EFFECT OF SUPPLY CHAIN COLLABORATION PRACTICES ON SUPPLY CHAIN PERFORMANCE OF COUNTY REFERRAL HOSPITALS IN WESTERN REGION, KENYA

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Abstract

According to World Bank, supply chain performance has declined at an alarming rate resulting to a decrease in global GDP. Therefore, this study sought to investigate effect of supplier chain collaboration on supply chain performance of County Referral Hospitals in Western Region, Kenya. The study was guided by relational theory. Descriptive survey design was used in this study. The study was conducted in Western region focusing on four County Referral Hospitals: Kakamega County Referral hospital, Busia County referral Hospital, Bungoma County Referral Hospitals and Vihiga County Referral Hospital. Stratified random sampling and simple random technique was used to select 81 respondents from the four County Referral Hospitals. Primary data was collected using well-designed structured questionnaires and interview schedules. Quantitative data was analyzed using descriptive and inferential statistics. Descriptive analysis included; frequencies and percentages while inferential analysis involved Pearson's product

moment correlation analysis and simple linear regression analysis. Further for interview content analysis was used. The regression analysis revealed that supply chain collaboration practices have a positive and significant effect on the performance of government hospitals in Kenya. This implies that increase in supply chain collaboration practices would result to improvement in supply chain performance of County referral hospital in Western Region, Kenya. This study recommends that the County Referral Hospitals should formulate policies to enhance collaboration with suppliers. The findings of this study may aid the management of county Referral Hospital in improving supply chain performance and thereby improve quality service delivery.

Keywords: Supply chain collaboration, County Referral Hospitals, Supply chain performance, Supply Chain Management, supplier management

INTRODUCTION

Supply chain management concepts spawned a novel concept called supplier management practices in response to the economy's rapid expansion. This demonstrates the shift in modern company competitiveness from direct opponents to supply networks (Patrucco, Luzzini & Ronchi, 2017). In order to guarantee that links between enterprises in the supply chain exist, it is recommended that businesses make strategic alliance and cooperation the primary subjects in their strategic development plan. Because doing so is crucial to achieving optimal results from supplier management strategies. The goal of supplier management is to help businesses find reliable vendors and secure competitive pricing for the goods and services they need. Executives keep an eye on the company's supply chain to make sure that their partners are learning everything they can about the business's inner workings and production procedures (Arthur, 2009). Good supplier management practices are the efforts made by managers to boost the efficiency of the purchasing process. Others have defined supplier management techniques as a company's methods for improving the efficiency of its supply chain, or the ways in which it integrates, manages, and coordinates its supply, demand, and relationships in order to provide superior service to its customers (Sindiga, Paul & Mbura, 2019).).

As the practice of outsourcing non-core operations and entering into partnership agreements with key suppliers continues to grow in popularity, effective supplier management has become crucial for extracting maximum value from these strategic partnerships and outsourcing arrangements. Top companies all over the world are adopting supplier management frameworks because they bring much-needed structure, consistency, transparency, and controls to their supplier management operations and management. The

supplier management framework provides the basis for the execution and direction of supplier management activities by bringing together strategy, policies, and procedures (Patrucco, Luzzini & Ronchi, 2017). Integration, coordination and collaboration along the whole supply chain from buyers to sellers are the foundations of effective supply chain operations (Hudnurkar, Jakhar & Rathod, 2014). Fox (2021) defines collaboration as an arrangement in which parties to a supply chain agree to pool their resources for the good of everyone and contend that trust, openness and confidence are the backbone of any successful working partnership (Fox, 2021). Musa, Wei, and Tang (2012) argue that in order for businesses to succeed, they must establish rules and procedures that encourage cooperation between coworkers.

Xie, Liang and Zhou (2016) reaffirmed that numerous writers in China have emphasized that the management of suppliers is one of the most important aspects of successful international joint venture (IJV) manufacturing in China, as the supply chain plays a crucial role in contributing to the quality of final goods and regulating prices. Agyei-Owusu, Asamoah, Andoh-Baidoo and Akaribo (2016) found that external collaboration was more prevalent among surveyed organizations than internal collaboration, despite the fact that internal collaboration had a greater impact on procurement performance. Calignano and Vaaland (2017) established that in Tanzania's National Institute of Medical Research based in Mwanza there were a number of ways for buyers and suppliers to stay in touch while carrying out a contract, such as through supplier development and bilateral supplier meetings. Studies done in Kenya have pointed to the importance of developing and maintaining strong relationships with reliable suppliers (Ochieng, 2018; Kivite, 2015).

The healthcare sector in Kenya is multi-faceted, encompassing public, private, and faith-based/NGO organizations. Approximately 48% are government-run, falling under the purview of the Ministry of Health; 41% are privately-owned businesses; 8% are religiously-affiliated organizations; and 3% are non-governmental organizations. Community services, level 2; dispensaries and clinics, level 3; health centers, maternity and nursing homes; sub-county hospitals, level 4; county referral hospitals, level 5; large private hospitals, level 6; and national referral hospitals, level 6 are the six tiers of the Kenyan health care system (GoK, 2021).The study focused on County Referral hospital in Western region Counties specifically in Busia, Vihiga, Kakamega and Bungoma.

Statement of the Problem

The World Bank reports that a 4.7% drop in global GDP can be attributed to the worrying deterioration in Supply Chain Performance (WB, 2018). Faghih, Dastourian, Sajadi, Henten, and Foroudi (2018) found that businesses are under increasing pressure to innovate how they

produce and distribute value to customers in order to boost their supply chain's efficiency. Health care administration in Kenya has been devolved to county governments under the country's new constitution. Supply Chain Performance has been difficult to develop and apply in public health organizations. The majority of supplier management procedures have not been properly adopted (Berman, Pallas, Smith, Curry & Bradley, 2015). Half of the costs in public hospitals can be attributed to poor supplier management. Supplier Chain Practices declines in government hospitals due to subpar supplier management (Chemoiywo, 2018).

Areri and Gekara (2019) report that the supply chain performance of Kenya's public health institutions has declined sharply over the previous four years, despite a surplus of medical goods. In spite of the fact that public hospitals require medical supplies to function well, these institutions often face challenges in acquiring these items (RoK, 2019). A 2015 AfriCOG analysis found that despite advances in supplier management, service performance in Kenya's public hospitals remains substandard. NACPD (2018) research indicates that despite good supplier management, Kenyan public hospitals are unable to deliver acceptable medical care.

Considering the previous context, it is clear that public referral hospitals require supplier management and effective strategies to maintain an improving supply chain performance. Kiplangat and Kiarie (2015) intended to analyze how various supplier management methods impacted the efficiency of supply chains at Kenyan government agencies. Supplier evaluation, supplier relationship management, supplier discovery, and supplier performance management were all areas of inquiry across a range of industries.

Studies have been done on supplier relationship management in different sectors and contexts. For instance Opaleye, Ojelade and Aremu (2020) focused on publicly traded food and beverage companies in Nigeria, Al-doori (2019) focused on automobile industry in Pakistan and Mahulo (2015) focused on Kenya's cement industry. This study aimed to address the gaps by assessing how County Referral Hospitals in Kenya's Western region performance in terms of the efficiency and efficacy of their supply chains.

Objective of the Study

To determine effect of supply chain collaboration practices on Supply Chain Performance of County Referral Hospitals in Western Region, Kenya.

Research Hypotheses

H_{01}: Supply chain collaboration practices do not significantly affect Supply Chain Performance of County Referral Hospitals in Western Region, Kenya

LITERATURE REVIEW

Theoretical Framework

The research was guided by the relational theory of supplier chain collaboration. This theory proposes that the partners' investment in inter-firm information exchange protocols and relation-specific assets leads to a greater possibility for relational rents. Dyer and Singh (1998) present the relational perspective as a supplement to the industrial structure view and the resource-based view, they provide a theory that explains competitive advantage by concentrating on dyads and networks of firms as units of research. This theory provides an explanation for competitive advantage by utilizing dyads and networks of enterprises as units of study. According to the theory, the potential for relational rents increases as partners spend more in knowledge-sharing practices between firms and relation-specific assets.

Blackhurst, Dunn and Craighead (2011) extrapolated from case study data that resilience is positively connected with relational competencies such as specified communication networks, created supplier relationship management programs, and monitoring systems. This study uses a relational perspective to examine how enhanced robustness and agility might be achieved via the development of superior relational competences. They stated that robust supply chains are associated with well-established programs and monitoring mechanisms for managing relationships with suppliers. Superior relationship competences can enhance supply chain collaboration, which is the focus of this study.

Fox (2021) counters that relation theory is concerned only with human theory and hence excludes the topic of employee output. This precludes any possibility of a holistic approach being used with any entity other than humans. Furthermore, relation theory lacks a road map of work, is more theoretical in idea, is harder to analyze, and has certain characteristics of loss of subjectivity.

It is essential for all parties participating in a collaborative supply chain to be able to communicate with one another and coordinate their activities in order to achieve the best results. The level of transparency between business partners is crucial in reducing both internal and external supply chain risks. It is also important for vendors to have a well-managed stockpile, a responsive customer service department, and lightning-fast response times. It was with this notion in mind that the study set out to investigate the link between supply chain collaboration and performance.

Conceptual Review

Supply Chain Collaboration Practices

For optimal supply chain performance in areas like cost reduction, service enhancement, resource optimization, and rapid adaptation to market shifts, it is important for buyers and sellers to coordinate their efforts (Opaleye, Ojelade & Aremu, 2020). Waithira (2018) defines Supply chain cooperation as two or more chain members working together to establish a competitive advantage by exchanging information, making joint decisions, and sharing advantages, resulting in better profitability when catering to the needs of the end customer than when acting alone. Njagi and Shalle (2016) avers that supply chain collaboration takes place when two or more companies in the supply chain coordinate their efforts to collaboratively plan and carry out supply chain operations. When firms work together, they share risks, benefits, and expenses in an open and trusting relationship (Cao & Zhang, 2015). Perceptions of a supply chain's legitimacy are the driving force behind trust; it does not arise on its own. Partners' efforts to work together increase supply chain efficiency, as seen by more efficient inventory management, lower costs, better customer service, more accurate predictions, and punctual delivery (Ramanathan, 2014). Joint planning and forecasting, shared objectives among supply chain stakeholders, transparent communication, and pooling of resources were all identified as examples of collaborative approaches in this research.

Supply Chain Performance

Supply Chain Performance (SCP) is measured by how well the complete supply chain is able to fulfill the demands of its final consumers in terms of product availability and speedy, reliable shipping (Mwanjumwa & Simba, 2015). Njeru, Ngugi, Arasa and Kahiri (2014), define it as the operational excellence that provides a superior customer experience. A supply chain's efficiency is affected by both internal and external variables. The focus of many businesses has shifted from individual companies to their supply chains in an effort to boost profitability for the entire network (Simiyu & Namusonge, 2014).

Weeks and Namusonge (2016) characterize Supply Chain Performance as the capacity of the complete system to meet end-to-end customer expectations through product availability and on-time delivery. The term "Supply Chain Performance Metrics" refers to a broader category of metrics that can be used to assess a supply chain's efficiency and effectiveness (Owuor, Juma & Obura, 2018). In order to remain competitive, businesses must implement comprehensive systems of succinct performance metrics, particularly in supply chain management. It is critical to establish the measurements for performance that will audit plans and implement remedial actions if actual results diverge from expectations. Deliveries of

purchased goods and services were measured for timeliness, as were customer happiness, money saved and product quality in this research into supply chain efficiency.

Empirical Review on Supply Chain Collaboration Practice and Supply Chain Performance

Al-Doori (2019) set out to research the possible gains from supply chain collaboration in order to boost operational performance. Data was obtained from 232 suppliers, manufacturers, and distributors as part of an empirical study of the supply chain function in Pakistan's automotive industry. The study analyzed the data using a mixture of factor analysis and multiple regressions. Information sharing (IS) and joint decision making (JDM) were found to have a considerable impact on operational performance, however Electronic Data Interchange (EDI) was found to have no impact at all in this research. There was no mention of Supply Chain Performance metrics in the study. In contrast to Al- Doori's (2009) manufacturing-focused research, this study will instead examine SMP in the health sector.

Um and Kim (2019) set out to determine what reasons underpin collaboration and transaction cost advantage, how supply chain collaboration impacts company performance and how governance structures moderate these interactions. Information was collected by an online polling of Korean manufacturers. Confirmatory factor analysis was used to assess the undimensionality, reliability, and validity of a large-scale survey, and hierarchical regression analysis was used to test the hypotheses. It was found that when businesses in a supply chain work together, both the businesses' performance and their transaction cost advantage improve. Further investigation into the moderating influence of governance mechanisms revealed that contractual governance improves both company performance and supply chain collaboration in terms of transaction cost advantage. The implications of supplier management techniques on supply chain practices were not revealed, despite the study's helpful insights into business performance.

Opaleye, Ojelade and Aremu (2020) investigated the effects of supplier relationship management methods on the performance of publicly traded food and beverage companies in Nigeria. The research centered on the evaluation, growth, and participation of suppliers. The research, however, was limited to the business world.

Njagi and Shalle's (2016) study of East African breweries attempted to assess the impact of supplier management on procurement effectiveness in manufacturing firms. Supplier cooperation and training were two of the specific goals. The study used a descriptive approach, and the sample consisted of workers and suppliers from East African breweries. Information was cleaned, coded, and processed with a social sciences statistics tool before being displayed graphically. It was found by EABL that had a productive working relationship with its vendors

and took steps to educate its suppliers. As a result, procurement efficiency was greatly enhanced. Despite this, there was still a lack of successful supplier integration and, more specifically, common technology. The research concluded that EABL should prioritize integration efforts while also keeping and enhancing supplier collaboration and training. Although significant findings were found, the study was limited by its singular method of data collecting and its narrow focus on procurement performance.

Gumboh (2017) looked on how supply chain collaboration affected B2B relationship strength in Kenya's IT and telecommunications SMEs. In this study, a descriptive research survey approach was used. This research aimed to survey ICT SMEs in Kenya (there were 134 total). One hundred medium-sized businesses were chosen as a representative sample. Primary data was collected via a self-administered structured questionnaire. Despite finding a significant correlation between B2B relationships and supply chain collaboration, the study did not reveal the selection criteria utilized to determine the sample of 100 SMEs. What's more, it's unclear what scale of analysis was employed in this study.

Gichuru, Iravo and Arani (2015) investigated the impact of collaborative supply chain methods on Del Monte Kenya Ltd.'s performance. An exploratory case study methodology was used for this research. It was primarily concerned with the 243 workers who participated in the survey. Using a stratified random sample technique, we selected 107 individuals at random from the pool of eligible respondents. The researchers used questionnaires to collect information from the population sample. The data was analyzed using both quantitative and qualitative approaches. The study found that when businesses shared information and resources with their most important vendors, it led to an increase in both productivity and profitability. While this research shed light on supply chain procedures, it was unclear what aspects of operational efficiency were being evaluated.

Barasa, Simiyu and Iravo (2015) aimed to evaluate the effect of supply chain collaboration practice on the performance of Kenyan steel manufacturers. It was decided to adopt a descriptive research method. Primary data was collected via surveys and interviews. Methods of purposeful sampling were employed to locate and select people who met the study's inclusion criteria. The study found that Steel Manufacturing Companies in Kenya with a high level of supply chain collaboration practice had better organizational performance, however it was unclear what kind of performance was being measured.

Kosgei and Gitau (2016) assessed the association between supplier relationship management and organizational performance. The study focused on trust and commitment as aspects of supplier relationship management. Cross sectional research design was used and findings showed that supplier relationship management influenced performance of Kenya

airways Ltd. Understanding and executing supply chain management with a primary emphasis on supplier The study recommended for organizations to demonstrate greater commitment to SRM by implementing systems to monitor, appraise and evaluate strategic performance as this would increase chances of survival in an industry that is extremely competitive.

Rotich and Ochiri (2018) aimed to analyze the effect of Procurement Risk Management on the success of large-scale energy projects in Kenya. The research included a tally of all 47 megaprojects in the energy industry that were procured by the various public procuring agencies. Managers in charge of purchasing for organizations working on large-scale projects served as the study's units of analysis. Primary data was gathered with the help of questionnaires that were created in an unbiased manner. The research indicates that the procurement performance of major projects in Kenya's energy industry is greatly affected by procurement risk management. Inadequate information collection for contractor evaluation was also identified as a problem in the procurement processes of Mega projects, which the report suggests could lead to the hiring of unqualified contractors.

Using cross sectional research design Kivite (2015) conducted research on the role of supplier development on operational performance of manufacturing firms in Kenya and established that supplier training, standardization, financial support, communication, certification, recognition and auditing influenced operational performance. Ochieng (2018) investigated the impact of supplier management on the performance of large retail firms in Nairobi City County, Kenya. Supplier management entailed Supplier Selection, Supplier partnerships and Supplier development. The study utilized descriptive research design and data was collected using a questionnaire. The findings revealed that supplier management positively and significantly influenced performance. The research, however, was limited to the retail industry and focused on the processes of choosing and working with suppliers, as well as expanding their own capabilities.

Kepher, Shalle and Oduma, (2018) aimed at evaluating the role of supplier management on procurement performance in manufacturing companies a case of East African breweries. The study findings indicated that 81% of change in procurement performance at EABL can be explained by four variables namely buyer supplier integration, Supplier quality management, Supplier collaboration, and Supplier Training. Supplier performance management is key to procurement performance as suppliers are integrated into organizations activities. EABL has a strong collaborative relationship with its suppliers and undertakes measures to train them. This has improved procurement performance to great extent (94.6%).However supplier integration and to be specific shared technology has not properly been achieved. The study recommended that EABL should focus more on integration and improve on supplier collaboration and supplier training.

Mahulo (2015) looked into Kenya's cement industry's supply chain collaboration techniques and company performance. The research strategy adopted for this study was cross-sectional. Primary and secondary resources were used in the investigation. Primary data was collected through the use of a semi-structured questionnaire, while secondary data was gathered from each company's most recent annual financial report. The whole cement sector in Kenya was employed as a sampling frame for a census-style survey. As a result, the study concludes that supply chain collaboration practices are positively related to the organizational performance of Kenya's cement manufacturers. Although the results of the study showed a positive correlation between supply chain collaboration, these results cannot be extrapolated to the entire healthcare sector in Kenya. This prompted researchers to look into the impact of supply chain management practices at a county referral hospital in the country's western region.

METHODOLOGY

The study used descriptive survey design since its primary purpose was to gather data for the purpose of describing a phenomena or condition in detail. The study was conducted in Western region focusing on four County Referral Hospitals: Kakamega County Referral hospital, Busia County referral Hospital, Bungoma County Referral Hospitals and Vihiga County Referral Hospital. Stratified random sampling and simple random technique was used to select 81 respondents from the four County Referral Hospitals. The study purposively sampled 4 suppliers from each hospital who were interviewed. Primary data was collected using structured questionnaires and interview schedules. Quantitative data was analyzed using descriptive and inferential statistics. A pilot study was conducted at County Referral Hospital in Trans Nzoia County where 8 respondents were selected. Content analysis was used to analyze data collected using interview schedule where the respondents who were purposively sampled were interviewed. Descriptive analysis included; frequencies and percentages while inferential analysis involved Pearson's product moment correlation analysis and simple linear regression analysis. The Regression model used is as follows;

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

Where;

Y= Supply chain Performance

β_0= Constant of Regression which is the value of dependent variable when independent variable is 0

X_1= Supply chain collaborations

β_1 = Regression co-efficient

ε=Error term

RESULTS AND DISCUSSION

Response Rate

Among the 81 questionnaires sent out for data collection, 59 were returned with all required information (a response rate of 72.8%), which bodes well for extrapolating the study's results to the larger population at large (Table 1).

Table 1: Questionnaire Return Rate

		Frequency	Percent
Valid	Returned	59	72.8
	Not Returned	22	27.2
	Total	81	100.0

Richard (2015) suggested that a response rate of at least 70% is both desirable and realizable. The study's 72.8% response rate is respectable because it's higher than the threshold of 60% considered necessary for statistical significance.

Reliability results

Reliability tests were performed using the Cronbach alpha test to determine the validity of the dataset. All indicators had loadings over 0.7, suggesting that the constructs accounted for more than 50% of the variance in their indicators, which is indicative of adequate item dependability.

Table 2: Results of Reliability test

Variables	Cronbach Alpha	No. of Items
Supply chain collaboration practices	0.736	5
Supply chain performance	0.849	5

When alpha is more than 0.7, as Sanchez (2013) claims it is, composite dependability is attained. Results from the construct reliability analysis are summarized in Table 2. Cronbach's Alpha for all retrieved variables was greater than 0.7, meeting the minimum threshold for reliable data (Mugenda & Mugenda, 2008).

Demographic Characteristics of the Respondents

The study intended to determine the respondent's background information. Gender, years in the workforce, and level of education were among the categories covered. The

respondents were required to specify their gender on the questionnaires so that gender distribution could be determined. Those that participated designated themselves as either females or males. Table 3 indicates that 54.2% of respondents were male and 45.8% were female. The gender ratio appears to be relatively equal at this County Referral Hospitals in Kenya's Western Region.

Table 3: General information of the Respondents

	Frequency	Percent
Gender		
Male	32	54.2
Female	27	45.8
Years Worked		
1- 5 years	16	27.1
6 to 10 years	32	54.3
11 years and above	11	18.6
Education Level		
Certificate	5	8.5
Diploma	26	44.1
Graduate	22	37.3
Post Graduates	6	10.1
Total	**59**	**100**

In addition, the respondents were asked to share their length of service in public county referral hospitals. This was vital in determining how knowledgeable they were about supply chain efficiency. According to the results, 27.1% of respondents have been in their current role for less than 5 years, 54.3% have been in the Public County Referral Hospital for between 6 and 10 years, and 18.6% have been there for more than 10 years. As a result, the majority of the respondents sampled had sufficient work experience, a factor crucial to accomplishing academic objectives.

Participants in the survey were required to reveal their highest level of formal education. They would be able to demonstrate their reading level and their ability to complete the surveys accurately based on this. Regarding education, nearly half of respondents (44%) said they held one or more diplomas, while only a tenth of respondents (8.5%) said they held a certificate. Also, the data showed that 10.1% of the respondents had advanced degrees, while 37.3% of the respondents had at least a bachelor's degree.

Descriptive Analysis Results on Supply chain collaboration practices

The summary of the descriptive is as shown in Table 4. (*5- strongly agree, 4-Agree, 3-partially agree, 2-Disagree and 1-strongly disagree, f-frequency, %-percentage).*

Table 4: Descriptive statistics: Supply chain collaboration practices

Statements	Stats	5	4	3	2	1
The hospital includes our suppliers in the process of collaborative planning and forecasting.	F	7	29	13	5	5
	%	11.9	49.2	22	8.5	8.5
The hospital-supplier partnership is founded on mutual understanding and shared objectives.	F	8	25	14	9	3
	%	13.6	42.4	23.7	15.3	5.1
The hospital has a well-defined policy for handling relationships with vendors.	F	17	15	17	6	4
	%	28.8	25.4	28.8	10.2	6.8
The hospital has built a monitoring system for supplier performance.	F	11	34	8	5	1
	%	18.6	57.6	13.6	8.5	1.7
There are defined channels of contact between all hospital departments and our vendors.	F	13	23	14	7	2
	%	22	39	23.7	11.9	3.4

Table 4 shows that only 11.49% of respondents strongly agreed, 47.2 % agreed, and 22.0 % agreed that the hospital involves its suppliers in the collaborative planning and forecasting process. When asked if the hospital's relationship with its suppliers is based on mutual understanding and common aims, 13.6% of respondents strongly agreed, 42.4% agreed, 23.7% agreed, and 15.5% disagreed.

In addition, a slim majority of respondents (25.4%) agreed that the hospital had a clear policy for managing relationships with suppliers, with 28.8% strongly agreeing, an additional 28.8% agreeing slightly, and 10.2% disagreeing. In addition, 57.6% and 18.6% of the tested respondents agreed and strongly agreed, respectively, that the hospital has built a system to monitor supplier performance, whilst 14.0% of the selected respondents agreed partially.

In conclusion, 22.0% of respondents strongly agreed that there are standardized ways of communication between all hospital departments and our suppliers, while 39.0% of respondents agreed, 23.7% of respondents slightly agreed, and 11.9% disagreed. Gumboh (2017) examined the impact of supply chain collaboration on the robustness of business-to-business relationships among small and medium-sized information and communication technology companies in Kenya. The research revealed a positive correlation between supply chain coordination and business-to-business ties. Njagi and Shalle (2016) reached a similar outcome when they discovered that EABL has a strong collaborative relationship with its suppliers and trains them. This has substantially enhanced procurement performance.

According to one interviewee, the inability to easily verify one's identity was hampered by factors such as the provision of inaccurate information by suppliers, the use of briefcase contractors, and the inaccessibility of information regarding some vendors. It was also agreed that effective methods of collaboration were vital for finding reliable vendors and setting up useful connections that would boost supply chain efficiency. However, one interviewee brought out how some suppliers' perceptions of others' favoritism in the supply chain process might fuel competitive tensions and hinder effective collaboration.

The respondents suggested several ways in which the hospitals may enhance its supplier collaboration practices. These included, among other things, the adoption of a more equitable platform and the digitization of the procurement procedure. The hospital administration should also make it easier for suppliers to secure financing from financial institutions by relaxing some of the obligatory restrictions contained in the bidding procedure.

Descriptive Analysis Results on Supply chain performance

In the scale of 1-5 (*5- strongly agree, 4-Agree, 3-partially agree, 2-Disagree and 1-strongly disagree, f-frequency, %-percentage*), the descriptive on supply chain performance is summarized in Table 5.

Table 5: Descriptive statistics on supply Chain Performance

Statements	Stats	5	4	3	2	1
Goods and services are now being acquired at a	F	18	25	10	3	3
higher quality.	%	30.5	42.4	16.9	5.1	5.1
Supply and demand are met with reliable, on-time	F	4	24	13	13	5
service.	%	6.8	40.7	22	22	8.5
The proper price is paid for the right services and	F	16	23	8	9	3
goods.	%	27.1	39	13.6	15.3	5.1
The appropriate number of services and materials are	F	13	26	11	7	2
acquired.	%	22	44.1	18.6	11.9	3.4
In most cases, the supply chain unit's efficiency has	F	18	25	10	3	3
been met with approval from the departments using it.	%	30.5	42.4	16.9	5.1	5.1

Table 5 shows that overall, 30.5% of respondents agreed and 42.4% strongly agreed that the quality of products and services purchased has improved. A further 16.9% of respondents thought that the quality of the things they bought had gone up. Products and services are delivered on time, according to a survey, with 40.7% of respondents agreeing and 6.8% strongly agreeing. A similar percentage (22.0%) of respondents just partly agreed, while

the same percentage (22.0%) of respondents fully disagreed that deliveries of items and services are always made on time.

Additionally, 39.0% of respondents agreed that services and goods are obtained at the proper price, with 27.1% either agreeing or strongly agreeing. However, 13.6% of respondents only partially agreed, and 15.3% of respondents did not agree. Most respondents (44.1%), based on these findings, also believed that the appropriate quantity of goods and services are acquired. In addition, 22.0% were in complete agreement. However, only 61.1% of respondents strongly agreed that sufficient supplies were obtained, while 18.6% agreed and 11.9% disagreed. Finally, 42.4% of respondents agreed that, on the whole, user departments are satisfied with the performance of the supply chain unit, with 30.5% strongly agreeing and 16.9% partially agreeing.

The interviewees revealed that the continuous improvement process, the implementation of successful supplier management programs, delivery times, consumer happiness and cost reduction, a focus on fast and efficient supply chains, increased pressure on supply chain executives, and the building of strong connections with suppliers are the most important SMP contributing to supply chain performance.

Correlation Analysis Results

The correlation coefficient (r) values are displayed in Table 6 using Pearson correlation analysis, which calculates the direction (Positive/negative) and the strength (Ranges from -1 to +1) of the association between two continuous or ratio/scale variables.

Table 6: Correlation Matrix

		SCCP
SCCP: Supply chain collaboration practices	Pearson Correlation	1
	Sig. (2-tailed)	
	N	59
	Sig. (2-tailed)	.078
	N	59
Supply chain Performance	Pearson Correlation	.497[**]
	Sig. (2-tailed)	.000
	N	59

**. Correlation is significant at the 0.01 level (2-tailed)."

According to Table 6, supply chain collaboration practices are positively connected with the supply chain performance of County Referral Hospitals in Kenya's Western Region; the coefficient is 0.497 (p value 0.01), which is statistically significant with a 99% level of confidence.

Regression Analysis Results

Simple linear regression analysis was done to establish the influence of Supply chain collaboration practices on Supply chain performance.

Table 7: Regression Results of Supply chain collaboration
practices on Supply chain performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	R^2 Change	F Change	df1	df2	Sig. F Change
1	.497[a]	.247	.242	.7387	.247	50.417	1	57	.000

a. Predictors: (Constant), supply chain collaboration practices

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	27.513	1	27.513	50.417	.000[b]
	Residual	84.037	57	.546		
	Total	111.550	58			

a. Dependent Variable: Supply chain performance

b. Predictors: (Constant), supply chain collaboration practices

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.952	.343		2.777	.006
	Supply chain collaboration	.641	.090	.497	7.101	.000

a. Dependent Variable: Supply chain performance"

The supply chain performance at a County Referral Hospitals in Western Region, Kenya, varied by 24.7% (R^2 = 0.247) as a direct result of the degree to which the hospital's staff

engaged in supply chain collaboration practices. According to the ANOVA table 7, supply chain collaboration practices significantly predict supply chain performance at the County Referral Hospitals in the Western Region of Kenya.

Supply chain collaboration practices were found to have a positive and statistically significant ($p<0.01$) association with the supply chain performance of County Referral Hospitals in Western Region, Kenya (regression coefficient B=0.641, analysis of variance F=50.417, t-test value t=7.101). Therefore, the supply chain performance of County Referral Hospitals in Western Region, Kenya is significantly impacted by supply chain collaboration practices, thereby rejecting the null hypothesis. The results are represented in the following model:

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

Where

Y= supply chain performance of County Referral Hospitals in Western Region, Kenya,

$B_0 = 0.952$ (constant)

$\beta_1 = 0.641$

X_1= Supply chain collaboration practices

Replacing in the equation above, the model becomes: $Y = 0.952 + 0.641 X_1$

The coefficient of the constant in the above equation was 0.952, and the significance level was 0.000, so we can infer that the supply chain performance of the County Referral Hospitals in the Western Region of Kenya would be identical to this value in the absence of any supply chain collaboration practices. There will be a statistically significant increase in performance ($P<0.05$) using this strategy. A beta coefficient of 0.641 was found for supply chain collaboration activities. Supply chain performance at the County Referral Hospitals in Western Region, Kenya, will increase by 64.1% if supply chain collaboration techniques were increased by just one percent. The outcomes demonstrated a statistically significant positive association between supply chain collaboration practices and supply chain performance at county referral hospitals in Kenya's Western Region.

The study hypothesis stated that Supply chain collaboration practices does not significantly affect supply chain performance of County Referral Hospitals in Western Region, Kenya. The hypothesis was rejected as the study established that supply chain collaboration practices positively and significantly influenced supply chain performance. The findings are consistent with those of Al-Doori (2019) who established that information sharing and joint decision making impacted on operational performance. Similarly Um and Kim (2019) and Njagi and Shalle (2016) confirmed that supply chain collaboration and supplier management (cooperation and training) impacted on performance and procurement effectiveness

respectively. The findings are also corroborated by Mahulo (2015) who found that supply chain collaboration techniques influenced performance of Kenya's Cement manufacturing sector.

CONCLUSION

Supply chain collaboration strategies were found to have a substantial impact on supply chain performance at the County Referral Hospitals in Western Region, Kenya. From what we can tell from our research, County Referral Hospitals collaborate with their suppliers on planning, have established mechanisms to track supplier performance, and use consistent channels of communication for all of their dealings with vendors. Their connection with their suppliers is moderate, based on mutual understanding and shared objectives, but they lack a transparent policy for managing their relationships with their vendors.

The study contributes to literature in the area of supplier management by affirming that Supply Chain Collaboration Practices have an influence on supply chain performance of county referral Hospitals in Western Region, Kenya. The findings may aid policy makers in developing policies related to supplier collaboration practices. The management of county referral hospitals in western region, Kenya can draw from the findings to understand the influence of Supplier collaboration Practices and come up with better strategies to help improve on supply chain performance

RECOMMENDATIONS

This study recommends that the County Referral Hospitals should formulate policies to enhance Joint planning and forecasting, Mutual goals with clients, Clear coordination and Resource sharing with their Suppliers so as to bolster supply chain performance. This study recommends that the County Referral Hospitals should formulate policies to enhance that will foster collaboration. Further the study also recommended that County Referral Hospitals should carry out joint workshops with their suppliers.

AREAS FOR FURTHER RESEARCH

This research looked into how supply chain collaboration practice affected the supply chain performance of County Referral Hospitals in Kenya's Western Region. Supply chain performance is just one metric that was studied. Future research could link supply chain collaboration practice to operational performance. The study was done in County Referral hospitals in Western region, Kenya. It could be extended to cover other regions.

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