populations increase the likelihood of desired health outcomes. Quality of health care is the application of medical science and technology in a manner that maximizes its benefit to health without correspondingly increasing the risk (Donabedian, 1980). Quality of health care can also be defined as the provision of care that exceeds patient expectations and achieves the highest possible clinical outcomes with the resources available (Ovretveit, 2009). Accordingly, Mosadeghrad (2013) defined quality healthcare as consistently delighting the patient by providing efficacious, effective and efficient healthcare services according to the latest clinical guidelines and standards, which meet the patients' needs and satisfies providers. Therefore, basing on the latest clinical guideline and standards with the use of current technology private hospitals should provide the most satisfactory health care services to their clients.

According to the World Health Organization (WHO, 2023), quality healthcare services should be effective, safe, and people-centered. To achieve these outcomes, healthcare services should also be timely, equitable, integrated, and efficient. Quality of healthcare services is a holistic expression that implies a host of features like the range of medical services offered, clinical competence of the staff, hospital amenities, expertise of the physicians, ambience of the hospital, the behavior of the staff, in-patient experience and above all, patient satisfaction (Krishna, 2019). Quality customer service is a supply-chain driven organizational performance strategy (Karimi & Rafiee, 2014). Poor-quality care can lead to other adverse outcomes, including unnecessary health-related suffering, persistent symptoms, loss of function and a lack of trust and confidence in health systems (Kruk et al., 2018). The aspirations of quality of healthcare translate into an urgent need for the quality governance of both public and private health sector to provide quality health services for universal health coverage. However, the public sector healthcare service providers suffer potential problems as shortage of human resources, inefficient institutional frameworks, inadequate quality and efficiency compromising on their provision of quality health services (Joudyian et al., 2021).

Besides, the public sector almost relies on transactional-based approaches and the restrictions placed on its procurement practices resulting in sub-optimal outcomes (Laing & Lian, 2005). This has set the stage for the provision of healthcare services by the private health sector. The private health sector are the individuals and organizations that are neither owned nor directly controlled by governments and are involved in provision of health care services (Clarke, 2007). It can be classified into subcategories as for profit and not for profit, formal and informal, domestic and international. The private sector provides a mix of goods and services including: direct provision of health services, medicines and medical products, financial products, training for the health workforce, information technology, infrastructure and support services (e.g. health facility management) (WHO., 2018). However, availability of these resources requires an effective and efficient supply chain and good stock management practices (Boakye et al., 2021). Therefore, hospitals need to maintain an efficient inventory of drugs and medical supplies and other supplies in order to meet emergency demands. In this regard, the health care organizations have recognized the importance of adopting effective SCM practices (De Vries & Huijsman, 2011).

Supplier benchmarking in healthcare refers to the systematic comparison of supplier performance, practices, and processes against industry standards or peer organizations, with the goal of identifying best practices and driving continuous quality improvement (Vainieri et al., 2022). Supplier benchmarking has emerged as a crucial strategy to improve procurement efficiency, foster supplier performance, and enhance patient-centered outcomes. Supplier benchmarking involves comparing the performance of a healthcare facility's suppliers with industry best practices to identify areas for improvement and foster innovation and competitiveness (Hossain & Thakur, 2021). It enables hospitals to make informed decisions about sourcing, inventory control, cost management, and responsiveness, ultimately influencing the quality of healthcare service delivery. Evidence suggests that benchmarking can lead to marked improvements in product quality and cost efficiency, with one study reporting a 10.6% increase in product quality and a 29% reduction in costs through benchmarking interventions (Naranjo-Gil & Ruiz-Muñoz, 2014).

However, the effectiveness of supplier benchmarking in enhancing healthcare quality can be contingent on the strategic capabilities possessed by the organization (Bartsch et al., 2020; Desmond, 2022). Strategic capabilities refer to an organization's ability to effectively deploy its resources and competencies to achieve long-term competitive advantage. In the healthcare context, these include economic (cost-saving innovations), environmental (green supply practices), and social capabilities (stakeholder and community responsiveness) (Mwakalobo & Maagi, 2023). These capabilities can influence how well a private hospital can utilize supplier benchmarking information for continuous improvement and ensure sustainable service delivery. When viewed as a moderating factor, strategic capabilities can amplify or weaken the impact of supplier benchmarking on quality of care (Sharma & Kulkarni, 2021). In Kenya, although private hospitals are increasingly adopting supplier benchmarking practices, strategic capability gaps such as

lack of data-driven decision-making, fragmented information systems, and limited sustainability practices continue to impede progress (Okoth, 2021; Mutangili, 2019). Moreover, no empirical study to date has examined the moderating role of strategic capabilities in this relationship within private hospitals in Western Kenya. This study therefore seeks to address a key research gap by investigating how strategic capabilities moderate the relationship between supplier benchmarking and the quality of health care services in private hospitals in Western Kenya.

1.1 Statement of the Problem

Provision of quality health care services is the overarching goal of the Kenya Health Policy as a fundamental right of every human being. Therefore, both devolution and the extended use of the Social Health Authority (SHAH) are Kenya's deliberate attempts to meet its health care objectives, cater for high healthcare demand and provide health security at a reasonable cost. Besides, private hospitals have contributed significantly to the efforts of the government in facilitating equity and access to healthcare services (Ilinca, et al., 2019). In this regard, Kenya has made significant progress as far as affordable health care access is concerned (Berendes et al., 2011). However, a strong healthcare service delivery system cannot function without a well-designed, well-operated and well-maintained supply chain management (SCM) (Bvuchete et al., 2018).

Besides, while some private hospitals in Kenya have demonstrated outstanding performance, many others cannot afford to do so, leaving patients reliant on lower-quality private providers and resulting in poor healthcare services. Thus, the poor and vulnerable community members are left with low-quality, low-cost private providers that are too often unsafe and even illegal (Jerving, 2021). In this regard, Kenya is still struggling to meet the goal of providing a universal health care. To alleviate these, there is need for the private hospitals to manage their supply chain strategically to reduce cost of operation and improve service quality. This calls for the promotion of efficiency in the health care supply chain management without exception to supplier bench marking to create substantial cost-reducing opportunities across their organizations resulting to quality health care services .

Studies by Okello (2017) and Kariuki (2018) on Supply Chain Management Practices and Performance of Private Hospitals in Kenya found a positive significant relationship. However, Gbadeyan et al. (2017) notes that SCM has no strong and direct impact on Hospital performance, but has indirect impact on performance through Competitive Advantage. Besides these mixed findings, there are limited studies on supplier bench marking, strategic capabilities and quality health care services among private hospitals in Western Kenya provided a gap to be filled by the current study.

1.2 General Objective

The general objective of the study was to analyze the moderating role of strategic capabilities on the relationship between supplier bench marking and quality of health care services amongst private hospitals in Western Kenya.

1.2.1 Specific Objectives of the Study

The following specific objectives were used to accomplish this.

i. To determine the relationship between supplier bench marking and quality of health care services amongst private hospitals in Western Region
ii. To determine the moderating role of strategic capabilities on the relationship between effective supplier bench marking and quality of health care services amongst private hospitals in Western Region.

II. LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Resource-Dependence Theory

Resource Dependency Theory, proposed by Pfeffer and Salancik in 1978, explains how organizational behavior is affected by external resources (Alkhuzaim et al., 2022). Resource dependency theory is based on the principle that an organization, such as a business firm, must engage in transactions with other actors and organizations in its environment in order to acquire resources (Ikpesu & Akpomi, 2020). In this regard, private hospitals need resources to help them provide services to their clients. However, the scarcity of resources creates uncertainty for firms thus motivating the need to reduce this uncertainty (Wiedmer & Whipple, 2022). In this regard organizations strive to manage resource dependencies by setting up different forms of interorganizational arrangements as supply chain management strategies. Supplier dependence and buyer–supplier interdependence influence buyers' decision-making (Xiao et al., 2019).

Supplier benchmarking can enable the private hospitals to access complementary resources and capabilities in their supply networks for the delivery of quality health services. In fine, resource dependence is an indication of the extent to which a firm in a supply chain needs to maintain information and material resources exchange with individual supply chain partners (Marshall et al., 2015). Thus, the private hospitals have to invest on their mutual relations and interdependence with their suppliers through potent supply chain management practices and strategic capabilities for effective service delivery to their clients. However, the private hospitals can also reduce resource dependence and its

associated negative effects through the intervention of their strategic capabilities for effective service delivery to their clients. This has informed the conceptualization of the moderating role of strategic capabilities on the relationship between Supplier benchmarking and quality of health care services.

One of the assumptions of resource dependency theory is that uncertainty clouds an organization's control of resources and makes its choice of dependence-lessening strategies imperative (Archibald, 2017). Resource Dependence Theory provides a valuable lens for this study by explaining how private hospitals depend on critical external resources and why developing strategic capabilities is essential for securing reliable supplies and reducing vulnerability to external risks (Mutiso et al., 2023; Njuguna & Moronge, 2020). However, a key limitation of RDT is its strong focus on managing resource flows and power relationships without adequately addressing how these dependencies translate into measurable improvements in patient-centered service outcomes (Barasa et al., 2021). The theory also underemphasizes the functional and experiential aspects of healthcare delivery, such as empathy, responsiveness, and perceived service quality, which are critical in healthcare settings (Kivoto et al., 2022). To address these gaps, this study complements RDT with Service Quality Theory (Grönroos, 1982), which provides clear constructs for defining and measuring both the technical and functional dimensions of healthcare quality that supply chain management practices and strategic capabilities are intended to enhance.

2.1.2 Service Quality Theory

Service quality theory was proposed by Richard Oliver's in 1980 (Shabbir et al., 2016). Service quality theory predicts that clients judge that quality is low if performance does not comply with their expectations. Hence, quality increases as performance surpasses expectations. Thus, customers' expectations operate as the base on which they evaluate service quality. Customer satisfaction or dissatisfaction results from experiencing a service and comparing that experience with the kind of quality of service that was expected. This theory suggests that satisfaction is determined by the intensity and direction of the gap between expectations and perceived performance. Therefore, for the private hospitals to be deemed to be performing, the expectation of the customers in terms of provision of quality health service must exceed expectations. The Service Gap Model consists of five types of gaps, including the customer gap, knowledge gap, policy gap, delivery gap and communication gap. The customer gap shows a discrepancy between customer expectations and their perception of the received service. Parasuraman et al. (1985) notes that there are five sub-dimensions of service quality such as reliability, tangibles, responsiveness, assurance, and empathy.

Therefore, the health services provided by the health care facilities should meet the criteria of reliability, tangibles, responsiveness, assurance and empathy. In this regard, strategic capabilities and supply chain management practices should guarantee quality of health services as per the service quality theory. The assumption behind service quality theory is that customers form the perception of service quality according to the service performance they experienced (Bellizzi et al., 2020). Common perception of quality would give opportunity to focus on improvement of aspects that are essential for the core stakeholders of health care organizations. However, the quality of health care services is determined not by only external customers (patients) but also by internal customers (employees) (Endeshaw, 2021). The main criticisms of the model relate to the application of expectations and the gap scoring. The conceptualization of expectation as a comparison standard in the model is a difficult concept to quantify..

Service Quality Theory (Grönroos, 1982) is well-suited to this study because it provides a clear conceptual framework for defining, measuring, and analyzing the dimensions of healthcare service quality, which is the ultimate outcome of effective supplier benchmarking and strategic capabilities (Kivoto et al., 2022). The theory emphasizes both technical quality (the actual outcome of medical services) and functional quality (how services are delivered, including responsiveness, empathy, and communication) (Endeshaw, 2021). Recent studies have shown that supply chain efficiency alone does not guarantee high-quality healthcare unless patient-centered aspects of service delivery are addressed (Srivastava & Singh, 2021). By integrating Service Quality Theory, this study highlights that strategic capabilities must not only ensure resource availability but also improve the patient experience and perceptions of care. This approach addresses the gaps left by Resource Dependence Theory, which focuses primarily on managing external dependencies but does not adequately define what “quality” means from the patient’s perspective (Barasa et al., 2021).

2.2 Empirical Literature Review

The empirical literature review captured the relationship between the dimensions of supplies chain management practices which include e-procurement, customer collaboration, supplier benchmarking and organizational compatibility and how they affect quality of health care services. Besides the link between supplies chain management practices and quality of health care services as moderated by strategic capabilities was also be reviewed.

2.2.1 Supplier Benchmarking and Quality of Health Care Services

The contribution of benchmarking to quality improvement in healthcare; A systematic literature review was conducted by Willmington, et al. (2022). Three databases (PubMed, Web of Science and Scopus) for articles studying the impact of benchmarking on quality of care (processes and outcomes). Following assessment of the articles for inclusion, data analysis, quality assessment and critical synthesis according to the PRISMA guidelines for systematic literature review was conducted. From the findings, all studies reported a positive association between the use of benchmarking and quality improvement in terms of processes, outcomes or both. In the majority of studies, at least one intervention, complementary to benchmarking, was undertaken to stimulate quality improvement. The study used desktop or library research whose data may be outdated (often in the case of social research data published as datasets after some time) providing a gap for the current study which utilized quantitative approaches. In fine Supply chain benchmarking is a critical tool that helps organizations understand how their supply chain processes compare to industry best practices. By benchmarking key performance indicators (KPIs) against peers and industry standards, companies can identify performance gaps, set realistic goals, and implement strategies to improve overall supply chain performance.

Accordingly, Feibert et al. (2019) investigated how logistics processes in a hospital can be benchmarked to improve process performance. A comparative case study of the bed logistics process and the pharmaceutical distribution process was conducted at a Danish and a US hospital. The case study results identified decision criteria for designing efficient and effective healthcare logistics processes. The most important decision criteria related to quality, security of supply and employee engagement. Based on these decision criteria, performance indicators were developed to enable benchmarking of logistics processes in healthcare. However the study used comparative case study approach that the entire focus was on a single cause only, which doesn't provide answers if their findings are be generalized to other hospitals. Besides comparative case studies are harder to replicate due to their very nature of being unique cases (Goodrick, 2020). In this regard the current study adopted explanatory cross-sectional research design which requires a precise focus on a particular group of participants that was studied.

The use of a benchmarking process in the management of hospital purchases, as well as its effect on product cost reduction and quality improvement in Spain was analyzed by Naranjo-Gil and Ruiz-Munoz (2014). Data were collected through a survey conducted in 29 primary healthcare districts from 2010 to 2011, and through a healthcare database on the prices, quality, delivery time and supplier characteristics of 5373 products. The use of benchmarking processes reduced or eliminated products with a low quality and high price. These processes increased the quality of products by 10.57% and reduced their purchase price by 28.97%. The use of benchmarking by healthcare canters can reduce expenditure and allow more efficient management of the healthcare supply chain. However, the study didn't focus on quality service delivery. Besides the study was limited by survey-related effects which limit the accuracy of the conclusions that can be drawn from survey evidence. In this regard the current study filled the gap in literature by investigating the effect of supplier bench marking on service delivery using mixed method approach. Besides, Salam and Smadi (2016) empirically examined the impact of benchmarking and standardization in purchasing on purchasing and business performance in Thailand. Data was collected from the fast-moving consumer goods (FMCG) industry in Thailand. The results of this research indicated that both benchmarking and standardization have a significant positive impact on purchasing performance and an indirect positive effect through purchasing performance on business performance. Thus, benchmarking and standardizing materials and purchasing procedures are important and may help firms to meet their materials expenditure targets and increase the quality of materials, on-time delivery from suppliers, inventory performance, as well as overall business performance. However, the study focused on purchasing performance as the dependent variable and not quality of health care services.

Additionally Agbo (2020) examined the effects of benchmarking on performance of manufacturing firms (A Study of Nigerian Breweries plc. Enugu). The researcher used survey design for the study with a target population of 150 workers of Nigerian Breweries plc. Enugu and sample size of 109 was obtained from the population using Taro Yamani's formula. Data was collected using questionnaires and analyzed using regressions with SPSS. The following findings were made. i) Benchmarking process had significant effect on the profitability of Nigerian Breweries, Enugu. ii) Critical benchmarking had significant effect organizational competitive advantage of Nigerian Breweries, Enugu. The study concluded that Benchmark as a standardized test or set of test used for comparing alternatives had components, a Motivating comparison, a Task Sample, and Performance Measures. This finding affirms that benchmarking supply chain performance can help in gaining insights into the current performance and how it compares to the peers or best practices. However, the study was not conducted in the health sector limiting the generalization of the findings. Besides the study didn't focus on supplier benchmarking as a predictor variable.

Additionally Murerwa and Kinyua (2021) investigated the role of competitive benchmarking on service delivery of multinational pharmaceutical firms in Nairobi City County, Kenya. Market penetration and market growth were the indicators used to measure competitive benchmarking, while the dependent variable service delivery was measured by reliability, assurance, responsiveness and affordability. The study adopted the descriptive research design. The population of the study was 128 employees in the senior and middle level managerial positions in the pharmaceutical

firms. Census technique was incorporated which allowed the inclusion of the whole target population in the survey. Structured questionnaires were used as tool for primary data collection. Simple linear regression analysis was run to determine the level of association between the independent and dependent variables. The analyzed data was presented in form of mean, standard deviation and coefficient of variations. Findings from the analysis revealed that competitive benchmarking had a positive yet statistically insignificant effect on service delivery of the multinational pharmaceutical firms in Nairobi City County, Kenya. The study recommended for similar study to be conducted in different industry. However the study used competitive bench marking as a predictor service delivery in pharmaceutical firms. This provided a gap for current study to test the link between benchmarking and service delivery of private hospitals.

Effect of supplier evaluation on performance of the procurement function of private health institutions in Kisumu County, Kenya was investigated by Ouko and Juma (2020). This was cross sectional survey study where data was collected in private health institutions in Kisumu County at a single point in time. Population of the study was 75 procurement staff of the 25 private health institutions in Kisumu County while the sample size was all the 75 staff working in the procurement departments. Data was collected through structured questionnaires that was administered through drop and pick technique. The collected data was analyzed and mean and standard deviations used to describe the variables in the study while regression analysis was computed to determine the effect of supplier evaluation on performance of procurement function of the private health institutions in Kisumu County. Both descriptive and inferential statistics indicated that all the study's conceptualized variables (supplier quality commitment, supplier financial stability and supplier competence) significantly influenced performance of procurement function of private health institutions in Kisumu County (dependent variable). However the study didn't focus on the quality healthcare services as the dependent variable but procurement performance which provided a gap for the study. Additionally Chebet and Muturi (2020) investigated the effect of benchmarking practices on financial performance of private hospitals in Kisii County, Kenya. The specific objectives of the study were to determine the effect of functional benchmarking, process benchmarking and operational benchmarking on the financial performance of private hospitals in Kenya. The study used descriptive research design so as to gather the necessary data for analysis. The study undertook census survey of all the 173 proprietors and medical practitioners. Primary data were collected using a personally administered semistructured questionnaire. The study found out that all the three forms of benchmarking under study (Functional, Process and Operational) have a significant influence on the financial performance of private hospitals. However the study focused on financial performance of private hospitals in Kenya as the dependent variable and not quality health care services.

Additionally, benchmarking practices and service delivery in the National Police Service in Mombasa County, Kenya was studied by David et al. (2022). The study specific objectives were to examine the influence of process benchmarking practice, functional benchmarking practice, internal benchmarking and external benchmarking on service delivery. The study was guided by contingency theory, resource dependence theory and theory of constraints. This research adopted a survey research design. The study's target population was police officers working within Mombasa County. The study's respondents were gazette officers and members of the inspectorate with a total of 65. The study took a census of 195 since the population has got less than 200 respondents. The main data collection instrument in this study was a questionnaire. This study used content validity because it measures the degree to which the sample of the items represents the content that the test was designed to measure. The reliability of the questionnaires was determined using Cronbach's alpha reliability coefficient. The study used quantitative and qualitative approaches to analyze data. The regression analysis model was employed since it's a set of statistical analyses used to estimate the relationship among variables. The study established that process benchmarking, functional benchmarking, internal benchmarking and external benchmarking had a positive and significant influence on the service delivery in the national police service in Mombasa County, Kenya. However the study didn't specifically focus on supplier benchmarking as the predictor variable. Besides the study was not conducted in the health sector limiting the generalization of the findings of the study to the private health sector.

2.2.2 Moderating role of strategic capabilities on the effect of supplier bench marking on quality of health care services

Supplier benchmarking has increasingly emerged as a pivotal procurement strategy in improving healthcare delivery across the globe. Several studies from outside Africa have examined its role in enhancing service quality, often integrating strategic capabilities as a moderating variable. For instance, Krause et al. (2007) in the United States investigated how supplier development and benchmarking among hospital suppliers influence service quality. Their findings suggested that supplier benchmarking is more effective when hospitals possess strong internal strategic capabilities such as information sharing, process flexibility, and cross-functional collaboration. Similarly, Liu et al. (2020) in China examined 120 tertiary hospitals and found that supplier benchmarking alone had a moderate effect on service quality, but this effect was significantly amplified in organizations with high strategic learning capabilities and innovation orientation. In another study, Wiengarten et al. (2019) explored supplier integration in European private hospitals and concluded that benchmarking is effective only when supported by capabilities in strategic sourcing and

data analytics. Furthermore, Kähkönen and Lintukangas, (2020) in Finland argued that operational capabilities like supplier risk assessment and supplier performance monitoring acted as strong moderators in the benchmarking–quality service link, indicating that strategic capabilities are crucial for realizing the benefits of benchmarking.

Within Africa, though literature is still growing, several studies indicate similar trends. Asiedu and Boateng, (2022) in Ghana reported that while benchmarking practices in private health facilities marginally improved service delivery, the full potential was realized in hospitals that invested in capabilities such as digital supply chain visibility and workforce competence. In Tanzania, Mwambe and Chuma (2023) confirmed that supplier benchmarking among private hospitals was only effective when combined with capabilities like performance tracking systems and supplier collaboration mechanisms.

In Kenya, empirical evidence also supports the argument for the moderating role of strategic capabilities. Mutangili (2019) in Nairobi County analyzed benchmarking practices among private hospitals and concluded that improvements in healthcare quality were dependent on internal competencies such as contract management and procurement analytics. Similarly, Akoth (2017) in Kisumu County found that supplier benchmarking had limited impact on service delivery where strategic capabilities such as staff training and data management—were weak. In a more recent study, Okoth (2021) compared public and private hospitals across Kenya and showed that strategic alignment and technological capabilities enhanced the benchmarking–quality linkage significantly in private institutions.

Despite these insights, a clear research gap persists. While international and regional studies highlight the importance of strategic capabilities, few have examined their moderating role specifically in the context of private hospitals in Western Kenya. Most Kenyan studies treat strategic capabilities as independent or control variables, rather than moderators. Additionally, there is a scarcity of empirical evidence on how different types of strategic capabilities (e.g., technological, relational, analytical) influence the effectiveness of supplier benchmarking in healthcare quality. This gap signals a need for targeted research that not only quantifies this moderating effect but also contextualizes it within the unique operational dynamics of private hospitals in the Western Kenyan region

2.3 Conceptual Framework

A conceptual framework is a representation of the relationship between variables (Van der Waldt, 2020). It defines the relevant objectives for the research process and maps out how they come together to draw coherent conclusions. According to this study, there is a link between supplier benchmarking and quality of health care services. This is supported by Gopal et al. (2019) who found a positive link between supply chain management practices and organizational performance. The study focused on supplier benchmarking. Benchmarking contributes to a company's overall effectiveness and efficiency by allowing it to identify potential areas of improvement internally. Supplier bench marking was measured in terms of benchmarking practices as Functional benchmarking, Process benchmarking and Operational benchmarking (Bhattacharya & David, 2018).

Strategic capabilities were assessed in terms of dimensions of sustainable supply chain strategic capabilities as economic, environmental and social supply chain capabilities (Hong et al., 2018). According to WHO (2023) quality of health care is the degree to which health care services for individuals and populations increase the likelihood of desired health care outcomes. Health care quality is a level of value of health care provided by any health care resource, as determined by some measurement. As with quality in other fields, it is an assessment of whether something is good enough and whether it is suitable for its purpose (Busse et al., 2019). This study took Don Berwick's description of the dimensions of quality in health care to be safety and effectiveness, patient-centeredness and equity, timeliness and efficiency (Melles et al., 2021).

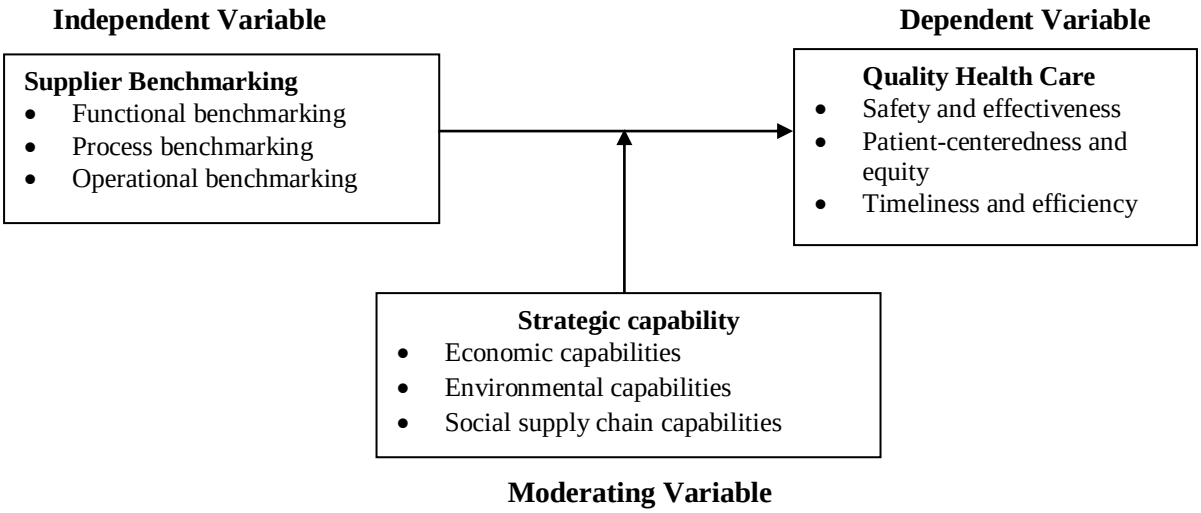

Figure 1
Conceptual Framework
Source Author (2025)

III. METHODOLOGY

3.1 Research Design

Research design refers to the method of organization and data collection that a researcher applies to a project or study (Fetters, 2019). The study adopted explanatory cross-sectional research design to systematically obtain information to describe the state of supply chain management practices and quality of health care services as moderated by strategic capabilities**.** This is because explanatory cross-sectional research design aims to examine cause-and-effect relationships or associations between variables at a single point in time (Blaikie & Priest, 2019). This study used quantitative method to provide relevant and accurate information on supply chain management practices and quality of health care services in private hospitals thus calling for the use of explanatory cross-sectional research design. Explanatory cross-sectional research design relies on statistical methods such as regression analysis, correlation or structural equation modeling to analyze relationships. A time-efficient research method, explanatory cross-sectional research design engages the people at the center of the research objective. This design helped the researcher to gather extensive data from a large sample quickly and inexpensively (Vaske, 2019).

3.2 Target population

The target population of a study is the broad group of people that researchers are examining (Vasileiou et al., 2018). The study target population comprised of Top-level managers who are the Chief Administrative Officers, Procurement officers and assistant procurement officers from all level 1-5 private health institutions in the Western Kenya comprising Bungoma, Vihiga, Kakamega and Busia Counties. These hospital facilities consist of 183 Chief Administrative Officers and 183 procurement officers and 514 assistant procurement officers. This totaled to a target population of 880 employees drawn from 183 private hospitals from the five counties.

Table 1
Target Population

County	Chief Admin Officers	Procurement Officers	Assistant Procurement Officers	Total
Bungoma County	40	40	112	192
Busia County	43	43	121	207
Kakamega County	69	69	194	332
Vihiga County	31	31	87	149
TOTAL	**183**	**183**	**514**	**880**

Source: (Human Resource Offices, 2024)

3.3 Sample size

Sample size is the number of individuals included in a research study to represent a population (Guest et al., 2020). When you survey a large population of respondents, and interested in the entire group, but it's not realistically possible to get answers or results from absolutely everyone. Therefore, sample size determination helps in sampling of

individuals which represents the population as a whole. The study determined the sample size by use of Krejcie and Morgan (1970) formula. From a target population of 880 respondents, the sample size was therefore 268 respondents.

$$S = \frac{X^2.N.P.(1-P)}{d^2.(N-1)+X^2.P.(1-P)}$$

Where:

S: Required sample size

X^2: Chi-square value for 1 degree of freedom at the desired confidence level (for 95% confidence level, X^2=3.841

N: Population size

P: Population proportion (assumed to be 0.5 for maximum variability)

d: Margin of error (commonly 0.05)

$$S = \frac{3.841x880x0.5x(1-0.5)}{0.05^2.(880-1)+3.841x0.5x(1-0.5)}$$

$$S = \frac{3.841x880x0.25}{0.0025x879+3.841x0.25}$$

$$S = \frac{3.841x880x0.25}{0.0025x879+3.841x0.25}$$

$$S = \frac{845.02}{2.1975+0.96025}$$

$$S = \frac{845.02}{3.15775}$$

S= 268

The study adjusted the effective sample size to account for anticipated non-response. The following formular compensated for the anticipated non-response rate by increasing the initial sample size.

Final Sample size $= \frac{nEffective\ Sample\ Size}{1-Anticipated\ Non-Response\ Rate}$

The study anticipated a non-response rate of 20% therefore the final sample size was

Final sample size = $\frac{228}{1-0.2}$ = 335.

The final sample size was therefore 335 respondents. Afterwards, proportion allocation formular was used to distribute the sample size in each stratum. Proportional allocation sets the sample size in each stratum equal to be proportional to the number of sampling units in that stratum (Oribhabor & Anyanwu, 2019).

That is.

nh = (Nh / N) * n.

Where nh = sample size for stratum h,

Nh = population size for stratum h,

N = total population size,

n = total sample size

The sample frame will include chief administrative officers, procurement officers and assistant procurement officers from all 183 level 1-5 private health institutions in the Western Kenya comprising Bungoma, Vihiga, Kakamega and Busia Counties.

Table 2

Sample Size

County	Chief Admin Officers	Sample Size	Procurement Officers	Sample Size	Assistant Procurement officers	Sample size	Total Sample size
Bungoma	40	15	40	15	112	43	73
Busia	43	16	43	16	121	47	79
Kakamega	69	26	69	25	194	74	125
Vihiga	31	12	31	12	87	34	58
TOTAL	**183**	**69**	**183**	**68**	**514**	**198**	**335**

Source: (Human Resource Offices, 2024)

3.4 Data Collection

A questionnaire was used to collect the primary data. The questionnaire had close-ended questions and items with a 5 Point Likert Scale commonly used in social sciences to measure perceptions, attitudes, values and behaviour (Naim & Khan, 2021). The questionnaire had a total of 61 statements with 2 sections. Section A contained questions relating to the demographic background of the respondent with 4 items. Section B had six parts with items relating to

strategic capabilities, supply chain management practices and quality of health care services with a total of 58 statements. The items adopted a 5 Point Likert Scale with 1 - Strongly disagree, 2 - Disagree, 3 - Undecided, 4 - Agree and 5 - Strongly Agree. Structured questionnaire was used to elicit specific information regarding respondents' perceptions on predictors. The researcher prepared questionnaire based on the study variables.The questionnaire was piloted at Aga Khan Hospital, St Consolata hospital, St Lukes hospital and St Monicas hospitals which are the highly performing hospitals with great customer services in Kisumu City. It involved 10% of the size of the sample population (Blažev et al., 2021). This means that 34 respondents participated in the piloting of data instrument from private hospitals. After piloting, corrections were made on the questionnaire. The final draft of the questionnaire was used for data collection in the study.

3.5 Data analysis

Data analysis was done by use of descriptive and inferential statistics. The researcher conducted initial data analysis by taking the distribution of scores by use of simple descriptive statistical measures such as, percentages, mean and standard deviation. Multiple regression analysis was applied to analyze the effect of several independent variables on single dependent variable (Jeong & Jung, 2016). Analysis of variance (ANOVA) was used to test the hypotheses. The dependent variables were quantitative in nature and samples were drawn from a normally distributed population. The study used hierarchical regression to test for moderation (Jeong & Jung, 2016). The model specification was as follows:

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$ ..... (1)

$Y = \beta_0 + \beta_1 X_1 + M + \varepsilon$ ..... (2)

$Y = \beta_0 + \beta_1 X_1 + M + \beta_1 X_1 * M + \varepsilon$ ..... (3)

Where:

Y = Quality of health care services

β_0 = Constant

$\beta_1 \ldots \beta_4$= the coefficients of the variables in the model.

X_1= Supplier benchmarking

M = Strategic capabilities as the moderating variable

ε = Error term (the residual error, which is an unmeasured variable)

All the above statistical tests were analyzed using Statistical Package for Social Sciences (SPSS), version 25.

IV. FINDINGS & DISCUSSION

4.1 Quality of Health Care Services amongst Private Hospitals in Western Kenya

The provision of quality healthcare services is a critical index of high performance for private hospitals. Quality of healthcare is not only the core of a hospital's mission but also a key determinant of its reputation, patient satisfaction, financial performance and overall sustainability (Zehir & Zehir, 2023). The findings on the state of quality healthcare services in the private hospitals in Western Kenya were presented in Table 3.

Table 3

Descriptive Analysis of Quality of Health Care Services amongst Private Hospitals in Western Kenya

Statement	Min	Max	Skew	Kurt	M	SD
The health care services are cost-effective	2	5	-.888	-.022	4.39	.725
The speed of service delivery is appropriate	4	5	-.881	-1.235	4.70	.459
Physical environment and equipment that the hospital has exceeds the needs of patients	2	5	-.937	.873	4.32	.717
The organization designs quality into new services as they are being developed	2	5	-.989	.314	4.23	.862
Over the past few years, the organization has shown steady, measurable improvements in the quality of care provided to patients	1	5	-.961	.257	4.36	.793
Current patient needs and expectations are met by the hospital	1	5	-.556	1.121	4.20	1.318
The data from patients used by the hospital has helped improve services	3	5	-.897	-.511	4.45	.712
Staff promptly resolve patient complaints	3	5	-.866	-.384	4.47	.667

N=217

From the findings in Table 3, respondents were in agreement with a Mean of 4.39 that the health care services are cost-effective with some variability in responses SD of .725 which suggests differing opinions. The minimum

response of 2 and the maximum response of 5 indicate that responses range from disagree to strongly agree (Skew= -.888 Kurt= -.022). Besides, majority of respondents agree that the speed of service delivery is appropriate (Mean= 4.70 SD=.459). The range from 4 to 5 demonstrates that the respondents provided a spectrum of ratings, from undecided to strongly agreeing (Skew= -.881 Kurt=-1.235). This implies that patients from private hospitals in Western Kenya experiences quick triage and treatment and are more likely to be satisfied with their care, resulting in positive feedback and a higher likelihood of returning to the hospital in the future.

The appropriate speed of service delivery in private hospitals is crucial for achieving high patient satisfaction, better health outcomes, and efficient hospital operations (Almomani et al., 2020). By focusing on optimizing patient flow, investing in staff training, leveraging technology, and regularly monitoring performance, private hospitals can ensure that they deliver timely and high-quality care. These efforts not only improve patient experiences but also strengthen the hospital's reputation, enhance staff morale, and contribute to overall operational success. On average, majority of respondents were in agreement with a Mean of 4.32 that physical environment and equipment that the hospital has exceeds the needs of patients with some variability in responses SD of .717 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicate that respondents used the full range of the scale from disagreement to strong agreement (Skew= -.937 Kurt=.873). Respondents were in agreement with a Mean of 4.23 that the organization designs quality into new services as they are being developed with some variability in responses SD of .892 which suggests differing opinions. In addition, respondents were in agreement with a Mean of 4.36 that over the past few years, the organization has shown steady, measurable improvements in the quality of care provided to patients with some variability in responses SD of .793 which suggests differing opinions. Majority of the respondents were also in agreement that the current patient needs and expectations are met by the hospital (Mean=4.20 SD=1.318).

Additionally, respondents were in agreement with a Mean of 4.45 that the data from patients used by the hospitals have helped improve services with some variability in responses SD of .712 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicate that responses range from disagree to strongly agree (Skew= -.897 Kurt= -.511). This implies that utilization of patient data allows hospitals to tailor healthcare services to the individual needs of each patient. This personalization can lead to better health care outcomes, higher patient satisfaction, and more effective treatment plans. Majority of respondents were in agreement with a Mean of 4.47 that staff promptly resolve patient complaints with some variability in responses SD of .667 which suggests differing opinions. The minimum response of 3 and the maximum response of 5 indicate that responses range from undecided to strongly agree (Skew= -.866 Kurt= -.384). This implies that patients in private hospitals in Western Kenya feel heard and their concerns are addressed quickly, thus are more likely to have a positive perception of the hospital, even if their initial experience was not ideal. In consonance, when staff at a private hospital promptly resolve patient complaints, it has a significant positive implication for the hospital's overall performance, reputation, and patient satisfaction (AlOmari, 2022). Quick and effective complaint resolution demonstrates the hospital's commitment to patient-centered care and can lead to improved relationships with patients, higher levels of trust, and better healthcare outcomes.

4.2 Supplier Benchmarking and Quality of Health Care Services Amongst Private Hospitals in Western Kenya

Supplier benchmarking in healthcare is indeed crucial for ensuring quality health care services. By systematically comparing suppliers against best practices or industry standards, healthcare organizations can identify the most efficient, cost-effective, and reliable suppliers (Bryant, 2020). The study focused on supplier benchmarking in private hospitals in Western Kenya and the findings presented in Table 4.

Table 4

Supplier Benchmarking and Quality of Health Care Services amongst Private Hospitals in Western Region

Statement	Min	Max	Skew	Kurt	M	SD
The hospital gathers information about prices and qualities of other supplies for comparison	2	5	-.968	-.387	4.11	1.074
The hospitals takes a thorough search to identify suppliers who provides timely feedback to the hospitals requisition	4	5	-.857	-1.277	4.70	.461
Our suppliers are benchmarked for accuracy of information on supplies	2	5	-.983	.182	4.35	.791
Our hospital analyses the purchasing process of other companies to improve on our own	2	5	-.906	-.469	4.18	1.014
The hospital benchmarks for gaps on our suppliers performance to improve our purchasing process	2	5	-.966	-.268	4.28	.926
Our hospital benchmarks for the most effective purchasing practices in other hospitals to improve on its supplier relationship	1	5	-.853	-.500	4.10	1.061
Our hospital has adopted process benchmarking as a means of improving our supplier relationship	3	5	-.816	-.311	4.51	.602
The hospital compares its supplies based on their operational targets	3	5	-.973	-.404	4.47	.714
Suppliers of our hospitals are benchmarked based on their business ethics	2	5	-.728	-.971	4.24	.947
The hospital evaluates its supply chain operations for improvement in line with its competitors	1	5	-.689	-.956	3.66	1.486

N=217

From the findings respondents were in agreement with a Mean of 4.2 that the hospitals gathers information about prices and qualities of other supplies for comparison with some variability in responses SD of 1.074 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicates that responses range from disagree to strongly agree (Skew= -.968 Kurt= -.387). Besides, majority of respondents agree that their hospitals takes a thorough search to identify suppliers who provides timely feedback to the hospitals requisition (Mean= 4.70 SD=.461). The range from 4 to 5 demonstrates that the respondents provided a spectrum of ratings, from agreeing to strongly agreeing (Skew= -.857 Kurt=-1.277). By selecting suppliers who are responsive to requisitions, hospitals can reduce the time it takes to receive critical supplies (Adebayo et al., 2024). This ensures that necessary materials, medications, and equipment are available when needed, minimizing delays in patient care. Additionally, majority of respondents were in agreement with a Mean of 4.35 that their suppliers are benchmarked for accuracy of information on supplies with some variability in responses SD of .791 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicates that respondents used the full range of the scale from disagreement to strong agreement (Skew= -.983 Kurt=.182).On average, majority of respondents were in agreement with a Mean of 4.18 their hospital analyses the purchasing process of other companies to improve on their own with a standard deviation 1.014. The minimum response of 2 and the maximum response of 5 indicates that responses ranged from undecided to strong agreement (Skew= -.906 Kurt=-.469). Analyzing successful procurement processes can reveal ways to streamline and automate purchasing operations, reducing administrative overhead and improving overall efficiency. Hospitals might adopt new technologies or process improvements based on these insights. In addition, majority of respondents were in agreement with a mean of 4.28 that the hospital benchmarks for gaps on their supplier's performance to improve on their purchasing processes with a standard deviation of .926. The minimum response of 2 and the maximum response of 5 indicates that responses ranged from agreed to strong agreement (Skew= -.966 Kurt=-.268).

In consonance, learning from other companies can provide insights into effective supplier management and relationship-building strategies. Hospitals could improve their supplier engagement practices, leading to better service levels and more favorable terms (Tshilombo, 2021). Respondents were in agreement with a Mean of 4.10 that their hospital benchmarks for the most effective purchasing practices in other hospitals to improve on its supplier relationship with some variability in responses SD of 1.061 which suggests differing opinions. The minimum response of 1 and the maximum response of 5 indicates that respondents used range of the scale from strong disagreement and strong agreement (Skew= -.853 Kurt=-.500). Additionally, respondents were in agreement with a Mean of 4.51 that their hospital have adopted process benchmarking as a means of improving our supplier relationship with some variability in responses SD of .602 which suggests differing opinions. The minimum response of 3 and the maximum response of 5 indicate that responses range from Undecided to strongly agree (Skew= -.816 Kurt= -.311). Besides, majority of respondents agree that the hospital compares its supplies based on their operational targets (Mean= 4.47 SD=.714). The

range from 3 to 5 demonstrates that the respondents provided a spectrum of ratings, from undecided to strongly agreeing (Skew= -.973 Kurt=-.404).

On average, majority of respondents were in agreement with a Mean of 4.49 that suppliers of their hospitals are benchmarked based on their business ethics with some variability in responses SD of .554 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicate that respondents used the full range of the scale from disagreement to strong agreement (Skew= -.798 Kurt=1.551). Respondents were in agreement with a Mean of 4.24 that their hospitals engages in joint decision making in planning and operational contexts with some variability in responses SD of .947 which suggests differing opinions. In addition, respondents were in agreement with a Mean of 3.66 that the hospital evaluates their supply chain operations for improvement in line with their competitors with some variability in responses SD of 1.486 which suggests differing opinions. By examining how other organizations manage their purchasing processes, hospitals can identify best practices and innovative approaches that might be adapted to their own needs. This could involve more efficient supply chain management, better supplier relationships, or advanced procurement technologies.

4.3 Strategic Capabilities in the Relationship between e-Procurement and Quality Health Care Services and Quality of Health Care Services among Private Hospitals in Western Region

Strategic capability in private hospitals is the foundation upon which they build their success and sustainability in the competitive healthcare landscape. Hospitals that effectively develop and utilize strategic capabilities can achieve superior performance, deliver exceptional patient care, and maintain a leading position in the market (Vrontis et al., 2022). The findings on the state of strategic capabilities in the private hospitals in Western Kenya were presented in Table 5 below.

Table 5

Descriptive Analysis of Strategic Capabilities in the Relationship between e-Procurement and Quality of Health Care Services among Private Hospitals in Western Region

Statement	Min	Max	Skew	Kurt	M	SD
The hospital regularly utilizes the formal procurement process	3	5	-.893	-.442	4.46	.693
The hospital and its supply chain conduct audits regarding social issues as labour and community relations regularly	3	5	-.547	-1.622	4.26	.928
The hospital adopts environmental criteria for evaluation of its suppliers	2	5	-.972	-.089	4.15	.977
There is effective environmental information sharing between the hospital and the supply chain	2	5	-.917	-.810	4.40	.839
Our logistics system responds rapidly to unexpected demand change	3	5	-.874	-.683	4.42	.748
Our supply chain responds effectively to the hospitals changing consumer needs.	3	5	-.749	-1.011	4.36	.794
Our supply chain responds quickly to the hospitals changing needs	3	5	-.965	-.243	4.64	.519
Our supply chain responds effectively to changing competitors' strategies	2	5	-.893	-.442	4.17	.978
Our major suppliers consistently accommodate our requests	2	5	-.547	-1.622	4.41	.807
The hospital is interested in the development of long-term partnership with the suppliers	3	5	-.972	-.089	4.45	.787

N=217

On average, majority of respondents were in agreement with a Mean of 4.46 that their hospitals regularly utilizes the formal procurement process with a standard deviation .693. The minimum response of 3 and the maximum response of 5 indicate that responses ranged from undecided to strong agreement (Skew= -.893 Kurt=-.442). This implies the private hospitals have engaged formal procurement process which involves structured procedures for acquiring goods and services, ensuring that purchases are made systematically, transparently, and in alignment with the hospital's strategic objective. A formal procurement process helps hospitals control costs by ensuring that all purchases are carefully evaluated and approved. In addition, majority of respondents were in agreement with a mean of 4.26 that their hospital and its supply chain conduct audits regarding social issues as labor and community relations regularly with a standard deviation of .928. The minimum response of 3 and the maximum response of 5 indicate that responses ranged from undecided to strong agreement (Skew= -.547 Kurt=-1.622).

Respondents were in agreement with a Mean of 4.15 that the hospital adopts environmental criteria for evaluation of its suppliers with some variability in responses SD of .977 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicate that respondents used range of the scale from disagreement and strong agreement (Skew= -.972 Kurt=-.089). Additionally, respondents were in agreement with a Mean of 4.43 that there is effective environmental information sharing between the hospital and the supply chain with

some variability in responses SD of .839 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicate that responses range from disagree to strongly agree (Skew= -.917 Kurt= -.810). Besides, majority of respondents agree their logistics system responds rapidly to unexpected demand change (Mean= 4.42 SD=.748). The range from 3 to 5 demonstrates that the respondents provided a spectrum of ratings, from undecided to strongly agreeing (Skew= -.874 Kurt=-.683). A logistics system that responds quickly to unexpected demand changes ensures that essential medical supplies, equipment, and medications are always available, directly impacting the quality of patient care and safety. For instance, during a sudden increase inpatient admission, such as during a pandemic or disaster, a responsive logistics system ensures that critical supplies like ventilators, personal protective equipment (PPE), and medications are replenished promptly, preventing shortages that could jeopardize patient outcomes. Majority of respondents agree that their supply chain responds effectively to the hospitals changing consumer needs (Mean= 4.36 SD=.794). The range from 3 to 5 demonstrates that the respondents provided a spectrum of ratings, from undecided to strongly agreeing (Skew= -.749 Kurt=-1.011). Additionally, respondents were in agreement with a Mean of 4.64 that there their supply chain responds quickly to the hospitals changing needs with some variability in responses SD of .519 which suggests differing opinions. The minimum response of 3 and the maximum response of 5 indicate that responses range from undecided to strongly agree (Skew= -.965 Kurt= -.243).

From the findings respondents were in agreement with a Mean of 4.17 that their supply chain responds effectively to changing competitors' strategies with some variability in responses SD of .978 which suggests differing opinions. The minimum response of 2 and the maximum response of 5 indicate that responses range from disagree to strongly agree (Skew= -.768 Kurt= -.705). Thus, when a supply chain of the private hospitals responds effectively to changing competitors' strategies, it can significantly enhance a firm's competitive edge, adaptability, and overall market position. Mwambe and Chuma (2023) notes that supply chain that can quickly and effectively respond to competitors' strategic changes (such as new product launches, pricing strategies, or supply chain innovations) helps a firm maintain or even gain a competitive advantage.

Besides, majority of respondents agree that their major suppliers consistently accommodate our requests (Mean= 4.41 SD=.807). The range from 2 to 5 demonstrates that the respondents provided a spectrum of ratings, from undecided to strongly agreeing (Skew= -.947 Kurt=-.628). Thus, consistent accommodation by major suppliers leads to a more reliable supply chain. This implies the private hospitals can receive the necessary medical supplies, equipment, and pharmaceuticals on time, which is crucial for maintaining uninterrupted patient care and operational efficiency because of the reliability of their suppliers. Additionally, majority of respondents agree that their hospital is interested in the development of long-term partnership with their suppliers (Mean= 4.45 SD=.787). The range from 3 to 5 demonstrates that the respondents provided a spectrum of ratings, from undecided to strongly agreeing (Skew= -.990 Kurt=-.662). This implies that the private hospitals are interested in creating foundations for numerous strategic advantages that can improve operational efficiency, cost-effectiveness, and overall quality of care courtesy of their long-term partnership with their suppliers. Long-term partnerships foster a stable and reliable supply chain (Foster & Gardner, 2022). This is explained by the fact that suppliers are more likely to prioritize hospitals they have established relationships with, ensuring consistent supply of essential medical products, equipment, and services.

4.4 Correlational Analysis

In order to establish the nature and strength of the relationships among the study variables, a correlational analysis was conducted using Pearson's correlation coefficient. This analysis examined the association between supplier benchmarking, strategic capability, and the quality of healthcare services as presented in Table 6.

Table 6

Correlation Analysis

		Supplier Benchmarking	Strategic Capability	Quality of Healthcare Services
Supplier Benchmarking	Pearson Correlation	1		
	Sig. (2-tailed)			
Strategic Capability	Pearson Correlation	.629**	1	
	Sig. (2-tailed)	.000		
Quality of Healthcare Services	Pearson Correlation	.689**	.684**	1
	Sig. (2-tailed)	.000	.000	
		217	217	217

As shown in Table 6 correlation analysis revealed strong and statistically significant positive relationships among supplier benchmarking, strategic capability, and quality of healthcare services. Specifically, supplier benchmarking was positively associated with both strategic capability ($r = .629$, $p < .01$) and quality of healthcare services ($r = .689$, $p < .01$), while strategic capability was also strongly correlated with quality of healthcare services ($r = .684$, $p < .01$). These

findings suggest that healthcare organizations that adopt benchmarking practices are more likely to strengthen their strategic capabilities, which in turn enhances the quality of healthcare services delivered. Overall, the results underscore the critical role of supplier benchmarking and strategic capability as complementary drivers in the pursuit of quality healthcare service delivery.

4.5 Hypotheses Testing

Hypotheses testing is a fundamental part of statistical analysis which allows researchers to make inferences about populations based on sample data. The study used regression analysis to test for both the direct and indirect effects of supplier bench marking on quality of health care services amongst private hospitals the moderating role of strategic capabilities. Thus, the following hypotheses were tested.

4.5.1 Supplier Benchmarking and Quality of Health Care Services amongst Private Hospitals in Western Kenya

It was hypothesized that:

H_{01}: Supplier bench marking has no statistically significant relationship with quality of health care services amongst private hospitals in Western Kenya

The third hypothesis of the study stated that there is no statistically significant relationship between supplier benchmarking and quality of health care services amongst private hospitals in Western Kenya. However, findings in Table 7 showed that supplier benchmarking has a statistically significant relationship with quality of health care services, $B = .726$, $t = 13.933$, $p < 0.001$, indicating that each additional unit of supplier benchmarking is associated with a 0.726-unit increase in quality of health care services amongst private hospitals. T-test was used to identify whether the predictor was making a significant contribution to the model. Since the t-statistic is significant, the study rejected the null hypothesis and concluded supplier bench marking was significant (p-value = 0.000) in positively influencing quality of health care services amongst private hospitals in Western Kenya.

Table 7

Regression Results on Supplier Benchmarking and Quality of Health Care Services

Predictor	B (Unstandardized Coefficient)	t	p	Interpretation
Supplier Benchmarking	0.726	13.933	< 0.001	Significant positive effect on quality of health care services

Response Variable: Quality of Health Care Services

4.5.2 The moderating role of strategic capabilities on the relationship between supply chain management practices and quality of health care services amongst private hospitals in Western Kenya

The study also conducted a hierarchical multiple linear regression analysis to test hypotheses. The second objective of the study was to determine the moderating role of strategic capabilities on the relationship between supplier benchmarking and quality of health care services among private hospitals in Western Kenya. The findings as presented in Table 8 were as follows:

Model 1: In Model 1, supplier benchmarking was entered into the regression equation. The predictor was significant, explaining a significant portion of the variance in quality of health care services amongst private hospitals in Western Kenya which is the dependent variable ($R^2 = 0.474$ $p < 0.01$). In comparison with the moderated relationship between supplier benchmarking and quality of health care services amongst private hospitals in Western Kenya by strategic capabilities, the R^2 increased from 47.4% to 58.8% as depicted in the subsequent models. This portends an increased variation in quality of health services due to increased interaction of strategic capabilities with the supplier benchmarking which was significant.

Model 2: In Model 2, when strategic capabilities was added to the model. This predictor was significant ($B = 0.451$, $p < 0.01$), and the model explained additional variance in the variance in quality of health care services among private hospitals in Western Kenya ($\Delta R^2 = .104$, $p < 0.01$), indicating that strategic capabilities add unique predictive power on quality of health care services among private hospitals.

Model 3 included the interaction between strategic capabilities and supplier benchmarking, which was also significant ($B = .046$, $p< 0.05$). The interaction term explained an additional 1.9% of the variance in quality of health care services amongst private hospitals ($\Delta R^2 = 0.009$, $p = 0.000$), indicating that the relationship between supplier benchmarking and quality of health care services amongst private hospitals in Western Kenya is significantly moderated by strategic capabilities. Thus, the rejection of the null hypothesis that strategic capabilities have no statistically significant moderating role on the relationship between supplier benchmarking and quality of health care services amongst private hospitals in Western Kenya.

Table 8

Hierarchical Regression Results for Moderating Role of Strategic Capabilities on the Relationship between Supplier Bench Marking and Quality of Health Care Services amongst Private Hospitals in Western Kenya

	Model 1	Model 2	Model 3
	B(s.e)	B(s.e)	B(s.e)
(Constant)	1.295(.223) **	2.468(.257) **	2.413(.256) **
Zscore(sbench)	.726(.052) **	.451(.060) **	.471(.060) **
Zscore(Scap)		.191(.026) **	.156(.031) *
Zscore (S*sbench)			.046(.021) **
Model Summary			
R	.689[a]	.761[b]	.767[c]
R Square	.474	.579	.588
Adjusted R Square	.472	.575	.582
Std. Error of the Estimate	.335	.298	.300
Change Statistics			
R Square Change	.474	.104	.009
F Change	194.127	53.027	4.729
df1	1	1	1
df2	215	214	213
Sig. F Change	.000	.000	.031
**p<.01, *p.05			

4.6 Discussion of Results

From the results, there is no second opinion to the fact that supply chain management practices are related to quality of health care services amongst private hospitals in Western Kenya. In fact, hospitals can attain the provision of higher quality health care services by improving the supply chain management practices which include e-procurement, customer collaboration, supplier benchmarking and organizational compatibility as moderated by strategic capabilities. This fact is underpinned by the findings of this study.

H_{01}: Supplier bench marking has no statistically significant relationship with quality of health care services amongst private hospitals in Western Kenya

Regularly, supplier benchmarking against key performance indicators (KPIs) such as product quality, delivery reliability and service responsiveness ensure that only high-performing suppliers are selected (Bvuchete et al., 2018). This helps in maintaining the quality of medical supplies and equipment used in quality healthcare services. Thus, benchmarking has been recognized as a valuable method to help identify strengths and weaknesses at all levels of the healthcare system. Despite a growing interest in the practice of benchmarking and study of supplier benchmarking, its contribution to quality of health care have not been well elucidated (Willmington et al., 2022). Therefore, the study hypothesised that there is no significant effect of supplier bench marking on quality of health care service among private hospitals in Western Kenya.

However, findings in Table 7 showed that supplier benchmarking has a statistically significant relationship with quality of health care services, B = .726, t = 13.933, p < 0.001, indicating that each additional unit of supplier benchmarking is associated with a 0.726-unit increase in quality of health care services amongst private hospitals. T-test was used to identify whether the predictor was making a significant contribution to the model. Since the t-statistic is significant, the study rejected the null hypothesis and concluded that supplier benchmarking significantly affect quality of health care service among private hospitals in Western Kenya. Therefore, there is a significant relationship between supplier benchmarking and quality of health care service among private hospitals in Western Kenya.

These findings are in line with Feibert et al. (2019); Naranjo-Gil and Ruiz-Munoz (2014); Murerwa and Kinyua (2021) findings that supplier benchmarking significantly affects service delivery. Naranjo-Gil and Ruiz-Munoz (2014) also posits that the use of benchmarking by healthcare canters can reduce expenditure and allow for more efficient management of the healthcare supply chain. This implies that through supplier benchmarking, private hospitals identify suppliers who meet or exceed regulatory and quality standards. This ensures that suppliers engaged by private hospitals comply with industry regulations (e.g., FDA, ISO). This is crucial for maintaining high standards in healthcare service delivery. Additionally, supplier benchmarking helps in identifying suppliers with low defect rates and high-quality products, reducing the risk of adverse events related to defective or substandard medical products. The essence of

benchmarking in enhancing quality of health care service is augmented by the service quality theory and resource dependence theory (RDT).

Service Quality Theory brings a customer-centric approach, focusing on how supplier performance affects the end-user experience. It ensures that supplier benchmarking includes criteria related to how well suppliers contribute to a positive patient experience, which is critical for maintaining high-quality healthcare services. RDT emphasizes the strategic management of resources and dependencies. Thus, supplier benchmarking should consider how suppliers' impact on customer (patient) expectations and perceptions of quality health care services, ensuring that resources not only meet technical standards but also align with patient expectations for service quality. Therefore, private hospitals should manage dependencies by selecting suppliers who meet their resource needs. Additionally, private hospitals should evaluate and benchmark suppliers based on their contribution to health care service quality dimensions. Private hospitals should ensure that suppliers enhance the patient experience and align with service quality standards.

H_{02}: Strategic capabilities have no statistically significant moderating role on the relationship between supplier bench marking and quality of health care services amongst private hospitals in Western Kenya

While supply chain management practices might not directly impact patient care, they create an environment where high-quality healthcare services can thrive (Kaynak et al., 2023). This indirect link highlights the importance of efficient, well-managed supply chains in supporting and enhancing the overall quality of healthcare services. Additionally, hospitals face the ongoing challenge of striking a delicate balance between controlling costs and upholding the quality of patient health care (Boakye et al., 2021). Therefore, healthcare organizations should prioritize effective supply chain management as a critical component of their cost-containment strategy to improve patient outcomes and enhance the quality of healthcare services.

To assess this relationship, hierarchical multiple regression was conducted. Results in Model 1 showed that supplier benchmarking significantly predicted the quality of healthcare services ($B = 0.726$, $SE = 0.052$, $t = 13.93$, $p < 0.01$), explaining 47.4% of the variance in healthcare quality ($R^2 = 0.474$). In Model 2, the inclusion of strategic capabilities improved the model fit ($\Delta R^2 = 0.104$, $p < 0.001$), with both supplier benchmarking ($B = 0.451$, $SE = 0.060$, $p < 0.01$) and strategic capabilities ($B = 0.191$, $SE = 0.026$, $p < 0.01$) emerging as significant predictors. Finally, Model 3 introduced the interaction term between supplier benchmarking and strategic capabilities, which was also statistically significant ($B = 0.046$, $SE = 0.021$, $p < 0.05$). The model explained an additional 0.9% of the variance ($\Delta R^2 = 0.009$, $p = 0.031$), bringing the total explained variance to 58.8% ($R^2 = 0.588$).

These findings underline the importance of strategic capabilities in strengthening the predictive power of supplier benchmarking on healthcare quality. Accordingly, the study rejected the null hypothesis and concluded that strategic capabilities have a statistically significant moderating role in the relationship between supplier benchmarking and the quality of healthcare services among private hospitals in Western Kenya.

Gunasekaran et al. (2020) clarifies those strategic capabilities for managing risks in supply chain management, identifying various capabilities such as flexibility, reliability and responsiveness as critical for improving supply chain performance. These capabilities can significantly impact the quality of healthcare services by ensuring that supplier benchmarking align with organizational goals and patient care standards. Pierfrancesco (2021) emphasizes the role of strategic planning in supply chain management, suggesting that integrating strategic capabilities into supply chain practices can lead to improved organizational performance outcomes, including quality healthcare services. This integration allows organizations to better respond to customer needs and market changes, thereby enhancing overall service delivery.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

In conclusion, supply chain management practices significantly affect the quality of healthcare services. Therefore, effective supply chain management (SCM) practices are increasingly recognized as a cornerstone for ensuring quality of healthcare services delivery. The supply chain management practices, particularly supplier benchmarking, are transformative tools for achieving quality of healthcare service delivery. The study concludes that supplier benchmarking significantly affects quality of health care service among private hospitals in Western Kenya. Benchmarking practices amongst healthcare suppliers contribute to improved service quality by encouraging adherence to best practices, minimizing errors and ensuring timely delivery of essential medical supplies. This implies that through supplier benchmarking private hospitals identify suppliers who meet or exceed regulatory and quality standards. This ensures that suppliers engaged by private hospitals comply with industry regulations (e.g., FDA, ISO) which are crucial for maintaining high standards in healthcare services delivery. Additionally, benchmarking helps in identifying suppliers with low defect rates and high-quality products, reducing the risk of adverse events related to defective or substandard medical products. Therefore, the essence of supplier benchmarking is augmented by the Service Quality Theory and Resource Dependence Theory (RDT). The periodic assessment for the purposes of technical, operational and cultural

alignment of SCM can be done through surveys, interviews and joint workshops. However, lack of a cohesive strategic capabilities and interdepartmental coordination can impede the realization of quality of health care services outcomes. This is affirmed by the findings that there is a significant moderating role of strategic capabilities on the relationship between supplier benchmarking and quality of health care services. Strategic capabilities significantly impact the quality of healthcare services by ensuring that supplier benchmarking align with organizational goals and patient care standards.

5.2 Recommendations

Private hospitals should analyze the purchasing process of other companies to improve their own. This can provide insights into effective supplier management strategies. Private hospitals should evaluate their supply chain operations for improvement in line with their competitors. This can help in the identification of best practices and innovative approaches that might be adapted to their own needs. Private hospitals should manage dependencies by selecting suppliers who meet resource needs. Additionally, private hospitals should evaluate and benchmark suppliers based on their contribution to service quality dimensions. Strategic capabilities have emerged as a potential moderator, strengthening the impact of supplier benchmarking and quality of healthcare service quality. Therefore, the private hospitals should quickly and effectively respond to competitors' strategic changes (such as new product launches, pricing strategies, or supply chain innovations) to help them maintain or even gain a competitive advantage. Private hospitals aiming to maintain competitiveness and deliver of high-quality healthcare services must enhance their supplier benchmarking practices by aligning them with strategic capability-oriented policies.

5.3 Areas for further research

As healthcare organizations strive for operational excellence, the role of strategic capabilities in moderating the relationship between supply chain management practices and quality of service has gained significant attention. Using cross-sectional research, this study investigated how strategic capabilities amplify the impact of supplier bench marking in achieving superior healthcare outcomes. However, there is need for future studies to use longitudinal design to evaluate how strategic alignment between supplier benchmarking and organizational capabilities evolves and impacts quality of healthcare service over time. This study was conducted in the Kenyan context limiting the generalization of the findings to other countries. Therefore, there is need for cross-cultural studies to determine whether the moderating role of strategic capabilities varies in healthcare systems of developed versus developing countries on the effect of supplier benchmarking on quality of healthcare services. The current study focused on private healthcare facilities with variations in their structure, funding, objectives and stakeholder expectations from the public health facilities. Therefore, there is need for future studies on the effect of supplier benchmarking on quality of healthcare services in public hospitals as moderated by strategic capabilities considering other external factors.

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