PROCUREMENT MANAGEMENT PRACTICES AND SUPPLY CHAIN PERFORMANCE OF NATIONAL REFERRAL HOSPITALS IN NAIROBI CITY COUNTY, KENYA

KAMAU ALICE NJOKI

D53/CTY/PT/27559/2019

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND TOURISM IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE MASTERS DEGREE IN BUSINESS ADMINISTRATION (PROCUREMENT AND SUPPLY CHAIN MANAGEMENT) OF KENYATTA UNIVERSITY

NOVEMBER, 2023

DECLARATION

This research project is my original work and it has not been presented to any other institution a degree or any other award. No part of this document should be copied without my permission or that of Kenyatta University.

Signature::…… …….. Date::……..

Kamau Alice Njoki
D53/CTY/PT/27559/2019

The project was developed by the candidate under my supervision as the university appointed supervisor.

Signature:…… Date……

Dr. Perris Chege (Ph.D)
Lecturer,
Department of Management Science,
School Of Business, Economics and Tourism
Kenyatta University.

DEDICATION

I dedicate this project to my husband Evans Kirimi, my sons Alvin Mwirigi and Blaise Kamau and my mother Pauline Wambui.

ACKNOWLEDGEMENT

First of all, I would like to thank God almighty. My creator deserves immense gratitude for granting me strength to persevere and knowledge and ability to accomplish the task. I would also like to thank my Supervisor, Dr. Perris Chege, for her able guidance and support in undertaking this project. Finally, many thanks to my family; my husband Evans Kirimi, my sons Blaise Kamau and Alvin Mwirigi and my parent Pauline Wambui, whose love, encouragement and support are always with me in whatever i pursue. They have to endure this long process with me.

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OPERATIONAL DEFINITION OF TERMS

Competitive Tendering: It entails a purchasing entity announcing its desire to purchase goods or services and inviting bidders to react and compete for the chance to land the contract.

Procurement Management Practices: It refers to inclusive and collective actions an organization put in place in the process of making purchases. In this study, the procurement management practices that was of interest was be competitive tendering, procurement transparency, procurement planning, and supplier qualification monitoring.

Procurement Planning: The process of gathering requirements in order to have them available as and when needed. It also includes setting the timelines for their acquisition.

Procurement Transparency: It alludes to the trait or condition of being honest and transparent. Provisions for transparency promote competitiveness in public procurement, assist, and guarantee that judgments can be held accountable by allowing for the monitoring and examination of processes and decisions.

Referral Hospitals: It is a hospital with adequate capabilities to accept patient transfers and referrals for either emergency or non-emergency cases.

Supply Chain Performance: How well each level of the Hospitals supply chain performs in terms of meeting customer expectations, lowering costs, and decreasing inefficiencies. Ability of national referral hospital to give quality service, inventory

efficiency and timely delivery of services were the proxies of supply chain performances.

Supplier Qualifications: It refers to all activities that the company conducts to constitute and maintain a panel of suppliers which can then be consulted in the context of calls for tenders.

ABBREVIATIONS AND ACRONYMS

GTR	Government Transportation Request
HW	Health workers
JIT	Just in Time
KEMSA	Kenya Medical Supplies Authority
KNH	Kenyatta National Hospital
KPI	Key Performance Indicators
PD	Procurement Departments
PO	Purchase Order
RBT	Resource-Based Theory
ROI	Return on Investment
RRH	Regional Referral Hospitals
SCM	Supply Chain Management
SUM	Spend Under Management
SUM	Spend Under Management
TMT	Top Management Team

ABSTRACT

Improved technological devices, effective medication, a competent staff to patient ratio that is acceptable, efficacy, cost, and providing services speed are all examples of what constitutes excellence within the healthcare industry. The supply as well as accessibility of healthcare amenities and pharmaceuticals in Kenyan hospitals is still a mystery, especially in the case of top-tier hospitals, which are more severely impacted by a lack of suitable drugs and medical equipment and hence require efficient supply chain. Although many hospitals have acknowledged the importance of supply chain performance, implementing methodologies, strategies, and standard procedures that have been extensively established in industrial settings is still a major challenge. This has greatly contributed to the present lack of medications and other key supplies needed for hospitals to efficiently carry out their primary responsibilities. Therefore, this study aimed at determining the association between supply chain efficiency and procurements managements practices in public referral hospitals in Nairobi County, Kenya. Specifically, the study determined the impact of competitive tendering, procurement transparency, procurement planning, and supplier approval monitoring on supply chain efficiency in referral hospitals in Nairobi County. The normalization process theory, resource-based view theory and supply chain operations reference model served as the anchored theories for the investigation. The research project used descriptive survey design. The three referral hospitals in Nairobi County, Kenya, were target population of the investigation. The unit of observation for this study were the 327 hospital managers, procurement officers, accountants and staff procurements. Stratified random sampling technique was utilized in picking 187 respondents. Before actual data collection, the questionnaire was piloted on 18 respondents representing 10% of study sample size; they were selected from Mbagathi county referral hospitals in Nairobi County. Validity and reliability of questionnaire were evaluated using results of pilot test. Results of reliability of all variables shows the reliability is above 0.7. With the aid of one study assistant, data was sourced with drop-and-pick questionnaires. SPSS was utilized in computing descriptive and inferential analysis of collated data. Included in the descriptive statistics were mean, mode, standard deviation, and variance. Correlation and regression analysis were both included in inferential analysis. Tables, charts, and graphs with frequency data were used to present the findings. Diagnostic test was taken, test showed that there is no serial autocorrelation, no multicollinearity and variables are normally distributed. The correlation co-efficient indicates level of strength of relationship between variables in a study at 91%. The investigation concluded competitive tendering was positive and significant on supply chain performances ($t= 1.711$, p value > 0.05), procurement transparency has positive and significant effects on supply chain performances ($t= 14.75$, p value > 0.05) procurement planning have positive and substantial effects on supply chain performances ($t=5.758$, p value> 0.05) and supplier qualification managements had significant positive effects on supply chain performances ($t= 3.719$, p value $= 0.05$). The study recommended that governments should provide transparent reasons for the award based on predetermined standards once it has been made. All bidders should be identified and their beneficial ownership made public by the government. The details of government contracts, including appendices, schedules, and references, must be made public. The government must provide regular and routine updates on the contract's execution, performance, these will improve supply chain performance of national referral hospitals in Nairobi and others in Kenya. All moral research ethics were duly followed.

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Organizations now realize that in order to thrive in face of increased global competition, their supply chains must be properly managed. How well a supply chain can differentiate itself from its rivals in terms of inventory management, inventory efficiency, and on-time supplier delivery, among other factors, will influence how well it performs (Satish & Vivek, 2019). Additionally, supply chain efficiency is seen as a key tactic for creating these competitive qualities in any industry (Estampe *et al*., 2018). The expense of setting up and maintaining supply chain performance assessment systems outweighs their advantages. Rajagopal and Zailani (2019) argued that this may be particularly true for relatively small organizations that may not have the time, money, or knowledge necessary to conduct the analysis necessary to improve supply chain operations and green buying methods.

Globally, Dimitri, Dini, and Piga (2016) contended that Europe, the United States, and Southern America all exhibit a strong trend toward effective supply chain performance. However, due to the bureaucracy and rigidity of businesses, it is crucial to assess the inventory management practices, inventory costs and time taken to deliver the supply. In Finland supply chain performance have experienced public procurement productivity, good performance in this area which has help the governments better inventory costs, timely supply and inventory handling thus easing pressure on public finances, and cut expenditures (OECD Finland, 2019). Averting that improving purchasing management techniques have a smooth and efficient

performance of supply chains not only worldwide but geographically and locally, Ricarda (2016) warns in Geneva.

In the UK, the effectiveness of supply chains is important for determining pricing and prices of commodities that manufacturing enterprises need. In the U.K. textile business, supply chain performance is mostly evaluated based on price variance, schedule adjustments, and on-time delivery. Price competitiveness and green procurement are often the driving forces behind supplier and product selection, with reliability and quality receiving less attention (Satish & Vivek, 2019). Utilizing an efficient sales and operations planning process, supply chain performance across industries in the U.K. has considered customer service objectives, on-time supplier delivery, material availability, inventory investment, and overall profitability (Walker, 2022).

Regionally, supply chain performance is appalling, with the majority of African nations experiencing severe levels of medication shortages as a result of ineffective procurement procedures. Several significant elements, including transportation, information technology, and others, have been identified as driving supply chain performance in Sub-Saharan African businesses (REO, 2017). The understanding of vital roles that equipment performs in supply chain managements has led to the commencement of a number of significant infrastructure projects in the East African region. For instance, insufficient procurement procedures hindered the provision of healthcare in Malawi, which resulted in frequent and protracted drug shortages and stock outs in public hospitals (Kanyoma & Khomba, 2017). According to Modisakeng et al. (2020), persistent medication shortages in public healthcare institutions are a

problem in several nations working toward universal health coverage, like South Africa. This is because of difficulties with the procurement process.

In Uganda, supply networks perform poorly when there are either no deliveries at all, late deliveries, or low-quality goods. Given that customers now judge businesses based on the performance of their chain as rivalry has evolved from between firms to between whole supply chains, this subpar supply chain performance has a detrimental influence on their performance (Ntayi et al., 2019). When a company's supply chain underperforms, it gets forced out of the market and is consequently likely to fail. Limited access to information due to restrictions on the Ugandan textile industry's supply chain performance and most of the regional industries (Okello-Obura et al., 2018). In Rwanda, Caritas, Julius, and Zenon (2016) found that good procurement increases construction effectiveness of Bugesra Districtoffice. Buyer-supplier managements, data management, and speed of reaction were crucial supply chain performance measures for industrial enterprises in Sudan (Ibrahim & Hamid, 2016).

Procurement procedures are a key determinant of supply chain efficiency and can either have positive or negative impacts on company performances. Performance in the procurement department directly influences how well an organization accomplishes its goals. Even in industrialized nations, Accenture (2018) shows that it can be difficult to achieve high performance in pharmaceutical procurement, in part because the top management doesn't give it enough attention. Better supply chain procurement performance may not always result from combining tendering methods and procedures (Githinji, 2018). Additionally, competitive tendering improves the effectiveness of the procurement process. Public hospitals constantly deal with issues such rising medical costs, time and money wasted obtaining necessary medical

supplies, and a failure to ensure supplies are continuously available. Due to these pervasive issues, healthcare providers are under tremendous political and social pressure. It is clear that these challenges are greatly influenced by the effectiveness and effectiveness of the healthcare systems' procurement processes.

1.1.1 Supply Chain Performance

Performance of supply chain has significantly changed on a global scale. Internal cross-functions of a company must be successfully integrated with one another and linked to the external operations of suppliers, customers, and other channel members in order for supply chain performance to be successful (Otchere, Annan & Anin, 2017). Hausman (2017) asserts that three crucial performance criteria—service, assets, and speed—must be met by supply chains. Service quality, time, and asset are examples of supply chain performances indicators, according to Otchere et al. (2017). The inventory/asset investment, inventory efficiency, on-time supplier delivery, and forecasting accuracy categories can be used to group the supply chain performance proxies (Hussain & Nassar, 2018).

Otchere et al. (2019) used finished requirement gathering quality, brand accessibility, and on-time deliveries as metrics of supply chain success. The current will use Hussain and Nassar's asset/inventory measurements, customer service metrics, and delivery speed as measures of supply chain efficiency (2018). Hausman (2017), and Otchere et al., based on the measurements used in supply chain performance used by various authors (2017). Speed comprises time-related measurements that monitor response and implementation velocity. The ability to foresee, seize, and satisfy client demand with tailored products and prompt delivery is referred to as service. All items with a monetary value are considered assets, especially stock and cash (Seuring &

Muller, 2018).

Each of these three crucial characteristics should have a minimum of one performance metric in every supply chain. Since quality is taken for granted in contemporary supply chain performance thinking, quality is missing from this. Factors used to diagnose and enhance quality are substantially different from those used to increase supply chain performance (Otchere et al., 2019). Measuring how successfully supply chains are serving (or not serving) their consumers is the fundamental tenet of service metrics or customer service. Since it is typically impossible to estimate the cost of stockouts or delayed deliveries, businesses should typically focus on customer service KPIs (Otchere, et al., 2017). As examples of customer support indicators, the development and build-to-order situations are used in various contexts along with related but separate metrics. As stand-ins for the two customer service measures, timely delivery process, back orders/Lost Sales, preorders numbers, quoted consumer response time, and % of on-time completion can be employed (Hussain et al., 2018).

Inventory at every point in the supply chain is the main asset involved. Money value and time supply, often known as inventory turns, are the two measures that are typically employed for inventory. Measures of value are tied to inventories as an asset just on company's balance sheet, whereas measures of time supply or rotations are related to inventory movements. Accounting professionals typically compute inventory turns in isolation when they have access to finance and inventories data but not customer support data (Brown et al., 2019).

According to Bushuru et al (2018)'s calculations, the supply chain cycle time is the time required to complete a new order if all the upstream and external inventory levels were zero. The value is determined by adding the maximum lead times (bottlenecks)

at every supply chain stage. The Cash Conversion Cycle tries to put a time limit on how long it takes us to pay our material suppliers and get paid by our customers. Accounts receivable and payable are sufficiently included in this measure since, in some cases, they may have more potential for improvement than inventories (Sharma et al., 2018).

1.1.2 Procurement Management Practices

Procurement practices are a collection of rules that outline what is permissible and is not permissible as well as how each activity must be followed out (Saussier & Tirole 2015). The process includes procurement procedures, which are the rules for finding the greatest deals on the products and amenities that will best suit the organization's demands with regard of quantity, value, timing, and placement. Feng and Shanthikumar (2017) claim that procurement management procedures are important yet expensive tasks for any firm. This is because businesses typically set aside a sizable portion of their earnings and operational budget for purchasing the items and services necessary for the company to operate (Oloo, Atambo & Muturi, 2017). Gadde (2007) asserts that the deployment of techniques to be used when an organization makes purchasing decisions constitutes good procurement practices. These include of cultivating connections with suppliers, team-based methods to procurement, and appropriate use of technology or e-procurement. Customer orientation, strategic supplier partnerships, degree and quality of information exchange, the reverse logistics, and expertise administration have been highlighted as types of procurement practices, according to Marshall *et al*. (2017).

Other experts have explained practices under procurement as that of supply chain management procedures, like, supplier qualification, supplier relationship, which are a

set of actions taken by a company to support oversight of its supply chain (Odhiambo, 2014). It explained that practices include tackles used in integration, handling, and coordinating, demand, strategic sourcing and interactions in order to satisfactorily serve clients (Wong, Boon-Itt & Wong, 2011). Practices of procurement management is explained in apparent operations and developments that have a direct impact on the business. In order to connect to operations of organizations, it necessitates creating client relationships through customer feedback and providing products directly to consumers (Githeu, 2014).

Different academics have operationalized procurement management practices. Uttam and Roos (2015), for example, divided procurements managements practices into three categories: open, limited practices, and competitiveness bargained procedures. Onyango and Muturi (2016) expressed operating procedures, ethical procedures, supplier regulatory procedures, and tendering procedures. However, European Union (EU) specified that procurements managements practices be followed by member nations ought to include open and limited practices. Kuloba (2016) assessed procurements managements practices through processes, supplier evaluation techniques, and material control activities. The operationalization of procurement management practices by Mizuno (2014) included choosing suppliers to notify to tender, soliciting and submitting bids, functional assessment, negotiating contracts and recognition, shipment, assessments, as well as payments. Sigat (2020) examined procurement management practices by examining supplier evaluation, tendering procedures, and material control. This study used four procurement management practices as parameters, that is, competitive bidding, purchasing transparency, procurement planning, and supplier qualification monitoring. These processes have been shown to enhance procurement performance.

Competitive bidding is a method of employing an open bidding procedure to acquire products, services, and works for an organization. Competitive bidding is viewed in the procurement process for the public as an open competition where all prospective bidders are given an equal chance to make a bid (PPADA, 2015). Thus, competitive tendering is the preferred procurement technique for organizations, notably for the general industry, for acquiring products, works, and services. Potential providers have a comparable likelihood to engage with this strategy. Public Procurement and Asset Disposal Act of 2015 introduced concepts of availability, accountability, and availability constitute the foundation for tendering. The goal of the tendering process should always be to get the greatest value feasible, which may or may not correspond to the lowest price (Lysons & Farringdon, 2016). In essence, this approach seeks to guarantee that the entity obtains the lowest overall cost. However, as it is the main procedure, tendering should be supported by a systematic method that guarantees the exercise's critical impartiality. Such impartiality ought to result in the lowest overall total cost (Kipkorir & Chirchir, 2020).

Transparency in purchasing refers to candid, regular, and cooperative interactions between the buyer and the vendor. Communicating effectively enhances the efficiency of the buying businesses, promotes customer response amongst distributors, and is a crucial component in the growth of supply chains competence. Transparency helps the purchasing organizations by fostering a culture that encourages mutual cooperation. The procedure for purchasing goods should maintain transparency by making sure there definitely are no malpractices and well-informed choices, which calls for public entities to make recommendations on reliable facts and guarantee the demands are being properly satisfied. The procurement process should also be sensitive to the requirements, demands, and goals of the intended recipient

community. Transparency is necessary to improve the simplicity and accountability of procurement policies and implementations (World Bank, 2015). The procurement system for the public heavily relies on accessibility and clarity of knowledge on not only present requests for proposals and methods but also past purchasing patterns and projections of anticipated request for services and products (Chesseto, Gudda & Mbuchi, 2019).

Procurement planning entails choosing suppliers strategically, in a way which is in line with company's goals for competing. According to Ayoyi and Odunga (2015), strategic sourcing illustrates the incorporation of purchasing or purchasing tactics with the overall business plan. Strategic sourcing is different from conventional procurement in a number of significant ways, according to Eltantawy, Giunipero, and Handfield (2014). Conventional purchasing is transactional in nature, whereas strategic sourcing is interconnected and concentrates on managing every aspect of a continual connection across the purchaser and the vendor. Conventional purchasing concentrates on the the price of the purchase, whereas strategic sourcing concentrates on the entire cost of being owned. Procurement planning may successfully connect the core strengths of a specific company with the talents and skills of its suppliers if it is correctly structured. Any firm that wants to capitalize on Making strategic sourcing selections will help the company develop and sustain its competitiveness by focusing on its core competencies and outsourcing other tasks (Mutua & Juma, 2018).

In order to improve constant supply and establish how well the supply chain performs overall in regards to pricing, delivery, and quality time, it is essential that suppliers be monitored. Analyzing your suppliers critically entails doing actions like routine visits, grading, and appraising your providers. By reducing operating costs, reducing the

procedure's cycle, improving efficiency, and raising satisfaction with customers, supplier assessment may improve organizational performance throughout the supply chain. The assessment of the supplier takes place during the tendering procedure and might take place in the manner of an inquiry, a meeting, or a trip to the location to determine the vendor's capability, financial well-being, effectiveness, as well as structure of operation and procedures. The appropriateness of current as well as prospective vendors is evaluated, and they are then either accepted or refused for inclusion on the authorized supplier list (ASL). This enhances the efficiency of your current providers and allows you to regularly check your database of authorized vendors to make sure they are properly sized and fit (Ouko & Juma, 2020).

1.1.3 National Referral Public Hospitals in Nairobi County

In Kenya, healthcare is provided by networks of more than 6,152 facilities. 51% of all health facilities are owned by governments, 14.8% are owned by private not-for-profit organizations (often faith-based institutions), and 34.3% by private for-profits organizations (Ngugi et al., 2017). Kenya's healthcare industry is diverse, including public, private, and non-profit and faith-based entities. The Ministry of Health oversees around 48% of the organizations, followed by privately owned corporations (41%), organizations with a religious affiliation (8%), and non-governmental organizations (3%). The six levels of the Kenyan healthcare system are: community service (level 2), dispensaries and clinics (level 3), health center, maternity home, and nursing home (level 4), sub-county hospital (level 5), county referral hospital (level 5), large private hospital (level 6), and national referral hospital (level 6). (GoK, 2021).

Hospitals is the pinnacle of the healthcare system and providers of therapeutic, diagnostic, and rehabilitative services, are where you can find high-quality care (Ministry of Health, 2019). The adoption of the new government, which gave county administrations control over the delivery of health care instead of the central government, marked the start of significant reforms to Kenya's health service. At the Kenya Spinal Injury Tertiary Hospitals, Mathare University Training and Tertiary Hospitals, and Kenyatta Medical Hospital in Nairobi City county, Kenya, the study will take place.

In Kenya, the procurement function is regarded as being the most important for determining organizational and supply chain effectiveness (Snider & Rendon, 2017). Organizations may significantly lower their operating costs, boost their levels of efficiency, and shorten lead times thanks to procurement management strategies (Rankin, 2016). Institutions in the public health sector procure goods and services using procurement entities, which have their own finances that are either provided by the exchequer or generated through other forms of appropriation in aid (A-in-A), such as cost-sharing money. At the moment, the Kenya Medical Supplies Agency and the Health Ministries' headquarters handle the vast majority of the procurement (KEMSA).

A referral medical institution is a crucial facility that serves as a last-resort lifesaver for treating human health issues. This is more dependent on the accessibility of the essential medical supplies, including medications, apparatus, and other associated commodities, as well as an appropriate supply of highly experienced medical personnel. The department of supply chain management often makes provision for all of these needs, with the exception of medical personnel. This necessitates a high level

of efficacy and efficiency in the supply chain system of a hospital or other type of company (Chebulobi, Nyagol, Otienoh & Mukabane, 2019).

The supply chain at the national referral hospitals includes both internal and exterior components, such as suppliers, producers, and marketers (Schneller & Smeltzer, 2013). Internal components include patient care units, institution storing, as well as patients among others. A hospital purchases services and products from vendors, warehouses them, and then provides them to each care unit in accordance with its operational procedures. Consequently, corporate activities that incorporate a constant, smooth flow of products and services for healthcare delivery fall under the category of supply chain management. Examples of these kinds of activities includes purchasing, distribution, and supplier management (Onyancha, 2015).

Major hospitals in Nairobi have occasionally had drug and medical facility shortages due to a lack of consistent supply, making it unable to provide patients with top-notch medical treatment. Additionally, it is shown that shortages are leaving a path of suffering for sufferers all around the nation. Patients had been instructed to obtain these goods from independent pharmacists and laboratories in many hospitals. To more efficiently coordinate the supply of goods (Odero, 2016).

1.2 Statement of the Problem

According to reports by NCAPD, KNBS, and ICF (2016), despite having enough medical supplies, Kenya has seen a severe drop in the supply chain performance in the public health institutions throughout time. According to RoK (2016), improving supply chain effectiveness in public health institutions requires healthcare supplies. According to a WHO assessment from 2014, Kenya's public hospitals provide subpar service notwithstanding management initiatives. According to a NACPD (2011)

report, poor supply chain performance in Kenya results in subpar health treatment in public hospitals, despite available procurement management. According to Choy (2012), 50% of the costs in public hospitals are attributable to ineffective procurement methods. The public health institutions' supply chains are performing worse as a result of bad procurement management procedures (Areri & Gekara, 2019). Although many hospitals have acknowledged the importance of supply chain performance, implementing methodologies, strategies, and standard procedures that have been extensively established in industrial settings is still a major challenge. This has greatly contributed to the present lack of medications and other key supplies needed for hospitals to efficiently carry out their primary responsibilities (Odero, 2016).

Numerous researches have been conducted on procurements managements practices and supply chain performances. For instance, Erik and Vennston (2018), examined procurement regulations on supply chain performances, explained that deliver the final customer's desired good or service as quickly and affordably as possible. The study conducted in a developed country by Akitonye (2018) focuses on the supply chain performances manufacturing companies in Germany. this study was conducted in developed country and therefore the findings cannot apply for the case of Kenya-a developing country, study showed a contextual gap. While Erik and Vennston's (2018) study focused on procurement policies and operational chain performance, Bartik's (2019) study concentrated on impacts of procurements policies on organizational performances, providing a conceptual gap.

From the aforementioned, it is noted that the studies showed contextual and conceptual gap which this study aims to bridge. Also limited studies have been carried out on procurement management practices on supply chain performances on referral hospitals in Nairobi city county. Therefore, this study aimed at examining effects of

procurements managements practices on supply chain performances of referral hospitals in Nairobi, Kenya, this study was carried out.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of this study was to determine the effects of procurements managements practices on supply chain performances in referral hospitals in Nairobi County.

1.3.2Specific Objectives

i. To determine the effect of competitive tendering on supply chain performance in referral hospitals in Nairobi County.
ii. To examine the effect of procurement transparency on supply chain performance in referral hospitals in Nairobi County.
iii. To establish the effect of procurement planning on supply chain performance in referral hospitals in Nairobi County.
iv. To investigate the effect of supplier qualification monitoring on supply chain performance in referral hospitals in Nairobi County.

1.4 Research Questions

i. What is the effect of competitive tendering has on supply chain performance in referral hospitals in Nairobi County?
ii. What is the effect of procurement transparency on supply chain performance in referral hospitals in Nairobi County?
iii. What is the effect of procurement planning on supply chain performance in referral hospitals in Nairobi County?
iv. What is the effect of supplier qualification and monitoring on supply chain performance in referral hospitals in Nairobi County?

1.5 Significance of the Study

The study would provide value addition to public procurement in Kenya by way of improving performance and practices. The results of this study were crucial for health policy makers because they would help them develop policies and strategies that will enhance the supply chain performance. They are going to be better equipped to change procurement regulations. and procedures and hence enhanced supply chain performance.

This would result in better delivery of services in Kenya's public hospitals. In order to minimize a delay in delivering services, the study would as well be helpful to officers in procurement team in finding correct suppliers, optimizing inventories, contract management, and using digital procurement over traditional procurement.

It will assist all hospital stakeholders in Kenya in gaining the information necessary to provide effective supply chain management. The hospital management is projected to benefit from leveraging the data acquired to improve supply chain performances throughout the whole institutional structure of institutions.

The study's findings will increase comprehension and add to the corpus of knowledge already available about the caliber of scholarly research on procurement methods and performance in Kenya’s public health sector. This study will be useful to other scholars and investigators as a source of knowledge and a guide in the future who wish to do related research.

The knowledge of this study's report would assist stakeholders comprehend the significance of procurement procedures and determine how much these practices affect or influence supply chain performance. The conclusion provides guidance for

enhancing the procurement practices and supply chain performance.

1.6 The Scope of the Study

The study concentrated on determining the association between procurement management practices and supply chains performances in Nairobi County's government hospitals. The study focused on competitive tendering, procurement transparency, procurement planning, and supplier qualification monitoring as measure of procurement management practices. The study was anchored by Normalization Process Theory, Resource-Based View (RBV) Theory and Supply Chain Operations Reference Model. The target population for this study comprised referral hospitals in Nairobi County, Kenya. Referral medical institution are crucial facilities that serves as a last-resort lifesaver for treating human health issues and they are the top medical facilities in the country, therefore, the national referral hospitals in Nairobi was used in this study. This study took a period of 8 months, from July 2022 to March 2023.

1.7 Limitations of the Study

The study was subjected to variety of restrictions, such as difficulties with data collection, which included: the initial lack of trust and understanding between the researcher and the participants; the employees' resistance to completing the questionnaires; the busy schedules of the personnel; and the limited support from hospital management, which reticent to authorize at a collection. The researcher overcame the aforementioned difficulties in several ways, including by securing an official letter from the institution stating that the data was collected for scholarly purposes. Additionally, each facility where research needed to provide the researcher with an authorization letter. Additionally, a consent document detailing the respondents' voluntary participation in the research project was provided to them**.**

1.8 Organization of the Study

Five chapters made up the suggested study. Chapter One of the study contains the study's background, description of problem, general and particular objectives, research objectives and questions, importance of the investigation, range of investigation, study limitations, and study structure. The chapter two consists of a theoretical section as well as a review of previous publications; also, the researcher identifies the gaps that existed and which the study sought to fill. Research instruments, survey instruments validity, survey instruments reliability, gathering procedure, statistical treatment, and ethical concerns were all covered in chapter three. Other important factors to consider include the research design, intended audience, response rate, and sampling procedure. A comprehensive report on study findings and comments is provided in the fourth chapter. The study's summary, analysis, suggestions, and areas for additional investigation were covered in fifth chapter

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Theoretical foundation, empirical literature, and establishing covered in this chapter. It summarized earlier research and outlines its applicability. The chapter analyzed the studied literature's gaps in knowledge as well.

2.2 Theoretical Framework

Normalization Process Theory (NPT), Resource Based View Theory and Supply Chain Operations Model (SCOR) guided the investigation. The main theory that guided this study was SCOR theory. This theory guided the study in establishing the relationship between procurement management practices and supply chain performance.

2.2.2 Normalization Process Theory

The Normalization Process Theory (NPT) developed by May and Finch (2009) served as the foundation for this study. The theory makes use of a variety of instruments that are crucial for comprehending and elucidating the procedures by which novel or customized ways of thinking, acting, and doing work are operationalized in a given organizational structure. Although the theory was initially restricted to the delivery of health care services, recent advancements have broadened its applicability to include the widespread adoption and absorption of organizational and technical breakthroughs. Further, May & Finch (2009) contend that NPT is currently an essential tool in companies' complex interventions, where they define a complex intervention as an intentional effort to introduce a new rule, principle, or elevate the current patterns (Nyaboke & Muturi, 2017).

According to NPT, a complex intervention is based on three main challenges. First, implementation, which refers to the planning and execution of a practice or practices; embedding, which refers to the procedures through which a practice or practices are systematically incorporated into the work of individuals and groups on a daily basis; Integration is the process by which a practice or practices are maintained within the confines of a structure created by an organization. Although purchasing a new practice or educated model is a dynamic process, the idea places more emphasis on the work individuals complete as part of group activities, which may include thinking, acting, and organizing (May& Finch, 2009).

A complicated intervention is first evaluated, after which the intervention is either optimized or taken as a whole. Implementation, embedding, and integration are all subject to an NPT examination. A trial is chosen if the intervention or test is valuable enough to be normalized. The stakeholders must retrieve and rethink their strategies in cases where the intervention or trial cannot be normalized, in which case no progress is made as the study is stopped. To accomplish the organization's goals, their primary goal is to change the way that people perform their jobs (Murray et al., 2010).

However, the theory has received criticism from a number of researchers, including In their 2013 critique of the NPT, Clarke et al. critiqued an overemphasis on agency at the price of the settings for execution. Even while May et al. (2011) acknowledge that the NPT processes that generate are in constant communication with the local environment and external inputs, the approach largely focuses on the mechanics. In fact, the theory tends to give individual and collective agency an excessive amount of focus without precisely situating this inside, and as influenced by, the institutional and social context in which implementation takes place (2013) Clarke et al. In agreement with Alharbi et al. (2014), Alverbratt et al. (2014) criticized the NPT for providing a

normative paradigm of implementation which failed to adequately account for idealized temporal elements of implementation. The relationship between theory and method has frequently been the subject of criticism.

NPT is an action theory that appropriately matches moral principles, accountability, and transparency, as well as procurement and asset disposal planning. The PPAD Act's principles are put into practice at the judiciary by supply chain parties, which indicates the act's embedding. Integrating the act indicates the act's maintenance in the judiciary supply chains to achieve transparency, the necessary ethical standards, accountability, as well as comprehensive procurement and asset disposal planning. The theory was therefore applicable in this study in explaining how procurement transparency can affect procurement performance in referral hospitals in Nairobi County.

2.2.3 Resource Based View (RBV) Theory

The Resource-Based View Theory (RBV), which Penrose (2009) postulated, is a theory that emphasizes the successful operation of a firm's resources, diversity, and economic opportunities. Penrose's book introduced the concept of seeing a corporation as an integrated collection of resources to address and address how it could accomplish its objectives or strategic conduct. RBV began developing into form in the 1980s. The predecessor of RBV was the Theory of the Growth of the Firm. Later, in the 1990s, Jay Barney's work which was essential to the creation of RBT became the predominant paradigm in corporate strategy and planning for strategic success.

Using the RBV structure, the fundamentals of company efficiency and competitive edge are emphasized and projected. RBV focused on the firm's performance from a

meso viewpoint in reaction to earlier management engagement with the industry arrangement, which was a more macro perspective. The key idea of RBV theory is that institutional features are not just altered. If the firm wishes to develop and acquire a long-lasting competitive edge, it must change its viewpoint. The Porter (1989) thesis asserts that a firm's internal elements, like as its resources and assets, have an impact on its profitability. This paradigm is widely used to forecast a company's future profitability. The foundational contributions to RBV were made by Barney's innovative work on essential assets from 1991, which led to the theory's maturation.

The classic RBV has come under fire for failing to explain why and how some businesses do better in environments of unpredictability and fast change. According to Collis (1994), the RBV is tautological because the various resource configurations could produce the same value for businesses, negating the need for a competitive edge. Priem and Butler (2001) also criticized the theory for failing to consider resource-related variables, i.e., assuming that resources just exist rather than critically examining how crucial capacities are produced or acquired. Finding a means that satisfies all of Barney's VRIN needs might be difficult, if not unattainable.

This study used the resource-based theory to explain the variable of procurement planning and how it affects procurement performance. In this study, proper product is considered as a strategy that makes proper utilization of means at hand to increase purchasing efficiency and productivity, leading to enhanced procurement practices. In this instance, the effectiveness of the acquisition is demonstrated by the cost-effectiveness and consumer happiness, quality of service, and procurement process efficiency.

2.2.3 Supply Chain Operations Reference Model

The supply chain council, with the assistance of 70 of the largest industrial companies in the world (http://www.supply-chain.org) created the SCOR model in 1996. This notion serves as the basis for the study's analysis of the relationship between performance and procurement management strategies. a special framework that combines personnel, procedures, best practices, and performance measurements is provided by the The Supply Chain Operations Reference Model (Sulek et al., 2006). The framework increases the effectiveness of projects linked to supply chain improvement and fosters collaboration among supply chain actors. Whether these principles are real or just perceived, the consistency and consistency of business outcomes determine a company's worth. Whether it is healthy or unhealthy, it thrives on the gaps between perceived and actual performance (McManus, 2002). Value is expressed by measuring what is being handled.

The SCOR model helps with system integration, performance monitoring, and architecture definition (including human resources) (Larsson et al., 2008). The group's yearly strategic initiatives are reflected in the vertical integration of SCOR. Businesses that have utilized SCOR has proven to be a successful enabler for integrating a group's portfolio of improvement activities with strategic objectives and goals through its use in the enhancement of processes, management of processes engineering, and supply chain issue solving. (2003) (Lee et al.). A business process framework also referred to as a conceptual framework for processes, is used to explain process architecture in a form that is understandable to important business partners. It offers a standard vocabulary for organizing such processes and is particularly helpful for expressing value chains that span numerous departments and organizations.

2.3 Empirical Review

2.3.1 Competitive Tendering and Supply Chain Performance

Githinji and Moronge (2018) used the KNH example to examine the impact of procurement practices on performance at Kenya's public hospitals. The study's target population consisted of 6,000 KNH staff members and management, and it used a descriptive survey research design. The dependent variable was positively and statistically significantly impacted only by factors related to international and national competitive tenders, according to the study (Procurement Performance measured by performance). Direct Procurement and Restricted Tender were both statistically insignificant. The study concluded that higher procurement performance does not always arise from the combination of all these strategies. The study also found that competitive tendering improves the effectiveness of procurement. The study's overall focus on raw materials costs left an information gap, which the current study aimed to remedy by concentrating on selective bidding in particular.

In Kenya's Nakuru county, Njoki and Kmiti (2018) evaluated the impacts of competition procurements methods on the delivery of public hospitals. To encompass all of the target respondent, the investigation used the census approach. The study comprised 63 heads of department from government agencies, 12 medical officials in charge of the health institutions, and 5 procurement managers. Results indicate a positive connection between service performance and bid submission (R = 0.758), assessment standards (R = 0.477), provider capacity (R = 0.478), and innovation (R = 0.649). Therefore, the study concludes that technology, supplier capability, evaluation criteria, and bid putting have a favorable impact on service delivery. The study however focused on service delivery unlike the current study which is focused on procurement performances.

In order to determine the impacts of strategic sourcing management on level five hospitals' effectiveness of level five hospitals in Kenya, Oliech and Mwangangi (2019) conducted a study. The findings show a strong correlation between strategic sourcing, material procurement, e-procurement, and supplier relations and the effectiveness of level Five hospitals. According to the numerous correlation coefficients R, they were crucial to the overall effectiveness of the hospitals. In fact, the results demonstrate that the regression model's predicted and actual values had a rather high correlation. Furthermore, it was discovered that the strategic outsourcing, procurement planning, and supplier relationships could all be used to account for the variation in performance of level 5 hospitals, according to the coefficients of determination R2. However, unlike in the case of the present study, the study did not show a connection between selective bidding and contract management.

According to Obino's research (2017), the Kisii Research and Reference Hospital's procurement process takes between one to three months, which is in line with the Kenyan party's agenda that the procedure should last no longer than three months.For efficacy, the hospital management places a strong emphasis on quick tendering. The effectiveness of the tendering process is frequently hampered by corruption in the institution. This takes the form of bribes that help specific people and endanger the hospital's ability to conduct successful tendering. After a long absence, staff members involved in the Kisii Teaching and Referral Hospital bidding process attend training. They get skills for an efficient tendering process through training. Hence, the hospital is able to match personnel capabilities to tendering goals. The study however was done in Kisii County unlike recent study which is a case of Kenya.

2.3.2 Procurement Transparency and Supply Chain Performance

Torvinen and Ulkuniemi (2016) explores the transparency in public procurement processes in Sweden. The findings imply that the particular procurement procedure under study is regarded as operating effectively and being transparent. It's possible that the procedure contains information asymmetries that could jeopardize its transparency. Both suppliers and purchasers would like to see more openness for discussion and less emphasis on strictly adhering to the rules in order to further improve the procurement process. The study was however done in Sweden unlike present study which is a case of Kenya.

Chesseto, Gudda and Mbuchi (2019) evaluated the effects of transparency on procurements performances. The social exchange hypothesis was used in this investigation. Results showed that transparency has a statistically significant impact on how well a procurement is done. Public universities should communicate openly and frequently with their vendors, and both parties should be allowed to provide more information as needed. Public colleges must also place further orders with their suppliers who have already been screened and proven to be significant resources. Frequent buyer-supplier meetings are necessary to guarantee that problems are aired and solutions are found. The current study however focused on public learning institution unlike the current study which focused on public referral hospitals.

Mohamed (2018) looked into the elements influencing the drugs trade in Kenya's government hospitals. The researcher used a stratified random sample technique and a descriptive research design. The study discovered that an effective procurement process ensures that the appropriate medications are available in the appropriate dosages, at the appropriate times, for the appropriate patients, and at prices that are

reasonable and consistent with accepted standards of quality. The best possible relationship between efficiency, floor space, and production process should be provided by ideal store management. Because corruption opportunities arise when there is a lack of transparency, the organization should make sure that the established procedures are followed. The study also discovered that budgeting and resource planning are essential components of integrated planning. The study failed however to indicate how transparency and written procedures influences procurement performance.

Masembe (2016) conducted a cross-sectional study with a focus on Jinja, Mbale, and Soroti Region Reference Hospitals (RRHs) in Eastern Uganda in order to assess the effectiveness of the money obtained (PDs), It assessed health workers' (HWs) awareness and attitudes toward the procurement departments as well as the capacity of those departments to carry out their duties. Despite the fact that the PPDA Act 2003 requirements were just being observed, the examination found that the quality of the items procured was typically mediocre, there was a supply shortfall, there were stocks outs, as well as frequently delays. The majority of the time, physical structures and equipment were of low quality and received little upkeep. Although competitive pricing was achieved, neither value for money nor cost savings were realized. Because they would either deliver goods early or even of poor quality, some contractors given to manufacturers let the supply chain fall apart. The planning of purchases is not a responsibility of the unit leaders. Regional Hospital of Eastern Uganda's money obtained were generally assessed as performing rather well. In contrast to the present study, which focuses on openness and reporting on service delivery, the study nevertheless focused on the perceptions and beliefs of health workers (HWs) regarding the money obtained.

2.3.3 Procurement Planning and Supply Chain Performance

According to study on the procurement strategies used by Kenyan oil businesses (Kamuru, 2018), The biggest obstacles to improving productivity among Kenyan oil corporations have been bribery, a lack of a planned planning process, and poor equipment. In a study on the variables affecting successes of purchasing in the Department of Energy, Kiage (2017) found that strategy, staff distribution, and contract negotiation had a positive impact on procuring.

According to a study, there is a strong connection connecting government procurements strategies and results by Kabega, Kul, and Mbea (2016) on impacts of public competition law procurements practices on the efficacy of public procurement efforts in Rwanda. Effective public procurement planning was found to be the key to successful project performance in Rwanda. Wogube (2017) examined the relationship between project success and procurement planning in Sironka Town, Uganda, and discovered that there was a strong correlation between it and economic health. Contrary to Wogube (2017), this study evaluates how procurement influences the performance of the business as a whole, including but not restricted to project and staff performance.

The authors of a study by Sabiti, Basheka, and Muhumuza (2017) Regarding methodologies for evaluating government procurement effectiveness in emerging regions, the Uganda better user how well-thought-out purchasing function affects project outcomes.The researcherpoints out that administrative systems are disjointed, there are a large number of duties to be completed, and government ignores adequate procurement planning while handling public affairs.

In order to get the most value for your money, Ocharo (2019) defines procurement procedures as the process of choosing the best vendor to complete a specific project. In his study on the determinants impacting project outcomes: an example of both the ministry ofenergy in Kenya, he offers this finding.One of the essential planning processes is to use procurement methods, and the main methods used to choose a vendor are bid evaluation methods. According to Ocharo (2019), one of the clients' primary decisions is planning. The client must choose the best contractor if they want to make sure the project can be finished properly. Ocharo (2019) defined procurement system as the procedures the procuring body use to get goods, resources, and labor.

Pilcher (2018) notes, however, that product planning necessitates compiling a selection of vendors who are believed to possess the qualifications needed to successfully accomplish the required work. A single vendor is asked to submit a tender for a given project by the client through negotiation or direct bidding. Many different types of businesses prefer competition methods of purchasing because they tend to increase openness, frugality, and effectiveness whilst limiting prejudice (Lynch,2018).

2.3.4 Supplier Qualification Monitoring on Supply Chain Performance

Nzioka (2018) done research to see if KE M SA had the project requirement frameworks and capacities to carry out its purpose. The study's conclusions show that KE M SA's distribution network has matured to the operational perfection level. Although productivity is much more reliable, SCM costs still are high, satisfied customer has increased but remains low, and inter - departmental synergy has not yet been realized. The organisation culture is still conventional. SCM procedures are set

up and recorded. While the last examination focused on KE M SA, the present inquiry was carried out in institutions.

To add to the corpus of knowledge on procurement, Munyimi (2019) investigated how purchasing quality checks affected how effective purchases were made in the energy sector. This study used a bridge poll of energy businesses. The results of this study show that working procurement professionals in the energy business should use these superior standards for procurement in order to improve performance and maintain their position on the board of directors. The reasons for eventually replace in procurement, how to create known to offer thru the procurement quality checks, and how to understand how purchasing quality controls influence the link between purchasing and the firm's performance are other big concerns that merit further research. However, compared to the current study, which only used primary data gathered through data gathering, the previous study employed both primary and secondary data.

Skilled JIT administrators, in addition to regular incoming inspection charges, keep an eye on quality expenses and their implications on scrap and rework, plant efficiency, and customer return costs, according to a study referenced in Giunipero (2018). A greater understanding of quality is required when evaluating purchasing performance in a JIT-using organization as opposed to non-JIT operations. 46 percent of the organizations in the research had a formal system in place for evaluating their suppliers, and procurement department are frequently evaluated on supply base management tactics that address lead-time, transportation, quality, and inventory enhancements. The study's findings, however, did not make clear the impact of supplier qualification on successful procurement.

2.4 Summary of Literature and Research Gaps

According to review of the literature, a variety of control techniques have an impact on procurement practices. Various management techniques have varying effects on performance. Only the national competitive tender and international competitive tender factors, per Githinji and Moronge (2018), influenced the variable that was dependent (Procurement Performance) in a positive and statistically substantial way. Restricted Tender and Direct Procurement were both insignificant in statistical terms. Gladys (2019) found in her study that the hospital had not implemented procedures to boost supplier confidence in the quality of examination, which resulted in an increase in the cost of purchasing items. The study also discovered that different measures, such as measuring metres, when assessed in centimetres, and when assessed in millimetres, might be used in businesses to verify purchase orders. Nonetheless, the reviewed literature failed to fully address the problem of the current study. Study gaps to be filled by current study are summarized by the table 2.1 below.

Table 2.1:Summary of Research Gaps

Author	Research Topic	Research Findings	Knowledge gaps	Focus of the current
Oliechand Mwangagi(2019)	Strategic sourcing management's impact on Kenya's level five hospitals' performance	Sustainable procurement, material procurement, electronic procurement, and supplier relationships significantly influenced level five hospitals' effectiveness.	Conceptual gap existed since measures of procurement management were different from those of current study	Procurement management was measured using competitive tendering, procurement transparency, procurement planning, and supplier qualification monitoring
Chesseto, Gudda and Mbuchi (2019)	Effects of transparency on procurement performance	Transparency is statistically significance to influencing procurement performance.	Methodological gap rose from the study using social exchange theory; present study will adopt the normalization process theory Contextual gap rose from the study focusing on public universities and not public health	Present study explained transparency using normalization process theory. The study was conducted in public referral hospitals in Nairobi
Munyimi (2019)	The impact of purchasing quality controls on purchasing outcomes in Zimbabwe's energy industry	Energy industry procurement practitioners should adopt these quality controls for procurement in order to improve strategy implementation and strengthen their position on the board of directors.	Methodological flaw: This study used a cross-sectional survey of energy businesses. Primary data and secondary were used in the investigation.	Only primary data was used in the current study, which followed a descriptive research methodology and be carried out in public referral hospitals in Nairobi.
Nzioka (2018)	Management of supply chains in Kenya's public healthcare system: the Kenya Medical Supplies Agency case	The distribution network for KEMSA is at a mature degree of functional excellence.	Unlike the current study, which was conducted in hospitals, the previous study concentrated on KEMSA.	The current investigation was carried out in Nairobi's public referral hospitals.
Giunipero	encouraging and	JIT administrators with experience	On supplier certification and	The study focused on how

(2018)	keeping track of JIT supply chain collaboration	monitor cost information and their effects on costs associated with scrap and reworking, plant productivity, and customer returns in addition to standard inspection costs.	contract management, there was confusion.	supplier qualification affects procurement performance
Githinji and Moronge (2018)	Kenyan public hospitals' procuring performance and the impact of procurement strategies, using the example of KNH	It was shown that Direct Purchase and Restricted Bidding both were statistically negligible.	The study concentrated mostly on how conceptual gaps are caused by procurement processes.	The current study focused specific on competitive tendering.
Mohamed (2018).	factors influencing the availability of medications in Kenya's public hospitals.	It was shown that Direct Purchase and Restricted Bidding both were statistically negligible.	However, the study's failure to explain how documented rules and openness affect contract management leaves a conceptual vacuum.	The effects of transparency and written procedures on procurement performance
Njoki and Kimiti (2018)	Competitive bidding methods' effects on Nakuru County's public hospitals' service delivery Kenya	An effective procurement process ensures that the appropriate medications are accessible, in the appropriate quantities, at the appropriate times, for the appropriate patients, and at prices that are reasonable and in line with accepted standards of quality.	A contextual gap resulted from the study's use of government hospitals in Nakuru County.	Present study filled by conducting the study in Nairobi County. Current study focused on procurement performance
Nawi et al., (2016)	The benefits and difficulties associated with deploying an e-procurement system, as seen from the	The process of submitting bids, evaluation criteria, supplier competency, and technology all have a beneficial influence on customer satisfaction.	The study focuses on good negotiating, but the planned study will concentrate on competitive tendering, creating a conceptual divide.	Public referral Hospitals in Nairobi Kenya

	perspective of a Malaysian corporation, using the findings of a study case. Supplier evaluation and assessment methods in Kenyan parastatals.			
Patil, Kumthekar and Landage (2016)	Sweden's procurement procedures are transparent.	Results indicated that parastatals in Kenya base their choice on the following factors: the supplier's services' quality.	The study focused on providing services, as opposed to the current study, which is heavily focused on procurement processes.	Was done in public referral hospitals focusing on procurement performance
Torvinen and Ulkuniemi (2016)	Government procurement practices' effects on Rwanda's government procurement programs' effectiveness		In contrast to the present study, which would be centered on Kenyan rural hospitals, the previous study's concentration on a Nigerian telecoms business produced a contextual gap.	The study was conducted in Kenya. Present study used descriptive research design
Kabega, Kule and Mbera (2016)	encouraging and keeping track of JIT supply chain collaboration	Asymmetric information could exist in the process and pose a threat to its transparency.	It was performed on government agencies that cause a significant difference and concentrated on issues that lead to knowledge gaps.	Present study was conducted in Kenya

Source: Researcher (2023)

2.5 Conceptual Framework

The connection among study variables was represented by researchers using a theoretical foundation, which they then illustrate in a diagram.

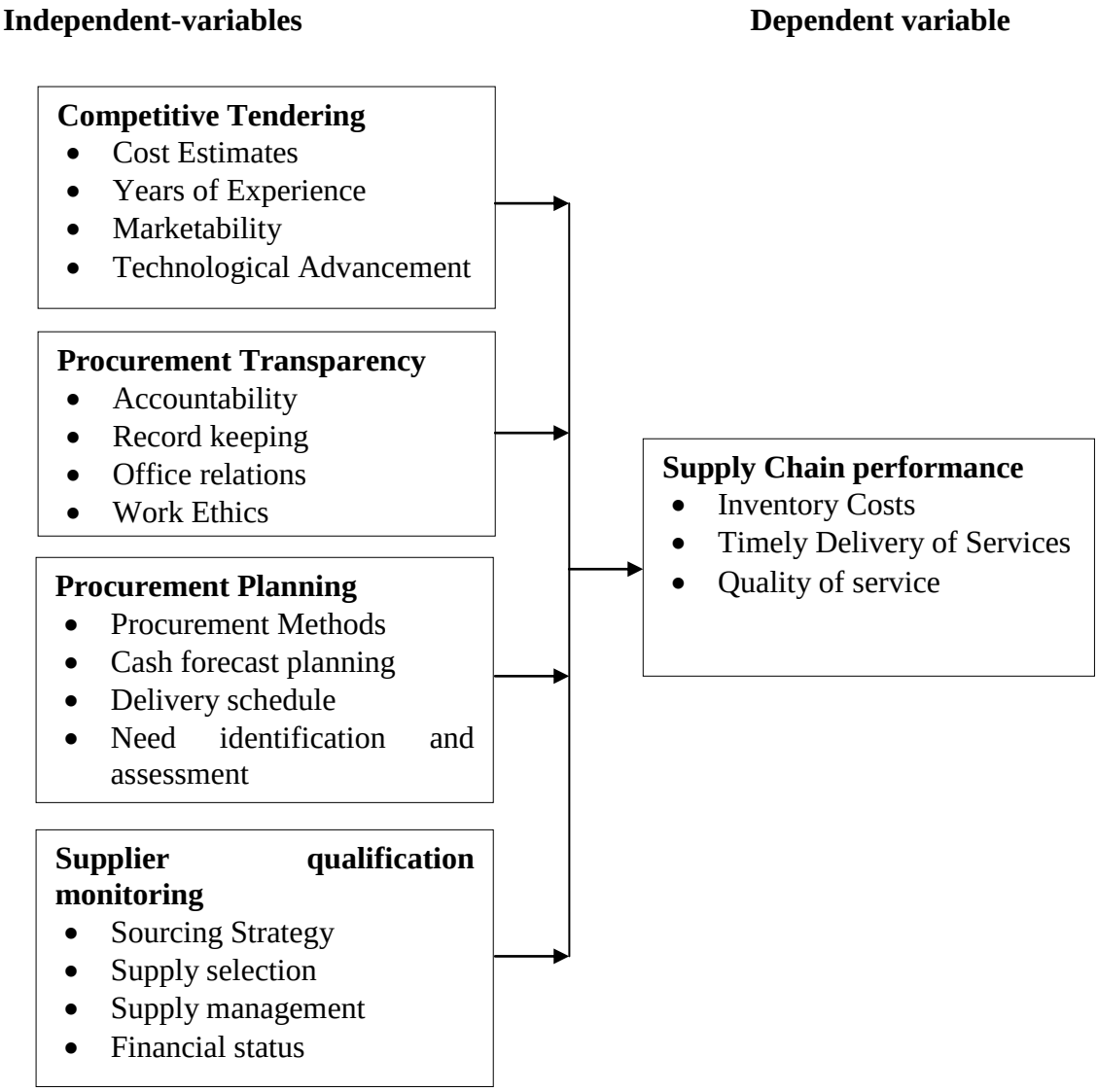

Figure 2.1: Conceptual Framework

Source: Researcher (2022)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1Introduction

The chapter presents the methods used in collecting, piloting, and presenting data. The population utilized, sampled respondents, the data gathering instruments, pilot test, data collection procedure, diagnostic tests and data analysis were all described in this chapter.

3.2 Research Design

The research project utilized descriptive survey design. A descriptive research design asks people about their perceptions, attitudes, and values in order to gather information that depicts an existing phenomenon (Mugenda & Mugenda, 2003). Descriptive research designs allowed for obtaining large data amounts, which helps in decision-making. The descriptive research methods presented both quantitative and qualitative data. The procedure is also inexpensive and simple to utilize (Creswell, 2014).

3.3Target Population

The group of people who studied as part of the treatment and from whom findings were drawn (Newing, 2011). National Spinal Injury Referral, Mathare National Teaching and Referral, and Kenyatta National Hospitals are the referral hospitals that make up the study's target population in Nairobi County, Kenya. The unit of population for this study was the Hospital Manager, Procurement officer, Accountants and procurement staff. Therefore, the study’s target population were 357 Hospital

Manager, procurement officer, Accountants and procurement staff from the three referral hospitals (Respective Hospital Data, 2021).

Table 3.1: Target Population

Category	Target population
Managers	23
Procurement Officers	33
Accountants	17
Procurement staff	284
Total	**357**

3.4 Sample Size and Sampling Technique

The research project utilized descriptive survey design. It asks people about their perceptions, attitudes, and values in order to gather information that depicts an existing phenomenon (Mugenda & Mugenda, 2003). Descriptive research designs allowed for the collation of huge data amounts, which helps in decision-making. Qualitative and quantitative data were presented via the descriptive research methodology. The process is also affordable and easy to use (Creswell, 2014).

The study used stratified random sampling where strata were divided into managers, procurement officers, accountants, and procurement staff. Online sample size calculator (http://www.raosoft.com/samplesize.html) was used to arrive at the sample size. Calculation was based on the total sample size of 186 to arrive at the individual category sample size for instance managers sample size were 23X186/357 = 12 which was notably in line with the population of the study.

Table 3.2: Sample Size

Category	Population	Sample Size
Managers	23	12
Procurement Officers	33	17
Accountants	17	09
Procurement staff	284	148
Total	**357**	**186**

Source: Researcher (2023)

3.5 Data Collection Instruments

Respondent data were gathered for this study through questionnaires. This strategy was preferred by the researcher because it is simple to use and can quickly get information from respondents (Gupta, 2009). Because the researchers' opinions would not influence the responses in the same way as they might in a face-to-face study, questionnaires help lessen bias (Gay, 2015). Closed-ended questions on a Likert scale was used in the questionnaire's construction. The questionnaire was chosen since it permitted the researcher to ask questions consistently and produce data that is simple to evaluate (Floyd et.al 2013).

The questionnaires were created in a methodical manner in accordance with the study's objectives. There are six sections to the questionnaire design. The first section, A, ask about the respondents' demographics, including their gender, age group, level of education, position held, and work history. The following sections, B, C, D, and E, asked about independent and dependent variables. Utilizing 5-point Likert scale in grading responses, with 1 representing "strongly disagree," 2 "disagree," 3 "undecided," 4 "agree," and 5 "strongly agree."

3.6 Pilot-Study

Pilot study was carried out in Mbagathi County Referral Hospital in Nairobi City County. Simple random selection was used to choose 18 responders, or 10% of the sample. 10% of the sample size represented the sample as a whole (Mugenda & Mugenda, 2013). The pilot study's sample was not utilized in the primary investigation.

3.6.1 Validity of Instruments

The extent at which an instrument evaluates what it was created to evaluate, thus according Waliman (2017), is the definition of validity. The accuracy and importance of conclusions derived from results of studies are what we mean by validity. In other words, the concept of validity is the degree to which the results of the data assessment represent the phenomenon that is being studied (Mugenda & Mugenda, 2017). Test and measure validity can be determined using one of two fundamental methods: content validity, face validity, or construct validity (Bryman & Cramer, 2017). A construct's content validity refers to how well the items created to operationalize it give a sufficient and representative sample of all the items that could be used to measure it. Topic validity typically relies on the opinion of subject-matter experts due to the fact that there is no statistical method to determine if a measure effectively encompasses a subject matter or portrays a construct (Cooper & Schindler, 2011).

According to Akhtar (2016), expert opinion determines the validity of content. The degree whereby a test is considered to cover the idea it is intended to measure is known as face validity, also referred to as logical validity. A determination of construct validity is made based on the synthesis of data from several studies that employ a certain measurement device. Examining the link between the measure under consideration and factors known to be associated with or theoretically associated with the construct the instrument is intended to assess is necessary for the evaluation of construct validity (Cooper, & Schindler, 2014). Validity in this study was attained through the research supervisors' professional opinions. The outcomes of their responses were examined using the content validity index to determine the percentage representation. The Cronbach, (2011) formula for content validity were applied. The

equation is as follows: Content Validity Index = (# of judges pronouncing item valid) / (Total No. of items).

3.6.2 Reliability of the Instruments

The instrument's accuracy and precision are related to reliability (Collis & Hussey, 2009). The ability of data gathered using research equipment and the results that are given to be trusted, accurate, and consistent is known as reliability. Utilizing Crobach's Alpha, the dependability of consistency reliability was assessed. Crobach's Alpha is a statistic that measures how effectively a set of test questions may be used to evaluate a certain latent construct (Sekaan, 2019). Internal consistency was evaluated using Cronbah's alpha, which has a range of 0 to 1 (Kipkebut, 2010). Better coefficient values signify a higher degree of reliability. The Cronbach's Alpha coefficient should fall between 0.7 and 0.9. (Kline, 2015). Githu (2017) claims that in order to identify content authenticity, an alpha value of 0.5 or above is required.

3.7 Data Collection Procedures

A questionnaire can be delivered to respondents through mail, phone, internet, or in-person, depending on the type of survey engagement (Rotich, 2016). The self-administered questionnaire approach was used in this investigation. Using personality questions, researchers get access to a wide pool of potential respondents in many different locations (Cooper & Schinder, 2017). In their research, Gitahi (2015), Sialala (2016), and Hassan (2017) employed self-administered questionnaires. The survey was distributed using the drop and pick later approach. Due to respondents' busy schedules, they do not have enough time to complete surveys, which could cause the length of data collection to be extended. This can be avoided by employing the drop and select later strategy (Churchill & Iacobucci, 2002).

The necessary approval was sought before starting the data gathering process. A letter of recommendation from Kenyatta University introducing the investigator to the appropriate authorities would've been necessary to start collecting field data. The purpose of this letter would be to request approval from National Commission for Science, Education, and Development to carry out research (NACOSTI). Additionally, the researcher asked several hospitals for permission before collecting data from the businesses. The study employed follow-up calls and emails to improve response rates. The field data collection was carried out with the assistance of research assistants. Since any questions about the questionnaire were answered immediately, it is anticipated that using research assistants increased the questionnaire return rate (Sekaran & Bougie, 2010). The research instrument, its administration, and data recording all covered in the training provided to the research assistants. The research assistants provided with an introduction letter stating that collecting data on the researcher's behalf.

3.8 Data Analysis Procedure

Quantitative data was gathered for this investigation. To ensure that the data collected from the respondents was complete, the questionnaires reviewed and sanitized. Utilizing SPSS, descriptive statistics was used to analyze data (SPSS V 25). In descriptive statistics, the mean, mode, standard deviation, and variance was employed. Therefore, frequency tables, charts, and graphs were used to display the findings.

Regression analysis and Pearson correlation coefficient analysis was used to undertake inferential data analysis. To assess the likelihood that an observation in the study occurred by chance or is dependable, inferential statistics was utilized. How

strongly and in what direction the variables are correlated linearly was assessed using Pearson R correlation. A high correlation suggests that the variables had a significant relationship. Correlation analysis was used to examine how strongly two variables were associated (Levin & Rubin, 2018). The correlation coefficient indicated whether or not two variables are related if it is zero; if it is negative one, the variables are strongly related (Hair *et al*., 2010). Values between 0.1 and 0.29 suggested a small association, 0.30 to 0.49 showed a medium association, and 0.5 and above indicated a high association.

To ascertain how predictor/independent factors affects response/dependent variable, regression models was fitted to the data. Because multiple regression analysis uses the predictor variables to forecast the response variable, it was applied in this investigation. It is a statistical method that aimed to determine whether certain variables can be used in conjunction to predict a specific variable (Mugenda & Mugenda, 2018). If the p value is less than 0.05, the independent variable had a significant impact on the dependent variable using a 95% confidence level and a 0.05 significance level.

The impacts of procurements managements methods on performances in public referral hospitals in Nairobi County, Kenya, was evaluated using multiple regression models. Regression models was employed, including;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad \text{.....1.1}$$

Where: Y= Supply Chain performance

X_1 = Competitive Tendering

X_2 = Procurement Transparency

X_3 = Procurement Planning

X_4 = Supplier qualification monitoring

β_0 is the constant (Coefficient of intercept)

β_1, β_2, β_3, and β_4 are the beta coefficients; and ε is a random error

3.9 Ethical Considerations

Being morally and legally correct when conducting research is a legal and ethical consideration (Mugenda, 2008). Basic ethical considerations for any research project include gender, sensitivity to cultural differences, privacy, confidentiality, and anonymity (Belfit *et al*., 2011). Kenyatta University and the permit from NACOSTI. After they have read the letter and requested any clarifications before signing, the participants were next given a consent letter asking for their informed consent to take part in the study. The questionnaire were accompanied by an introductory letter that guaranteed the participants' privacy and anonymity. The participants were free to exit at any time when they feel their privacy has been compromised.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

In this chapter, the study's findings were provided together with an analysis and interpretation of the data collected from the respondents. Additionally, it talks about and provides insights into the supply chain performances and procurements managements procedures of the National Referral Hospitals in Nairobi County, Kenya. A qualitative analysis was written up in prose following the data collection and compilation of the reports in the form of tables and figures.

4.2 Response Rate

Only 153 of the 186 surveys that were received back had all of the required data filled out. This led to an 82% response rate being attained. The statistically relevant rate of responses for analyses should be at least fifty (50) percent, according to Mugenda and Mugenda's (2003) research. As a result, the investigator was able to draw conclusions about the study population from this excellent response rate.

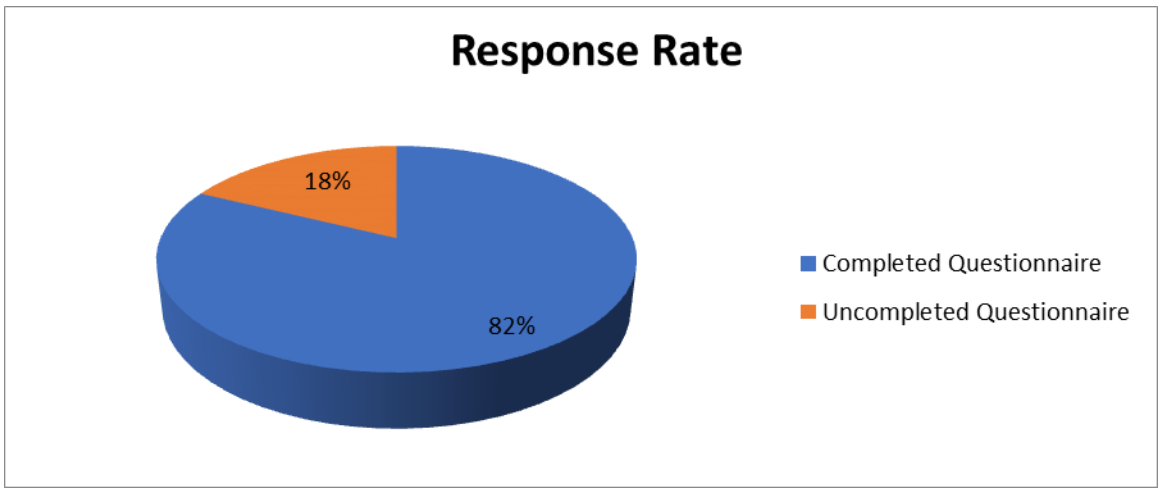

Figure 4.1: Response Rate

Researcher (2023)

4.3 Reliability Results

Cronbach Alpha score was used to test the reliability of the research instruments. The threshold was 0.7. The value above 0.7 was termed as reliable and verse versa.

Table 4.1 Reliability Results

Constructs	No. of Items	Alpha scores	Comments
Competitive Tendering	7	0.778	Reliable
Procurement Transparency	7	0.734	Reliable
Procurement Planning	7	0.723	Reliable
Supplier Qualification Monitoring	7	0.743	Reliable
Supply Chain Performance	7	0.747	Reliable
Aggregate Score		**0.745**	**Reliable**

Source: Researcher (2023)

The data collection tool for the study was deemed to be credible since all Alpha scores were more than set threshold of 0.7. A score of 0.778 for competitive tendering, a score of 0.734 for procurement transparency, a score of 0.723 for procurement planning, a score of 0.743 for supplier qualification monitoring, and a score of 0.747 for supply chain performance evidenced reliability of research instruments.

4.4 Demographic Characteristics

The surveys had a section for gathering the demographic information of respondents. The questionnaire gathered data on gender, level of education and work experience.

4.4.1 Gender of the Respondents

The survey collected data on the respondents' gender. To establish the gender distribution representation, the respondents were asked to specify their gender. Figure 4.2 presents the

findings.

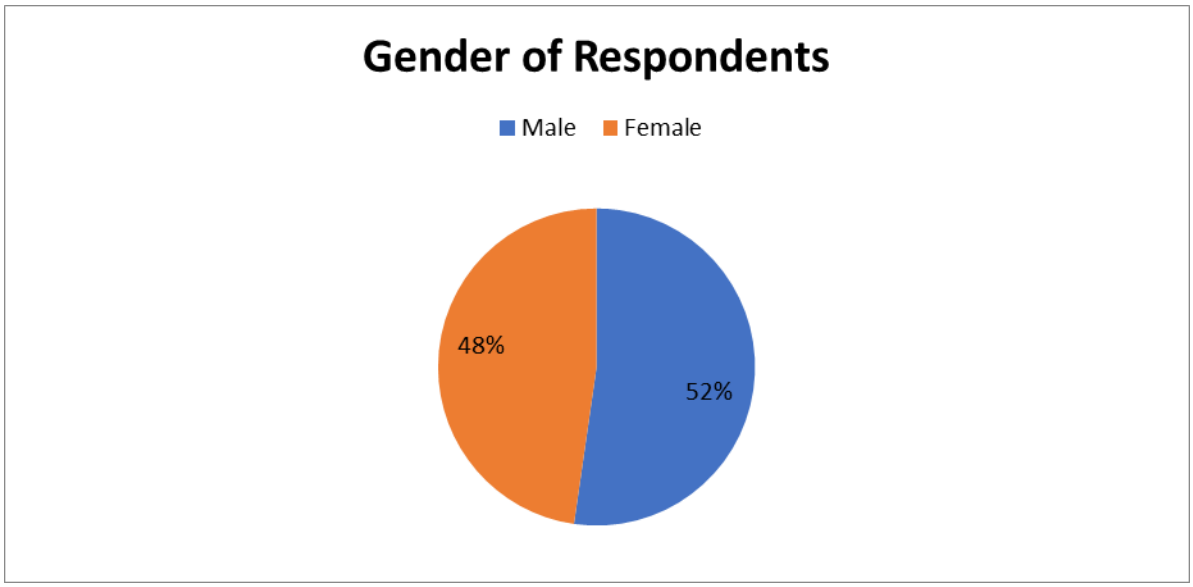

Figure 4.2: Gender of the Respondents

Source: Researcher (2023)

Participants in the study self-identified as either male or female. Male respondents made up 52.3% of the sample, while female respondents made up 47.7% according to figure 4.2. The study indicated that there was equal representation for both genders in the investigation.

4.4.2 Age of the Respondents

In response to a question about their age range, respondents supplied the responses shown in figure 4.3.

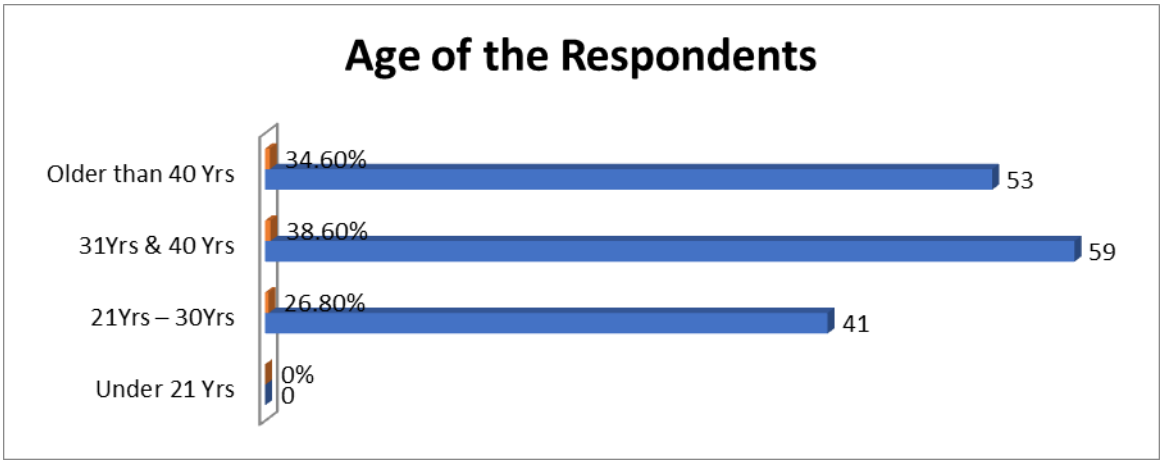

Figure 4.3 Age of the Respondents

Source: Researcher (2023)

Most respondents had an age ranging from 31-40 years (38.6%). The respondents with ages between 21-30 were represented 41 (26.8%). Those in the age above 40 years were 34.6 % of the total respondents sampled. However, none of the respondent was below 21 years. Establishing the age of the respondents was key relating procurements practices and supply chain performances as the age shows that respondents are matured to understand the topic and its importance.

4.4.3 Work Experience

This section presents data on the work experience in terms of the years spent in the hospital.

Table 4.2 Work Experience

		Frequency	Percent
Valid	Less Than 5 Year	8	5.2
	5 to 10 Years	16	10.5
	11 to 15 Years	8	5.2
	More Than 16 Years	121	79.1
	Total	153	100.0

Source: Researcher (2023)

The results in table 4.4 indicate that respondents experienced ranged from less than 5 years to more than 16 years. Those with more than 16 years (121) were the majority represented by 79.1%. Respondents with fewer than five years, five to ten years, and eleven to fifteen years were 8, 16 and 8 representing 5.2%, 10.5% and 5.2% respectively. The experience was necessary in helping the research achieve its objectives for it was established that the respondents had the required skills to answer the questions.

4.4.4 Highest Education Level

The section presents the highest education level of the respondents sampled. Table 4.3 summarizes the results.

Table 4.3 Highest Education Level

		Frequency	Percent
Valid	A PhD	2	1.3
	Master	24	15.7
	Degree	88	57.5
	Diploma	39	25.5
	Total	153	100.0

Source: Researcher (2023)

The study result indicates that majority (57.5%) had degree, 25.5% had diploma, 15.7% had masters' degree and 2 had PhD. From table 4.3, the respondents had acquired the relevant education to help handle any inquiry relating to supply chain practices, procurement management and supply chain performance.

4.4.5 Position Held in the Hospital

This section presents the position held by various respondents in the Hospital. The position includes; managers, procurement officers, accountants and procurement staff.

Table 4.4 Position Held in the Hospital

		Frequency	Percent
Valid	Managers	5	3.3
	Procurement officers	12	7.8
	Accountants	4	2.6
	Procurement Staff	132	86.3
	Total	**153**	**100.0**

Source: Researcher (2023)

The investigation discovered that majority of respondents (132) representing 86.3% were procurement staff, 3.3% were managers in different sections, 7.8 were procurement officers and 2.6% were accountants. This clearly indicated that the study captured most of the respondents from procurement departments which helped to achieve the study's objectives which rotates around procurement functions and practices.

4.5 Descriptive Analysis

The supply chain performance and procurement management strategies of National Referral Hospitals in Nairobi County, Kenya, were demonstrated using descriptive statistical information. The degree of agreement was measured using a 5-point Likert scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, and 5-strongly agree) seeking to determine the effect of competitive tendering, procurement transparency, procurement planning and supplier qualification and monitoring on supply chain performances in referral hospitals in Nairobi County.

4.5.1 Competitive Tendering

The purpose of the study was to confirm the existence of competitive tendering among Nairobi County's referral hospitals. Table 4.5 presents various competitive tendering in the sampled hospitals in Nairobi City County, Kenya.

Table 4.5 Competitive Tendering

	Mean	Std. Deviation
The cost of the tender is determined by the hospital	3.9647	.58225
The supplier years of experience matters in consideration	4.0001	.47213
Marketability of the supplier is considered	3.8431	.36487
Technology advancement of the suppliers increases his/her chances of being considered	3.8999	.39555
Competitive tendering leads to better procurement performance	3.9867	.38757
Bid placing, evaluation criteria, supplier capacity and technology affects procurement	4.1163	.51436
Aggregate Score	**3.9685**	**0.45279**

Source: Researcher (2023)

According to table 4.5's findings, the following competitive tendering elements were mostly applied, namely; the cost of the tender (mean 3.9647), the supplier years of experience (mean 3.9616), technology advancement (3.8999) and marketability of supplier (mean 3.8431). Moreover, it was established that competitive tendering leads to improved procurement performance (mean= 3.9685). On aggregate, the average score corresponded to “agree” in the likert scale. The result implied that among the Nairobi County's referral hospitals tendering was competitive as reflected in the cost of the tender, supply years of experience, marketability and use of technology. When businesses compete to demonstrate why they should be awarded the contract, it is expected that prices would decrease and value-added will increase. This is often accomplished through an affordable pricing and other advantages for the contracting authority. One of the government's primary goals in public sector procurement is market openness, which may be achieved via competitive tendering. A government contract must be publicly announced, made available to all, and have free and easily accessible information in order to comply with the legislation.

The finding agrees with Githinji and Moronge (2018) that competitive tendering improves the effectiveness of procurement. Further, Njoki and Kmiti (2018) established that technology, supplier capability, evaluation criteria, and bid putting have a favorable impact on service delivery. Moreover, Oliech and Mwangangi (2019) study results supported by demonstrating that strategic outsourcing, procurement planning, competitive tenders and supplier relationships could all be used to account for the variation in performance of level 5 hospital. It is clear that competitive tendering ensures that contracts are granted in accordance with the criteria outlined in the tender papers, and the results are made public.

Many people believe that open tendering is the best way to ensure that all interested bidders have a fair shot at winning contracts and increase overall commercial activity. Politicians have a say in how public agencies go about making purchases. Transparency is crucial for a politician. If the results of a procurement process are subpar, a politician might remark "The procurement process was open and comprehensive at the company". The above-described approach may lack the openness of a competitive bid process. Of course, there have been instances when the buyer and the seller had a too close connection, which led to undesirable results and higher expenditures.

4.5.2 Procurement Transparency in Referral Hospitals in Nairobi County

The section presents results on how the procurement process was in referral hospitals targeted in terms of preciseness, access and accuracy of procurement information.

Table 4.6: Procurement Transparency

	Mean	Std. Deviation
The process of procurement is accountable enough	3.1033	.50163
There is a good a proper record keeping	2.3922	.48983
The employees have good and open office relations	3.1111	.47653
There is a good observation of work Ethics	3.0089	.47658
Dialogue in procurement process can improve procurement performance	3.3660	.53498
Frequent buyer supplier meetings help address emerging challenges	2.9998	.49806
Aggregate Score	**2.9038**	**0.48614**

Source: Researcher (2023)

The aggregate score of 2.9038 and 0.48614 presents a low mean score corresponding to "moderately agree" and low variation in responses respectively. The specific statement scores indicate that the procurement process was moderately accountable (Mean=3.1), there was poor record keeping (Mean=2.3922), moderate open office relationship was experienced (Mean=3.11) and moderate work ethics practiced (Mean=3.0). The respondents further opined that dialogue in procurement process and frequent meetings between buyer and supplier moderately settled procurement transparency issues. It was clearly identified that internal data transmission occurs when, for example, a company's worldwide strategy is communicated to all personnel. It's also done outside the corporation, via measures like listing the ingredients in the products for sale. Transparency has moderately assisted in the production of the moderate quality service feasible within established budgetary and timeframe constraints.

The study agrees with Torvinen and Ulkuniemi (2016) that the particular procurement procedure is regarded as operating effectively and being transparent when all information are available to both internal and external users. It's possible that the procurement procedure may contain information asymmetries that could jeopardize its

transparency. Both suppliers and purchasers would like to see more openness for discussion and less emphasis on strictly adhering to the rules in order to further improve the procurement process. Chesseto, Gudda and Mbuchi (2019) findings supported that transparency has a statistically significant impact on how well procurement is done. Frequent buyer-supplier meetings are necessary to guarantee that problems are aired and solutions are found. According to Mohamed (2018), an effective procurement process ensures that the appropriate products are available in the appropriate amounts, at the appropriate times, for the appropriate patients, and at prices that are reasonable and consistent with accepted quality guidelines.

4.5.3 Procurement Planning in Referral Hospitals in Nairobi County

The result in table 4.7 presents summarized statements on procurement planning as opined by various respondents in the study.

Table 4.7 Procurement Planning

	Mean	Std. Deviation
The methods used in procurement determines how successful procurement will be	3.8911	.48903
Cash forecast planning helps the organization achieve value for money	3.8054	.40098
Efficiency within procurement is achieved through delivery scheduling	3.9960	.53498
Identification and evaluation of needs enable the organization's procurement processes to provide quality services.	4.0099	.57541
Inability to compete has been mostly hampered by bad technology	4.3000	.48330
Problems occur when the government conducts public affairs projects without using efficient procurement strategy.	4.0022	.49876
Aggregate Score	**4.0007**	**0.49708**

Source: Researcher (2023)

The outcome is shown in table 4.7, where the average overall score is 4.0007 and the average overall standard deviation is 0.49708. The standard deviation is quite small, indicating that responses to the survey's five-point Likert scale have little tendency to

deviate from the mean score of 4.0007. The mean score correlates to agreement. the results therefore clearly demonstrate that procurement planning in the referral hospitals targeted in the study was fairly executed. The methods used in procurement (Mean=3.8911, Cash forecast planning (Mean=3.8054, Efficiency within procurement(mean=3.9960) and Identification and evaluation of needs (Mean=4.0099) determined the success of procurement. Procurement had a constant and significant challenge from supply risk and acquisitions that are performed outside of the formal procurement procedure.

Kamuru (2018) finding agrees that the biggest obstacles to improving productivity in corporations have been bribery, a lack of a planned planning process, and poor equipment. Sabiti, Basheka, and Muhumuza (2017) found that when administrative systems are disjointed, there are a large number of duties to be uncompleted, and government ignores adequate procurement planning while handling public affairs. Ocharo (2019) found that client must choose the best procurement plan if they want to make sure the project can be finished properly. Further, Pilcher (2018) found that product planning necessitates compiling a selection of vendors who are believed to possess the qualifications needed to successfully accomplish the required work.

4.5.4 Supplier Qualification Monitoring in Referral Hospitals in Nairobi County

The section presents the study results on supplier qualification monitoring in referral hospitals in Nairobi City County, Kenya.

Table 4.8 Supplier Qualification Monitoring in Referral Hospitals in Nairobi County

	Mean	Std. Deviation
The Hospital has convenient and effective sourcing strategies	3.3266	.48983
Supply selection is coordinated by the procurement team	3.5752	.49594
Supply management is effectively done	3.3944	.48983
Financial status of the hospital determines the procurements to be done	3.6341	.48330
Procurement quality controls helps to upsurge procurement performance	3.0089	.49689
Organizational efficiency is increased by using skilled JIT executives to track cost of quality and their effects on scrap and rework.	3.6667	.50163
Aggregate Score	**3.3954**	**0.4906**

Source: Researcher (2023)

The study findings aggregates' mean score was 3.3954 and standard deviation was 0.4906. The aggregate indicates that supplier qualification monitoring was moderately done and the variation in responses was low as indicated by 0.49 from the mean. The study established that Hospitals moderately had convenient and effective sourcing strategies (Mean=3.3266, Std Dev= 0.48983). Other aspects on supplier qualification monitoring such as supplier selection, supply management, financial status, procurement policy and organizational efficiency in the referral hospital were moderate. These were supported by moderate mean of 3.5752, 3.3944, 3.6341, 3.0089, and 3.6667. Successful supplier quality management adds value to business operations by enhancing productivity, lessening vulnerability, and bolstering security and quality. Yet, there are obstacles that prevent optimal supplier management. The best way to overcome these obstacles is to investigate their root causes and then put in place effective management controls to prevent them from ever happening again.

A lack of control over a process might be shown by an organization's inability to track supplier input. Supplier management is essential in a strictly controlled setting.

Medical device companies, for instance, must "keep records that clearly identify or reference the required criteria, including quality standards, for acquired or otherwise obtained items and services" in order to comply with the FDA's Quality System Regulation. The ability to manage and monitor supplier input is crucial for keeping such records up to date. Thus, a company's supplier data is among its most valuable possessions. The accuracy of the company's ROI and the completeness of the supplier's data are both guaranteed by this data. In addition, this method guarantees that the company can accurately assess the supplier's performance.

Nzioka (2018) supported that SCM costs still are high, satisfied customer has increased but remains low, and inter - departmental synergy has not yet been realized. The study was supported by Munyimi (2019) that in order to enhance performance and solidify their place on the board of directors, working procurement specialists in the energy industry should apply these quality controls for procurement. The reasons for eventually replace in procurement, how to create known to offer thru the procurement quality checks, and how to understand how purchasing quality controls influence the link between purchasing and the firm's performance are other big concerns that merit further research. The study was supported by Giunipero (2018) that understanding of supply quality is required when evaluating purchasing performance in a JIT-using organization.

4.5.5 Supply Chain Performance

The segment presents results on supplier chain performance. Supply chain performance was measured using costs of inventory, timely delivery of services and quality of services.

Table 4.9 Supply Chain Performance

	Mean	Std. Deviation
Our procurement function is able to reach the objectives and goals of procurement department with minimum cost	2.2008	.55555
Procurement cycle time in our organization has reduced significantly	2.2234	.49998
Our institution has contracted a number of reliable and performing suppliers	2.0560	.49674
There has been cost savings through adoption of strategic procurement management practices	2.9870	.54163
Strict codes of conduct ensure purchasing procedures are followed	2.0765	.49876
Our hospital has a dedicated skilled workforce responsible for procurement of medical equipment	2.6667	.50008
Our procurement function can accomplish the goals and objectives of the procurement department for least cost.	2.1621	.53423
Aggregate Score	**2.3389**	**0.51813**

Source: Researcher (2023)

The performance of supply chain in the five referral Hospitals targeted was poor (Mean=2.3389, Standard Deviation=0.51813). The study further indicated that the procurement functions were unable to reach the aims and goals of procurement department with least costs (Mean=2.2234). The results indicated that there was low reduction in procurement cycle time, the Hospitals have lowly contracted reliable and performing suppliers, there have been not saved cost through adoption of strategic procurement management practices and there was no adherence to codes of conduct in ensuring purchasing procedures. Movement of pharmaceutical items to promote patient satisfaction and enhance service quality has not increased the significance of supply chains managements in the healthcare industry. Poor performance of supply chain has been affected by ever-increasing cost of commodities, price of inputs, increased supplier and manufacturer labor costs and increased costs of warehousing, transportation, and inventory management caused by international logistics complexity.

4.6 Diagnostic Study Results

Diagnostic tests on the study assumptions and checks to ensure that the presumptions of regression had not been violated were done ahead of the regression analysis. Multicollinearity, normality, and autocorrelation were performed.

4.6.1 Multicollinearity Tests

The Multicollinearity test was used to check whether any variables in the analyses had strong connections with any other independent variables. A summary of the results of multicollinearity may be found in Table 4.10.

Table 4.10 Test of Multicollinearity

Constructs	VIF	1/VIF
Competitive Tendering	7.96	0.1256
Procurement Transparency	6.28	0.1592
Procurement Planning	5.98	0.1672
Supplier Qualification Monitoring	6.76	0.1479
Mean VIF	6.68	

Source: Researcher (2023)

Multicollinearity testing showed that the VIF for Competitive Tendering was 5.98, Procurement Transparency was 6.28, Procurement Planning was 7.96, and Supplier Qualification Monitoring was 6.76. It can be concluded that there was certainly no multicollinearity because none of the VIFs surpassed 10.

4.6.2 Normality Tests

The sample populations' distribution ought to follow a normal distribution. The findings of the normality tests utilizing the kurtosis, skewness, and normal distribution table were displayed in table 4.11.

Table 4.11 Test of Normality

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	Adj chi2(2)	Prob>chi2
------ joint ---					

Myresiduals	153	0	0	.	0

Source: Researcher (2023)

The skewness and kurtosis tests yielded findings that were both equal to zero (0%). Zero skewness would be present in a symmetrical dataset. Compared to a normal distribution, the dataset exhibits heavier tails if the kurtosis is greater than 3. In comparison to a normal distribution, the dataset displays lighter tails if the kurtosis value is less than 3. Therefore, the data was normally distributed.

4.3.3 Tests on Autocorrelation

To evaluate the autocorrelation hypotheses, which assume zero covariance over time, the researcher used error terms. The errors referring to one observation are therefore unconnected to the inconsistencies associated with another. Gujarati (2004) asserts that the most renowned test for determining serial correlation is the Durbin-Watson test. The null hypothesis for the test is that the residuals do not exhibit serial correlation up to the specified order. The autocorrelation outcomes are displayed in table 4.12.

Table 4.12: Wool Dridge Autocorrelation Tests

H0 : no first- order autocorrelation	
F(1, 153)	2.544
Prob> F	0.1665

Source: Researcher (2022)

The results show that the coefficients are statistically insignificant. The no-serial autocorrelation passed the test. According to the test, there are no serial correlations among the residuals of 0.1665>0.05. Therefore, in this analysis, there is no connection amongst the error terms for various observations, hence adequate for inferential analysis.

4.7 Inferential Analysis

The correlation and regression results were presented in this section.

4.7.1 Correlation Results

This section presents findings on the relationships between procurements managements practices and supply chain performances of referral Hospitals in Nairobi City County, Kenya. Table 4.13 shows the findings.

Table 4.14 Correlations

		CT	PT	PP	SQM	SCP
CT	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	153				
PT	Pearson Correlation	.460**	1			
	Sig. (2-tailed)	.500				
	N	153	153			
PP	Pearson Correlation	.254**	-.064	1		
	Sig. (2-tailed)	.502	.435			
	N	153	153	153		
SQM	Pearson Correlation	.228**	-.089	.994**	1	
	Sig. (2-tailed)	.605	.274	.900		
	N	153	153	153	153	
SCP	Pearson Correlation	.527**	.589**	.646**	.612**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	153	153	153	153	153

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

Source: Researcher (2023)

It was also in order to note that table 4.12 showed strong positive relationships between competitive tendering (CT) and supply chain performances (SCP) with (r = .527), Supply Chain Performance (PT) was discovered to have strong positive correlations with supply procurement transparency (PT), procurement planning and supply qualification management (SQM) with R of 0.589, 0.646 and 0.612. The study adopted the 0.05 level of significance. From the above results it is evident that competitive tendering (CT), procurement transparency (PT), procurement planning and supply qualification management (SQM) had significant effects on supply chain performances.

4.6.2 Regression Analysis

This section presents the linear relationship between variables in the study.

Table 4.13 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.915[a]	.837	.833	1.45078

a. Predictors: (Constant), Competitive Tendering, Procurement Transparency, Procurement Planning, Supply Qualification Management

Source: Researcher (2023)

The correlation coefficient (R) shows the degree of relationship strength between the study's variables. The R-Square value explains the variations in the dependent variable brought on by the independent factors. The modified R-squared is a variant of R-squared that considers factors in a regression model that are not significant. Table 4.13 makes it clear that R = 0.915 indicates a high level of prediction. The supply chain performance changes were anticipated by procurement management practices 83.3% of the time, according to the R2 coefficient of determination, which was 0.833. The remaining 16.7% of the changes in supply chain performances were accounted for by other factors not included in the model.

Table 4.14 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1603.725	4	400.931	190.488	.000[b]
	Residual	311.504	148	2.105		
	Total	1915.229	152			

a. Dependent Variable: Supply Chain Performance

b. Predictors: (Constant), Competitive Tendering, Procurement Transparency, Procurement Planning, Supply Qualification Management

Source: Researcher (2023)

The level of model fitness at a 95% level of confidence is shown in the analysis of variance. The F Statistic, or F value (without the "critical" part), is the value determined from the data. In contrast to F-value, the F critical value is a particular

value. As a result, the null hypothesis was rejected since the computed F value in the test exceeded the F critical value, according to the result.

Table 4.15 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.763	2.405		4.891	.000
	CT	.321	.188	.068	1.711	.009
	PT	1.480	.100	.570	14.751	.000
	PP	3.303	.574	1.849	5.758	.000
	SQM	2.071	.557	1.190	3.719	.000

a. Dependent Variable: Supply Chain Performance

Source: Researcher (2023)

$Y = 11.763 + 0.321X_1 + 1.480X_2 + 3.303X_3 - 2.071X_4 + \varepsilon$

The study's findings showed that, while controlling for other variables, supply chain performance was 11.763 units. Competitive tendering significantly improved the performances of the supply chain when considering the study factors included in the model. Supply chain performances changed by 0.321 units for every unit change in competitive tendering. Githinji and Moronge's (2018) conclusions that competitive tendering has an enormous effect on supply chain performance are supported by the findings. Furthermore, Njoki and Kmiti (2018) have shown that competitive tendering has considerable impacts on the effectiveness of the supply chain. Additionally, research by Oliech and Mwangangi (2019) showed that competitive tendering has immense effect on supply chain performances.

The results in table 4.15 presents that procurement had a notable beneficial impact on supply chain performances. A unit change in procurement transparency resulted in 1.48 units changes in supply chain performance. The study agrees with Torvinen and Ulkuniemi (2016) that procurement transparency significantly affects supply chain performance. Further, Chesseto, Gudda and Mbuchi (2019) agrees that procurement

transparency has impacts on supply chain performances that are of statistical significance. According to Mohamed (2018), efficient procurement procedure guarantees constant supply chain performance.

The results in table 4.15 presents procurement planning to have significant positive effects on supply chain performances. A unit change in procurement planning resulted in 3.33-unit changes in supply chain performance. Kamuru (2018) findings agrees that procurements planning has a significant positive effect on supply chain performances. Sabiti, Basheka, and Muhumuza (2017) supported that procurement planning significantly affects supply chain performance. Ocharo (2019) further indicated that procurement plans have positive impacts on supply chain performance.

Table 4.15's findings show that supplier qualification managements significantly improved supply chain performances. Supply chain performances changed by 2.071 units for every unit change in supplier qualification management. The claim that supplier qualification management has major impacts on supply chain performances was supported by Nzioka (2018). Munyimi (2019) provided evidence to support the study's conclusion that supplier qualification managements profoundly influenced supply chain performance. According to Giunipero's (2018) research, supplier qualification management significantly affects the effectiveness of the supply chain.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summarized results on procurement managements practices and supply chain performances. The results were summarized based on research objectives and guided by the findings.

5.2 Summary of the Study

The goal of the study was to ascertain how public referral hospitals' procurement management procedures and supply chain efficiency correlated with one another in Nairobi County, Kenya. Specifically, the study determined the impact of competitive tendering, procurement transparency, procurement planning, and supplier qualification monitoring on supply chain performances.

A descriptive research design will be used in the investigation. The study focused on national referral hospitals in Kenya's Nairobi County. The 327 hospital managers, procurement officers, accountants, and procurement personnel served as the study's unit of observation. To choose the 187 respondents, a stratified random sample procedure was used. The results of the pilot test were used to examine the questionnaire's validity and reliability. A questionnaire was used to gather primary data. On the data gathered, descriptive and inferential analysis were performed using SPSS.

From the analysis, it was found that only 82% responded to the questionnaire. The demographic characteristics showed that genders were equally represented, the respondents were of age, had number of work experience, educated and held positions in the hospitals. Descriptive statistics established an effect between procurement

management practices and supply chain performance. Diagnostic test was taken, test showed that there is no serial autocorrelation, no multicollinearity and variables are normally distributed.

In accordance to the effect of competitive tendering on supply chain performances of national referral hospitals in Nairobi city county, Kenya. The result showed competitive tendering had significant positive effects on supply chain performance. That is, a unit change in competitive tendering resulted in 0.321-unit changes in supply chain performances.

The second concern is the impact of procurement transparency on national referral hospitals in Nairobi County, Kenya's city. Supply chain performance was significantly improved by procurement openness. This means that a unit change in procurement transparency led to a change in supply chain performance of 1.48 units.

The third point concerns the impacts of supply chain performances on national referral hospitals in Nairobi County, Kenya. Supply chain performance was significantly improved by procurement planning. Thus, it can be concluded that a unit change in the procurement plans led to 3.33-unit modifications.

in supply chain performance.

Finally, let's talk about how supplier qualification monitoring affects national referral hospitals in Nairobi County, Kenya, in terms of supply chain performances. The performance of the supply chain was significantly improved via supplier qualification managements. A unit change in supplier qualification management resulted in 2.071-unit changes in supply chain performances.

5.3 Conclusions

The study concluded that the performance of the supply chain was significantly improved through competitive tendering. From the outcomes, competitive tendering indicated that to a large extent the cost of the tender, the supplier years of experience, technology advancement and marketability of supplier were well implemented. Competitive tendering led to improved procurement performance. This was often accomplished through an affordable pricing and other advantages for the contracting authority. A government contract must be publicly announced, made available to all, and have free and easily accessible information in order to comply with the legislation.

The study concluded that procurement transparency had a significant positive effect on supply chain performance. The study results on procurement transparency scores indicates that the procurement process was moderately accountable, poor procurement records were kept, moderate open office relationship was experienced and moderate work ethics practiced. The respondents further opined that dialogue in procurement process and frequent meetings between buyer and supplier moderately settled procurement transparency issues. It was clearly identified that internal data transmission occurs when a procurement strategy is communicated to all personnel. Transparency has moderately assisted in the production of the moderate quality service feasible within established budgetary and timeframe constraints.

The study concluded that procurement planning had a significant positive effect on supply chain performance. The result indicated that procurement planning in the referral hospitals targeted in the study was fairly executed. The methods used in procurement, cash forecast planning, efficiency within procurement and identification

and evaluation of needs determined the success of procurement. Procurement had a constant and significant challenge from supply risk and acquisitions that are performed outside of the formal procurement procedure.

The study concluded that that supplier qualification management had a significant positive effect on supply chain performance. The results on supplier qualification monitoring indicated that the referral hospitals moderately had monitoring systems set. Central aspects of supplier qualification monitoring aspects such as supplier selection, supply management, financial status, procurement policy and organizational efficiency in the referral hospital were moderately considered. Successful supplier quality management adds value to business operations by enhancing productivity, lessening vulnerability, and bolstering security and quality.

5.4 Recommendations of the Study

Based on the findings, the study recommends that competitive tendering, procurement transparency, procurement planning and supplier qualification management should be well incorporated into the procurement system of the national referral hospitals in Nairobi city county, Kenya. Management ought to continue working to increase competitive tendering since it gives them a greater chance to negotiate bids and more bargaining leverage given that they can draw in a larger pool of providers. Additionally, competitive tendering would improve the efficiency of national referral hospitals by fostering public confidence in the hospitals and giving the public an equal opportunity to receive quality service and accountability.

Management and policy makers should ensure that there is absolute transparency in procurement. The management should be accountable and all records should be kept. Good dialogue in procurement process and frequent meetings between buyer and

supplier should be encouraged. All internal data transmission on new or old strategy should be effectively communicated to all personnel. Procedures and choices should be monitored and evaluated, ensuring that decision-makers may be held responsible, and facilitate the expansion of competition in public procurement.

Management should support procurement planning because it improves efficiency and cuts down on supplier late payments. Policies should be created to prevent payment delays, purchase of products and amenities in accordance with the budgetary permissions of the funding sources of referral hospitals. In order to use the precise decisions as the basis for generating the essential commodities, functions, as well as amenities, procurement planning processes should be always be evaluated. As policies that a geared towards procurement planning are in place, there will also be appropriate application of resources, creativity, and problem-solving strategies. Planning also makes ensuring that purchasing organizations use public resources effectively and abide by the procurement legislation when carrying out their duties.

Central aspects of supplier qualification monitoring aspects such as supplier selection, supply management, financial status, procurement policy should be in encourage in the referral hospitals. Successful supplier quality management adds value to business operations by enhancing productivity, lessening vulnerability, and bolstering security and quality, therefore it is important that the management of referral hospitals should encourage supplier monitoring practices..

5.5 Suggestions for Further Study

The study concentrated on the procurement management practices and focused on competitive tendering, procurement transparency, procurement planning, supply qualification management as some of the indicators. Further study recommends other

indicators on procurement management practices. Further, the study suggests similar study on other sectors such as state corporations which will help in comparing the findings with the current results.

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APPENDICES

Appendix I: Questionnaire

The schedule consists of two sections, section A and section B.

Section A consists of personal questions and is intended to verify the respondent's details while section B is based on the research objectives.

Section A: Biographical Data

1. One. Gender (Tick where applicable)

2. (A) Male (B) Female (C)

3. 2. What age group are you in? (Tick where applicable)

4. A) Under 21 years [] B) Between 21 and 30 years [] C) Between 31 and 40 years []

5. c) Older than 40 []

6. 3. How long have you been employed with the hospital? (Check the appropriate box)

7. Below five years, between five and ten years, and between fifteen and twenty years.

8. c) Older than 16 Years []

9. 4. What degree of education do you possess? (Check the appropriate box)

10. A Ph.D., a master's degree, a degree, a diploma, etc.

11. Certificate [] (e)

12. What is your position in this Hospital

a) Manager [ ]

b) Procurement Officer [ ]

c) Accountant [}

d) Procurement staff [ ]

Section B: Competitive Tendering

Please check the box that most accurately represents your position using the following scale: 1 = Strongly Disagree, 2 =Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

	1	2	3	4	5
The cost of the tender is determined by the hospital					
The supplier years of experience matters in consideration					
Marketability of the supplier is considered					
Technology advancement of the suppliers increases his/her chances of being considered					
Competitive tendering leads to better procurement					
Bid placing, evaluation criteria, supplier capacity and technology affects procurement					

What are some of the challenges affecting competitive tendering in your organization……

……
…….

Section C:Transparency and Written Procedures

Please check the box that most accurately represents your position using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

	1	2	3	4	5
The process of Procurement is accountable enough					
There is a good a proper record keeping					
The employees have good and open office relations					
There is a good observation of work Ethics					
Dialogue in procurement process can improve procurement performance					
Frequent Buyer supplier meetings help address emerging challenges					

What are some of the challenges affecting transparency in procurement in your organization……

……
…….

Section D: Procurement Planning and Procurement Performance

Please check the box that most accurately represents your position using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

	1	2	3	4	5
The methods used in procurement determines how successful procurement will be					
Cash forecast planning helps the organization achieve value for money					
Efficiency within procurement is achieved through delivery scheduling					
Identification and evaluation of needs enable the organization's procurement processes to provide quality					
Inability to compete has been mostly hampered by bad technology.					
Problems occur when the government conducts public affairs projects without using efficient procurement strategy.					

What are some of the challenges affecting procurement planning in your organization?……

……
…….

Section E: Supplier Qualification Monitoring on Procurement Performance

Please check the box that most accurately represents your position using the ordinal mechanisms: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Statement	1	2	3	4	5
The Hospital has convenient and effective sourcing					
Supply selection is coordinated by the procurement team					
Supply management is effectively done					
Financial status of the hospital determines the procurements to be done					

Procurement quality controls helps to upsurge procurement performance					
Organizational efficiency is increased by using skilled JIT executives to track cost of quality and their effects on scrap and rework.					

What are some of the challenges affecting supplier selection monitoring in your organization……

……
…….

Section F: Supply Chain Performance

Please check the box that most accurately represents your position using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Statement	**1**	**2**	**3**	**4**	**5**
Our procurement function is able to reach the objectives and goals of procurement department with minimum cost.					
Procurement cycle time in our organization has reduced significantly					
Our institution has contracted a number of reliable and performing suppliers					
There has been cost savings through adoption of strategic procurement management practices					
Strict codes of conduct ensure purchasing procedures are followed					
Our hospital has a dedicated skilled workforce responsible for procurement of medical equipment					

Indicate some of the challenges relating to the below indicators of supply chain performance

Inventory Costs……..

……..

Service Quality……..

……

Asset Management……

……

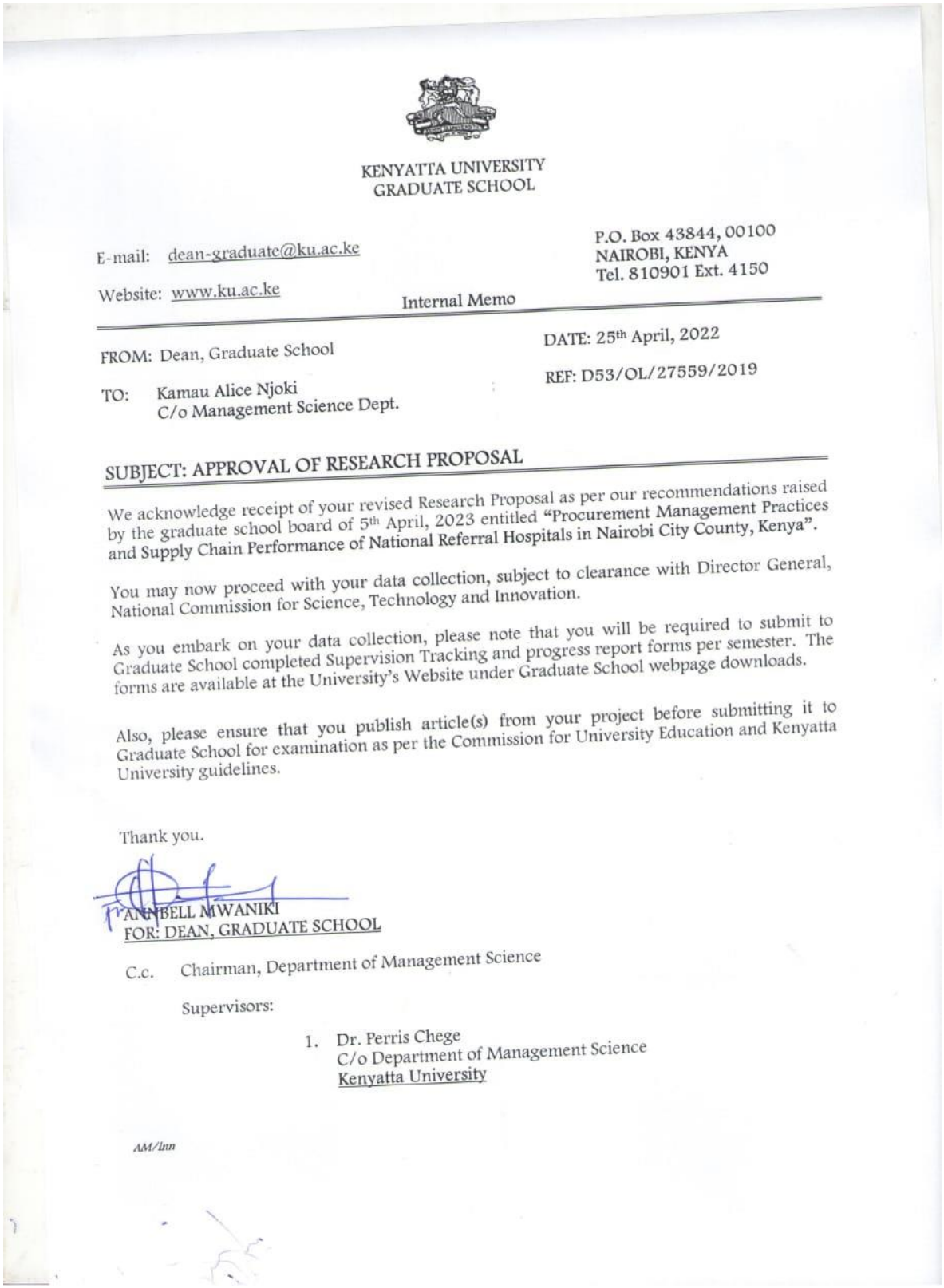
Timely Delivery of services……

……

Appendix-II:List of Referral-Hospitals in Nairobi-County

1. Kenyatta-National Hospital
2. Mathare-National-Teaching and Referral-hospital
3. National-Spinal-Injury Referral-hospital

APPENDIX-III: Approval of Research Proposal



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Dean, Graduate School

DATE: 25th April, 2022

REF: D53/OL/27559/2019

TO: Kamau Alice Njoki
C/o Management Science Dept.

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your revised Research Proposal as per our recommendations raised by the graduate school board of 5th April, 2023 entitled "Procurement Management Practices and Supply Chain Performance of National Referral Hospitals in Nairobi City County, Kenya".

You may now proceed with your data collection, subject to clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and progress report forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your project before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

ANNBELL MWANIKI
FOR: DEAN, GRADUATE SCHOOL

C.c. Chairman, Department of Management Science

Supervisors:

1. Dr. Perris Chege
   C/o Department of Management Science
   Kenyatta University

AM/lnn

APPENDIX-IV: NACOSTI PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 188810

Date of Issue: 04/May/2023

RESEARCH LICENSE

This is to Certify that Dr.. Alice Njoki Kamau of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: PROCUREMENT MANAGEMENT PRACTICES AND SUPPLY CHAIN PERFORMANCE OF NATIONAL REFERRAL HOSPITALS IN NAIROBI CITY COUNTY, KENYA for the period ending : 04/May/2024.

License No: NACOSTI/P/23/25766

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Director General
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