DETERMINANTS OF QUALITY OF HEALTHCARE SERVICES AT KENYA DEFENCE FORCES MEMORIAL HOSPITAL

BY

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FEBRUARY 2022

DECLARATION

I declare that this thesis is my original work and has not been previously submitted and approved by Strathmore University or any other Institution for the award of a degree. To the best of my knowledge and belief; this project is original and borrowed materials has been done with due reference.

Mercy W. Kinyanjui

Date……29/04/2022……..

I declare that this thesis is my original work and has not been previously submitted and approved by Strathmore University or any other Institution for the award of a degree. To the best of my knowledge and belief; this project is original and borrowed materials has been done with due reference.

Sign…….. Date……..

Mercy W. Kinyanjui

Approval

This project has been reviewed and approved for examination purposes with my approval as the supervisor.

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I dedicate this proposal to my mother, Lucy Nyambura Gacheru. Without you, I would not be here. Thank you for your support.

ABSTRACT

New trends show that patients are attaching more importance to quality of healthcare service than ever before. However, problems have arisen with relation to quality of healthcare services provided in a majority of health facilities probably because of incapacitated personnel, insufficient resources, and psychical facilities, availability of drugs, lack of proper leadership and recently devolution of health services in Kenya. While the Kenya Defence Forces Memorial Hospital is different since it is a military based hospital that offers services to the military personnel and the families. Therefore, this study sought to establish the determinants of quality of healthcare services at Kenya Defence Forces Memorial Hospital. Specific objectives were to determine the effects of staffing, diagnostic services, physical facilities and availability of drugs on quality of healthcare services at Kenya Defence Forces Memorial Hospital. The study adopted a descriptive survey research design. This study was conducted at the Kenya Defence Forces Memorial Hospital in Nairobi; this was the unit of analysis. The study target population was 2,760 patients; simple random sampling method was used to select a sample of 197 respondents and the questionnaire was the tool for data collection. The data was analyzed through descriptive and inferential statistics with the help of Statistical Package for Social Sciences (SPSS) version 22. The study found that staffing, diagnostic services, physical facilities and availability of drugs had a weak significant relationship with quality of healthcare services. The study recommends that the government should increase the funding of the KDF Memorial Hospital and also provided with more medical equipment to enhance healthcare quality.

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ABBREVIATIONS /ACRONYMS

ANC	Antenatal Care
DFMH	Kenya Defence Forces Memorial Hospital
EMLs	Essential Medicine Lists
FGDs	Focus Group Discussion
KDF	Kenya Defence Forces
KEBS	Kenya Bureau of Standards
MDG	Millennial Development Goals
MoHSS	Ministry of Health and Social Services in Namibia
NACOSTI	National Commission for Science, Technology and Innovation
RBT	Resource-Based Theory
US	United States

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter presents the introduction of the study. It presents the background of the study on the concepts under study and also the context. The chapter also presents the problem statement, the research objectives, research questions, scope and significance of the study.

1.1 Background of the Study

In healthcare sector, experience of the patient plays a crucial role in rating and assessing the quality of healthcare services (Hilton & Kalish, 2015). Quality in healthcare means providing the care the patient needs when the patient needs it, in an affordable, safe, effective manner (Shojania & Grimshaw, 2015). Further, quality in healthcare services may comprise of newer technology, newer and effective medication, and higher staff to patient ratios, affordability, efficiency and effectiveness of service delivery (Terrein, 2012). Healthcare is the fastest growing service in both developed and developing countries globally (Dey, Boudriga & Nabli, 2016). In the recent years, healthcare systems have changed the way of thinking and delivering care, patients have become the center of the overall process and new organizational models are being applied in order to provide patient-oriented healthcare services (Friend, 2015).

In the United States of America for instance, in the healthcare industry, quality of healthcare services has become imperative in providing patient satisfaction, because delivering quality service directly affects the customer satisfaction, loyalty and financial profitability of service businesses. In healthcare, quality of services can be broken down into two quality dimensions: technical quality and functional quality (Dean & Lang, 2018). While technical quality in the healthcare sector is defined primarily on the basis of the technical accuracy of the medical diagnoses and procedures or the conformance to professional specifications, functional quality refers to the manner in which the health care service is delivered to the patients (Dean & Lang, 2018).

Professional health officers play a vital role in the provision of healthcare services. In most of the European countries, the performance of health care workers, including professional nurses, link closely to the productivity and quality of care provision within health care organizations (Mseleku, 2017). According to Moody (2018) in Latin America, human resources or the health workforce are the most important assets of

health systems. There are many complex reasons for the deterioration of healthcare systems in the African region, however, the main cause is the neglect of the health workforce (High-Level Forum on MDGs, 2009). The human resource capacity in developing countries like Kenya is insufficient to absorb and deliver healthcare interventions offered by many new health initiatives such as the millennium development goals (Kagema, 2015) .

Quality in African health care systems has become a major concern due to seemingly intractable poor health indices in most countries (WHO, 2018). Developing countries are increasingly showing interest in assessing quality of health care, with emphasis on outcome as a measure of quality (Aldana, Piechulek, & Al-Sabir, 2016). In South Africa, the national policy on quality in health care provides means of improving the quality of care in public and private sectors, sets objectives of government to assure quality and continuously improve health care by measuring the gap between standards and actual practice (Mseleku, 2017). Ghana has gone beyond policy to implementation of national health quality programme because improving the quality of health care is key objective of the Ministry of Health (Offei, Bannerman & Kyeremeh, 2014). Offei *et al.* (2014) assert that the main strategy for achieving quality of care was through implementation of quality assurance programmes, expected to become integral to routine health service delivery in Ghana. To change the intractable abysmal health indices in Africa, and advance health of the people every health worker in each country must be involved in the quality programme, be aware of what is expected and actions necessary for quality to become culture of health care systems (WHO, 2018).

In Kenya, one of the aims of the Ministry of Medical Services' Strategic Plan 2008-2012 was to ensure that public hospitals provide appropriate, high quality medical services to meet the 21st century medical care needs of Kenyans. The ministry planned to achieve this by improving efficiency in the management and delivery of medical services (Ministry of Health, 2019). However, high quality healthcare services are yet to be achieved in public hospitals in Kenya. Further, most studies have focused on other health institutions like county hospitals and dispensaries. The Kenya Defence Forces Memorial Hospital is a military based hospital that offers services to the military personnel and the families. The military based hospital is publicly funded but only opens to the military personnel and their families. It is organized and managed by the ministry of defence. It provides free health services for armed forces personnel and other entitled beneficiaries and supports the

armed forces on military operations. Hence, it may experience challenges just like any other institution in delivering cost-effective and high-quality primary care. It is against this background that the study sought to establish determinants of quality of healthcare services at Kenya Defence Forces Memorial Hospital.

1.1.1 Determinants of Quality of Healthcare Services

Quality care has become an important aspect in the development of healthcare services. Patient satisfaction on healthcare quality plays a vital part on the assessment of healthcare frequently (Zhang, Waszink & Wijngaard, 2016). A critical challenge for health service providers is to find ways to make them more clients oriented. All healthcare providers should realize the fact, that the main beneficiary of healthcare system is clearly the patient. Patients who are satisfied stay with the hospital for long term, and also come back or recommend the hospital for others. Since healthcare is growing rapidly and patient's knowledge level about their rights is increased, they are demanding that hospitals meet their needs. The key determinants of quality of health care services are admission procedure, diagnostic services, and employees' behaviour towards them, cleanliness, nursing care, food, communication, and interpersonal manner of the physicians, housekeeping, technical services, accessibility and convenience (Hilton & Kalish, 2015).

Staffing has an effect on a variety of areas within healthcare. One of the most profound is the effect on patient quality of care, which refers to the values and expectations of the patient (Xue, 2015). According to Xue (2015), hospitals with low staffing tend to have higher incidence of poor patient outcomes. Poor nurse staffing affects not only the patient, but the employee as well. Insufficient staffing increases nurse workload and job dissatisfaction, and it decreases total patient care overall. Inadequate nurse staffing leads not only to adverse patient outcomes, but increased nurse burnout (Griffiths, 2014). Adequate nurse staffing saves lives. Lower registered nurse-to-patient ratios are shown to reduce mortality rate by more than 50% (Kortbeek, 2015). Poor nurse staffing and higher rates of adverse patient outcomes are directly related (Bae, 2014).

Diagnostics improve patient care by improving the accuracy of diagnoses and treatment, and contribute to protecting a patient's health and in some cases even helps limit healthcare spending (Porter, 2012). Diagnostics deliver information that can benefit patients by enabling the selection of the right treatment, helping health professionals to choose appropriate preventive interventions and providing vital prognostic data that can optimize care pathways and management (Oortwijn, Sampietro-Colom & Habens, 2017). Diagnostic services

may also enable informed choices regarding, for example, reproduction, nutrition, and changes in lifestyle. Furthermore, diagnostic services may help to avoid or shorten hospitalization, decrease inappropriate medication use, or shorten the length of sick leave, thereby bringing economic value in terms of cost-containment as well as fostering improved health outcomes, ultimately leading to more efficient use of resources (Akhmetov & Bubnov, 2015).

Physical facilities must integrate the hospital, as the centre for patient care, into the broader health care system, and should facilitate the seven domains of quality; patient experience, effectiveness, efficiency, timeliness, safety, equity and sustainability (Gao, Moran & Almenoff, 2015). Physical facilities include the built environment and supporting elements: equipment, access, information technology (IT), systems and processes, sustainability initiatives and staff. Overall these interwoven facets should enable patients to move seamlessly, with their privacy and dignity maintained at all times, from initial referral through local hospitals to specialist tertiary centres and discharge to appropriate care (home, care home, or community hospital with intermediate care), whatever the age, disorder or social circumstances of the patient (Atkinson et al., 2015). Physical facilities are a key pillar supporting the fundamental aim of promoting improved standards of care and wellbeing for all patients, together with a good experience of the health care system. In parallel, the healthcare system and staff must support effective health promotion, prevention and self-care of the whole population (Gao, Moran & Almenoff, 2015).

Drugs are an essential part of medical care, which improve patients' health and quality of life. Further, the availability of medicines is essential for healthcare service delivery (Obare, Brolan & Hill, 2014; Bigdeli, Laing, Tomson & Babar, 2015). Availability of drugs in public health facilities was found to influence healthcare utilization and individual decisions to consult health service providers (Musoke *et al.*, 2014). The availability of drugs positively affects patient trust in healthcare providers (Shan, Li & Ding, 2016), while drugs stock-outs in facilities foster distrust in healthcare providers and adversely affects healthcare quality (Mkoka *et al.*, 2014).

1.1.2 Military Healthcare

A military hospital is a hospital owned and operated by the armed forces. They are often reserved for the use of military personnel and their dependents, but in some countries are made available to civilians as well. They

may or may not be located on a military base; many are not (Britnell, 2019). The provision of healthcare for military personnel and veterans is an important component of the covenant between the state and its armed forces. The military medical system may also be a significant part of the government-controlled health economy and may have a significant role in a country's response to national crises through providing medical support to the armed forces on military operations and providing assistance to the civilian health system. In most nations, the military medical system for the armed forces is publicly funded and organized by the ministry of defence (Bricknell, 2015).

This is normally separate from the public health system for the state's citizens. This military medical system has two strategic roles: to provide health services for armed forces personnel and other entitled beneficiaries from a fixed network of medical treatment facilities; and to support the armed forces on military operations both within and external to the state (Woodson, 2019). The beneficiaries of this medical system will include armed forces personnel (active duty and reserves) and may also include their families, as well as veterans, retirees, civilians working for the ministry of defence and non-military civilians (Britnell, 2019).

1.1.3 Quality of Healthcare Services

Health care quality is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with the current professional knowledge (Institute of Medicine, 2018). Healthcare service quality is associated with patient satisfaction loyalty and healthcare organizations productivity (Park, Shin & Lee, 2018). As a result, healthcare organizations throughout the world consider it as a strategic differentiator for sustaining competitive advantage. Quality of healthcare services is a subjective, complex and multi-dimensional concept. Mosadeghrad (2013) defined quality healthcare services as consistently delighting the patient by providing efficacious, effective and efficient healthcare services according to the latest clinical guidelines and standards, which meet the patient's needs and satisfies providers.

Mosadeghrad (2013) believes that quality healthcare services is providing the right healthcare services in a right way in the right place at the right time by the right provider to the right individual for the right price to get the right results (Boshoff & Gray, 2014). He identified 182 attributes of quality healthcare services by asking 700 healthcare stakeholders including policy makers, managers, providers and patients using pluralistic

evaluation and grouped them into five categories: environment, empathy, efficiency, effectiveness and efficacy (Mosadeghrad, 2013).

Quality of healthcare services includes characteristics such as availability, accessibility, affordability, acceptability, appropriateness, competency, timeliness, privacy, confidentiality, attentiveness, caring, responsiveness, accountability, accuracy, reliability, comprehensiveness, continuity, equity, amenities and facilities (Mosadeghrad, 2013). Ensuring safety and security, reducing mortality and morbidity, improving quality of life and patient involvement have also been seen as quality attributes (Mosadeghrad, 2012).

Donabedian (2002) identified three component of healthcare quality: technical quality which is the effectiveness of care in producing achievable health gain, interpersonal quality which involves accommodating patient needs and preferences and amenities quality which include physical surroundings and organization attributes. Øvretveit (2012) developed a system for improving healthcare quality based on three dimensions: professional, client and management quality. Professional quality is based on their views of whether professionally assessed consumer needs have been met using correct techniques and procedures. Client quality is whether or not direct beneficiaries feel they get what they want from the services. Management quality is ensuring that services are delivered in a resource-efficient way.

Joss and Kogan (2012), see quality in three dimensions: technical, systemic, and generic. Technical quality is concerned with the professional work-content within a given area. Systemic quality refers to system and process quality that operate across the boundaries between work areas. Generic quality refers quality aspects that involve inter-personal relationships. Hall (2014) distinguished two types of service quality: technical and functional. Technical quality meaning delivering core services or their outcomes (i.e. while functional quality meaning the healthcare service delivery process or the way in which the customer receives the service. Patients usually rely on functional quality (facilities, cleanliness, food and provider attitudes) rather than technical quality when evaluating healthcare service quality (Wan Rashid & Jusoff, 2009). Sofaer and Firminger (2015) identified seven quality dimensions. They are: patient-centered care, access, communication and information, courtesy and emotional support, technical quality, efficiency of care/organization and structure and facilities.

1.1.4 Quality of Healthcare in Kenya

The World Health Organization (WHO) (2014) defines quality of healthcare in six dimensions: effective, efficient, accessible, acceptable/patient-centered, equitable, and safe services. Health investments in Kenya have increased in the past two decades, resulting in the expansion of service delivery and improvements in the quality of health services (MOH, 2013a). Although devolution in Kenya provides better opportunities for increasing access to high-quality healthcare services, if the transition is not well managed it may erode the gains made over the last decade, especially in maternal and child health. For instance, non-availability of medicines is commonly cited as the most important element of quality by health care consumers, and the absence of medicines is a key factor in the underuse of public health services (MOH, 2013a). In 2010, a maternal and newborn quality of facility survey in Kenya found that while most facilities were stocked with basic supplies (except iron), they lacked supplies that promote quality (counseling aids, infection control) (Kagema, 2015).

In an effort to improve the country's health status, the government of Kenya's (GOK) commitment to improve the quality of health services is articulated in several policy documents, including Vision 2030, the Kenya Health Sector Strategic Plan (KHSSP II), and the Kenya Health Policy (KHP), which outlines comprehensive health development and reforms (MOH, 2014). According to the draft KHP, health service providers must dispense improved services to deliver treatment for all, an essential element of Kenya's Vision 2030. As counties assume their devolved responsibilities, which are detailed in the 2010 Constitution, improving the quality of service delivery requires adequate health investments for infrastructure, medical commodities, and human resources. In addition, counties must focus on provision of health outputs such as improved quality of care, access, and demand, which result in improved health outcomes (MOH, 2014).

1.2 Statement of the Problem

Empirical studies that had been previously conducted mainly focused on the provision of health care services in Kenya with no focus on determinants of quality of health care services (Njoroge, 2014). Wanjau, Muiruri and Ayodo (2012) studied factors affecting provision of service quality in the public health sector, a case of Kenyatta National Hospital. Munanye (2014) did a study on factors influencing provision of quality service in the public health sector, a case of Mwingi Sub-County Hospital, Kitui County-Kenya. Muthui (2018) studied

on factors influencing the provision of quality services in health care facilities, a case of Kitui County Referral Hospital. Akacho (2014) researched on factors affecting provision of health care service delivery in Kenya. From the reviewed literature, it is evident that there are limited studies that focused on determinants of quality of healthcare services at Kenya Defence Forces Memorial Hospital. The findings from other studies are from health institutions that mainly serve the general public.

Kenya Defence Forces Memorial Hospital is a military based hospital owned and operated by the armed forces. It offers services to the military personnel and the families. The military based hospital is publicly funded but only opens to the military personnel. It is organized and managed by the ministry of defence. It provides health services for armed forces personnel and other entitled beneficiaries and supports the armed forces on military operations. Since the military hospital provides free medical services to military personnel and their dependents, it may experience challenges just like any other institution in delivering cost-effective, high-quality primary care while maintaining a provider workforce capable of meeting both peacetime and wartime needs. This study sought to fill the existing research gap by conducting a study to establish the determinants of quality healthcare services at Kenya Defence Forces Memorial Hospital.

1.3 Objective of the Study

1.3.1 General Objective

The general objective of the study was to establish determinants of quality of healthcare services at Kenya Defence Forces Memorial Hospital.

1.3.2 Specific Objectives

The study was guided by the following specific objectives

i. To determine the effects of staffing on quality of healthcare services at Kenya Defence Forces Memorial Hospital.
ii. To determine the effects of diagnostic services on quality of healthcare services at Kenya Defence Forces Memorial Hospital.
iii. To determine the effects of physical facilities on quality of healthcare services at Kenya Defence Forces Memorial Hospital.

iv. To determine the effects of availability of drugs on quality of healthcare services at Kenya Defence Forces Memorial Hospital.

1.4 Research Questions

The study sought to answer the following research questions

i. How does staffing affect the quality of healthcare services at Kenya defence forces memorial hospital?
ii. How do diagnostic services affect the quality of healthcare services at Kenya defence forces memorial hospital?
iii. How do physical facilities affect the quality of healthcare services at Kenya defence forces memorial hospital?
iv. How does availability of drugs affect the quality of healthcare services at Kenya defence forces memorial hospital?

1.5 Significance of the Study

This study is expected to be of significant to the administrators at Kenya Defence Forces Memorial Hospital as they would be enlightened on determinants of quality of healthcare services at Kenya defence forces memorial hospital, this would help them in coming up with right strategies and methods to enhance quality of healthcare services at the hospital, which would improve patient's satisfaction.

The study may also provide the policy makers like government agencies such as the Ministry of Defence with insights and more reliable information on how to improve quality of health care services at public hospitals in the country.

The study also contributes to the body of existing literature related to determinants of quality of healthcare services. This serves as a guide and a source of reference to researchers and scholars. It also highlights knowledge gaps upon which further studies could be developed.

1.6 Scope of the Study

The study sought to establish determinants of quality of healthcare services at Kenya defence forces memorial hospital. Specifically, the study sought to determine the effects of staffing, diagnostic services, physical facilities and availability of drugs on quality of healthcare services at Kenya defence forces memorial hospital.

The study targeted patients at the Kenya Defence Forces Memorial Hospital located in Nairobi County. The study targeted patient visiting the hospital in a period of one month.

1.7 Summary

This chapter covered the study background, introduced the concept of determinants of quality of healthcare services. It also presents the problem statement of the study which clearly describes the research gap to be filled by this study. The study objectives and the research questions to be answered have been presented as has been the scope and significance of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers literature review on determinants of quality of healthcare services. It discusses the theoretical review, empirical review of the literature, identified research gaps and the conceptual framework.

2.2 Theoretical Review

The theories that guide the study in examining determinants of quality of healthcare services at Kenya defence forces memorial hospital was Resource-Based Theory and Donabediens Quality Care Framework.

2.2.1 Resource-Based Theory

This theory was developed by Barney's 1991. Resource-based theory contends that the possession of strategic resources provides an organization with a golden opportunity to develop competitive advantages over its rivals. A strategic resource is an asset that is valuable, rare, difficult to imitate, and non-substitutable. Within an RBT model, there are two main types of resource which are tangibles and intangibles. Tangible assets are physical things while Intangible assets refers to items and concepts that have no physical value but can still claim to be owned by the organization (Barney, 1991). There are two significant, critical assumptions of RBT that resources must also be: Heterogeneous meaning that resources, skills and capabilities must vary significantly from one organization to another. If these organisations had the exact same set of resources and individuals, they would not be able to employ varying strategies in order to compete with one another. The second assumption of RBT is that resources are immobile, and thus unable to move freely from organization to organization (e.g. employee movement), at least over the short-term. Due to this, organisations are unable to quickly replicate the resources of rival organisations and therefore implement the same strategies. Intangible assets - knowledge, processes, intellectual property, are more likely to be 100% immobile than are tangible assets (Peteraf & Barney, 2003).

Peteraf and Barney (2003) observed that resources have different intrinsic levels of efficiency and this explains why different firms perform differently leading to different outcomes. Apart from resource heterogeneity, the other resource characteristics that can help an organization to deliver value to customers are rarity, non-substitutability and inimitability. The RBT provides guidelines that help to determine what constitutes a

valuable asset, capability or competence. The resource-based theory sheds light on organizations on the need to articulately acquire and deploy organizational resources such as financial and physical resources prudently for improved organizational performance.

In relation to the study, resources are needed so that the organization can function properly. The resources include the staff, physical facilities and also drugs. Resources that are valuable, rare, difficult to imitate, and no substitutable best position a firm for long-term success. These strategic resources can provide the foundation to develop firm capabilities that can lead to superior performance over time. The resources are also important for the organization to compete with other health care facilities on provision of quality healthcare. The resources needed in healthcare include staff, physical facilities, drugs and also laboratory equipment's. Therefore this theory helped in explaining the determinants of quality of healthcare services at Kenya defence forces memorial hospital.

2.2.2 Donabediens Quality Care Model

The quality care model was developed by Donabedian (2003). Donabedian (2003) described seven elements of quality of medical care: Efficacy, effectiveness, efficiency, equity, optimality, acceptability and legitimacy. Although efficacy is hard to measure, it refers to care provided under optimal conditions and is the basis against which measurements should be made. Effectiveness describes the outcome of interventions; efficiency is the cost reductions without compromising effects; equity is the fairness in the distribution of healthcare in populations; optimality is about balancing the costs and benefits of healthcare; acceptability encompasses accessibility of healthcare and interpersonal patient-provider interaction; and legitimacy is the social acceptability of the healthcare institution regarding the manner in which healthcare is delivered. The choice of which of these elements, as well as their relative prioritization, should be guided by the contexts in which quality of care is being assessed (Donabedian, 2003).

Donabedian definition of quality of care is assessed as a triad of structure, process and outcome (SPO) constructs. He postulated that there are relationships between SPO constructs based on the idea that good structure should promote good process and good process should in turn promote good outcome (unidirectional pathway). The SPO framework, often represented by a chain of three boxes containing SPO constructs connected by arrows (Donabedian, 2003), can be used to draw inferences about the quality of health care

(Donabedian, 1998). Donabedian defines Structure as the professional and organizational resources associated with the provision of health care for instance availability of medicines/equipment and staff training. Process is the things done to and for the patient for instance defaulter tracing and hospital referrals and Outcome is the desired result of care provided by the health practitioner for instance patient satisfaction with quality of care. Donabedian distinguished between two types of outcomes: technical outcomes, which are the physical and functional aspects of care, such as absence of complications and reduction in disease, disability and death; and interpersonal outcomes which include patients' satisfaction with care and influence of care on patient's quality of life as perceived by the patient.

In relation to the study, the theory explains that ensure quality in health care professional and organizational resources associated with the provision of health care like availability of medicines/equipment and staff training is needed. The process of patient treatment and the outcomes of the treatment like patient satisfaction with quality of care are also of importance. The Donabedian SPO framework was used to evaluate quality of healthcare services at Kenya Defence Forces Memorial Hospital.

2.3 Quality of Healthcare Services: An Empirical Review of the Literature

The Institute of Medicine (2002) defined quality of healthcare as the level to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. Quality in healthcare also means providing the care the patient needs when the patient needs it, in an affordable, safe, effective manner (WHO, 2018). Quality healthcare also means engaging and involving the patient, so the patient takes ownership in preventive care and in the treatment of diagnosed conditions (Lule, GTugumisirize & Ndekha, 2015). Also, quality in the healthcare context is a collaborative effort that involves the patient, the independent physician, the patient's family, and the community as a whole (Mahomed, Asmall & Freeman, 2014). The measures of quality include effectiveness, efficiency, equity, patient centeredness, safety and timeliness. Other Quality measures can include the organization's ability to provide patient-focused and equitable care (WHO, 2018).

Donabedian (2005) identified three components for evaluating the quality of care. The three components are structure, process and outcomes. Measurement for improvement has additional component–balancing measures. Structure measures reflect the attributes of the service/provider such as staff to patient ratios and

operating times of the service. These are otherwise known as input measures. Process measures reflect the way health systems and processes work to deliver the desired outcome. For example, the length of time a patient waits for a senior clinical review, if a patient receives certain standards of care or not, if staffs wash their hands, recording of incidents and acting on the findings and whether patients are kept informed of the delays when waiting for an appointment.

Outcome measures reflect the impact on the patient and demonstrate the end result of healthcare improvement work and whether it has ultimately achieved the aim(s) set. Examples of outcome measures are reduced mortality, reduced length of stay, reduced hospital acquired infections, adverse incidents or harm, reduced emergency admissions and improved patient experience. Balancing measures reflect unintended and/or wider consequences of the change that can be positive or negative. It is about recognizing these and attempting to measure them and/or reduce their impact if necessary. An example of a balancing measure would be monitoring emergency re-admission rates following initiatives to reduce length of stay (Donabedian, 2005).

Further, Deming (2002), the father of Total Quality Management (TQM), promoted constancy of purpose and systematic analysis and measurement of process steps in relation to capacity or outcomes. The TQM model is an organizational approach involving organizational management, teamwork, defined processes, systems thinking, and change to create an environment for improvement. This approach incorporates the view that the entire organization must be committed to quality and improvement to achieve the best results (Berwick, Godfrey & Roessner, 2002).

Mosadeghrad (2014) researched on factors affecting medical service quality. This study aimed to identify factors affecting the quality of medical services provided by Iranian physicians. Exploratory in-depth individual interviews were conducted with sixty-four physicians working in various medical institutions in Iran. It was established that individual, organizational and environmental factors enhance or inhibit the quality of medical services. Quality of medical services depends on the personal factors of the physician and patient, and factors pertaining to the healthcare setting and the broader environment.

Mosadeghrad (2014) did another study on factors influencing healthcare service quality. The study revealed that quality in healthcare is a production of cooperation between the patient and the healthcare provider in a supportive environment. Personal factors of the provider and the patient, and factors pertaining to the

healthcare organisation, healthcare system, and the broader environment affect healthcare service quality. Healthcare quality can be improved by supportive visionary leadership, proper planning, education and training, availability of resources, effective management of resources, employees and processes, and collaboration and cooperation among providers. Widayati, Tamtomo and Adriani (2017) study on factors affecting quality of health service and patient satisfaction in community health centers in North Lampung, Sumatera found that the factors were income, education and frequency of visits.

Dangmei, and Singh (2019) focused on factors affecting quality of care in primary health care centres. The study explored employee engagement, emotional labor, cultural competence and infrastructure as factors affecting quality of care in primary health care system. The findings of the study suggest that all the factors had a positive correlation with quality of care. Employee engagement is the greatest predictor of quality of care among them. Dadzie (2016) researched on factors influencing quality of care in maternal health care services in rural Ghana. The study found that most health facilities lacked the necessary infrastructure, materials, equipment and staff or the provision of quality maternal healthcare. Of all the health facilities only 34% of them provided delivery services and 38% of them had delivery forceps for emergency obstetric care. Only 9 health facilities had midwives. Laboratory investigations for maternal healthcare were limited. Health workers had good understanding of quality of care. Majority of mothers were satisfied with the services provided in the health facilities.

2.4 Empirical Review

This chapter covers empirical literature on staffing, diagnostic services, physical facilities, availability of drugs and quality of healthcare services.

2.4.1 Staffing and Quality of Healthcare Services

Aiken, Clarke and Sloane (2015) researched on hospital staffing, organization, and quality of care: cross-national findings. Multisite cross-sectional survey was used. The study was conducted in adult acute-care hospitals in the United States (Pennsylvania), Canada (Ontario and British Columbia), England, and Scotland. Study participants were 10 319 nurses working on medical and surgical units in 303 hospitals across the five jurisdictions. Results showed that dissatisfaction, burnout, and concerns about quality of care were common among hospital nurses in all five sites. Organizational/managerial support for nursing had a pronounced effect

on nurse dissatisfaction and burnout, and both organizational support for nursing and nurse staffing were directly, and independently, related to nurse-assessed quality of care. Multivariate results imply that nurse reports of low quality care were three times as likely in hospitals with low staffing and support for nurses as in hospitals with high staffing and support.

Havig, *et al.* (2015) researched on leadership, staffing and quality of care in nursing homes. A cross-sectional survey of forty nursing home wards throughout Norway was used to collect the data. Five sources of data were utilised: self-report questionnaires, interviews with and questionnaires, telephone interviews and of field observations. Separate multi-level analyses were conducted for quality of care assessed by relatives, staff and field observations respectively. Task-oriented leadership style had a significant positive relationship with two of the three quality of care indexes. In contrast, relationship-oriented leadership style was not significantly related to any of the indexes. The lack of significant effect for relationship-oriented leadership style was due to a strong correlation between the two leadership styles. Staffing levels and ratio of registered nurses were not significantly related to any of the quality of care indexes. The ratio of unlicensed staff, however, showed a significant negative relationship to quality as assessed by relatives and field observations, but not to quality as assessed by staff.

Sochalski (2015) did an evaluation on quality of care, nurse staffing, and patient outcomes. Surveys of staff nurses working in acute care hospitals in Pennsylvania reveal that one out of every five staff nurses reported the quality of care on their unit as fair or poor. Workload played a role in these quality assessments, but it was the consequences of workload, such as the reports of unfinished nursing at the end of the last shift and the frequency of adverse events among patients, that played a much more prominent role. Avalere Health LLC (2015) researched on studied optimal nurse staffing to improve quality of care and patient outcomes. It was established that optimal staffing is essential to providing professional nursing value. Existing nurse staffing systems are often antiquated and inflexible. Greater benefit can be derived from staffing models that consider the number of nurses and/or the nurse-to-patient ratios and can be adjusted to account for unit and shift level factors. Factors that influence nurse staffing needs include: patient complexity, acuity, or stability; number of admissions, discharges, and transfers; professional nursing and other staff skill level and expertise; physical

space and layout of the nursing unit; and availability of or proximity to technological support or other resources.

Mutesi (2016) studied the effects of staffing levels on quality of nursing care in Kiwoko and Mukono Church of Uganda Hospitals, Central Uganda. It was found out that although there were variances in the nurse's category in staffing levels; the departments were generally understaffed leading to excessive work pressures. Kiwoko hospital departments experienced a low workload. A high workload was experienced in the male department. The overall WISN was 71% for the hospital suggesting low workload pressure. In relation to quality nursing care, the study found that the delivery of nursing care in Kiwoko and Mukono hospitals was conducted mostly by enrolled compressive nurses, enrolled nurses, nursing officers- nurse, and enrolled midwives who had attained mostly a certificate level of education. Most nurses in Mukono hospital, however, did not receive adequate in-service training due to the staffing shortage. Some nurses did not possess the desired skills in performing some nursing procedures. Generally, both hospitals had shortage of nurses in some departments hence affecting some 28 procedures like filling of patogram in Mukono hospital, poor implementation of the nursing care plan and taking vital observations. Patients in both hospitals were satisfied with the interpersonal care but the patients of Kiwoko hospital were dissatisfied with the cleanliness of the toilets.

Dinda (2016) did an analysis of service quality and organizational performance of private healthcare facilities in Nairobi County, Kenya. The main objective of this study was to analyze the relationship between service quality and organizational performance of private healthcare facilities in Nairobi. Theory of quality trilogy guided the study in a correlational survey research design. The population was 52 chief operation managers of 52 private health facilities accredited by NHIF in Nairobi. Results revealed tangibles, responsiveness, competence and equity had positive significant effect on organizational performance of private health facilities in Nairobi.

2.4.2 Diagnostic Services and Quality of Healthcare Services

Khan, Khalid, Almorsy and Khalifa (2016) did a review on improving timeliness of diagnostic healthcare services. The study identified causes of delayed appointments and implemented strategies to reduce it from 12 to 2 weeks. FOCUS PDCA approach as well as Pareto analysis was used to identify and target core issues then

suggest effective strategies including improving staff productivity, enhancing teamwork coordination and motivating healthcare team stakeholders. The results showed that 93% of appointments were made available in less than 2 weeks, compared to only 8% pre-improvement, no show rate reduced to 2% compared to 13% and total procedure volume was increased to 99 compared to 52 per month.

Derua (2014) researched on users' and health service providers' perception on quality of laboratory malaria diagnosis in Tanzania. Questionnaires were used to collect information from laboratory personnel, clinicians and patients or caretakers. A total of 63 laboratory personnel, 61 clinicians and 753 patients/caretakers were interviewed. Forty-six (73%) laboratory personnel claimed to be overworked, poorly motivated and that their laboratories were under-equipped. About 19% of the laboratory personnel were lacking professional qualification. Thirty-seven clinicians always requested for blood smear examination to confirm malaria. Only twenty five clinicians considered malaria microscopy results from their respective laboratories to be reliable. Forty-five clinicians reported to have been satisfied with malaria diagnostic services provided by their respective laboratories. Majority of the patients or care-takers were satisfied with the laboratory services.

Njoroge (2014) did an assessment of the quality of medical laboratory service provision in Kenya. The study was both an observational and descriptive study using a cross sectional design. Purposeful sampling was used to select the laboratories while as random sampling was used for the laboratory practitioners and patients. The overall assessment was that the quality of medical laboratory services delivery in Kenya was good. Findings of this research were that the laboratory practitioners were competent; the practice characteristics were of good standard and patients perceived the services to be of good quality. The study failed to reject the null hypothesis pertaining to the quality management systems in place. No laboratory had adequate quality management systems in place.

2.4.3 Physical Facilities and Quality of Healthcare Services

Physical facilities in healthcare include buildings, their internal configuration, building support systems and major equipment (Borah, 2016). Leslie, Sun and Kruk (2017) did a study on the association between infrastructure and observed quality of care in 4 healthcare services: A cross-sectional study of 4,300 facilities in 8 countries. Facilities demonstrated moderate levels of infrastructure, ranging from 0.63 of 1 in sick-child

care to 0.75 of 1 for family planning on average. Adherence to evidence-based guidelines was low. Correlation between infrastructure and evidence-based care was low (median 0.20, range from −0.03 for family planning in Senegal to 0.40 for ANC in Tanzania). Facilities with similar infrastructure scores delivered care of widely varying quality in each service. The study did not detect a minimum level of infrastructure that was reliably associated with higher quality of care delivered in any service.

Diana, Hollingworth and Marks (2015) researched on quality of physical resources of health facilities in Indonesia. The quality of six categories of resources was measured using an adapted MEASURE Evaluation framework. Results showed that the overall quality was moderate, but higher in public than in private health facilities in all years regardless of the region. The higher proportion of nurses and midwives in private practice was a determinant of scope of services and facilities available. There was little improvement in quality of physical resources following decentralization.

Amukugo and Nangombe (2017) researched on quality health care delivery at health facilities in the ministry of health and social services in Namibia. A quantitative and descriptive study was used to determine quality health care delivery at health facilities in the Ministry of Health and Social Services in Namibia (MoHSS). The findings of this objective revealed some ambiguities in the availability of policies and guidelines, leadership to facilitate care delivery, health system infrastructure, patient safety, as well as research and information to facilitate quality health delivery. Azila-Gbettor, *et al.* (2013) researched on physical evidence and quality service delivery in public hospitals in Ghana. This study examined the value of physical environment in the delivering of quality healthcare or service in public hospitals in Ghana. Twelve set of self-administered questions were designed using Baker's (1987) typology of services cape. A descriptive univariate analysis was applied for the study. The study indicates a strong link between physical environment and quality healthcare delivery and the choice of healthcare facility.

Dalinjong, Wang and Homer (2018) aimed to determine whether health facilities are well equipped to provide basic quality childbirth services under the free maternal health policy in rural Northern Ghana. The survey showed that only two out of fourteen facilities had clean water, and five had electricity. Emergency transport for referrals was available in only one facility. Basic drugs, supplies, equipment and infrastructure especially physical space were inadequate. Rooms used for childbirth in some facilities were small and used for multiple

purposes. Eighty-nine percent of women reported lack of privacy during childbirth and this was confirmed in the IDIs. Despite this, 77% of women were very satisfied or satisfied with quality of care for childbirth which was supported in the FGDs. Reasons for women's satisfaction included the availability of midwives to provide childbirth services and to have follow-up homes visits. Some midwives were seen to be patient and empathetic. Providers were not satisfied due to health system challenges.

Borah (2016) did a comparative study on impact of physical facilities, front office administration and hospital architecture on outpatient satisfaction in two corporate hospitals. The study was conducted in the outpatient department of two corporate hospitals. The method employed in this study was sample survey. The samples were drawn through the technique of simple random sampling. The collected data were codified, tabulated and then simple statistical analysis such as percentage analysis was used in analyzing the data. The results showed that the majority of the respondents of both the hospitals revealed that there is an impact of physical facilities, front office administration and hospital architecture on outpatient satisfaction.

2.4.4 Availability of Drugs and Quality of Healthcare Services

Drug is any substance (other than food) that is used to prevent, diagnose, treat, or relieve symptoms of a disease or abnormal condition (Masters, 2014). Kuwawenaruwa, Wyss, Wiedenmayer and Metta (2020) studied the effects of medicines availability and stock-outs on household's utilization of healthcare services in Dodoma region, Tanzania. This was a cross-sectional study that combined information from households and healthcare facility surveys. Eighteen medicines were selected as 'tracers' to assess availability more generally, and these were continuously available in ~70% of the time in facilities across all districts over 3 months of review. The main analysis showed that household's healthcare utilization was positively and significantly associated with continuous availability of all essential medicines for the surveyed facilities. Healthcare utilization was positively associated with household membership in the community health insurance funds and exposure to healthcare education. These results highlight the importance of medicine availability in promoting access to health services in low-income settings. Effective planning and medicine supply management from national to health facility level is an important component of quality health services.

Masters (2014) researched on pharmaceutical availability across levels of care: evidence from facility surveys in Ghana, Kenya, and Uganda. The study analyzed both availability of essential medicines, as defined by the

various essential medicine lists (EMLs) of each respective country, and availability of all surveyed pharmaceuticals deemed important for treatment of various high-burden diseases, including those on the EMLs. The study found that there is heterogeneity with respect to availability across the three countries with Ghana generally having better availability than Uganda and Kenya. To analyze the relationship between facility-level factors and pharmaceutical stock-out the study used a binomial regression model. The study found that the factors associated with stock-out vary by country, but across all countries both presence of a laboratory at the facility and presence of a vehicle at the facility are significantly associated with reduced stock-out.

Phuong (2019) studied the impacts of medication shortages on patient outcomes. The study found that drug shortages were predominantly reported to have adverse economic, clinical and humanistic outcomes to patients. Patients were more commonly reported to have increased out of pocket costs, rates of drug errors, adverse events, mortality, and complaints during times of shortage. There were also reports of equivalent and improved patient outcomes in some cases.

Muiruri and Mugambi (2017) studied the factors influencing availability of essential medicines in public health facilities in Kenya. This study sought to establish influence of health workers training, health budgetary allocations, supplier stock levels and disease prevalence patterns on availability of essential medicines in public health facilities. Descriptive Survey design was used to conduct the research. The target population for the study was health workers dealing with essential medicines in the 94 health facilities in Embu County. The study revealed that all the factors investigated had an influence on the availability of essential medicines in public health facilities due to untrained staff, inadequate and untimely disbursements of budgets allocated to the health facilities, no of suppliers and supplier stock factors which were seen to inhibit the stocking abilities for the suppliers and the disease prevalence patterns.

2.5 Research Gaps

Aiken, Clarke and Sloane (2015) researched on hospital staffing, organization, and quality of care in the US. Sochalski (2015) did an evaluation on quality of care, nurse staffing, and patient outcomes in Pennsylvania. These studies were done in US the findings cannot be generalized since the healthcare in US is more advanced than in Kenya. Havig, *et al.* (2015) researched on leadership, staffing and quality of care in nursing homes.

This study focus was on quality of care in nursing homes while the current study focus is on quality of healthcare services at Kenya defence forces memorial hospital. Dinda (2016) did an analysis of service quality and organizational performance of private healthcare facilities in Nairobi County, Kenya. This study focus was on organizational performance of private healthcare facilities while the current study focus is on quality of healthcare services at Kenya defence forces memorial hospital. This is because health facilities mainly provide services to the general public while the Kenya Defence Forces Memorial Hospital is a military based hospital that offers services to the military personnel and the families. The military based hospital is publicly funded but is only open to the military personnel and their families. It is organized and managed by the ministry of defence. It provides health services for armed forces personnel and other entitled beneficiaries and supports the armed forces on military operations.

Khan, Khalid, Almorsy and Khalifa (2016) did a review on improving timeliness of diagnostic healthcare services. This study focus was on timeliness of diagnostic healthcare services. Derua (2014) researched on users' and health service providers' perception on quality of laboratory malaria diagnosis in Tanzania. This study focus was on health service providers' perception on quality of laboratory tests. The current study focus is on diagnostic services on quality of healthcare services. Diana, Hollingworth and Marks (2015) researched on quality of physical resources of health facilities in Indonesia. This study was conducted in Indonesia; the findings cannot be generalized in Kenya.

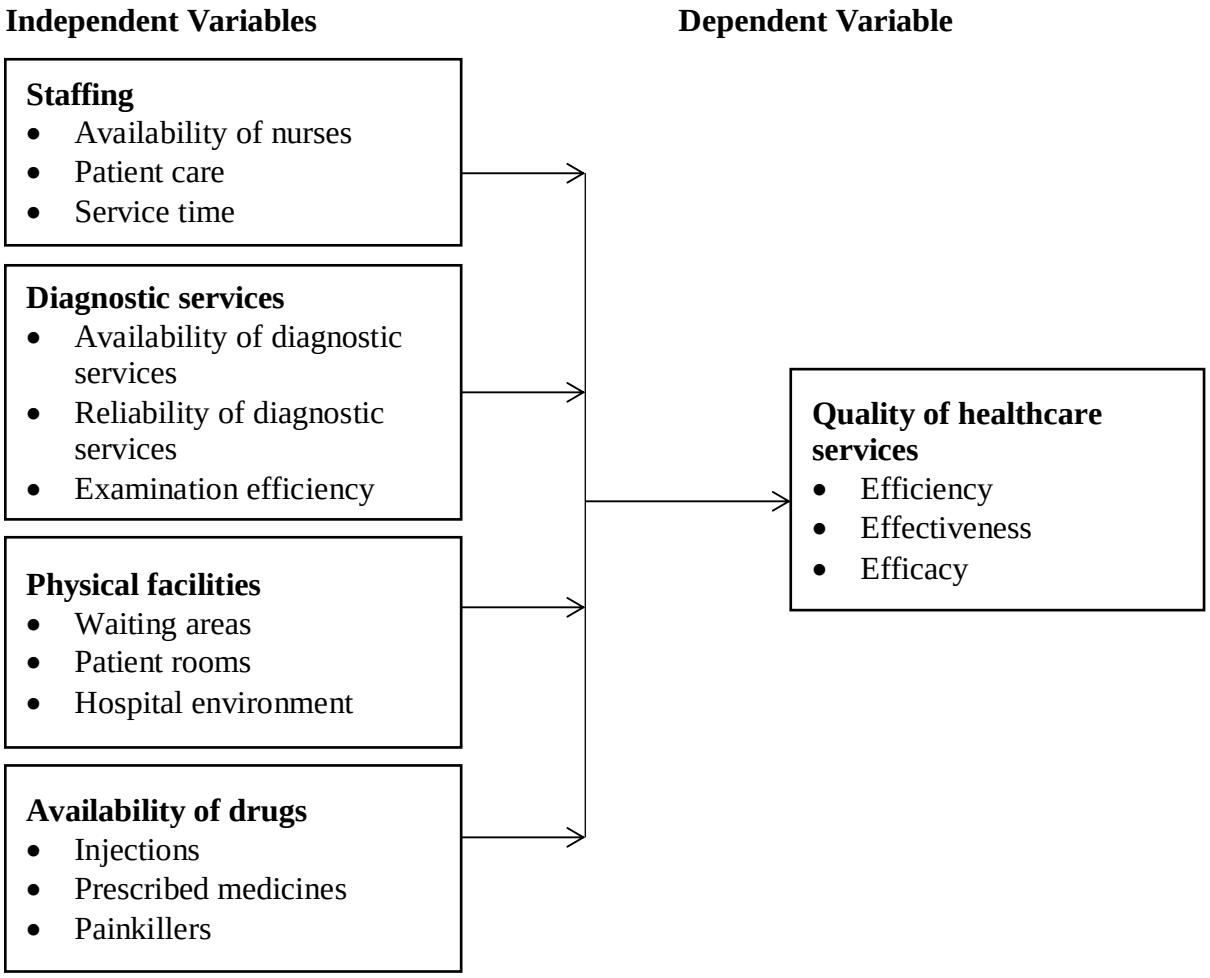
Dalinjong, Wang and Homer (2018) aimed to determine whether health facilities are well equipped to provide basic quality childbirth services under the free maternal health policy in rural Northern Ghana. This study focus was on health facilities and provision of basic quality childbirth services while the current study focus is on physical facilities and quality of healthcare services. Borah (2016) did a comparative study on impact of physical facilities, front office administration and hospital architecture on outpatient satisfaction in two corporate hospitals. This study focus was on physical facilities and outpatient satisfaction while the current study focus is on physical facilities and quality of healthcare services. Kuwawenaruwa, Wyss, Wiedenmayer and Metta (2020) studied the effects of medicines availability and stock-outs on household’s utilization of healthcare services in Dodoma region, Tanzania. This study focus was on medicines availability and household’s utilization of healthcare services while the current study focus is on availability of medicines and

quality of healthcare services. The current study sought to establish the determinants of quality of healthcare services at Kenya defence forces memorial hospital.

2.6 Conceptual Framework

A conceptual framework was developed to show the association between the study variables. Figure 2.1 shows the relationship between independent variables staffing, diagnostic services physical facilities, availability of drugs and dependent variable quality of healthcare services. This model is adapted from other frameworks Dadzie (2016) evaluation on quality healthcare used infrastructure, material and staff as the independent variables. Muthui (2018) on their review on quality healthcare adopted healthcare personnel and resource availability (drugs) as the independent variables. Mosadeghrad (2014) indicated that factors pertaining to the healthcare organisation, healthcare system (diagnostic services), and the broader environment affect healthcare service quality. Poortagh (2020) indicated that staffing according to workload plays an important role in quality care. Adriko (2018) posits that human resource, physical infrastructures and equipment and medicine and health supplies influences quality of health service.

Figure 2.1: Conceptual Framework



Source: Researcher (2021)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology. It covers the research design, study population, sampling technique and sample size, data collection methods, research quality, validity and reliability of the research instrument, data analysis and presentation and ethical considerations.

3.2 Research Design

Research design refers to the overall strategy utilized to carry out a study that defines a logical plan to tackle established research question(s) (Brown, 2016). The study adopted a descriptive survey research design. Descriptive research aim is to gather information about prevailing conditions or situations for the purpose of description and interpretation. This type of research method is not simply building and tabulating facts but includes proper analyses, interpretation, comparisons, identification of trends and relationships (Cooper & Schindler, 2013). Khan and Kahn (2015) postulated that descriptive design is appropriate since it seeks to find out factors associated with occurrences of certain events and conditions of behavior. It enables the researcher to collect in-depth information including sensitive and personalized experiences concerning the issue being investigated. The descriptive survey design allows the researcher to study variables, as they exist. The researcher cannot manipulate the study variables. Hence, this method was suitable in determining the determinants of quality of healthcare services in Kenya defence forces memorial hospital.

3.3 Study Population

Target population represents the entire population for which any given study intends to examine. This study was conducted at the Kenya defence forces memorial hospital in Nairobi. The study targeted the patients visiting the hospital who were above 18 years of age. Both the male and female formed part of the study population. These patients were targeted because they are in a better position to explain the quality of healthcare services. The target population was all patients visiting defence forces memorial hospital in Mbagathi Nairobi. However, patients who were very ill were excluded from the study. The study targeted patients visiting the hospital on daily basis. The patients were recruited by the researcher who visited the hospital on daily basis and ask patients visiting on the same day to answer the questionnaire. From the DFMH

records 92 patients visit the hospital on daily basis. Therefore, the approximate footfall in the hospital in a month was ~2,760 patients.

3.4 Sampling Technique

A sample is a subset of individuals from a larger population. Sampling means selecting the group that the study actually collected data from in the research. The sampling frame was the list of patients visiting Kenya defence forces memorial hospital on daily basis. The simple random sampling method was used in this study. The researcher used the random number generator to randomly pick a subset of the population (Appendix II). In a simple random sample, every member of the population has an equal chance of being selected.

The research utilized Nassiuma (2000) equation for ascertaining test measure n from a populace N as demonstrated as follows:

$n = NC^2 / \{C^2+(N-1)e^2\}$ where

n is sample size

N is study population

C is coefficient of variation and

e is error margin

By taking N as 2760, C as 0.32, e as 0.022 and substituting such qualities in the condition the estimated sample size (n) was

$n = 2760*0.1024 / \{0.1024 + (2760-1)0.000484\}$

n = 197 respondents 1.437756

The study sample size was 197 respondents in a month. On daily basis the sample size translated to 28 or 29 patients per day. This study is restricted to one week because of limited time set to carry out the study.

The researcher targeted respondents that were registered at the registration department. The researcher recruited the respondents by approaching the patients and requesting them to participate. Those who agree to participate were further requested to answer the questionnaire after receiving care.

3.5 Data Collection Methods

The questionnaire was the tool for data collection. The questionnaire was used to collect primary data. The questionnaire was structured to open ended and close ended questions. Close ended questions are question types that ask respondents to choose from a distinct set of pre-defined response while open ended questions are open for the respondent to answer with more freedom. Questionnaires are considered to be suitable data collection tool in this study because they allow a large population of people to be reached with ease and is also economical. The questionnaires were developed in line with the study objectives and it will have six sections. Section one covered the demographic information of the respondents, section two to four had questions on the independent variables and section six covered questions on the dependent variable.

The respondents were requested to participate in the study. Those who consented were given the questionnaire to fill. The researcher administered the questionnaire at the defense forces memorial hospital in Mbagathi Nairobi. Also, the questionnaires were administered by the help of trained research assistants. This ensured high response rate for the study.

3.6 Research Quality

To test for validity and reliability a pilot test was conducted. In this study, the researcher picked a sample of 10 respondents for pilot study. The pilot was conducted at Kahawa Military Barracks hospital. According to Mugenda (2008) a pilot study sample size of 1% to 10% is a reasonable number to consider in a pilot study. This was adequate sample for the pilot study. The pre-test helped in identifying the most likely source of errors and hence modify the research instrument before the actual study and improve on quality of the research.

3.6.1 Validity of the Research Instrument

Validity refers to the issue of whether or not an indicator (or set of indicators) that is devised to gauge a concept really measures that concept (Bryman & Bell, 2011). This study adopted content validity. Content validity of an instrument is improved through expert judgment. To ensure content validity, the questionnaires was subjected to a panel of peers to assess whether each measurement question in the questionnaire is essential, useful or necessary. Essential responses on each item from each panelist were evaluated by a content validity ratio, and those meeting statistical significance values were retained.

3.6.2 Reliability of the Research Instrument

Reliability refers to the consistency of the measure of concept (Bryman, 2012). A measuring instrument is reliable if it provides consistent results. Cronbach's alpha (α) generated from internal consistency technique was used to ensure that items have reasonably good internal consistency and measure the same underlying construct consistently. Cronbach's alpha (α) is a coefficient (a number between 0 and 1) that is used to rate the internal consistency (homogeneity) or the correlation of items in a test (Sushil & Verma, 2010). Reliability coefficient of 0.7 was typically employed as the rule of the thumb to denote an acceptable level of internal reliability.

3.7 Data Analysis and Presentation

Data analysis technique involves the process of packaging the collected data, maintaining it in order and organizing its major components in such a way that the results can be easily and efficiently communicated (Shamoo & Resnik, 2003). The data collected was cleaned, coded for the purpose of analysis. The coded data will be entered in the SPSS software for analysis. The data was analyzed through descriptive and inferential statistics with the help of Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics included measures of central tendency (the mean), measures of variability (standard deviation), frequency and percentage distribution tables. The analyzed data was presented in table, graphs and charts.

The inferential statistics included correlation and regression analysis. Correlation analysis was used to evaluate the strength of relationship between two quantitative variables. Regression analysis was used in estimating the relationships between a dependent variable and one or more independent variables. The regression model is;

$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \beta_4X_4 + \varepsilon$

Where

Y = Quality of healthcare services

β_0 = regression constant,

β_1, - β_3 = Coefficients,

X_1 is Staffing

X_2 is Diagnostic services

X_3 is Physical facilities

X_4 is Availability of drugs

3.8 Ethical Consideration

The researcher sought the consent and permission from all the research stakeholders before undertaking the process of data collection. The researcher got relevant permits and letters for data collection from the university, Kenya Defence Forces Memorial Hospital and from National Commission for Science, Technology and Innovation (NACOSTI). The respondents were allowed to make an informed decision on whether to participate in the research process or not. Those willing to participate in the study were given a consent form to sign. This implies that the respondents were not forced or coerced into participating in the research process. The anonymity of the respondents was assured as they were not required to give their names on the questionnaires they fill. The respondents were also informed that the information given was only utilized for the purpose of the academic study only.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATIONS AND PRESENTATIONS

4.1 Introduction

This chapter discusses the study findings obtained from the field. It involves data analysis, interpretation and presentations. Descriptive, correlational and regression analysis were used to discuss the findings of the study. Tables generated from SPSS output were used to display the results.

4.2 Response Rate

The study targeted 197 patients visiting the hospital on daily basis. The respondents were all outpatients. The researcher administered the questionnaires to the respondents and gave them 20 minutes to fill in. This was considered adequate time to respond to the questionnaire. From the issued questionnaires, 186 were filled and returned. This formed a response rate of 94%. The study response rate was excellent since according to Cooper and Schindler (2019), a response rate of 50 percent is adequate for data analysis and reporting; a rate of 60 percent is good and a response rate of 70 percent and over is excellent.

4.3 Reliability Analysis

Cronbach's alpha (α) generated from internal consistency technique was used to ensure that items have reasonably good internal consistency and measure the same underlying construct consistently. Reliability coefficient of 0.7 was typically employed as the rule of the thumb to denote an acceptable level of internal reliability.

Table 4.1: Reliability Analysis

Scale	Cronbach's Alpha	Number of Items
Staffing	0.778	
Diagnostic Services	0.761	
Physical facilities	0.785	
Availability of drugs	0.797	

From the findings, staffing had an alpha of 0.788, diagnostic tests alpha of 0.761, physical facilities alpha of 0785 and availability of drugs alpha of 0.797. The outcomes show that cronbach alpha value for all the variables is greater than 0.7 which suggest that all of them were reliable and were all incorporated in the study.

4.4 Demographic Information

4.4.1 Gender of Respondents

The respondents were asked to indicate their gender. Findings were as shown in Table 4.2

Table 4.2: Gender of Respondents

Category	n	%
Male	82	44%
Female	104	56%
Total	**186**	**100**

The findings show that (104)56% of the respondents were female while (82)44% were male. This implies that both genders took part in the study. Hence, gender parity was ensured.

4.4.2 Respondents Age Group

The respondents were required to indicate their age group. The results were as indicated in table 4.3.

Table 4.3: Respondents Age Group

Category	Frequency	Percent
19-30 years	36	19%
31-40 years	80	43%
41-50 years	70	38%
Total	**186**	**100**

From the results, (80)43% of the respondents were aged between 31-40 years, (70)38% were aged between 41-50 years and (36)19% were aged between 19-30 years.

4.5 Descriptive Statistics

4.5.1 Staffing

The respondents were required to indicate their level of agreement on the following statements about the effects of staffing on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The findings were as shown in Table 4.4.

Table 4.4: Staffing

Statements	1	2	3	4	5	Mean	Std. Dev
Healthcare professions handle the patients with care	6	10	20	102	48	3.946	0.891
Healthcare professions in the hospital are skilled in their area of work	8	13	18	104	43	3.866	0.886
Healthcare professions show their knowledge while offering their services	9	15	15	89	58	3.925	0.847
The patient service is very fast	5	11	25	110	35	3.855	0.912
Healthcare professions deal with the patients professionally	7	16	24	101	38	3.790	0.839
The waiting time for services is a few minutes	10	16	21	99	40	3.769	0.830
I was satisfied with the services I received from the hospital	9	14	19	84	60	3.925	0.823

The findings show that the respondents agreed that healthcare professions handle the patients with care as shown by mean±SD (3.946±0.891), healthcare professions show their knowledge while offering their services as shown by 3.925±0.847, patients are satisfied with the services they receive from the hospital, healthcare professions in the hospital are skilled in their area of work, the patient service is very fast, healthcare professions deal with the patients professionally and the waiting time for services is a few minutes as shown by 3.769 ±0.830.

4.5.2 Diagnostic Services

The respondents were required to indicate their level of agreement on the following statements about effects of diagnostic services on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree.

Table 4.5: Diagnostic Services

Statements	1	2	3	4	5	Mean	Std. Dev
The hospital provides adequate laboratory services	9	14	22	113	30	3.790	0.926
Obtaining samples from the patient is very efficient	11	17	20	99	39	3.742	0.826
The examination results are provided in the expected time	7	13	19	82	65	3.995	0.847
I would recommend an individual to visit the hospital for diagnostic services	9	12	17	95	53	3.919	0.861
The laboratory personnel seemed professional	10	15	23	100	38	3.758	0.831
The hospital provides adequate radiology services	8	16	21	97	44	3.823	0.829
Getting a radiology test done is timely	12	14	19	88	53	3.839	0.806

Radiology tests are provided in the expected time	6	18	18	106	38	3.817	0.884
Radiology tests are seemed reliable	7	15	20	83	61	3.946	0.823

The respondents agreed that the examination results are provided in the expected time as demonstrated by 3.995±0.847, radiology tests are seemed reliable as demonstrated by 3.946±0.823, they would recommend an individual to visit the hospital for diagnostic services, getting a radiology test done is timely, the hospital provides adequate radiology services as demonstrated, radiology tests are provided in the expected time, the hospital provides adequate laboratory services, the laboratory personnel seemed professional as demonstrated by 3.758±0.831 and obtaining samples from the patient is very efficient as demonstrated by 3.742±0.826.

4.5.3 Physical Facilities

The respondents were required to indicate their level of agreement on the following statements about effects of physical facilities on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree.

Table 4.6: Physical Facilities

Statements	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Dev**
Patients are served in privacy since the hospital has adequate rooms	6	18	24	94	44	3.817	0.802
The hospital has a large area where patients can wait to be served	8	16	21	111	30	3.747	0.909
The hospital uses computer to store patient information for future reference	5	19	19	98	45	3.855	0.841
The hospital environment is clean	8	15	26	103	34	3.753	0.845
The hospital provides adequate ambulance services	9	17	23	89	48	3.806	0.782
The hospital is well structured since one can locate the areas they want to visit with ease	5	16	20	86	59	3.957	0.829

The respondents agreed that the hospital is well structured since one can locate the areas they want to visit with ease as illustrated by 3.957±0.829, The hospital uses computer to store patient information for future reference as illustrated by 3.855±0.841, patients are served in privacy since the hospital has adequate rooms, the hospital provides adequate ambulance services The hospital environment is clean as illustrated by 3.753 ± 0.845 and The hospital has a large area where patients can wait to be served as illustrated by 3.747±0.909.

4.5.4 Availability of Drugs

The respondents were required to indicate their level of agreement on the following statements about effects of availability of drugs on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree

Table 4.7: Availability of Drugs

Statements	1	2	3	4	5	Mean	Std. Dev
I am able to get my prescribed drugs from the hospital pharmacy	11	13	19	99	44	3.817	0.848
I am able to get injection medication prescribed	10	15	17	116	28	3.737	0.953
I am able to get painkillers from the hospital	12	17	21	97	39	3.720	0.809
I usually get explanations on how to use my medication	9	14	18	103	42	3.833	0.874
I get information on storage requirements for my prescribed drugs	7	16	20	112	31	3.774	0.920
I am satisfied with the services I get from the hospital	10	19	22	85	50	3.785	0.762

The respondents agreed that they usually get explanations on how to use my medication as shown by 3.833±0.874, they are able to get my prescribed drugs from the hospital pharmacy as shown by 3.817±0.848, they are satisfied with the services they get from the hospital, they get information on storage requirements for my prescribed drugs, they are able to get injection medication prescribed as shown by 3.737±0.953 and they are able to get painkillers from the hospital as shown by 3.720±0.809.

4.5.5 Quality of Healthcare Services

The respondents were asked to rate the following measures of quality of healthcare services at Kenya defence forces memorial hospital. 1-poor, 2-fair, 3-average, 4-good, 5-excellent

Table 4.8: Quality of Healthcare Services

Statements	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Dev**
Effectiveness (produce desired results)	12	19	25	90	40	3.683	0.752
Efficiency (level of performance)	9	16	23	86	52	3.839	0.783
Effectiveness (get desired results)	10	20	25	94	37	3.688	0.774
Empathy (understanding patient needs)	11	17	20	102	36	3.726	0.843
Environment (clean and conducive)	12	21	23	99	31	3.624	0.801

From the findings the respondents indicated that the hospital level of performance is good as shown by 3.839±0.783, the level of understanding patients' needs is good as shown by 3.726±0.843, the patient get the

desired results, desired results are produced and the hospital environment is clean and conducive as shown by 3.624 ±0.801

4.5 Correlational Analysis

This research carried out correlation analysis between the variables of the study using Karl Pearson product-moment correlation coefficient. Correlation Coefficient was used to test whether there exists interdependency between independent variables and the dependent variable.

Table 4.9: Correlations

		Quality of Health Care	Staffing	Diagnostic Services	Physical Facilities	Availability of Drugs
Quality of Health Care	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	186				
Staffing	Pearson Correlation	.849**	1			
	Sig. (2-tailed)	<.001				
	N	186	186			
Diagnostic Services	Pearson Correlation	.814**	.414**	1		
	Sig. (2-tailed)	<.001	.038			
	N	186	186	186		
Physical Facilities	Pearson Correlation	.838**	.389**	.366**	1	
	Sig. (2-tailed)	<.001	.044	.048		
	N	186	186	186	186	
Availability of Drugs	Pearson Correlation	.866**	.346**	.321**	.303**	1
	Sig. (2-tailed)	<.001	.050	.053	.058	
	N	186	186	186	186	186

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

From the findings, there is a positive association between staffing and quality of healthcare services at Kenya Defence Forces Memorial Hospital (r=0.849, p-value<0.001). There is also positive relationship between diagnostic services and quality of healthcare services at Kenya Defence Forces Memorial Hospital (r=0.814, p-value<0.001). The findings also established a positive association between physical facilities and quality of healthcare services at Kenya Defence Forces Memorial Hospital (r=0.838, p-value<0.001). There is also a strong positive relationship between availability of drugs and quality of healthcare services at Kenya Defence Forces Memorial Hospital (r=0.866, p-value<0.001). These results imply that the independent variables influence quality of healthcare services at KDF Memorial Hospital.

4.6 Multiple Regression Analysis

Regression analysis was conducted to determine the relationship between the study variables. The regression analysis comprises the model summary, analysis of variance and beta coefficients.

Table 4.10: Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891[a]	.794	.789	.03167

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13.817	4	3.454	78.309	.000[b]
	Residual	7.984	181	0.044		
	Total	**21.80`1**	**185**			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.836	0.123		6.797	.000
	Staffing	.378	0.104	.323	3.635	<.001
	Diagnostic services	.330	0.095	.298	3.474	<.001
	Physical facilities	.405	0.099	.450	4.091	.000
	Availability of drugs	.431	0.101	.489	4.267	.000

a. Dependent Variable: Quality of healthcare services

b. Predictors: (Constant), staffing, diagnostic services, physical facilities, availability of drugs

From the findings on model summary, the R squared was 0.794 implying that there was 79.4% variation of quality of healthcare services at KDF Memorial Hospital in Kenya, due to the changes of staffing, diagnostic services, physical facilities and availability of drugs. The remaining 20.6% imply that there are other factors that are associated to quality of healthcare services which were not discussed in the study. R is the correlation coefficient which shows the relationship between the study variables. The findings show that there was a strong positive relationship between the study variables as shown by 0.891.

On the ANOVA findings, the F-critical (4, 181) was 2.422 while the F-calculated was 78.309. This shows that the F-calculated was greater than the F-critical and hence a linear significant relationship exists between staffing, diagnostic services, physical facilities and availability of drugs and quality of healthcare services at KDF Memorial Hospital in Kenya. In addition, the p-value was 0.000, which was less than the significance level (0.05). This confirms goodness of fit of the model in predicting the link between staffing, diagnostic services, physical facilities and availability of drugs and quality of healthcare services at KDF Memorial Hospital in Kenya.

From the results on beta coefficients, the regression equation was

$Y = 0.836 + 0.378X_1 + 0.330X_2 + 0.405X_3 + 0.431X_4 + \varepsilon$

The equation above revealed that holding staffing, diagnostic services, physical facilities and availability of drugs variables to a constant zero, they will have a significant relationship with quality of healthcare services at KDF Memorial Hospital as shown by constant =0.836 as shown in Table 4.10.

Staffing had statistically significant link with quality of healthcare services at KDF Memorial Hospital as shown by ($\beta = 0.378$, $P = <0.001$). This shows that staffing had significant positive relationship with quality of healthcare services at KDF Memorial Hospital. Diagnostic services had statistically significant link with quality of healthcare services at KDF Memorial Hospital as shown by ($\beta = 0.330$, $P = <0.001$). This shows that diagnostic services had significant positive relationship with quality of healthcare services at KDF Memorial Hospital.

Physical facilities had statistically significant relationship with quality of healthcare services at KDF Memorial Hospital as shown by ($\beta = 0.405$, $P = 0.000$). This shows that physical facilities had significant positive link with quality of healthcare services at KDF Memorial Hospital. Availability of drugs had a statistically significant link with quality of healthcare services at KDF Memorial Hospital as shown by ($\beta = 0.431$, $P = 0.000$). This shows availability of drugs had a significant positive relationship with quality of healthcare services at KDF Memorial Hospital.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings, conclusions drawn from the findings highlighted and recommendations made there-to. The conclusions and recommendations drawn were focused on addressing the objective of the study.

5.2 Summary of the Findings

5.2.1 Effects of Staffing on Quality of Healthcare Services

The study established that healthcare professions handle the patients with care (3.946), healthcare professions show their knowledge while offering their services (3.925), patients are satisfied with the services received from the hospital, healthcare professions in the hospital are skilled in their area of work, the patient service is very fast, healthcare professions deal with the patients professionally and the waiting time for services is a few minutes (3.769). The findings show that the respondents only agreed and did not strongly agree about staffing and quality of healthcare, this implies that there is need to improve the quality of healthcare.

The study also found that there was a positive correlation between staffing and quality of healthcare services at Kenya Defence Forces Memorial Hospital ($r=0.849$, p-value<0.001). Further staffing had significant positive relationship with quality of healthcare services at KDF Memorial Hospital ($\beta = 0.378$, $P <0.001$). The findings concur with those of Avalere Health LLC (2015) who established that optimal staffing is essential to providing professional nursing value. Greater benefit can be derived from staffing models that consider the number of nurses and/or the nurse-to-patient ratios and can be adjusted to account for unit and shift level factors.

5.2.2 Effects of Diagnostic Services on Quality of Healthcare Services

The study revealed that examination results are provided in the expected time (3.995), radiology tests are seemed reliable (3.946), they would recommend an individual to visit the hospital for diagnostic services, getting a radiology test done is timely, the hospital provides adequate radiology services, radiology tests are provided in the expected time, the hospital provides adequate laboratory services, the laboratory personnel

seemed professional (3.758) and obtaining samples from the patient is very efficient (3.742). The findings show that the respondents only agreed and did not strongly agree about diagnostic services and quality of healthcare, this implies that there is need to improve the quality of healthcare.

The study also found that there was a positive correlation between diagnostic services and quality of healthcare services at Kenya Defence Forces Memorial Hospital ($r=0.814$, p-value<0.001). Further, diagnostic services had significant positive relationship with quality of healthcare services at KDF Memorial Hospital ($\beta = 0.330$, $P < 0.001$). The findings concur with those of Njoroge (2014) laboratory practitioners were competent; the practice characteristics were of good standard and patients perceived the services to be of good quality.

5.2.3 Effects of Physical Facilities on Quality of Healthcare Services

The study found that the hospital is well structured since one can locate the areas they want to visit with ease (3.957), the hospital uses computer to store patient information for future reference, patients are served in privacy since the hospital has adequate rooms (3.855), the hospital provides adequate ambulance services, the hospital environment is clean (3.753) and the hospital has a large area where patients can wait to be served (3.747). The findings show that the respondents only agreed and did not strongly agree about physical facilities and quality of healthcare, this implies that there is need to improve the quality of healthcare.

The study also found that there was a positive association between physical facilities and quality of healthcare services at KDF Memorial Hospital ($r=0.838$, p-value<0.001). Further, physical facilities had significant positive relationship with quality of healthcare services at KDF Memorial Hospital ($\beta = 0.405$, $P = 0.000$). The findings concur with those of Leslie, Sun and Kruk (2017) found a correlation between infrastructure and evidence-based care was low. Facilities with similar infrastructure scores delivered care of widely varying quality in each service. Diana, Hollingworth and Marks (2015) results showed that the overall quality was moderate, but higher in public than in private health facilities in all years regardless of the region. The higher proportion of nurses and midwives in private practice was a determinant of scope of services and facilities available. There was little improvement in quality of physical resources following decentralization.

5.2.4 Effects of Availability of Drugs on Quality of Healthcare Services

The study revealed that patients usually get explanations on how to use my medication (3.833), patients are able to get my prescribed drugs from the hospital pharmacy (3.817), they are satisfied with the services they get from the hospital, patients get information on storage requirements for my prescribed drugs (3.737), they are able to get injection medication prescribed and they are able to get painkillers from the hospital (3.720). The findings show that the respondents only agreed and did not strongly agree about availability of drugs and quality of healthcare, this implies that there is need to improve the quality of healthcare.

The study also found that there was a positive correlation between availability of drugs and quality of healthcare services at Kenya Defence Forces Memorial Hospital ($r=0.866$, p-value<0.001). Further, availability of drugs had significant positive relationship with quality of healthcare services at KDF Memorial Hospital ($\beta = 0.431$, $P = 0.000$). The findings concur with those of Kuwawenaruwa, Wyss, Wiedenmayer and Metta (2020) found that household's healthcare utilization was positively and significantly associated with continuous availability of all essential medicines for the surveyed facilities. Healthcare utilization was positively associated with household membership in the community health insurance funds and exposure to healthcare education.

5.3 Conclusions

5.3.1 Effects of Staffing on Quality of Healthcare Services

The study found that staffing had a positive association with quality of healthcare services at KDF Memorial Hospital. Further, staffing had a significant and positive link with quality of healthcare services at KDF Memorial Hospital. The study concludes that staffing is positively linked to quality of healthcare services at KDF Memorial Hospital

5.3.2 Effects of Diagnostic Services on Quality of Healthcare Services

The study revealed that diagnostic services had a positive association with quality of healthcare services at KDF Memorial Hospital. Further, diagnostic services had significant positive link with quality of healthcare services at KDF Memorial Hospital. The study concludes that diagnostic services is positively associated with quality of healthcare services at KDF Memorial Hospital

5.3.3 Effects of Physical Facilities on Quality of Healthcare Services

The study found that physical facilities had a positive association with quality of healthcare services at KDF Memorial Hospital. Also, physical facilities had significant positive relationship with quality of healthcare services at KDF Memorial Hospital. The study concludes that physical facilities are positively linked with quality of healthcare services at KDF Memorial Hospital.

5.3.4 Effects of Availability of Drugs on Quality of Healthcare Services

The study established that availability of drugs had a positive association with quality of healthcare services at KDF Memorial Hospital. Further, drugs had significant positive relationship with quality of healthcare services at KDF Memorial Hospital. The study concludes that availability of drugs is positively linked with quality of healthcare services at KDF Memorial Hospital.

5.4 Recommendations

5.4.1 Effects of Staffing on Quality of Healthcare Services

The study found that staffing had a significant association with quality of healthcare services. The study recommends that the management of the hospital should ensure that there are adequate, skilled and qualified employees to provide services to patients. Further, the staff should be trained to enhance their skills. Also, the management should support staff in their daily activities by ensuring they work in conducive work environment. This would motivate them to provide quality healthcare services.

5.4.2 Effects of Diagnostic Services on Quality of Healthcare Services

The study found that staffing had a significant association with quality of healthcare services. The study recommends that the management of the hospital should ensure that they have qualified staff to carry out the diagnostic tests. The management should also ensure that they have the modern facilities to ensure for effective diagnostic services. Also the diagnostic services should be provided in a timely and cost-effective manner.

5.4.3 Effects of Physical Facilities on Quality of Healthcare Services

The study found that staffing had a significant association with quality of healthcare services. The study recommends that the government should ensure that the hospital has adequate and modern physical facilities.

This can be ensured by improving the physical structures in the hospital. Acquiring the most modern hospital equipment's will also ensure quality services.

5.4.4 Effects of Availability of Drugs on Quality of Healthcare Services

The study found that staffing had a significant association with quality of healthcare services. The study recommends that the management of the KDF Memorial Hospital should ensure that they have adequate drugs at all times. This can be ensured procuring drugs as soon as they run out of stock, hence, they need to have an efficient procurement system. Effective planning and medicine supply management is an important component of quality health services.

5.5. Suggestions for Further Research

This study objective was to determine the determinants of quality of healthcare services at KDF Memorial Hospital. Since this study focused on four determinants of quality healthcare, future studies should study other determinants such as provider competence, patient cooperation and patient illness (severity of illness). The study also recommends that a study should be conducted to determine the challenges facing healthcare delivery in Kenya.

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APPENDICES

Appendix I: Questionnaire

Section One: Demographic Information

4 Kindly Indicate your Gender

Male ( ) Female ( )

5 Indicate your age group

Below 18 years ( )

19-30 years ( )

31-40 years ( )

41-50 years ( )

Section Two: Staffing

6 Indicate your level of agreement on the following statements about the effects of staffing on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree

Statements	**1**	**2**	**3**	**4**	**5**
Healthcare professions handle the patients with care					
Healthcare professions in the hospital are skilled in their area of work					
Healthcare professions show their knowledge while offering their services					
The patient service is very fast					
Healthcare professions deal with the patients professionally					
The waiting time for services is a few minutes					
I was satisfied with the services I received from the hospital					

7 In your view, in what ways can the hospital improve on its staffing?

……

……

……

Section Three: Diagnostic Services

8 Indicate your level of agreement on the following statements about effects of diagnostic services on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2-disagree, 3- neutral, 4-agree, 5-strongly agree

Statements	**1**	**2**	**3**	**4**	**5**
The hospital provides adequate laboratory services					
Obtaining samples from the patient is very efficient					
The examination results are provided in the expected time					
I would recommend an individual to visit the hospital for diagnostic services					
The laboratory personnel seemed professional					
The hospital provides adequate radiology services					
Getting a radiology test done is timely					
Radiology tests are provided in the expected time					
Radiology tests are seemed reliable					

9 In your opinion, does laboratory and radiology services have an impact on the quality of healthcare provided?

……

……

……

Section Four: Physical Facilities

10 Indicate your level of agreement on the following statements about effects of physical facilities on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2- neutral, 3-moderate, 4-agree, 5-strongly agree

Statements	1	2	3	4	5
Patients are served in privacy since the hospital has adequate rooms					
The hospital has a large area where patients can wait to be served					
The hospital uses computer to store patient information for future reference					

The hospital environment is clean					
The hospital provides adequate ambulance services					
The hospital is well structured since one can locate the areas they want to visit with ease					

11 In your view, how can the hospital improve physical facilities to impact its quality of healthcare services?

……

……

……

Section Five: Availability of Drugs

12 Indicate your level of agreement on the following statements about effects of availability of drugs on quality of healthcare services at Kenya defence forces memorial hospital. 1-strongly disagree, 2-disagree, 3- neutral, 4-agree, 5-strongly agree

Statements	1	2	3	4	5
I am able to get my prescribed drugs from the hospital pharmacy					
I am able to get injection medication prescribed					
I am able to get painkillers from the hospital					
I usually get explanations on how to use my medication					
I get information on storage requirements for my prescribed drugs					
I am satisfied with the services I get from the hospital					

13 In your view, how can the hospital improve on availability of drugs in order to impact the quality of healthcare services received?

……

……

……

Section Six: Quality of Healthcare Services

Rate the following measures of quality of healthcare services at Kenya defence forces memorial hospital. **1-poor, 2-fair, 3-average, 4-good, 5-excellent**

Statements	**1**	**2**	**3**	**4**	**5**
Effectiveness (produce desired results)					

Efficiency (level of performance)					
Effectiveness (get desired results)					
Empathy (understanding patient needs)					
Environment (clean and conducive)					

THANK YOU

Appendix II: Sample

197 Random Numbers
092 030 071 093 078 122 187 046 075 080 116 009 186 101 108 034 058 131 162 045 026
029 022 041 181 010 038 100 005 002 063 024 035 003 098 011 127 120 051 008 085 049
014 066 106 040 039 188 094 174 084 158 171 042 087 043 033 079 068 154 133 155 141
185 052 056 137 143 178 196 111 170 096 193 027 184 107 089 091 104 047 020 048 067
012 073 097 160 190 130 113 070 148 076 129 168 103 053 001 189 090 036 150 105 095
072 019 102 195 021 006 050 062 118 044 081 061 173 183 059 037 194 117 151 153 147
166 109 082 110 028 077 074 135 149 128 083 055 192 123 132 013 121 139 191 164 115
064 167 054 156 086 152 099 114 015 157 134 007 165 031 016 060 125 065 018 144 124
169 069 179 119 145 172 136 197 025 088 146 057 004 175 126 032 112 017 176 177 023
138 142 182 180 159 140 161 163

Appendix III: NACOSTI License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **378626**

Date of Issue: **28/October/2021**

This is to Certify that Dr.. Mercy Wambui Kinyanjui of Strathmore University, has been licensed to conduct research in Nairobi on the topic: FACTORS AFFECTING QUALITY OF HEALTHCARE SERVICES AT KENYA DEFENCE FORCES

MEMORIAL HOSPITAL for the period ending : 28/October/2022.

License No: **NACOSTI/P/21/13711**

378626

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document,

Appendix IV: Strathmore Ethics Review Approval

Strathmore UNIVERSITY

7th May 2020

Dr Kinyanjui Wambui Mercy
mercy.kinyanjui@strathmore.edu

Dear Dr Wambui,

RE: Employee Motivation and Job Satisfaction in Kenya Defence Forces Memorial Hospital

This is to inform you that SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is **SU-IERC0768/20.** The approval period is **7th May 2020 to 6th May 2021.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Dr Virginia Gichuru,
Secretary; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
07 MAY 2020
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

Cc: Prof Fred Were,
Chairperson; SU-IERC