

**STRATEGIC PROCUREMENT PRACTICES IN THE HEALTHCARE SECTOR IN
KENYA: A CASE STUDY OF KENYATTA NATIONAL HOSPITAL.**

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OPTION) OF THE MANAGEMENT UNIVERSITY OF AFRICA.**

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DECLARATION

This project is my original work and has not been presented for the award of degree in any other university or examination body.

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ODLBML/17/00743/1/19

This research project has been submitted for examination with my approval as the university Supervisor.

Signature.....

date.....

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DEDICATION

This research work is dedicated to my family, for their unending support, love and encouragement throughout my course of study.

ACKNOWLEDGEMENT

I am sincerely thankful to GOD for the gift of life and health during my research undertaking. Special appreciation goes to my family, course mates, and friends for supporting me during this entire period. My gratitude goes to my Supervisor Dr. Paul Muchoka for his tireless effort, valuable guidance, patience, comments, and advice during this study at Management University of Africa. Your devotion has contributed immensely towards my successful completion of this study. Words cannot be sufficient to singly thank all those who contributed towards my successful completion of this course, to you all I say thank you.

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LIST OF ABBREVIATIONS AND ACRONYMS

IT	:	Information Technology
KEMSA	:	Kenya Medical Supplies Authority
KNH	:	Kenyatta National Hospital
NBU	:	New-Born Unit
NGO	:	Non- Governmental Organization
PFM	:	Public Finance Management
PPADA	:	Public Procurement and Disposal Act
PPRA	:	Public Procurement Regulations Authority
RBT	:	Resource Based Theory
RFP	:	Request for Proposal
SET	:	Social Exchange Theory
SPSS	:	Statistical Packages for Social Sciences
SRM	:	Supplier relationship management
WHO	:	World Health Organization

OPERATIONAL DEFINITION OF TERMS

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Budgetary allocation	A budget allocation is the amount of funding designated to each expenditure line. It designates the maximum amount of funding an organization is willing to spend on a given item or program, and it is a limit that is not to be exceeded by the employee authorized to charge expenses to a particular budget line
Green procurement	Purchasing of products and services that cause minimal adverse environmental impacts. It incorporates human health and environmental concerns into the search for high quality products and services at competitive prices
Inventory Optimization	This is a method of balancing capital investment constraints or objectives and service-level goals over a large assortment of stock-keeping units (SKUs) while taking demand and supply volatility into account.
Supplier relationship	The discipline of strategically planning for, and managing, all interactions with third party organizations that supply goods and/or services to an organization in order to maximize the value of those interactions
Strategic Sourcing	The process of developing channels of supply at the lowest total cost, not just the lowest purchase price. It expands upon traditional purchasing activities to embrace all activities within the procurement cycle, from specification to receipt and payment of goods and services.

ABSTRACT

When highlighting the challenges facing Kenyatta National Hospital, the 2012 auditor General's report indicates that the key challenges facing Kenyatta National Hospital operations range from stock-outs to long procurement procedures. This study focuses to establish the role of strategic procurement in healthcare delivery as the main objective. The specific objectives of the study aim to establish extend in which strategic sourcing, green procurement, inventory optimization and supplier relationship management affect the healthcare delivery at Kenyatta National Hospital. The research carries out on several categories of procurement personnel of Kenyatta National Hospital who will aid in providing the required information relevant to the study. The study adopts descriptive survey design and stratified random sampling method selection for sampling. This study adopted the use of questionnaires as a tool for data collection. The study targets population of 31 employees drawn from supply chain management divisions mainly; procurement and administrative services, procurement clinical officers, contract management and tender secretariat, logistics and warehousing and KPCC supply chain. Data processing, analysis and presentation were done through descriptive statistical method (SPSS version 24) and use of tables, pie charts, and bar graphs, respectively. Both primary and secondary data was collected and analysed. Primary data was gathered using questionnaires issued to respondents. Based on the data collected and the subsequent findings of the study, it is concluded that strategic procurement plays a significant role in improving, streamlining and optimizing healthcare delivery. Particularly, strategic sourcing, green procurement practices, inventory optimization and employment of supplier relationship management positively and significantly influence healthcare delivery. The study recommends public and private entities in the healthcare sector to familiarize themselves with procurement strategic practices and implement them in their operations in order to improve its efficiency and also to streamline the entire supply chain management. The research benefits various stakeholders in the procurement environments including the authority itself, future scholars in the field, the government, as well as the general business and procurement field from various departments and levels of management ranging from staff, middle level management and top management.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter basically looked into the theories that are of value to the study and past studies that have been done on the role of strategic procurement practices in healthcare delivery, conceptual framework, empirical review of the past studies, research gaps as well as synopsis of the chapter.

1.1 Background of the Study

Among the challenges faced by hospitals around the world are the management of costs and inventory to meet their increasing and unpredictable demands in their daily operations. These challenges are attributed to the changing patterns of diseases and escalating costs of supplies in addition to the healthcare budget cuts, particularly in developing countries.

The sourcing and procurement's primary objective of any firm is to ensure a continuous supply of goods and services and support the operational needs of the business. According to (Roach, 2016, November 03) the healthcare industry is going to evolve and controls. These market changes make it difficult for most hospitals to adapt and continue to seamlessly execute their intended mandate. Besides, the author recommends that the strategic application of procurement processes in the running of hospitals facilitates the reduction in the purchase price structure hence cutting down the cost of acquiring goods and services. Additionally, according to World Health Organization (WHO), the current complex health sector necessitates the assumption of strategic purchasing strategies as opposed to the traditional modes of acquisitions to guarantee timely and modern service delivery to the patients.

Strategic procurement, through practices such as supplier management, outsourcing, incorporation of IT, Global Sourcing, Total Quality Management, and Just in Time (JIT), Negotiation, Total cost of operation approach, green procurement and lean procurement centralizes on how the acquisition of goods and services facilitate delivery of better long-term value to the firm, shareholders and clients. Therefore, by incorporating these practices in the management of hospitals,

The proposed study seeks to identify the lapses in the procurement processes of Kenyatta National Hospital (KNH) in Kenya and how these challenges can be addressed by employing strategic procurement practices.

1.1.1 Global Perspective of Strategic Procurement

Strategic Purchasing is an important component in the healthcare financing system (Stuart et al, 2016) and plays as a facilitator role in Universal Health Coverage (UHC). Purchasing is a core function of healthcare financing (Wanjiru, 2016). The process by which funds are paid to healthcare providers to deliver services (Van Weele, 2016). Purchasing can promote quality, efficiency, equity, and responsiveness in health service provision if designed and undertaken strategically and, in doing so, facilitate progress towards UHC (Thai, 2016). Strategic purchasing is a key component to improving health system performance.

In the healthcare reform of the Islamic Republic of Iran, 2014, the strategic purchasing Centre was established at the IHIO, but the strategic purchasing of services was not possible because of barriers and associated problems. With the implementation of the healthcare reform plan in the second month of that year in Iran, which developed UHC goals and eight programs mainly focused on patient financial protection and access, it was expected that strategic purchases would help UHC strategy in order to provide more access to healthcare services, but provincial health departments of the IHIO have continued the same inactive purchasing process. This study examines the problems encountered in the strategic purchasing process in Iran. The purpose of this study was to identify the problems and barriers which prevented the implementation of strategic purchases in IHIO

1.1.2 Local Perspective of Strategic Procurement

The procurement developments in Kenya have led to formulation and adoption of the Public Procurement and Disposal Act 2015 and Public Procurement and Disposal Regulations of 2016, which offer the legal guidelines for regulating public procurement, with oversight functions carried out by Public Procurement and Regulatory Authority (PPRA). Procurement plays a vital role in every organization. According to Sivakumaran (2013), different variations such as size, nature and the surrounding environment influence healthcare facility. This has led to shift of focus of organizations especially in health care sector towards strategic procurement which aims procuring of drugs, medical items/ equipment and services

in accordance with 5R's of purchasing (right time, right quantities, right quality, right place, and right price) for quality service and care for patients. This is realized through strategic supplier relationship management, strategic sourcing, inventory optimization and proper planning and budgeting.

1.2 Statement of Problem

When highlighting the challenges facing Kenyatta National Hospital, the 2012 auditor General's report indicates that the key challenges facing Kenyatta National Hospital operations range from stock-outs to long procurement procedures. Consequently, the hospital lacks essential drugs required in the Critical Care Unit, surgical theatres in addition to the resuscitation and burns units. Moreover, it is indicated that junior staff blames the stock-outs on poor procurement Practices applied by the management and refusal of suppliers to meet purchase orders' agreements. Additionally, Ochieng (2015) carried out a study assesses the implementation of the strategic plans at Kenyatta National Hospital. She indicates that the improvement of procurement structures and practices particularly in the procurement of laboratory and pharmaceutical equipment is necessary to refine the general operations in the hospital and abridge the challenges facing the hospital.

According to health experts report documented by (Gathonye G, 2019) 80 babies die within seven days at the Newborn Unit (NBU) of Kenyatta National Hospital. Overall mortality among 320 neonates admitted at the facility will be 80 or 25% over seven days. The doctors blame his high rate of mortality partially on failure of health workers to follow the national treatment guidelines for newborns, lack of facilities and poor care. Nevertheless, it is also estimated that almost 99% of all deaths in public healthcare sector is due to inappropriate equipment and drugs. Through adoption of strategic procurement in providing adequate healthcare services and responding to emergency care to public can lead to drastic reduction of mortality rates since. Strategic procurement ensures that difficulties associated with access of essential medical items which lead to compromise of timely provision of care to patients is sorted out (Tumwine et al, 2010). A study by (Brian K. O., 2016) indicated that 61% of cases related to poor delivery of health services and standards of patient treatment in public hospitals resulted from inadequate supply of drugs due to procurement bureaucracy and inadequate finance, drug supply will be inadequate due to bureaucracy in the procurement process from the central government (KEMSA) to the hospitals.

Healthcare delivery in public hospitals requires commitment of financial resources by the government to be expended through procurement in acquisition of essential medical supplies and services. Kenyatta National Hospital Strategic Plan (KNH SP III, 2013-2018) estimates that the implementation of the projects and strategic activities will require Kshs.9.26 billion while the total outlays within the five-year period will be Kshs.75.8 billion. These huge amounts of hospital budgets account for over 60% funding on procurement activities of the hospital. The strategic plan also acknowledges that the prevailing economic and social conditions have adversely impacted on the delivery of healthcare services in the country. Various services offered in the hospital have been affected by inadequate funding in relation to budgetary estimates. The hospital, therefore, faces challenges in its endeavor to provide quality healthcare.

It is imperative therefore, that all public sector institutions take into consideration the critical role of procurement in delivery of goods and services to the public especially in a sensitive sector like healthcare. It is against the backdrop of these worrying trends that this study evaluated the procurement-related challenges facing Kenyatta National Hospital and how they can be addressed by employing strategic procurement practices.

1.3 Objectives of the Study

1.3.1 General Objective

The main objective of the study was to find out the strategic procurement practices in healthcare sector in Kenya with specific reference to Kenyatta National Hospital.

1.3.2 Specific Objectives

- i. To determine effect of strategic sourcing on healthcare sector in Kenya.
- ii. To assess effect of green procurement influences healthcare sector in Kenya.
- iii. To find out effect of inventory optimization affects healthcare sector in Kenya.
- iv. To determine the effect of supplier relationship management at healthcare sector in Kenya.

1.4 Research Questions

- i. To what extent does strategic sourcing affect healthcare sector in Kenya.
- ii. How does green procurement affect healthcare sector in Kenya.

- iii. What is the role of supplier relationship management in healthcare sector in Kenya?
- iv. How does inventory optimization affect healthcare sector in Kenya.

1.5 Significance of the Study

The findings and recommendations of the proposed study will be of help to various stakeholders such as medical personnel support staff, NGOs, environmentalists, government, senior management, patients and suppliers in the industry.

The Resource based view theory is useful to measure and explain how the resources of an organization affect the process and practice of procurement. By adopting strategic procurement practices by the procurement officer in acquisitions of good quality healthcare items at a good price, the efficiency of health services delivery will be greatly improved since the items will be available in time at a reduced cost.

Suppliers, on the other hand, are tasked with supplying the required services and medical items in conformance to specified standards of quality and costs under contractual agreements. The selection of good suppliers can give a positive impact to the procurement practices which can lead to an improved of health care services.

Patients who are the center focus of the healthcare system require these services and drugs whenever they fall sick and therefore the services, drugs, equipment, and personnel should be available, accessible, and affordable at all times. Strategic procurement policy aims at satisfying the patients through getting quality health care items in time.

1.6 Scope

The study focused on the role of Strategic Procurement Practices in the Healthcare Delivery in Kenyatta National Hospital. The study specifically focused on collecting data on the effect of sourcing, green procurement, inventory optimization and supplier relationship management on strategic procurement practices. This study targeted the employees of KNH drawn from diverse divisions of Supply Chain Management Department of the facility. The study was conducted from October,2020 to July 2021.

1.7 Chapter Summary

The Chapter discussed in depth the background of the study for both global and local perspective. Statement of problem of the study has been well explained in this chapter. It has also outlined the general and specific objectives of study, its significance and its scope.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter basically looked into the theories that are of value to the study and past studies that have been done on the role of strategic procurement practices in healthcare delivery, conceptual framework, empirical review of the past studies, research gaps as well as synopsis of the chapter.

2.1 Theoretical Literature Review

A theoretical review consists of ideas, together with their explanations and available concepts used in a study (Sekaran, 2015). The models were developed to explain the role of strategic procurement practices in healthcare delivery in public sector healthcare facilities. The theories are vital in the study on the role of strategic procurement practices in healthcare delivery in public hospitals in Kenya with a case study of Kenyatta National Hospital.

2.1.1 System Theory

The system theory approach is the subject view of organizations as open social systems that must integrate with their environments to survive. Organizations rely on their environments significantly for essential resources; customers who buy their products and services, suppliers who supply materials, employees who provide labor or management, shareholders who invest, and the governments that regulate the functions and practices of organizations. According to Cutlip, Center, and Broom (2006), public relations essential role is to help organizations adjust and adapt to changes in an organization's environments.

The open- systems approach will be first applied by Katz and Kahn (2016), who adapted general systems theory to organizational behavior. This approach identifies organizational behavior by mapping the repeated cycles of input, throughput, output, and feedback between an organization and its external environment. The system receive input from the environment either as information or in the form of resources, and then processes them, in a process which is known as flow rate and release turnout into the surroundings in an attempt to reinstate balance to the environment. The system then seeks feedback to determine if the output will be

effective in restoring equilibrium. Therefore, the system approach looks into the means used to sustain organizational survival and highlight long-term goals instead of the short-term of goal accomplishment approach.

Systems theory greatly supports this study in that, organizations receive inputs from outside environments (suppliers) then transform them in a process known as throughputs into outputs and takes it back for users as consumables. An organization will need suppliers that provide input it requires for the provision of vital products and services. The systems theory is useful in strategic procurement decisions, sourcing, and supplier relationship management. By understanding that organizations must obtain inputs from suppliers, procurement managers will have better ways of undertaking strategic sourcing of materials, services, equipment, and information, developing supplier selection criteria in line with green procurement requirements and sustainable procurement practices, and ensure inventory optimization. This will result in highly efficient and effective procurement functions that serve the need of health sector organizations leading to high performance and better delivery of healthcare services.

2.1.2 Social-Exchange Theory

This study focuses on social exchange theory concerning strategic procurement practices in healthcare delivery to assess how and to what extent social exchange theory (SET) influences procurement decision making. Social exchange theory starts with the assumption that human interacts in social behavior to maximize benefits and minimize costs, which then lead to a positive outcome (Hutchison& Charlesworth, 2003). The central proposition of this theory is that people weigh the advantages and disadvantages before deciding. In economics, for instance, people would decide between costs and benefits before agreeing in an exchange (Okyere-Kwaykye, Nor & Ologbo, 2012). In this essence, SET can be applied by the buying organizations in decisions they have to make concerning the already mentioned decision points.

Through a trustful and commitment to the buyer-supplier relationship the chance for a continuation of the relationship, and a stable continuous exchange relationship ensures the timely supply of goods, services, equipment therefore efficient and quality of healthcare delivery is ensured. Continuous supplier relationship management which ensures steady satisfaction of suppliers through information sharing, continuous assessment of suppliers,

onetime payments for deliveries, organizations gain the status of a preferred customer, instead of simply being a regular customer or even one-off customer and this leads to privileged treatment by suppliers and ensured supplies. SET can be of practical importance, but as stated beforehand, only little focus is on social behavior now (Hutchison & Charlesworth, 2003). Therefore, hospitals and healthcare sectors, when engaging in an exchange of any nature should make its interest clear and should, next to economic exchanges, focus on social norms like trust and commitment.

2.1.3 Resource-Based Theory

The resource-based view theory is used to investigate both practices and strategies of a firm based on the available internal resources. In this regard, competitive is attained through the un-substituted, inimitable, rare, and valuable internal resources (Walker & Brammer., 2012). Procurement being a vital function in any organization in today's modern world plays a vital role in acquiring all much-needed resources on time and in the amounts required. The RBV theory is therefore useful; because it can be used to measure and explain how the resources of an organization affect the process and practice of procurement. By adopting strategic procurement practices in acquisitions of healthcare items, the efficiency of health services delivery will be greatly improved.

With increasing competition for supply sources, quality of products and service and tendencies towards cost reduction, this study will explore on how resource capacity such as trained and qualified personnel, financial resources, ICT and institution's policies, values and strategies in most organizations can be used adopted strategic procurement practices which involves strategic sourcing, inventory optimization, supplier relationship management and green procurement practices for sustainable competitive advantage and growth through improved quality and efficiency of products and service delivery. Healthcare sector being a sensitive field of practice, hospital management has to ensure the improvement of its strategic decisions one of which covers the utilization of resources and acquisition of medical supplies to ensure the availability and affordability of healthcare services by all patients at all times.

2.1.4 Stakeholder Theory

The conventional explanation of a stakeholder is any group or solitary persons who influences or is influenced by the organization's achievements and objectives (Freeman 1984). The

universal idea of the stakeholder theory is the re-conceptualization of the organization. Friedman (2006) states that the organization itself should be thought of as a grouping of stakeholders and the purpose of the organization should be to manage interests, needs, and viewpoints.

In the healthcare sector, these stakeholders may include but not limited to; medical personnel support staff, NGOs, environmentalists, government, senior management, patients and suppliers of various goods and services. Each of these stakeholders plays a vital role in healthcare delivery and is affected or affects the sector directly or indirectly. The government's responsibility is the allocation of funds for the procurement of required medical items, supplies, and services as well as the formulation of policies and laws concerning healthcare management in the country. Medical personnel and top management are charged with ensuring the availability and accessibility of medical equipment, personnel, drugs, and services always and administering to patients. Suppliers, on the other hand, are tasked with supplying the required services and medical items in conformance to specified standards of quality and costs under contractual agreements. Patients who are the center focus of the healthcare system require these services and drugs whenever they fall sick and therefore the services, drugs, equipment, and personnel should be available, accessible, and affordable at all times.

Stakeholders' theory is applied in this study to explain how stakeholders' expectations affect the critical decision and strategies adopted by Kenyatta National Hospital in the provision of healthcare services. This is because the management decision in sourcing plans, budgetary allocation and cost control, inventory management, supplier, policies, and medical practices management, are often influenced by these stakeholders,

2.2 Empirical Literature Review

The strategic relationship with suppliers begins long before the first order is placed as noted by Carr and Pearson, (2002), and continues well beyond the receipt of goods. This relationship is far different from the transactional tactical supplier relationship. Strategic relationship management goes beyond procuring products and services. It seeks to maximize the benefit for both suppliers and customers and identify and implement mutual successes that will benefit both parties (Stephan & Dalpe, 2005).

SRM recognizes that different relationships will be required with different suppliers/providers. Kai, V. (2006) on the other hand believe that this type of relationship will depend largely on the criticality and/or value of the goods or services they supply, and factors such as the number of suppliers in the market, and the global availability of a requirement. It allows procurement function to develop strategies for dealing with suppliers to achieve ongoing value for money and reduce the risk of poor performance or non-delivery or non-availability. It allows the procurement organization to focus effort on the right suppliers and ensures they are not being managed by their supplier.

For many suppliers, it will not be necessary to spend significant resources building a relationship, and an operational-type management style will be sufficient, but for others, it may be necessary to enter full relationship management. This will not be a simple option but it requires a drive for continuous improvement and on-going communication management, cost management and benchmarking to effectively and efficiently realize its potential (Nantege G. 2011), SRM allows procurement officers to develop strategies for dealing with suppliers to achieve ongoing value for money, and reduce the risk of poor performance or non-delivery or non- availability, (Rwoti, 2005).

According to study by (Magnus, 2006) on developing strategic procurement process, opines that an organization practicing strategic procurement stands to benefit from ; an overall reduction of quality costs by ensuring that the selected suppliers deliver the products of services that do not need extensive quality control, contribution to product and service innovation as most innovations in public institutions comes from suppliers and buyers, reduce stock levels by imposing a solid discipline on suppliers and enforce it.

2.2.1 Critique of Existing Literature Review

Mustaffa & Potter (2009) on their study of healthcare supply chain management with a case study of Malaysian health sector contends that consequently, the long term impacts of overstocking may become as expensive as the effects of under stocking in which both scenarios lead to unavailability of medical services and medicines and death of patients in the process. According to research study by Vries & Huijsman (2011) on Supply chain management in health services an overview' of Supply Chain Management and reveals that under stocking of medicines can result in increased dissatisfaction of medical personnel i.e. physicians and surgeons, can delay treatments such as surgery and in a worst-case scenario

can lead to death of patients. On the contrary, he suggests that overstocking can result in increased carrying costs, inventory costs and storage costs. However, these studies failed to indicate the approaches that ought to be adopted in the public healthcare sector to minimize these costs as well as ensure adequate available stocks of drugs, medical supplies, and equipment.

Wanjau, Beth, & Eunice, (2012), did a research on factors in which will be affecting provision of service quality in the public health sector Kenyatta National Hospital, they cited general employees training and staffing, low acquisition of technology, communications channel and inadequate funds as the main factors delivery of quality health services to patients attending public health facilities and impacting the perception of health service quality, satisfaction and loyalty of patients. However, the study did fail to focus on other strategic functions that impact service quality and healthcare delivery in general such as strategic sourcing for drugs, medical supplies, and equipment which as a major effect on the quality of services offered. This is because the no- availability of the required supplies, drugs can cripple the hospitals' operations.

According to a study by Tam (2005) on examining dynamics of consumer expectations in Chinese technologies he indicates that quality in health services emanates in terms of advancement in technology, effective medication and qualified staff, to sufficient patient correspondence, effectiveness, cost-effectiveness, and efficiency in service delivery. Similarly, Argote (2010) did a study on organizational training, creating, retaining and transferring knowledge and viewed that there is very low standards of teaching in training schools for supplementary nurses very low as compared to standards in developed countries around the world thereby describing the low quality patients and community care. However, these two studies did not elaborate how these factors can be improved on so as to ensure quality service delivery in healthcare sector in Kenya hence developing a major knowledge gap for this study.

Mosadeghrad (2014), carried out a research on factors influencing health quality and indicated that productive management is a key actuator of quality from the providers viewpoint, managers, policy makers and equally the payers, he alludes that management affects everything inside hospital management and good ideas are pointless if people have the for quality improvement, where management is ineffective. Mosadeghrad did however did not expound on how this management failure can be improved on to alleviate the

quality of healthcare services, accessibility, affordability and efficiency of health care services to all patients and communities in Kenya.

Further study by Gatero (2011) on employment of ICT for accessing health information by medical professionals in Kenya : A case study of Kenyatta National Hospital evidenced that healthcare professionals in Kenya access to sufficient and dependable knowledge in ICT is compact. He further states that Kenya continues to face health threats for instance devastating effects of HIV/AIDS widespread, outspread of communicable diseases including Malaria, increasing levels of infant and maternal mortalities , very low levels of life expectancy and also declining health amenities. This study however failed to cite how these shortcomings in health sector in Kenya can be worked on such as adoption of better procurement strategies, policies, training and staffing so as to save and enhanced the quality of healthcare service delivery.

2.3 Summary and Research Gaps

In a research study by Mosadeghrad (2014) on factors influencing health quality the findings indicated that productive management is a key actuator of quality from the providers viewpoint, managers, policy makers, health personnel and equally the payers, he opined that management affects everything inside hospital management and good ideas are pointless if people have the for quality improvement, where management of ineffective. Mosadeghrad did however did not expound on how this management failure can be improved on in order to alleviate the quality of healthcare services, accessibility, affordability, and efficiency of health care services to all patients and communities in Kenya.

According to Mettler and Rohner (2010) on systematic review of supplier relationships in healthcare, they indicate that globalization, market fragmentation and technological advancements such as advanced data transmission and processing mechanism, has a significant effect on the value chains of highly competitive sectors. As innovation and huge opportunities for innovators in healthcare industry increase, the pressure to realize effectiveness and efficiency has continually increased due to emerging economic precepts such as lump sum for medical treatments that have been introduced in some jurisdictions to minimize health expenditure and enhance competition among the service providers. Mettler & Rohner also suggested that systematic management of interaction between healthcare providers such as hospitals and firms that supply products and services can enable a

healthcare institution in reducing costs and enhancing the quality of services delivered. However, the researchers failed to cite how this organizational-supplier relationship can be achieved.

According to a study and analysis on the role of SRM on the performance of Hospitals in Nairobi County by Komen & Ochiri (2016) the findings indicated there exists strong linear relationship between the performance of the hospitals and supplier selection, supplier development, supplier contracting and supplier development (SRM components). Furthermore, Komen and Ochiri (2016) recommended that institutions in the healthcare industry should focus on innovating and developing business strategies that investigate and enhance the capability of new technologies and resources in SRM through collaborative approaches that increases the probability of both the supplier and healthcare institutions enjoying a competitive advantage in the market. However, in their study, the researchers did not mention other aspects of SRM such as early supplier development, supplier selection and supplier evaluation and appraisal despite having a significant impact on the functionality of the SRM.

EPTA (2017) Environmental Consultants, in their green purchasing guide for hospitals in Athens, Greece validated that research on green purchasing, recent evidence has confirmed that health system activities are among the most impactful factors that create pressure on the environment. However EPTA failed to mention the aspects of sustainability, environmental and social standards in green procurement as well as other mechanisms to achieve green procurement in purchasing of drugs and medical supplies despite their key value in achieving healthcare delivery goals in hospital sector environment.

Similarly, Singh & Kumar (2011) investigated the role of inventory optimization for the efficient supply chain management. They indicate that proper inventory control is an important element of supply chain management that intends to minimize supply chain costs. They further cited reduction of supply chain costs can be achieved by controlling the inventory in an effective manner that ensures that players in the supply chain are not impacted by surplus as well as a shortage of inventory. Therefore, inventory optimization refers to effectively coordinating and integrating different firms with varying objectives towards common goals. However, main challenge in inventory optimization is the maintenance of enough stock to meet the expected pattern of demand, and guarantee a reasonable balance between the cost of holding the products in the inventory and the cost of

losing sales as a result of stock-outs (Singh & Kumar, 2011). But this study felt short by not mentioning how inventory optimization can be realized not only through optimized inventory control but also through demand and supply as well as lead times reduction.

According to Kwon, Kim, and Martin (2016) who assessed the strategic areas for quality and financial improvement in healthcare supply chain management. Their study focused on strategic areas and instances where strategic sourcing may be used to enhance the efficiency of healthcare delivery with the cost per patient. They found that adoption and maximization of strategic sourcing maximizes the revenue of the healthcare industry, enhances the understanding of the supply chain, and improves the deployment of logistics tools. The study did however fail to discuss strategic sourcing tools such as sourcing plan, budgetary allocation and supply market assessment as key variables of strategic sourcing yet it greatly determines the outcomes of strategic sourcing goals of hospital and overall healthcare delivery.

2.4 Conceptual Framework

According to (Stratman & Roth, 2004), a conceptual framework is a structured set of broad theories and ideas that help a researcher in properly identifying the problem they are looking at, frame their research questions and finding the suitable literature on their subject of study. Simply, put by (Mugenda & Mugenda, 2003) conceptual framework is a precise explanation of a situation or subject of the study accompanied by a diagrammatic or visual description of major variables of the study. The independent variables and their relationship to dependent variables are illustrated in the following figure 2.1.

Independent variables

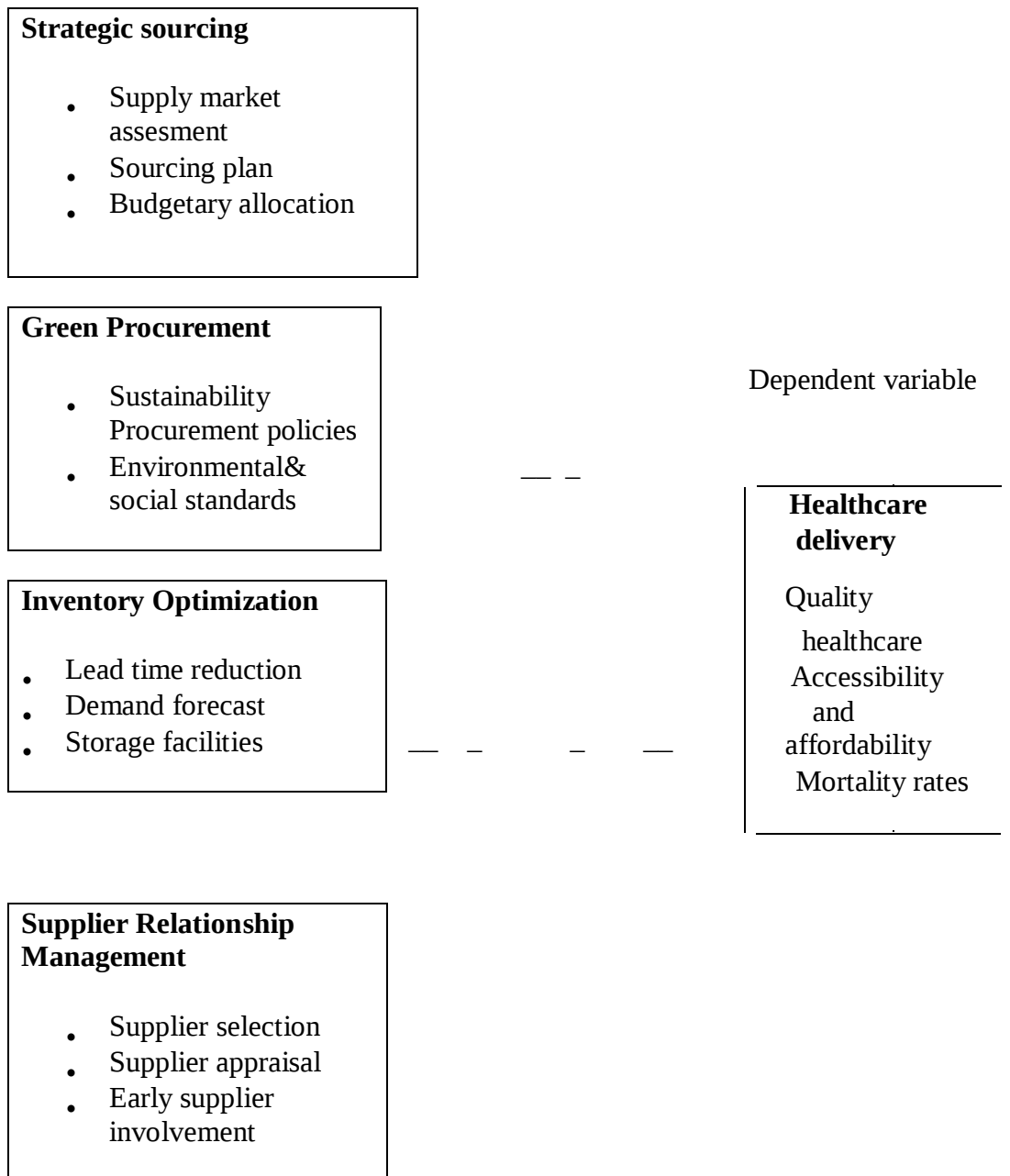


Figure 2.1: Conceptual Framework

2.5.1 Strategic Sourcing and Healthcare Delivery

Yokl, (2018, February 12) define strategic sourcing as a methodical and collaborative approach to leveraging expected spend throughout locations with specific suppliers that are evaluated and deemed best suited to develop understanding and benefits in the customer supplier interface. According to Yokl, as the field of procurement and supply chain management evolve and grow, the profession departs from 'purchasing agent' attitude in which staying in silos for procurement officers will be the norm to management of the entire supply chain in which the success of the profession and the entire organization depends on the cross-functional and cross-locational players. As a result of cross-sectional involvement, strategic sourcing is an organized process that is engraved in collaboration among various parties (Yokl, 2018). Collaborative efforts are key to strategic sourcing because, in addition to handling procurement involved in deciding and evaluating processes, successful endeavors of strategic sourcing entails guaranteeing functional elements of the supply chain and procurement process together.

As noted by (Knight et al., 2017), strategic sourcing is popularly employed by firms to maximize budget efficiency. They intimate that strategic sourcing still includes the historical analysis that entails identification of the commodities and services that have been purchased and resulted in the highest spend and establishment of contracts with suppliers that provided the product or service to reduce the overall price through the provision of quantity discounts. However, Knight et al. (2017), notes that historical spend analysis limits the data used hence rendering the entire process to basic transactional information that ignores corporate social responsibility objectives of the firm. For this reason, (Rafati & Poels, 2015) argue strategic sourcing overcomes the limitations of the historical spend analysis by recognizing that procurement is not just a cost function of a business but also promotes the efforts of the business to realize its long-term objectives. It is noted that strategic sourcing goes beyond spend analysis and is centered on other aspects of procurement and management such as supplier selection and evaluation, capability sourcing, and contract and relationship management. Therefore, strategic sourcing enables the firm to consider the potential of suppliers to co-create value, mediate the objectives and actions of internal and external stakeholders, and grow strategic supplier partnerships that surpass just complying with contractual agreement by innovating value co-creation activities between the organization and the suppliers (Nudurupati, Bhattacharya, Lascelles, & Caton, 2015)

Moreover, (Abdulsalam et al., 2015) posits that the provision of healthcare entails a complex system and trade-off between cost and quality of services. Due to recent attention that has been drawn towards the health sector supply chain, significant innovations and improvements that include the application of strategic sourcing techniques have been recommended to refine and improve the objectives of healthcare delivery (Abdulsalam et al., 2015). To align the objectives of the hospitals including social responsibility and provision of quality healthcare services, hospitals must endeavor to reduce cost per unit, improve operating efficiency and streamline the entire supply chain management. This can be achieved through application strategic sourcing to eliminate challenges of the healthcare industry such as stock-outs, profitability, and quality of service (Kwon, Kim, & Martin, 2016).

2.5.2 Green Procurement and Healthcare Delivery

World Health Organization (2017) defines green procurement as the adoption of ecologically responsible practices in the activities of the organization that ensures that the needs for the materials, utilities, goods, and services are met. Accordingly, the green procurement approach is an element of sustainable procurement practices in addition to ensuring that businesses heed to good corporate citizenship and social responsibility. Although in some jurisdictions green procurement is a requirement of the law, several firms sometimes make individual commitment to make purchasing-decisions that consider the ecological impact and positive public relations advantages that the organization may get. However, (Mbaabu, 2016) intimates that green procurement is a continuous commitment that should be inscribed throughout the procurement process. The wide crusade for the incorporation of green procurement in healthcare delivery has been primarily caused by environmental impacts and pressures.

Environmentally Preferable Purchasing (EPP), green procurement, eco-procurement, green purchasing or environmentally friendly purchasing, intends to reduce harm to human health and the environment by incorporating environmental concerns in all stages of the procurement or purchasing processes. According to (Iannuzzi, 2012), the reasoning behind EPP is that human health and environmental conservation are directly related thus improving one of them demands that the other be improved too. Accordingly, (Iannuzzi, 2012) argues that eco-procurement is not only about decreasing the damage to the environment but also enhancing human health. In fact, (Domanska, 2016) posits that by the fact their direct connection between a clean environment and human health, EPP is arguably mandatory for

hospital and other health institutions because their key role is to promote human health and improve the quality of life. Because public procurement is vital to most public hospitals due to their large size and consumption of large quantities of goods and services while at the same time generating a lot of will bête. By implementing green purchasing, these health institutions develop their use of goods and services that is safer, healthier, and more environmentally friendly while at the same time meeting their corporate social responsibility (Watson & Fisher-Bogason, 2017).

2.5.3 Inventory Optimization and Healthcare Delivery

Competitiveness in the contemporary marketplace is hinged on the ability of a firm to deal with the challenges of reducing lead-times and the associated costs while increasing customer service levels and quality of production. For instance, the marketing department's aim may be to attain a high customer service level as well as generating high sales volume but this may contradict the goals of production and distribution units. In most cases, sourcing decisions are usually driven towards minimization of the cost of goods while production and production and distribution decisions focus on maximization of output and minimization of production costs without considering high inventory levels or long lead-times (Plinere & Borisov, 2015). To strike a balance among the contradicting objectives of various units of an organization, and focus on the objectives of the firm, the concept of inventory optimization is introduced.

The healthcare sector, from hospitals and labs to clinics use a wide range of specialized equipment, medications, and materials to serve clients. The management and organization of these medical supplies depend on proper supply chain management and can be maximized by employing inventory management. In cases where inventory is not properly tracked, the operations of the hospitals or subsidiary healthcare institutions may be affected adversely. Moreover,. As the demand increases, the biggest challenge for the healthcare supply chain professions becomes finding efficient and effective ways to enhance and optimize institutions' inventory. Additionally, a significant portion of the healthcare inventory faces perishability and disposability hence forcing supply chain managers to find a comprehensive mechanism of keeping optimal inventory (Leaven, Ahmmad, & Peebles, 2017).

Similarly, (Hamlett, 2018) posits that unlike other organizations, healthcare firms have more reasons to manage their inventory effectively, including tracking implantable devices, complying with the contracts and protecting the investment. Generally, the benefits that

emanate from having effective ways of controlling the inventory outweigh the cost resulting from implementing an inventory optimization system. The first advantage of inventory optimization in the healthcare industry is the protection of investment. Surgical equipment represents the better part of the investment for most healthcare firms. Due to high costs associated with the acquisition of these instruments in addition to availability difficulties, continuity of operations is dependent on effective inventory management. Effective inventory optimization enables healthcare organizations to track the availability of the equipment and how they are being used hence reducing the opportunity for loss and theft. Besides, Hamlett (2018) acknowledges that inventory optimization promotes effective management of rotations of surgical tools between surgery, sterilization, and storage. Besides, inventory optimization enables medical device tracking and contract compliance. For quality standardization and compliance, most healthcare institutions run implantable devices such as aneurysm clips and cerebral spinal fluid stents. The devices ensure that medical equipment follows strict manufacturing guidelines for documentation and movement. Effective inventory optimization and management through an optimal inventory control system allows firms to determine the specific implantable device used on a specific patient for a given operation. Ultimately, contract compliance is enhanced, and dispute resolution process hastened (Hamlett, 2018).

2.5.4 Supplier Relationship Management and Healthcare Delivery

Daniel (2018) defines supplier relationship management as a systematic approach of analyzing the contribution of the suppliers and their influence on the success of an organization and assessing necessary tactics to maximize the performance of the suppliers while developing strategies needed to implement the findings of these assessments. Supplier relationship management ensures a positive buyer-supplier relationship and promotes determination of which activities to engage in with a particular supplier. (Akiki, 2018) notes that relationship management should be the main focus of every organization as it promotes the reduction of the expenditure, reduces inefficiency, enhances loyalty and improves value to both the supplier and the organization. Although experts recommend supplier relationship management in almost all aspects of supply chain management, a lot of studies have been carried to explore the contribution of supplier relationship management in healthcare. .

Komen & Ochiri (2016) examined the role of SRM on the performance of Hospitals in Nairobi County. To determine the extent of influence of the various aspect of SRM on the performance of the hospitals studied, they performed a multiple regression analysis to test the

connection between SRM aspects with the delivery of the institutions. From the findings of the analysis there exists strong linear relationship between the performance of the hospitals and supplier selection, supplier development, supplier contracting and supplier development (SRM components). Consequently, Komen and Ochiri (2016) recommend that institutions in the healthcare industry should focus on innovating and developing business strategies that investigate and enhance the capability of new technologies and resources in SRM. SRM strategies eliminate unnecessary costs, accelerate financial returns and streamline the supply chain of the healthcare sector. Specifically, cost reduction and quality improvement are achieved through the cultivation of positive relationships and implementation of approaches that collaboratively address supply chain challenges, and in the process improve efficiency. For this reason, Komen and Ochiri (2016) argue that a collaborative approach increases the probability of both the supplier and healthcare institutions enjoying a competitive advantage in the market. Similar to Mettler and Rohner (2010), Komen and Ochiri (2016) intimate that the benefits of SRM in healthcare delivery can be enhanced by encouraging partnerships between hospitals to ensure the availability of comprehensive information necessary in making decisions related to suppliers.

2.5.5 Healthcare Delivery

Health is included in Vision 2030 as a social pillar in which the country's aim to provide an efficient integrated and high-quality affordable healthcare for all citizens with a priority given to preventive care at the community and household levels using a decentralized national healthcare system strategy. However, in Kenya, supply and availability of medical items and drugs are still an unknown system with devolution worsening the situation with county-level hospitals being affected by a lack of adequate drugs and medical supplies (Mselle et al, 2013).

It is estimated that 99% of all deaths due to inappropriate equipment and drugs occurs in developing countries especially in rural areas. Adequate health services involving emergency care to the public could lead to a drastic reduction in deaths. The government of Kenya in collaboration with other sector players has produced medical supplies and equipment manual that remains critical in addressing some of these challenges. The manual applies to all healthcare levels as a reference for responsible procurement and management of medical supplies and equipment (Granehein & Lundman 2004).

In the past, healthcare sector, more so the public, focuses on customer service as an independent, non-vital activity which will be best to the professional scrutiny and decisions of physicians where required. But currently, there is adoption of a model of organization in which the patients affect every activity (Glickman et al., 2007). Organizations operating in public sector, takes up the challenge of huge structural development, encountered and still facing hindrances in the full and efficient implementation of these services (Glickman et al., 2007). Management of healthcare systems has in the past been to some extent incapacitated, incoherent, and mostly controlled by supply, thereby throwing patients on the outside sphere, improvement and also delivers process. (Berenson & Cassel, 2009)

2.6 Chapter Summary

The chapter covers a literature review to identify knowledge gaps. The section describes the theories relevant to the role of strategic procurement practices in healthcare delivery, the conceptual framework of the study variables. The review on conceptual framework indicates that healthcare delivery is functioning dependent on strategic sourcing, green procurement, supplier relationship management and inventory optimization among other variables. This research study intends to explore the research gaps on the above variables identified through empirical and critique of existing works of literature to determine their contribution to healthcare delivery and suggests possible areas for improvement and future studies.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This is the backbone of the research study. This chapter explores the research design and methods to be used in the study. It consists of research design, population, sample size and sampling techniques, data collection method, and data collection procedures and data analysis

3.1 Research Design

Research design is the strategy used by a researcher in collecting and analyzing data to answer the research questions and objectives of the study Kerlinger (1969). This study adopted a descriptive research design. Orodho (2003), contents that a descriptive survey is a method of collecting information by either interviewing or administering questionnaires to a sample of the population to describe observations and examine the findings to propose conclusions to a study. In this case, the correlation between the roles of strategic procurement practices as the independent variable and healthcare delivery as a dependent variable.

According to Kothari (2001), descriptive design is mostly preferred because it is economical in terms of time and cost. Administration of questionnaires allows for utilization of elements of both qualitative and quantitative data within the same study and therefore allows the researcher to compute the findings to the entire population in a research area

3.2 Target Population

Mugenda (2003) and Orodho (2005) define a population as a well- defined or set of people, elements, group of objects, households, services, events, or things that a researcher intends to investigate. The Population of focus in this study will be employees of Kenyatta National Hospital in Nairobi. This study will target 200 employees in the supply chain management department who will be distributed into Six (6) supply chain divisions i.e. procurement administrative services, procurement clinical services, contract management tender secretariat, logistics and warehousing, management inspection unit and supply chain at KNH

3.3 Sampling frame

Gallardo, Lachlan, and Davis (2012) posited that the sampling frame is that part of the population that can be identified and accessed during a study. In the study, the sample frame consisted of 200 employees from supply chain department Kenyatta National Hospital. According to Cooper and Schindler (2006), every sample must have a non – zero probability of selection. The sample frame table is as shown table 3.1:

Table 3.1

Sampling frame

Category	Population
Procurement administrative services	40
Procurement clinical services	53
Contract management tender secretariat	48
Logistics and warehousing	50
KPCC Supply chain	8
Total	200

3.4 Sample Size and Sampling Techniques

The sample size is a subset of the study population and it's necessitated when the population of the study is relatively large (Kothari 2004). This research work adopted 30% of the employees from selected divisions in supply chain departments of Kenyatta National Hospital as proposed by Mugenda and Mugenda (2003) and Cooper et al (2014). Additionally, a sample of 30 % is adequate for educational research and a decent representation of the target population. Sampling design or techniques is described as one the represents the framework within which sampling occurs (Onwuegbuzie & Collins, 2007. To constitute a structured sample, the study adopted stratified random sampling method. Since the population to be sampled based on supply chain. The sample size is represented in table 3.2:

Table 3.2***Sample size***

Category	Population	Sample Size
Procurement Administrative Services	40	5
Procurement Clinical Services	53	8
Contract Management Tender Secretariat	48	7
Logistics & Warehousing	50	8
KPCC supply chain	9	3
Total	200	31

3.5 Instruments and Pilot Study

Instrument is a tool used to aid in data collection. The choice of a suitable tool is dependent on research objectives, questions and also the nature of data (quantitative or qualitative) in the study (Mugenda and Mugenda, 2003). This study adopted the use of questionnaires as a tool for data collection for this study. This is because questionnaires can reach a large number of people more so the targeted population relatively, easily and economically. It also provides answers which are quantifiable, relatively easy to analyze and less time consuming as compared to other tools such as interviews. The questionnaires were divided into two sections (A &B) containing open and closed-ended questionnaires. Section A will cover demographic details of the respondents while section B will cover the variables under this study.

3.6 Data Collection Procedures

Data collection procedures are the steps followed in the data collection process for any given study. It outlines the process of obtaining the required information on the variables of the study. The researcher will first sought an introductory letter from Jomo Kenyatta University of Agriculture and technology as a way of seeking permission to conduct a research study at Kenyatta National Hospital and thereafter permission will be sought from the top management of the hospital to research within the institution. Drop and pick self-administered questionnaires was used in administering questionnaires to the sampled population. This method allowed respondents to use their free time and respond to questions and complete the questionnaires based on their views, experience, and vast knowledge in the

field of healthcare procurement. This information was supplemented with secondary data obtained from relevant sources which include PPRA, magazines, journals, or any other relevant literature.

High levels of discreteness were assured to all respondents to enhance transparency when filling the questionnaires given. The researcher will approach all respondents in their respective workstations to explain to them the purpose of this study and help them understand why they should fill the questionnaires.

3.7 Data Analysis and Presentation

Data analysis is the process of scrutinizing the data that has been collected in a survey or experimental studies and making deductions and conclusions (Kombo and Tromp 2009). The questionnaires will be examined for accurateness, uniformity and checked for errors and omissions and then coded. Quantitative data collected will be analyzed by the use of descriptive statistics to generate percentages, means, standard deviations and frequencies. This was by tallying up the responses, computing percentages of variations in response as well as describing and interpreting the data in line with objectives of this study. Tables and other diagrammatic presentations will be used to present the data for ability of understanding and analysis. Statistical packages for social sciences (SPSS) version 24 will be used as the main tool for data analysis because it is a comprehensive tool for analyzing data and can take data from any type of files and then to generate descriptive statistics, complex statistical analysis, tabulated reports, distributions, trends and so on (Mugenda and Mugenda, 2003).

3.8 Chapter Summary

The chapter covers the research design and methods used during the study. It has explained various areas into details include: the research designs, target population, sampling sizes, its instruments, data collection procedures and data analysis and presentation.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.0 Introduction

This chapter describes the analysis of the data and the subsequent discussion of the findings of the study. Although the findings of the study and discussion related to the research questions and objectives that guided the study, some demographic variables such age, educational level and years of service were examined to evaluate for any impact on the findings of the research. The data was analyzed to establish, evaluate and describe the role of inventory optimization, strategic sourcing, supplier relationship management and green procurement in health care delivery.

4.2 Response rate

The research targeted 31 employees from the department of procurement and supply chain management at Kenyatta National Hospital. Among the 31 questionnaire issues, 28 were filled while 3 were returned unfilled. Accordingly, the study realized approximately a 90% response rate. As intimated by Mundy (2002), a response rate of 60% is acceptable while a response rate of 90% is excellent at minimizing sampling bias. Therefore, with a response rate of 90% shown in Table 1, the collected data was sufficient to provide valid inference regarding the role of strategic procurement practices in health care delivery:

Table 4.2:

Response rate

Respondents	Frequency	Percentage (%)
Filled in questionnaires	28	90.0%
Unfilled questionnaires	3	10.0%
Total	31	100%

4.3 Descriptive analysis of data

4.3.1 General information

In addition to the main variables of the study that relate to the research questions, the study examined some demographic information that relates to the respondents. The demographic variables included gender, educational level, years of experience, and designation. The variables are essential in enhancing the quality and the future implication of the study findings by validating the credibility and reliability of the data collected and the subsequent findings.

4.3.1.1 Gender

As shown in Figure 1, 68% of the respondents were men while 32% of the respondents were women. This implies that many of the sampled employees at the Department of Procurement and supply chain management at Kenyatta National Hospital were women.

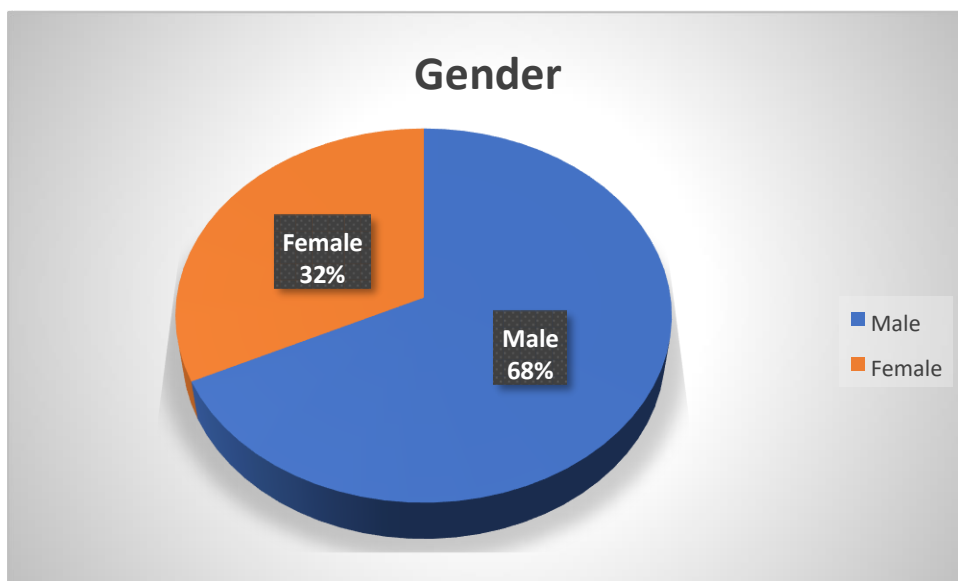


Figure 2: Gender Distribution

4.3.1.2 Education level

Majority of the respondents were bachelor's degree holders while the least held PhD. This is represented by 50% and 4% of the respondents, respectively; moreover, 25%, 14% and 7% of the respondents had masters, Diploma, and certificate, respectively. The findings, as depicted in Figure 2, demonstrate that respondents were literate and academically well-equipped hence

can provide credible and reliable information concerning the role of strategic procurement practices in healthcare delivery.

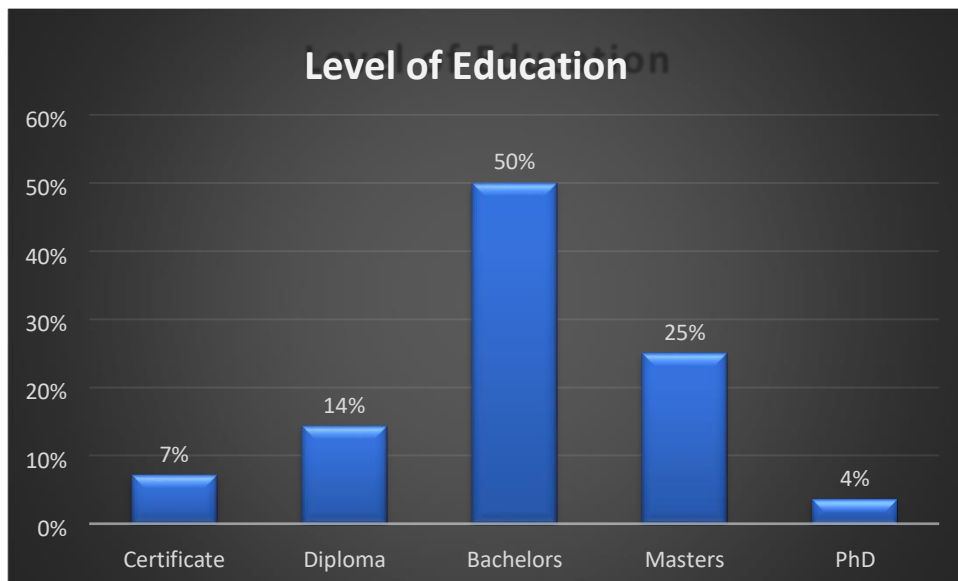


Figure 3: Level of Education

4.3.1.3 Years of service/working period

It was established that 47% of the respondents had an experience of between 1 and 5 years. Respondents with 6 to 10 years of experience accounted for 21% of the respondents while those with less than 1 year of experience represented 18% of the respondents. Only 14% had an experience of 10 years. Given that 86% of the respondents had more than 1 year of working experience, most respondents had sufficient information regarding the supply chain management department at KNH.

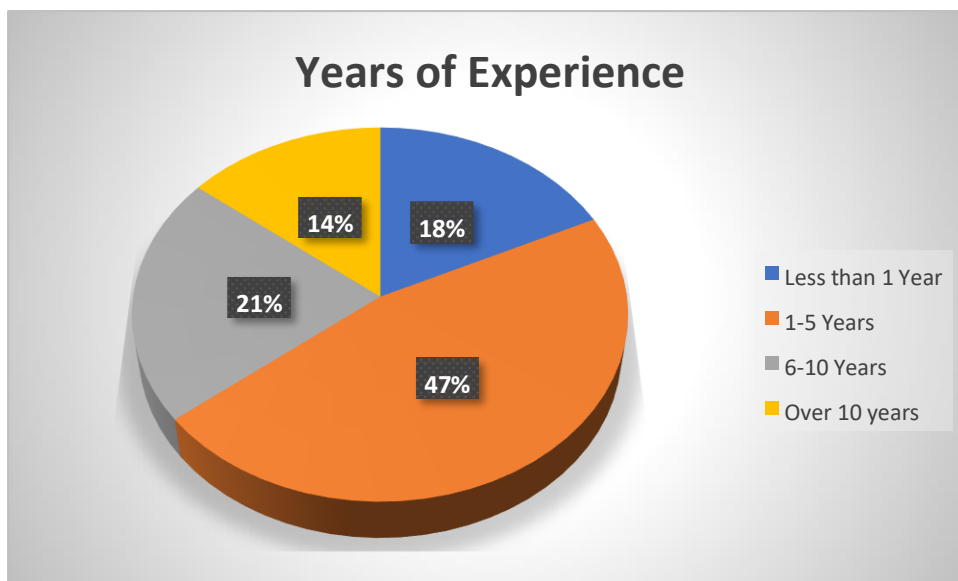


Figure 4: Years of Experience

4.3.1.4 Levels of Management at Kenyatta National Hospital

The findings of the study illustrate Supply Chain Management Assistant represented 36%, Supply Chain Management Officer II represented 21%, Supply Chain Management Officer I represented 18%, Senior Supply Chain Management Officer represented 14%, Chief Supply Chain Management Officer II represented 7% while Chief Supply Chain Management I represented 4% of all respondents in the study. Accordingly, many respondents were Supply Chain Management Assistants as demonstrated in Table 4.2. Besides, 64% of the respondents were derived from higher levels of management (than SCM assistants) thus enhancing the credulity and reliability of the data collected:

Table 4.2

Levels of management

Category	Frequency	Percentage
Chief Supply Chain Management Officer I	1	4%
Chief Supply Chain Management Officer II	2	7%
Senior SCM Officer	4	14%

SCM Officer I	5	18%
Supply Chain Management Officer II	6	21%
Supply Chain Management Assistant	10	36%
Total	28	100%

4.4 Strategic Procurement practices

The study sought to establish the contribution of strategic procurement practices in healthcare delivery. Given the expansiveness of the parameters that constitute health care delivery and each strategic procurement practice, metrics of health care delivery such as quality of healthcare, affordability, and mortality rates, among others, was examined. Similarly, on the research questions and objectives guided the strategic procurement practices evaluated; the constituents of each practice were examined to establish their contribution to healthcare metrics.

4.4.1 Strategic Sourcing

As demonstrated in Table 4.3 shows that 46% of the respondents intimated conduct supply chain market evaluation is incredibly important in providing quality healthcare. Similarly, 29% agreed that carrying out supply market assessment, a component of strategic sourcing, was vital towards a quality healthcare delivery. Accordingly, 75% of the respondents agreed that supply market assessment is an important element of quality healthcare delivery. Additionally, 61% of the respondents noted that, in addition to enhancing the quality of healthcare, supply market assessment positively contributed to the affordability of healthcare services at KNH. Among the elements of strategic sourcing evaluated, 1005 of the respondents agreed that budgeting and resource planning is vital in the provision of quality healthcare delivery. Besides, 85% of the respondents consider proper budgetary utilizations to be a fundamental factor in enhancing accessibility and affordability of healthcare services at KNH. Generally, more than 60% of respondents intimated that strategic sourcing played a positive and significant role in refining the healthcare delivery. When asked how to give an opinion on the role of strategic sourcing towards efficient and effective healthcare delivery, majority of respondents from the top level of management sampled replicated elements in Table 4.3 while some were left the question unanswered.

Table 4.3***Strategic Sourcing and Healthcare Delivery***

Elements of Strategic Sourcing and Healthcare Delivery	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Conducting supply market assessment is vital towards Quality healthcare.	46%	29%	11%	7%	7%	100%
Supply market assessment enhances accessibility to and Affordability of healthcare.	36%	25%	21%	11%	7%	100%
Accuracy of supply market assessment provides for the critical decision of healthcare requirements leading to Reduction in mortality rates.	39%	46%	14%	0%	0%	100%
Budgeting and resource allocation is essential for Medical requirements a key input quality healthcare.	79%	21%	0%	0%	0%	100%
Proper budgetary utilization reduces inaccessibility The un-affordability of healthcare.	71%	14%	7%	7%	1%	100%
Proper utilization of budgets enhances timely response to Patient medical needs hence reduced mortalities.	64%	21%	7%	1%	7%	100%
Sourcing plan ensures timely acquisition of medical supplies and services hence quality healthcare.	75%	18%	7%	0%	0%	100%
Lack of sourcing plan impedes access to affordable healthcare.	68%	29%	3%	0%	0%	100%
Full implementation of sourcing plan aids in availability	89%	11%	0%	0%	0%	100%

of drugs resulting in the reduction of mortalities rates of patients.						
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According to Engel, (2004), source planning, proper utilization of budgets, accurate supply market evaluation, and budgeting resource allocation are some of the major elements of strategic sourcing model in supply chain management. The findings of the study indicate the employment of strategic sourcing in the healthcare sector is likely to overcome some of the challenges that the industry has faced such as untimely response to patients' medical needs, unaffordability of healthcare services, high mortality rates due to poor response time and overall poor quality healthcare service. Given that findings of the study demonstrate that employment sourcing enhances the affordability of healthcare delivery, the present study support that the argument of Knight et al. (2017) that strategic sourcing promotes budget efficiency and subsequent reduction of operational costs. Furthermore, Kwon, Kim, and Martin (2016) note that the application of strategic sourcing practices such as accurate and comprehensive supply market evaluation maximizes the revenue of the healthcare industry. With an increase in revenue, the healthcare providers are likely to enhance the quality of equipment and/or reduce the cost of healthcare services as noted by 75% of the respondents (Table 4.3).

However, as shown in Table 4.3, 14% of the respondents disagreed with the statement that conducting supply chain market assessment is important in enhancing the quality of healthcare delivery while 11% were undecided concerning the impact of supply chain market assessment. This may either be as a result of the knowledge gap in relation to strategic sourcing. This is further illustrated by the huge number of respondents who left the open-ended question on strategic sourcing unanswered. Even so, it may not necessarily imply knowledge gap but lack proper terms to define strategic sourcing practices.

4.4.2 Green procurement

Table 4.4 summarizes the findings of the study on the role of green procurement in healthcare delivery. Only 14% of the respondents strongly agreed that the adoption of sustainable procurement practices enhances the availability of medical services and supplies hence quality healthcare. Similarly, a total of 25% intimated that green procurement has no role in healthcare delivery. However, majority of the respondents, 43%, neither agreed nor disagreed

with the contribution of sustainable procurement practices in enhancing the availability of medical services and supplies. Accordingly, only 32% of the respondents indicated that the adoption of sustainable procurement practices has a positive influence on the quality of healthcare delivery. However, when it comes to if observation of environmental and social standards in procurement has a positive impact on the quality healthcare delivery, 68% of the respondents agreed while only 3% disagreed with the statement. Besides, the proportion of the respondents that neither agreed nor disagreed with the statement reduced from 43% to 29%. Contrarily, the majority of respondents disagreed with the statement that environmental and social standards promote accessibility and affordability of healthcare services. This accounted for 40% of the respondents. 35% of the respondents were of the view that environmental and social standards promote accessibility and affordability of healthcare while only 25% of the respondents neither agreed nor disagreed with the statement. Relatively to other elements of green procurement and healthcare delivery analyzed, the statement asserting that the adoption of proper environmental and social standards lead to a reduction in mortality rate received high support from the respondents. A total of 79% of the respondents agreed with the statement while only 7% disagreed. Additionally, the statement recorded the smallest proportion of neutral responses with only 14% neither agreeing nor disagreeing.

Table 4.4

Green procurement & Healthcare Delivery

Elements of Green procurement and Healthcare Delivery	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Adoption of sustainable Procurement practices and policies enhance the availability of medical services and supplies hence quality healthcare.	14%	18%	43%	11%	14%	100%

Observation of environmental and social standards in Procurement positively contributes to quality healthcare delivery.	25%	43%	29%	3%	0%	100%
Environmental and Accessibility and affordability of healthcare.	14%	21%	25%	21%	19%	100%
Adoption of proper environmental and social standards leads to a reduction in mortality rates.	43%	36%	14%	7%	0%	100%

Whereas the study findings indicate that there is divided opinion regarding the role of green procurement in healthcare delivery, the findings of the study suggest that some aspects of healthcare delivery are more impacted by green procurement than others. For instance, where 79% of the respondents noted that adoption of environmental and social standards resulted in a reduction of mortality rate, only 35% of the respondents held the view that adoption of environmental and social standard enhanced accessibility and affordability of healthcare. This is line with the findings of EPTA (2017) that indicate that healthcare system activities are among the most impactful factors that put pressure on the environment through the emission of green gases, high consumption of water, and production of convention waste hence posing a serious health risk. Accordingly, the adoption of environmental standards is likely to increase the quality of life and subsequently reduce the mortality rate.

The fact that majority of the respondents did not acknowledge the contribution of green procurement in promoting access to affordable healthcare services can be explained by lots of scrutinizes that all initiative that proves costly at early stages receive in any organization. Besides, cost reduction and green procurement initiatives, some extent, maybe related directly. But in the long run, given that environmental conservation enhances the health status of the population, pressure on the health system is reduced hence reducing the cost of healthcare services.

4.4.3 Inventory Optimization

From the analysis output demonstrated in Table 4.5, more than 60% of the respondents indicated that elements of inventory optimization such as lead time reduction, reduction of long supply pipelines, lead times on deliveries, demand forecast and improve storage facilities enhance healthcare delivery metrics such as affordability, quality and accessibility. For instance, 57% of the respondents strongly agreed with the statement that leads time reduction procurement serves to promote realization fo timely and quality healthcare. In total, 71% of the respondents provided that lead time reduction has a significant positive impact on the quality of the healthcare of services and faster accessibility. Though with small variance, the trend was replicated across other elements of inventory optimization examined with proper storage facilities contributing to accessible and affordable healthcare services registering the highest positive response of 89%.

Table 4.5
Inventory Optimization

Elements of Inventory Optimization and Healthcare Delivery	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Lead time reduction in procurement serves to ensure realization of timely and quality healthcare.	57%	14%	4%	11%	14%	100%
Longer lead times impede accessibility and affordability of healthcare services.	46%	11%	39%	0%	4%	100%
Reduction of long supply pipelines and lead times on deliveries reduce mortality rates	39%	39%	14%	8%	0%	100%

Accuracy in demand forecast of the hospital needs leads reduction in mortality rates	61%	18%	11%	4%	6%	100%
The accurate demand forecast is critical towards quality healthcare.	57%	21%	18%	0%	4%	100%
Accurate demand forecast improves accessibility and affordability of hospital services.	36%	32%	14%	7%	11%	100%
Storage facilities of drugs and medical supplies are crucial for the provision of quality healthcare.	68%	11%	4%	11%	6%	100%
Proper storage facilities drugs provide for accessible and affordable healthcare.	50%	39%	4%	4%	3%	100%
Having a good storage unit for drugs and medical supplies improves responses to medical need hence reduction in mortality rates.	46%	21%	14%	4%	14%	100%

The findings of the study agree with the presentation of Jiang, Xing, Ho & Zhou (2015) that demonstrate that competitiveness in the current dynamic market placed is found on the ability of an organization to deal with challenges associated with a reduction of lead time and the subsequent cost reduction and improvement of quality of services. As illustrated in Table 4.5, the better part of the respondents posited that reduction of lead time, which a core mandate of inventory optimization, results in enhancement of the quality and affordability of healthcare services. This through balancing decisions between sourcing and that relate to the production and distribution of services. Whereas the former is concerned with the minimization of the cost of goods and services, the later concentrate on the maximization of the output and

minimization of the production costs (Plinere & Borisov, 2015). According, the results in Table 4.5 are consistent with findings of Sing & Kumar (2011) who note that the balance can be arrived at by employing inventory optimization techniques that facilitate effectively control inventory while ensuring that surpluses or shortage of stock is not experienced. The indication by respondents that reduction of lead times, proper storage facilities and accurate demand forecast increase the affordability, accessibility and quality of healthcare services is further explained by Davidson (2017). The author notes that improper management of inventory may cost an organization due high costs of inventory and time spent finding need products. Particularly in healthcare sectors, inventory challenges such as stock-outs are likely to result in fatalities hence justifying the high percentage of responses that consider inventory optimization approaches key in improving healthcare delivery (Hamlett, 2018).

4.4.4 Supplier Relationship Management

When the respondents were asked to indicate whether they strongly agree, agree, are neutral, disagree or strongly disagree with statements relating to supplier relationship management techniques and how they contribute to healthcare delivery, the following results in Table 4.6 were found. For all aspects of supplier relationship management examined, at least 57% of all respondents indicated that significantly and positively contributed to the improvement of healthcare delivery parameters. For example, 71% of the respondents indicated that supplier selection is critical in the provision of quality healthcare. Similarly, 57% of respondents noted that supplier selection enhances cost-saving and subsequently improve the accessibility and affordability of healthcare services. In general, more (78% & 68%) respondent agreed that efficient supplier appraisal was a critical element in health delivery and serves to improve suppliers' response, accessibility to healthcare services and reduction of mortality rate.

Table 4.6

Supplier Relationship Management

Elements of Supplier Relationship Management and Healthcare Delivery	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Supplier selection is critical in the provision of quality healthcare	57%	14%	4%	11%	14%	100%

Supplier selection is important in cost savings towards Accessibility and affordability of healthcare services.	46%	11%	39%	0%	4%	100%
Supplier selection serves to reduce mortality rates Through emergency response to patients.	39%	39%	14%	8%	0%	100%
Supplier appraisal serves critical in quality healthcare.	61%	18%	11%	4%	6%	100%
Efficient supplier appraisal serves to improve suppliers' response hence accessibility and affordability of services by patients.	57%	21%	18%	0%	4%	100%
Supplier appraisal provides for improved procurement and delivery of medical services towards reducing Mortality rates.	36%	32%	14%	7%	11%	100%
Early supplier involvement is essential in enhancing quality healthcare.	68%	11%	4%	11%	7%	100%
Early supplier involvement translates to costs savings for accessibility and affordability of healthcare services.	50%	39%	4%	4%	3%	100%

Early supplier involvement motivating suppliers towards improving healthcare delivery hence reduced mortality rates.	46%	21%	14%	5%	14%	100%
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Generally, the findings of the study illustrate that supplier relationship management as implemented through the exercising of efficient supplier selection; supplier appraisal and early supplier involvement improve the quality, accessibility and affordability of healthcare delivery. As noted by Daniel (2018), supplier relationship management systematically analyzes the contribution suppliers and how they influence the core business of an organization, and determine the necessary tactics need to maximize the performance of the suppliers. For instance, in the case of the healthcare sector, the healthcare provider has to determine how supplier delays may impact the patients and strike ways in which delays can be mitigated by promoting a relationship with suppliers. The result is that the supplier actively participates and understands the business of the organization. The findings of the study are consistent with arguments of Akiki (2018) that intimate that supplier relationship management should be the main focus of the organization as it promotes the reduction of unnecessary expenditure such as an urgent request for inventory, enhances loyalty and improves the value for both suppliers and the organization. This further explains why 89% of the respondents indicated that supplier relationship management translated into cost reduction while 67% of the respondents indicated it motivates the supplier. With the motivation of suppliers due to value addition and reduction of operating costs, the quality, affordability and accessibility to healthcare are enhanced.

4.4.5 Graphical View of Strategic Procurement Practices and Healthcare Delivery

To examine the overall contribution of strategic procurement practices on healthcare delivery, the respondents were asked to summarize their responses in Table 4.3, Table 4.4, Table 4.5 and Table 4.6 by indicating whether they strongly agree, agree, are neutral, disagree or strongly disagree that strategic procurement practices contribute towards the provision of healthcare delivery. With analysis purposes, Agree and strongly disagree were classified as ‘Agree’ while Disagree and Strongly Disagree were combined to form ‘Disagree’ as shown in Figure 4, the study findings indicate that inventory optimization (IP) has the greatest positive contribution to healthcare delivery with 85.71% of the respondents agreeing that IP positively

contributes to improvement of healthcare services. This was followed by strategic sourcing with 78.57%, supplier relationship management with 64.29% and green procurement with 42.86%.

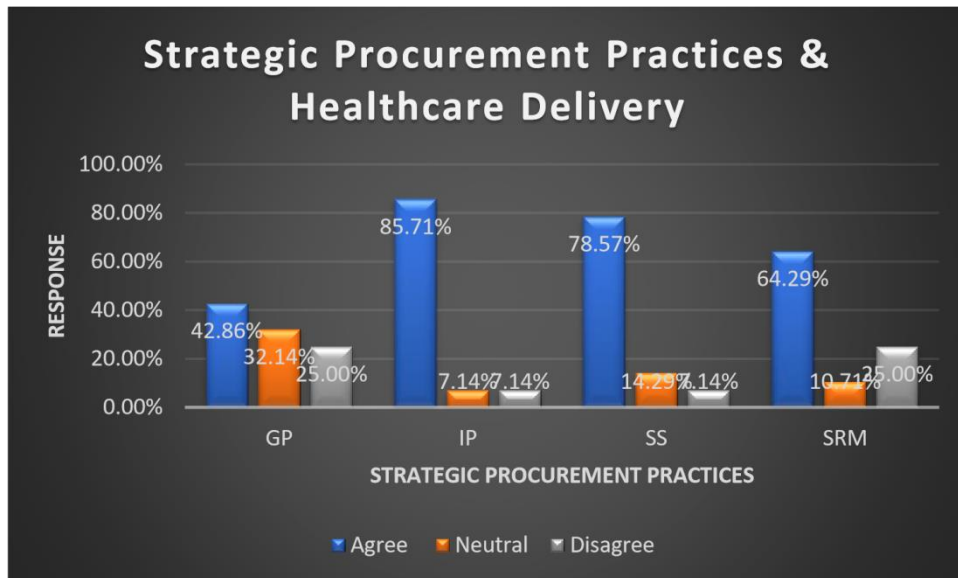


Figure 5: Strategic procurement practices & Healthcare Delivery

The study findings demonstrate that among strategic procurement practices, Inventory optimization is the most widely known and accepted, and its contribution to the enhancement of healthcare delivery identified. This results in line with Davidson (2017) that acknowledges that inventory optimization is one of the most common strategic procurement practices due to a direct relationship with service delivery. Besides, the low proportion (42.86%) of respondents that consider green procurement as having the least impact on healthcare delivery can be explained by Mbaabu (2016) argument that short term implementation of green procurement practices is always costly hence discouraging organization from implementing e-procurement techniques.

4.4 Limitation of the Study.

- i. Some of the employees were not cooperative during the study
- ii. The Kenyatta National Hospital is a busy place so finding the employees to respond to questions was not easy.
- iii. The research process is expensive and tiresome

4.5 Chapter Summary

This Chapter discussed the respondent rates of the employees of Kenyatta National hospital during the study. It has also explained the descriptive analysis of data on demographic variables such as gender, educational level and designation of the employees. Nevertheless, it has discussed the strategic procurement practices on healthcare delivery in details.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings provided in Chapter 4, concludes the study and provides a recommendation for further studies.

5.2 Summary of Findings

The primary aim of the study was to investigate the role of strategic procurement practices in healthcare delivery. In particular, the study examined how strategic sourcing, green procurement, supplier relationship management and inventory optimization influence healthcare delivery at Kenyatta National Hospital (KNH). The study was conducted among 31 out of 104 employees at the department of supply chain management at KNH. The data was collected using a structured questionnaire and analyzed and presented through tables, pie charts and bar graphs. For quality checks and enhancement of the credibility and reliability of the findings, some demographic variables among the respondents were examined. Some of the demographic variables examined include the level of management, gender, education level and years of experience. The study revealed that majority of the respondents was male. Besides, most respondents were sampled from top-level management in the department and had more than 1-year of working experience. The better part of the respondents held a bachelor's degree.

5.2.1 Strategic Sourcing

The findings of the study demonstrated that supply chain management acknowledges that strategic sourcing has a positive impact on healthcare delivery. Some elements of strategic sourcing were more accepted and were linked to the improvement of healthcare delivery than others. For example, whereas 100% of the respondents indicated that full sourcing planning resulted in a reduction of mortality rate, at least 18% of the respondents indicated that supply chain market assessment did not contribute to increasing of accessibility and reduction of cost of healthcare delivery.

5.2.2 Green procurement

According to the study findings, green procurement is viewed as had the least contribution to healthcare delivery. However, it is widely accepted that the adoption of environmental and social standards results in the reduction of mortality rate. Majority of respondents did not identify any connection between green procurement practices such as the adoption of environmentally sustainable procurement practices and accessibility and quality of healthcare services. Accordingly, the study revealed that there may be a knowledge gap concerning green procurement and its impact on healthcare delivery. This is furthermore demonstrated by a significantly high number of respondents that neither agreed nor disagreed with the contribution of green procurement in healthcare delivery.

5.2.3 Inventory Optimization

Among the variables examined, the study findings indicate that inventory optimization has the most significant impact on the enhancement of healthcare delivery. More than any other strategic procurement practice investigated, most respondents indicated that all inventory optimization practices examined had a significant influence on the accessibility, quality and affordability of healthcare.

5.2.4 Supplier Relationship Management

The study revealed that supplier relationship management plays a significant role in enhancing the quality, accessibility and affordability of healthcare services. Through practices such as critical supplier selection and early supplier involvement, challenges such as stock outs and poor-quality goods and services can be eliminated hence improving accessibility and quality of healthcare.

5.4 Conclusion

Based on the data collected and the subsequent findings of the study, it is concluded that strategic procurement plays a significant role in improving, streamlining and optimizing healthcare delivery. Particularly, strategic sourcing, green procurement practices, inventory optimization and employment of supplier relationship management positively and significantly influence healthcare delivery.

Strategic sourcing techniques such as conducting supply market assessment, accurate budgeting and resource allocation, proper budgetary allocation and implementation of sourcing planning reduces cost of operation, the quality of equipment and services procured, and minimizes wastages hence improving mortality rates due to availability appropriate equipment and services, enhancing affordability due lower cost of operation and boosting overall quality of healthcare delivery as a result of quality services, faster access and quality equipment.

Environmental conservation has been propagated by green procurement practices results in a healthier population hence reducing pressure on health facilities. Green procurement intends to reduce harm to human health and the environment by incorporating environmental concerns in all stages of the procurement or purchasing processes.

Moreover, inventory optimization mechanism such reduction of lead time in deliveries, accurate demand forecast, and proper storage facilities ensure that required drugs and equipment are available hence minimizing health care delivery challenges such as stock out and unavailability of equipment. Consequently, key metrics such as mortality rates (reduction), accessibility and quality are enhanced.

Lastly, in supplier relationship management, critical supplier selection and early supplier involvement add value to both the supplier and health care service provider hence motivating both parties to work towards realization of the goals of healthcare sector in a more efficient way through a mutual understanding of the needs and standards to be met and upheld, respectively.

5.3 Recommendations

The study has revealed the value that the application of strategic procurement practices can bring in the healthcare sector. Accordingly, the researcher recommends that public and private entities in the healthcare sector familiarize themselves with procurement strategic practices and implement them in their operations i.e. to align the objectives of the hospitals including social responsibility and provision of quality healthcare services, hospitals must endeavor to reduce cost per unit, improve operating efficiency and streamline the entire supply chain management. This can be achieved through application strategic sourcing to

eliminate challenges of the healthcare industry such as stock-outs, profitability, and quality of services.

The researcher calls upon policymakers to make some of the practices mandatory to health institutions through the formulation of new policies, especially for public hospitals, as part streamlining the health sector in the country. Public hospital needs to incorporate and implementing green purchasing to develop their use of goods and services that is safer, healthier, and more environmentally friendly while at the same time meeting their corporate social responsibility.

The researcher recommends that tertiary institution integrate strategic procurement course in their curriculum for medical students and related field given that they are actively involved in making supply chain decision in the healthcare sectors. For example, to strike a balance among the contradicting objectives of various units of an organization, and focus on the objectives of the firm, the concept of inventory optimization is introduced. The advantage of inventory optimization in the healthcare industry is the protection of investment. Therefore, effective inventory optimization by medical officers enables the healthcare organizations to track the availability of the equipment and how they are being used hence reducing the opportunity for cost and theft.

The researcher recommends supplier relationship management in all aspects of supply chain management as it promotes the reduction of the expenditure, reduces efficiency, enhances loyalty and improves value to both the supplier and the organization.

5.5 Suggestion for Further Study

Given the limitations of the study, the researcher suggests that further studies should focus on investigating whether there is a linear relationship between healthcare delivery and strategic procurement practices by quantitatively measuring parameters such as affordability, quality and accessibility. Besides, the researcher also suggests that future studies focus on the awareness level of green procurement practices in the country.

REFERENCES

- Abdulsalam et al. (2015). *Health Care Matters: Supply Chains In and Of the Health Sector*. Retrieved from Wiley Online Library: <https://onlinelibrary.wiley.com/doi/abs/10.1111/jbl.12111>.
- Ahmed, M. (2017). *Strategic sourcing vs traditional purchasing*. Retrieved from Smart procurement: http://www.smartprocurement.co.za/7_key_differences_strategic_sourcing_vs_traditional_purchasing.php#sthash.r5yhyCVX.dpbs.
- Akiki, Y. N. (2018). *Supplier Relationship Management (SRM)*. Ajaltoun: St Georges Ajaltoun Hospital.
- AuditorGeneral. (2012). *Performance Audit Report of the Auditor- GeneralSpecialized Healthcare Delivery atKenyatta National Hospital*. Nairobi: Office of the Auditor General.
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage . *Journal of management*, 99-120.
- Brian, K. (2016). *Factors affecting service delivery in public hospitals : A case study of Nairobi county , Kenya*. Nairobi.
- Chartier et al. (2014). *Safe management of wastes from health-care activities*. Retrieved from World Health Organization:http://www.searo.who.int/srilanka/documents/safe_management_of_wastes_from_healthcare_activities.pdf?ua=1.
- Domanska, D. (2016). *How Public Procurement can Drive More Sustainable Healthcar*. Retrieved from Med Tech Views: <http://www.medtechviews.eu/article/how-public-procurement-candrive-more-sustainable-healthcare>.
- EPTA. (2017). *Green purchasing guide for hospitals*. Athens, Greece: EPTA Consultants.
- Faes, W., & Matthyssens, P. (2009). Insights into the process of changing sourcing strategies. *Journal of Business & Industrial Marketing* , Vol. 24 (3), pp. 245–255.
- Hamlett, K. (2018). *What Are the Advantages of Inventory Control in a Healthcare Organization?* Retrieved from Chron: <https://smallbusiness.chron.com/advantages-inventory-controlhealthcare-organization-3201.html>.
- Iannuzzi, A. (2012). *Greening the Healthcare Supply Chain with Sustainable Purchasing*:. Retrieved from JNJ: <https://www.jnj.com/our-company/greening-the-healthcare-supply-chain-withsustainable-purchasing>.

- Jiang, Xing, Ho, & Zhou. (2015). *An Optimization Model for Inventory System and the Algorithm for the Optimal Inventory Costs Based on Supply-Demand balance*. Retrieved from Hindawi:
<https://www.hindawi.com/journals/mpe/2015/508074/>.
- Kangwana et al, .. (2009). Malaria Drug Shortages in Kenya. *Am J Trop Med Hyg*, , 80(5), 737–738.
- KNH. (2018). *Kenyatta National Hospital*. Nairobi: Kenyatta National Hospital.
- Knight et al. (2017). Strategic sourcing and corporate social responsibility: Aligning a healthcare organization's strategic objectives. *Journal of Purchasing and Supply Management*, 23(2), 94104.
- Komen, M. J., & Ochiri, G. (2016). Role Of Supplier Relations Management On The Performance Of Hospitals In Nairobi County. *International Journal of Innovative Finance and Economics Research.*, 4(4), 1-20.
- Leaven, L., Ahmmad, K., & Peebles, D. (2017). Inventory Management Applications for Healthcare Supply Chains. *International Journal of Supply Chain Management*, 6(3), 1-9.
- Magnus, B. (2006). *Developing a strategic Procurement process*. Lulea University.
- Masembe, I. K. (2016). A Study on Strategic Planning and Procurement of Medicals in Uganda's Regional Referral Hospitals. *J Public Health Africa*, . 7(2), 558.
- Mbaabu, D. (2016). *Green Practices and Supply Chain Performance of Government Hospitals in Nairobi Country* . Nairobi: UoN.
- McGain, F., & Naylor, C. (2014). *Environmental sustainability in hospitals – a systematic review and research agenda*. Retrieved from Sage Journals:
<https://journals.sagepub.com/doi/abs/10.1177/1355819614534836?journalCode=hsrb>.
- Mettler, T., & Rohner, P. (2010). *Supplier Relationship Management in Health Care*. Institute of Information Management, 1-24.
- Mugenda, & Mugenda. (2003). *Research Methods, Quantitative and Qualitative Approaches*. Nairobi: Acts Press.
- Muhia, J., Waithera, L., & Songole, R. (2017). Factors Affecting the Procurement of Pharmaceutical Drugs: A Case Study of Narok County Referral Hospital, Kenya. *Medical & Clinical Reviews*, 3(4:20), 1-8.
- Mustaffa, & Potter. (2009). Healthcare supply chain management in Malaysia: a case study'. *Supply Chain Management: An International Journal*. *An International Journal*, 14(3). pp234–243.

- Nudurupati, S. S., Bhattacharya, A., Lascelles, D., & Caton, N. (2015). Strategic sourcing with multistakeholders through value co-creation : An evidence from global health care company . *International Journal of Production Economics*, 166, 248-257.
- Plinere, D., & Borisov, A. (2015). Case Study on Inventory Management Improvement. *Information Technology and Management Science*, 91-97.
- Priem, R., & Butler, J. (2001b). Tautology in the resources-based view and the implicationsof externally determined resources value. *Academic of Mmanagement Review* , 95-117.
- Rafati, L., & Poels, G. (2015). Towards Model-Based Strategic Sourcing. Achieving Success and Innovation in Global Sourcing. *Perspectives and Practices*, 236, 29-51.
- Roach, J. (2016). The value of strategic sourcing in healthcare. *Retrieved from Healthcare Facilities Today* , : <https://www.healthcarefacilitiestoday.com/posts/The-valueof-strategic-sourcing-in-healthcare--13836>.
- Singh, S., & Kumar, T. (2011). Inventory Optimization in Efficient Supply Chain Management. . *International Journal of Computer Applications in Engineering Sciences* , I(IV), 428-436.
- Vries, J., & Huijsman, R. (2011). Guest editorial: Supply chain management in health erVICES: an overview'. Supply Chain Management. *An International Journal* , Vol. 16(3) pp. 159–165.
- Walker, & Brammer. (2012). The relationship between sustainable procurement and e-procurement in public sector hospitals. *International journal of production economics*, 140(1), 256-268.
- Wanjau, k., Beth, W., & Eunice, A. (2012). Factors Affectig Provision of Service Quality in the Public Health sector : A Case Study of Kenyatta National Hospital. *Journal of Humanities and Social Sciences* , Vol. 2 No. 12 ; July 2012.
- Watson, D., & Fisher-Bogason, R. (2017). Greener textiles in hospitals: Guide to green procurement in the healthcare sector. Retrieved from Diva Portal: <http://www.divaportal.org/smash/record.jsf?pid=diva2%3A1082322&dsid=5441>.
- Yokl, R. T. (2018). Strategic Sourcing: How to get it right. Retrieved from Journal. *Retrieved from Journal of Retrieved from Journal Healthcare Contracting* : <http://www.jhconline.com/strategic-sourcing-how-to-get-it-right-2.html>.

APPENDICES

Appendix 1: Introduction Letter

To Whom It May Concern

Dear Sir/Madam,

RE: COLLECTION OF DATA

I am an undergraduate student in the school of management and leadership pursuing Bachelor of Management and Leadership (option Purchasing and Supplies) in Management University of Africa. As part of the requirement for the award of the degree, I am expected to undertake a research study on **THE ROLE OF STRATEGIC PROCUREMENT PRACTICES IN THE HEALTHCARE DELIVERY AT KENYATTA NATIONAL HOSPITAL**. I'm, therefore, seeking your assistance to fill the questionnaires attached. The attached questionnaire will take about twenty minutes to complete. Kindly answer all the questions. The research results will be used for academic purposes only and will be treated with utmost confidentiality. Only summary results will be made public. No one, except the institution will have access to these records. Should you require the summary, kindly indicate so at the end of the questionnaire.

A self-addressed envelope is provided for your reply. Your co-operation will be appreciated.

Yours sincerely,

Appendix II: Questionnaire

Please fill in the following questionnaire by answering all the questions as instructed.

All the information provided will be treated as confidential and shall only be used for the purpose of this research project.

Please do not indicate your name anywhere in this questionnaire.

Tick where appropriate in the choices given.

SECTION A: BACKGROUD INFORMATION

(Instruction -Tick like [√] where appropriate)

1. Indicate your gender

Male [] Female []

2. What is your education level? (Tick as applicable)

Certificate [] Diploma []

Bachelors' degree [] Masters []

PhD []

Others-specify.....

3. Years of service/working experience (Tick as applicable)

Less than 1 year []

6-10 years []

1-5 years []

Over 10 years []

3. What is your designation at Kenyatta National Hospital?

.....

4. Kindly indicate to what extent you agree or disagree with the following statements regarding the role of strategic procurement practices in the healthcare delivery in Kenyatta National Hospital. (*Tick where applicable*).

1. SA – Strongly Agree 2. A – Agree 3. N – Neutral 4. D – Disagree 5. SD – Strongly Disagree

SECTION B: THE ROLE OF STRATEGIC PROCUREMENT PRACTICES IN THE HEALTHCARE DELIVERY.

PART I: STRATEGIC SOURCING

5. Using Likert scale indicate to what extend do you agree or disagree with the following statements on how strategic sourcing influence healthcare delivery at Kenyatta National Hospital. (*Tick where applicable*).

Statements	1	2	3	4	5
Conducting supply market assessment is vital towards quality healthcare.					
Supply market assessment enhances accessibility to and affordability of healthcare.					
Budgeting and resource allocation is essential for medical requirements a key input in quality healthcare.					
Proper budgetary utilization reduces inaccessibility and unaffordability of healthcare					
Proper utilization of budgets enhances timely response to					

patient medical needs hence reduced mortalities.					
Sourcing plan ensures timely acquisition of medical supplies and services hence quality healthcare.					
Lack of sourcing plan impedes access to affordable healthcare.					
Full implementation of sourcing plan aids in availability of drug resulting in reduction of mortalities rates of patients.					

6. In your own opinion what other ways does strategic sourcing contributes towards efficient and effective healthcare delivery?

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PART II: GREEN PROCUREMENT

7. Using Likert scale indicate to what extend do you agree or disagree with the following statements on how green procurement affect healthcare delivery at Kenyatta National Hospital. *(Tick where applicable).*

Statements	1	2	3	4	5
Adoption of sustainable procurement practices enhances availability of medical services and supplies hence quality healthcare.					
Poor procurement policies is a key impediment towards hospital goals of reducing mortality rates					
Observation of environmental and social standards in procurement towards quality healthcare delivery.					
Environmental and social standards promote accessibility and affordability of healthcare.					

Adoption of proper environmental and social standards leads to reduction in mortality rates.					
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8. In your own opinion, what other ways does green procurement affect healthcare delivery in Kenyatta national hospital?

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PART III: INVENTORY OPTIMIZATION

9. Using Likert scale indicate to what extend do you agree or disagree with the following statements on healthcare delivery at Kenyatta National Hospital. (*Tick where applicable*).

Statements	1	2	3	4	5
Lead time reduction in procurement serves to ensure realization of timely and quality healthcare.					
Longer lead times impede accessibility and affordability of healthcare services.					
Reduction of long supply pipelines and lead times on deliveries reduces mortality rates					
Accuracy in demand forecast of hospital need leads reduction in mortality rates					
Accurate demand forecast is critical towards quality healthcare.					
Accurate demand forecast improves accessibility and affordability of hospital services					
Storage facilities of drugs and medical supplies are crucial for provision of quality healthcare.					
Having good storage unit for drugs and medical					

supplies improves responses to medical need hence reduction in mortality rates.					
Proper storage facilities drugs provide for accessible and affordable healthcare.					

10. In your own opinion what other ways does inventory optimization aids towards realization of healthcare delivery at Kenyatta national hospital?

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PART IV: SUPPLIER RELATIONSHIP MANAGEMENT

11. Using Likert scale indicate to what extend do you agree or disagree with the following statements on how healthcare delivery at Kenyatta National Hospital. *(Tick where applicable).*

Statements	1	2	3	4	5
Supplier selection is critical in provision of quality healthcare					
Supplier selection is important in cost savings towards accessibility and affordability of healthcare services.					
Supplier selection serves to reduce mortality rates through emergency response to patients.					
Supplier appraisals serve critical in quality healthcare.					
Efficient supplier appraisal serves to improve suppliers' response hence accessibility and affordability of services by patients.					
Supplier appraisal provides for improved procurement and delivery of medical services towards reducing mortality rates.					

Early supplier involvement is essential in enhancing quality healthcare.					
Early supplier involvement allows for h translates to costs savings for accessibility and affordability of healthcare services.					
Early supplier involvement motivating suppliers towards improving healthcare delivery hence reduced mortality rates					

12. In your own opinion what other ways does supplier relationship management helps in realization of efficient healthcare delivery?

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PART V: HEALTHCARE DELIVERY

13. Using Likert scale indicate to what extend do you agree or disagree with the following statements on healthcare delivery at Kenyatta National Hospital. *(Tick where applicable).*

Statements	1	2	3	4	5
Strategic sourcing enhances the level of efficiency of the healthcare delivery.					
Green procurement contributes towards sustainable provision of health care delivery.					
Inventory optimization determines the effectiveness of the overall healthcare delivery.					
Supplier relationship management is always essential for healthcare delivery.					

14. What else influences health care delivery at Kenyatta National Hospital apart from strategic sourcing, green procurement, and inventory optimization and supplier relationship management?

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15. What are your recommendations towards improving healthcare delivery in Kenyatta National Hospital?

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Thank you