

**PUBLIC- PRIVATE PARTNERSHIP ASPECTS AND PERFORMANCE OF
MANAGED EQUIPMENT SERVICE PROJECT IN HEALTH SERVICE
PROVISION IN KENYA**

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D53/CTY/PT/32968/2015

**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS OF MASTER OF
BUSINESS ADMINISTRATION (PROJECT MANAGEMENT) KENYATTA
UNIVERSITY**

NOVEMBER 2021

DECLARATION

This research project is my original work and has not been presented for a degree or other award in any other university. No part of this research project should be reproduced without authority of the author or/and Kenyatta University

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DEDICATION

This project is dedicated to my late father, who always encouraged me to be the best. I also dedicate this work to my loving sister for encouraging and supporting me to join this Master's program to enhance my knowledge and learning experience. A special note to my loving husband for his support, I could not have completed this course without his support and encouragement.

ACKNOWLEDGMENT

I wish to express first my sincere gratitude to God for enabling me to conceptualize an idea and his great wisdom in completing this proposal. To my supervisor - Ms. Gladys Kimutai, for her patience, guidance and continued support throughout the proposal. To all the other lecturers of Kenyatta University for their support and guidance throughout my study and especially for my smooth transition from Mombasa to Nairobi campus. I am grateful to my classmates for the constant encouragement and support to complete this course.

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LIST OF ABBREVIATIONS AND ACRONYMS

HIS	Hospital Information Systems
HMIS	Health Management Information Systems
HPPA	Health Insurance Probability and Accountability Act
ICT	Information and Communications Technology
ICU	Intensive Care Unit
LED	Light Emitting Diode
MES	Managed Equipment Services
MOH	Ministry of Health
OEM	Originate Equipment Manufacturers
WHO	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Managed equipment services:	Refers to a flexible, long-term contractual arrangement that comprises outsourcing the provision of specialized, modern medical technology and equipment to private sector service providers
Skills and knowledge:	The overall understanding, education levels and experience to carry out MES projects. These include professional qualification, soft skills and technical skills
Project performance:	Is the performance of managed equipment services measured based on quality of services, cost of the project and customer satisfaction. These include cost performance, cycle time, customer satisfaction, employee satisfaction and alignment with business goals
Stakeholder's involvement:	It involves engaging the partners who have an interest with the activities done through the MES projects. These include involving stakeholders in planning, decision making, consultation and communication
Contract Management:	Refers to the process of managing a contracted project in the execution process to bring out desired results. These involves payment mechanism, stipulation with timelines, spending visibility and improved compliance
Monitoring and evaluation:	Refers to systematic collection of data using specific indicators and developing rigorous metrics to measure project results. These involves technical monitoring, functional monitoring, process evaluation and outcome evaluation

ABSTRACT

The Kenyan government in its efforts to enhance equitable, accessible and quality healthcare equipped two hospitals in each of the forty-seven counties with state of the art specialized medical equipment in 2014. However, the machines lie idle due to lack of electricity, specialists, water and connection to sewer lines. It is due to the above listed challenges that the study sought to examine the effect of private public partnership and performance of managed equipment services projects in health service provision in Kenya. The specific objectives of the study were; to examine the extent to which staff skills and knowledge, stakeholder involvement, performance monitoring and contract management influence the performance of Managed Equipment Services in healthcare provision in Kenya. The theories used to explain the study were; institutional theory, resource-based view and stakeholder theory. The study used descriptive and explanatory research design. The target population of this research was the 98 hospitals that are under MES programs in Kenya. The study used simple random sampling to select 47 hospitals from the 98 hospitals that are implementing the MES programs. Primary data was obtained using self-administered questionnaires which used a person in the management, a doctor, a nurse, a procurement officer and a subordinate staff. A pilot study was done to establish the validity and reliability of the instruments. Data gathered was presented in form of percentages and frequency. SPSS software was used to aid in data analysis. Analysis was done by use of descriptive and inferential statistics. Descriptive analysis involved the calculation of measures of central tendency and dispersions that is means and standard deviation. Correlation analysis was used to identify relationships among variables. Regression analysis was used to make a prediction and determine how the variables influence the performance of managed equipment services projects in health service provision. The findings were expected to assist the local health facilities on how to go about their activities with an aim of improving performance through managed equipment service in Kenya and beyond. The study found that staff skills and knowledge, Stakeholder involvement, monitoring and evaluation and contract management was statistically significant to performance of MES projects in Kenya. The study concluded that staff skills and knowledge, Stakeholder involvement, monitoring and evaluation and contract management are related with performance of MES projects. This study recommends that the hospitals in Kenya should ensure that they hire employees with soft and technical skills and they should also be professionally qualified. Further, stakeholders should be allowed to actively participate in planning and decision making. Their opinions play a big role in the performance of MES projects. Also, the hospitals in Kenya should adopt functional, technical, regular, evaluation, process monitoring and outcome evaluations. This would be helpful in checking the progress of the MES projects. Hospitals should adhere to stipulated timelines and ensure that their spending is properly accounted for through frequent provision of financial performance.

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

Healthcare plays a crucial part in growth and management of an economy. When there is improved healthcare, there is an enhanced productivity, improved life expectancy, more investments and savings among the people and a decreased spending on healthcare which eventually leads to a greater economic growth, political and social stability (Burns, 2012). Third world countries like Kenya are losing thousands of children to treatable disease due to marginalization in health and development. The implementation of Managed Equipment Services (MES) has been regarded as one way of creating competitive advantage to hospitals. It helps in establishing efficiency and affordable healthcare (Yadav, Aliasgari & Poellabauer, 2020). Through MES, hospitals get to be equipped with medical equipment thereby improving on their performance.

In the UK, the biggest trust is the Barts Health NHS; it has 15,000 employees and provides treatment to 2.4m patients per year. There is a 35-year partnership on Managed Equipment Services (MES) of Siemens Healthineers to provide support on the Royal London and St Bartholomew's (Barts) hospitals redevelopment and ensure that they have modern medical equipment until 2045. Siemens supplies and manages medical technology for cardiology and radiology departments in hospitals and also provides their expertise in building phase to assist in improving the design of hospitals that is a structure with all the needed equipment (Siemens Healthcare GmbH, 2016).

In Africa, the biggest healthcare providers are governments, with approximately 80 to 20 ratio or higher between the government and private sector. Healthcare faces high financial pressure just like other services provided by governments. This leads to challenges in

attaining the universal health coverage goals of making sure that citizens have access to affordable and effective health services as set by World Health Organisation's (WHO's) (WHO, 2015). The major challenges in Africa's healthcare system are inadequate healthcare staff. This further increases the problems due to the fact that sub-Saharan Africa has to deal with more than twenty four percent of disease burden globally with only three percent of healthcare workforce globally and one percent healthcare expenditure globally. African nations wish to invest in new medical technology; however most of the nations face financial problems. According to WHO seventy percent of investments in medical technology in low-income nations are poorly managed or obsolete and other factors include lack of frequent servicing. Lack of adequately skilled group of biomedical engineers, the needed spare parts and funds, compound medical devices are no longer operational (WHO, 2015).

In Africa, estimated forty percent of medical equipment's are not functional. Also eighty percent of the medical equipment's in most sub-Saharan African nations is funded or donated by foreign sources. 70-90 percent of donated equipment is never operationalized. The percentage of equipment that is not functional is highly because of obsolete equipment's, difficulties in the acquisition of spare parts and deficiency of skilled staff (Kinley, 2012). The MES method helps in strengthening the system of health in a manner that is best for an African situation and improves healthcare workers motivation, as it is associated with professional growth. These aspects help in ensuring MES performance (Logan & Patel, 2012).

The Kenyan government understands the significance of healthcare and as a result, it has made it one of the social pillars components. The Kenyan Constitution of 2010 devolved healthcare to enable it reach people at the grassroots (Constitution of Kenya, 2010). The

national and county governments are supposed to give affordable healthcare to all citizens. MES involves partnership between the government sponsored healthcare facilities and the private sector for a period of time at an annual fee. The package involves acquisition, installation, training, maintenance and replacement of medical equipment. MES covers medical technology, consulting services, financing, training and maintenance (Keohane & Martin, 2014).

MES integration requires combined efforts of healthcare personnel, healthcare institutions, researchers, engineers and other like-minded players. The private sector can offer funds or any other support to supplement government efforts through Private-Public Partnerships (PPP). PPP has been instrumental in ensuring the advancement of healthcare in Kenya. Most of the Non-Governmental Organizations (NGOs) in operation in Kenya deal with healthcare issues. There are other corporates that too inject funds into various healthcare issues. It is evident that in order to realize the development goals in healthcare, PPP is a must (Suddaby, 2015). Case in point is the Lions club of Kenya, a private entity that offers free eye checkup annually at government healthcare facilities at various towns across Kenya. Other private firms have also been aiding government efforts in ensuring provision of affordable and easily accessible healthcare only that their efforts do not get publicized. As of June 2020, Kenya and the entire world was dealing the Corona Virus Disease (Covid 19) pandemic. It became noticeable that many health facilities do not have enough Intensive Care Units (ICU) beds or none at all (Ministry of Health, 2020). During this time the private sector was able to supplement government efforts in stemming the spread of the disease. They provided ambulances and funds to buy medical personnel the equipment needed. The government and

the private sector in general is able to offer good performance in the healthcare sector when they combine their efforts together (Ministry of Health, 2020).

Kenya is the first African nation to join the largest sustainable projects on healthcare through arrangement of MES comprising providing, running and state of the art medical equipment's servicing. The program was rolled out in ninety-eight hospitals in Kenya, at an approximate cost of \$ 5 million (Ministry of Health, 2016). The implementation of the MES Kenyan projects was the one kind that was first adopted in Africa to equip health facilities. Therefore, the lack of empirical literature on challenges and benefits in the African context is evident. The empirical literature will be drawn from existing studies in developed economies and developing economies outside African that have adopted MES model in health care provision (Ministry of Health, 2016).

Resource planning is one of the aspects of project management. Resources consists of people, equipment, finances and everything that is needed in order for a given project activity to materialize (Leon, 2014). Prior to assigning resources to a given project, their availability has to be addressed first. Resource availability includes information regarding the resources that are needed for the project, when they are available, and condition of their availability (Law, 2019). An activity list has to be created earlier on and the knowledge of how an organization handles resources is needed. The resources should then be estimated and assigned to each activity in the list. This can either be done through expert judgement, analyzing options available, use of published data, use of project management software and bottom up estimating. For every project undertaken or a contract, there should be a demonstration of effectiveness towards attaining the goals set and getting the needs and

services that are needed by the public. There should therefore be proper resource allocation and step of actions for non-performance (Onkundi, Karori & Bichanga, 2016).

In the healthcare sector all over the world, there is a growing demand for medical equipment to be used in the facilities. Management of healthcare costs is becoming very challenging, and hence there is a need to opt for solutions that will lead to the improvement of health care. The best option that has been sought by the healthcare practitioners is to ensure that they have the necessary equipment in place which are managed and renewed in the most effective manner (Chen, Dutta & Maina, 2016). According to Yadav *et al.* (2020) globally nations are shifting from procuring consumables and medical technological equipment to models of service by use of intermediaries referred as multivendor services and managed equipment integrators. The intermediaries can buy, run, maintain and fund all medical equipment's.

1.1.1 Project Performance

The success of MES in improving the quality and access to healthcare depends on their performance. Inadequate health facilities in most countries, especially in sub-Saharan Africa, are influenced by lack of commitment by the government to provide the funding required developing and equipping health facilities (Wakaria *et al.*, 2017). In Canada, every year in healthcare institutions, team of senior executives make preparations of hardware that need to be replaced. Due to limitations on budgets, they slice those rundowns and prioritize where the available resources will be utilized. For equipment that has not been upgraded, funds must be set aside to upgrade and service it on a regular basis long after its expected working life has passed (Richardson & Murphy, 2018).

This upset employees who are responsible for providing high-quality healthcare. It follows that use of managed equipment services will ensure consistent upgrade, renewal, and maintenance of medical equipment. This assertion was confirmed in the report by Hospital of Distinction (2012) indicating the innovative MES contract guarantee regular renewal of hospital equipment. Suhairi and Gaol (2013) claim that the numbers of health care centers that are well equipped are quite low and the health care providers in those centers with better healthcare facilities are in most cases overburdened. They point out that enough funding is critical for the success of MES programs.

In their assessment of North American hospitals, The fragmented character of the health sector, as well as internal hospital systems, according to Frost and Sullivan (2015), prevents productive and institutionalized treatment. Patient history, imaging scans, and various tests are all maintained in multiple applications in the most of healthcare institutions, making it tough for doctors to get a complete picture of the patient for a good diagnosis. Despite this splintered information structure, budgeted resources have been allocated to modernizing current equipment and applications, most healthcare organizations are obsolete hence preventing medical physicians from accessing tests results for diagnosis and treatment (Frost and Sullivan, 2015). These results are true in the Kenyan scenario where retrieval of patient information is cumbersome. The laid down internal structures play an essential role in the achievement of MES programs.

Performance in healthcare can be referred to as the attainment of specific targets, administrative or clinical. Ultimate objective of healthcare is improved health, however there exists many intermediate measures of both process and outcome (WHO, 2013). Since the aims of medical services and associations are not well defined, and estimating the delivery of

social insurance benefits is difficult, performance in non-revenue driven environments tends to be measured using the three E's - economy, efficiency, and effectiveness (Dimitropoulos, 2016).

Cromwell, Trisolini, Mitchell and Greenwald (2014) explained that healthcare performance can be viewed in reference to efficiency in the administration, compliance, safety, experience and satisfaction of patients, quality of services and cost of care. Indicators of project performance through sapient resource allocation include the return on investment, productivity, cost performance, cycle time, customer satisfaction, schedule performance, and employee satisfaction and the alignment with strategic business goals (Kerzner, 2017). Among this, the project adopted cycle time, schedule performance and alignment with strategic business goals.

1.1.2 Private Public Partnership in the Healthcare Sector

Private Public Partnership has come up as one of the ways of tackling the problem of inadequate accessibility to proper healthcare due to lack of specialized equipment. The private sector is progressively working with governments to tackle the needs of health systems. This collaboration can assume different forms from PPPs to public sector outsourcing services to the private sector (Williams, 2014).

Health is one of United Nation's Sustainable Development Goals (Williams, 2014). The public healthcare sector in Kenya cannot by itself provide the much-needed healthcare to the population on its own. The private sector therefore has a vital part to play in addressing this gap by contributing expertise, innovation and financial resources (Miseda, 2020). Partnerships between public healthcare providers and the private sector help to offer solutions to some of the issues that the industry is dealing with. Some of it involves an

arrangement where the public hospitals get access to latest health infrastructure in an agreed length of time and then regular payments are made based on agreed parameters (Vecchi & Hellowell, 2018). Rather than the big capital outlays that would have been needed to equip the hospitals, this arrangement provides the health facilities a chance of spreading costs over a given period allowing them bearable budgeting (Vecchi & Hellowell, 2018).

The underlying logic of PPPs is that both partners have unique characteristics that provide them with specific aspects of service or project delivery (Ruivo, Oliveira & Neto, 2015). Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public. Additionally to resource sharing, parties share risks and rewards potential in the delivery of the service and/or facility. Nisar (2017) indicated the intrinsic characteristics of the PPP method: the responsibility of the private sector is financing, management of assets and charging according to the assets performance or the level of usage of assets by either the end users or clients.

The principles of the partnerships involve relative equity among partners, joint commitment to health goals, each partner autonomy, joint decision-making and accountability, equitable outcomes/returns and benefits to stakeholders (Yuan, 2012). Liu *et al.*, (2013) indicated that measures of PPPs include strategies, processes, capabilities and stakeholder contribution. Yuan (2012) noted that PPP projects performance is highly impacted by reasonable procurement, contract management, public sector design and planning, effective control process in the private sector, and finally satisfaction of the public and private sectors. Hill *et al.* (2016) noted that flexibility and consistency are vital to ensure PPPs is successful while Laktabai *et al.* (2017) noted that experiences among service providers on the ground was

important. According to Roehrich, Lewis and George (2014) PPPs can put together the private actors strengths like the innovation, technical skills and knowledge, management efficiency and the spirit of entrepreneurship, and the public actors role comprising local knowledge, social responsibility, social justice and public accountability, to form a conducive environment for delivery of high quality health services and infrastructure.

Public-private partnerships also come in the form of getting the equipment obtained being serviced regularly. Other forms include training of staff, transfer of skills, interest rate indexation, monitoring and evaluation mechanisms and provision of public infrastructure like roads and power. PPP also allows for risk sharing while at the same time inspiring innovative ideas from the private sector. The health care recipients get to benefit from accelerated services at an affordable rate (Wada, 2019). The study will adopt staff skills and knowledge, stakeholder involvement, monitoring and evaluation and contract management (Wada, 2019).

One of the study variables will be to determine the level the staff skills and knowledge impact the performance of MES in healthcare in Kenya. Waruhiu and Muchelule (2019) observed that lack of adequate skills and also the transfer of the same to the public sector employees was one of the challenges faced by these forms of partnerships in Africa. They noted that the private sector normally has the advantage of expert employees but time by the time when the project contracts ends, the employees in the public sector mostly do not get to acquire the same skills.

Odhiambo (2012) observed deficient skills and knowledge as the reason why most projects end up failing and recommends training. Loufrani-Fedida & Missonie (2015) notes that when employees are given adequate skills through training, there is improvement in effectiveness, confidence and creativity which brings benefits to projects they are implementing. Medina

and Medina (2014) observed training and development should be a norm to keep the employees abreast with the latest trends in their field. EL-Annan (2015) notes that acquisition of skills serve as the antecedents of job performance in a project undertaking. On top of imparting the right skills through training, the employees get to change their behavioral patterns which assist in the project being undertaken becoming effective (Ramazani & Jergeas, 2014).

Stakeholders play an important in PPP projects. Waikenda (2019) observed that when the county governments partner with the private sector and all stakeholders are involved in the decision-making process, there is a big chance of maintaining and enhancing effective corporate governance. He established that stakeholder contribution has a big effect on the performance of county governments in Kenya. Ogada (2015) observed that stakeholders being partakers in a project should participate in monitoring and evaluation to check project progress. Nyandika and Ngugi (2014) observed that citizens have a responsibility to partake in activities that have an impact on their lives. They note that stakeholders are critical in project planning, decision making and implementation. Ihesiene (2014) observes that the highest impact on a project was due to stakeholders then followed by project managers. He went on to observe that interest of stakeholders majorly affects project completion.

Achieng (2013) notes that PPPs are an integral part of Kenya's development agenda. Achieng observed that they are the vehicles through which government involves the private sector through commercial investments. The process of monitoring and evaluation helps in enhancing performance and attaining results. Its objective is to enhance present and prospect managerial outputs and effect. Monitoring and evaluation has evolved throughout time to mirror the paradigm modifications that have occurred in project management. The practice of

M&E in the 1950s was characterized by a significant emphasis on resource management, demonstrating the era of social scientific trends. M & E aimed to focus on lived experiences and provide a chance to numerous stakeholders to be heard in line with shaping the process of evaluation (Nyonje, Ndunge & Mulwa, 2012). Sundqvist, Backlund and Chron  er (2014) determined the corresponding parts of the two roles. Data from monitoring flows into order evaluation to record and analyze any lessons learned about what was right or wrong for learning purposes in the middle or end of implementation.

Contract management also plays an important role in PPP projects. At Rift Valley Railways Kenya Limited, Ombogo (2014) investigated the constraints of PPP strategy implementation in infrastructure development. He noted that contract management involves transparency in the entire procedure. He went on to observe that by doing so, monitoring and reviewing by stakeholders become possible. Contract management brings good procurement process and in turn ensures effectiveness of procurement to strategy implementation. He goes on to observe that contract management enhances interaction among strategy stakeholders.

Lumia (2015) observes that for a company to meet its business strategy, contract management is required. Serrador and Turner (2014) observe that contract management helps reduce contract spending due to greater contract visibility. Narh (2013) observe that contract management involves practical monitoring and management and it aims at ensuring that parties adhere to contract terms and conditions. Ofori (2013) observes that contract management helps in ensuring that project closure occurs when all terms set out in the beginning of the project have been honored. This study looked on how contract management can help ensure the success of MES in healthcare provision in Kenya.

1.1.3 Managed equipment services in Kenya

Kenya like the rest of Africa suffers a number of healthcare challenges. There has been a general increase in mortality rates and poor patient outcomes which is attributed to the lack of necessary medical equipment and technology (Aluvaala *et al.*, 2015). There is still lack of proper infrastructure and health care policies and this has generally compromised the quality of health care in the country (Mothupi, 2014). Coen *et al.* (2016), asserts that drugs and proper facilities are some of the prevalent problems in the health sector. The managed Equipment Project (MES) is a continuous central government project adopted to promote the devolution of health care that is equal, accessible, affordable, and of high quality. Outsourced specialist state-of-the-art medical equipment was sought by the National Government to outfit two hospitals in each County and four National Referral hospitals. The equipment includes theatre equipment, sterilization equipment, renal dialysis equipment, Intensive care unit equipment and lastly; x-ray and other imaging equipment. In view of this project, the Philips Corporation was contracted to provide managed equipment services in two hospitals in all the Kenyan Counties. Under the MES project, Philips has been able to refurbish the intensive care units of the main hospitals in each of the forty-seven counties in Kenya.

The radical transformation at the hospitals has managed to provide significant medical equipment for effective delivery of healthcare services especially in the ICU department (MoH, 2016). The units initially lacked adequate equipment that was needed for effective care of the patients in critical condition. Philips Electronics took up the entire responsibility for the renovation, and has been able to source and also provide the 98 facilities with equipment and technical knowhow. It has been able to work with other external parties so as

to deliver all the necessary solutions to the intensive care unit to world-class standards. Various civil works have been initiated so as to create a sluice room, an isolation room, the central desk for a nurse, installation of some piped medical gases from the main oxygen plant and the control department as well. Ministry of Health (2016) claim that new and high-quality LED lighting has also been installed in the ICU departments. The lighting requires minimal maintenance and it also reduces the consumption of energy greatly since it is not as harsh as the conventional fluorescent lighting.

1.2 Statement of the problem

The Kenyan government in its efforts to enhance equitable, accessible and quality healthcare equipped two hospitals in each of the forty-seven counties with state of the art specialized medical equipment in 2014. Under MES arrangement, the equipment was outsourced from a single manufacturer, Phillips, who was tasked with supplying, installing and training users for a period of time (Ombogo, 2014). The MES project now in its fifth year of a seven year contract has not yielded the fruits expected. Majority of the 98 hospitals earmarked for the project have not been using the equipment. The machines lie idle due to lack of electricity, specialists, water and connection to sewer lines (Nisar, 2017). In Migori County, the machines cannot operate due to inadequate trained personnel. In Vihiga County, the equipment lies idle due to lack of electricity. In Nakuru, Nyeri, Kisumu and Isiolo Counties, there has been no operational difficulty (Achieng, 2013). PPPs help expose the state owned hospitals to an increased level of private sector participation and transfer of skills between the two parties. PPPs will help combine skills and resources between the two entities in new ways through sharing responsibilities and skills (Enthoven, 2014).

The Kenya Medical Association notes that the machines presented by the government lack skilled personnel to operate them. Each of the counties is required to pay 131.9 million every year for this equipment (Ministry of Health, 2016). The Kenyan Senate has noted that the procurement of these equipment involved highly inflated prices with revelations that the equipment costs were inflated by up to six times. The general reasons why MES has failed to have a positive effect in the counties according to the Ministry of Health include lack of electricity, lack of skilled workers, financial constraints and lack of space to keep the equipment (Ministry of Health, 2016).

Research gaps include; contextual gaps; Ferreira and Marques (2020) investigated whether public-private partnerships in health care outperform state hospitals in terms of quality and accessibility in Portugal. In the United Kingdom, Espigares and Torres (2015) did a study on public-private partnerships as a new approach of delivering healthcare services. Kosycarz (2019) assessed the potential for successful public-private partnerships in Poland's healthcare industry. Methodological gaps (de Oliveira, Guimaraes and Jeunon (2017) researched on public-private partnerships: their origins, limitations, and future possibilities for public accounting. Mutia (2013) researched on effectiveness of public private partnerships in Kenya. Conceptual gap, Grazzini and Petretto (2014) studied on PPP and competition in health-care and education in UK, the USA, the Netherlands, and Australia. This study focused on PPP and competition. The reviewed studies mainly focused on public-private partnerships. However, the studies have not clearly identified and assessed the effects of PPPs of performance of MES projects; a gap this study seeks to fill. This study focused on the public private partnerships and performance of MES in healthcare and concentrated

on health care services in ninety-eight County hospitals spread in the forty seven counties of Kenya earmarked for the project.

1.3 Research objectives

1.3.1 General objective

The general objective of the study was to analyze the effect of public-private partnership aspects on performance of managed equipment service projects in healthcare service provision in Kenya.

1.3.2 Specific objectives

The study was guided by the following specific objectives:-

- i. To examine the extent to which staff skills and knowledge influence the performance of managed equipment service projects in healthcare service provision in Kenya.
- ii. To establish the extent to which stakeholder involvement influences performance of managed equipment service projects in healthcare service provision in Kenya
- iii. To examine the role played by monitoring and evaluation in ensuring the performance of managed equipment service projects in healthcare service provision in Kenya.
- iv. To assess the role played by contract management in ensuring the performance of managed equipment service projects in healthcare service provision in Kenya.

1.4 Research Hypotheses

The study was guided by the following research questions:-

H₀₁ Staff skills and knowledge have no significant influence on the performance of managed equipment service projects in healthcare service provision in Kenya.

H₀₂ Stakeholder involvement has no significant influence on the performance of managed equipment service projects in healthcare service provision in Kenya.

H₀₃ Monitoring and evaluation has no significant role on the performance of managed equipment service projects in healthcare service provision in Kenya.

H₀₄ Contract management has no significant influence on the performance of managed equipment service projects in healthcare service provision in Kenya.

1.5 Significance of the study

Outcomes of the study may help the healthcare sector to know the key challenges to the performance of MES in terms of structure and approaches. This may be used to enhance the performance of this model in the Kenyan context. Efficient management of equipment may definitely improve the standards of health care in Kenya and hence economic growth and development. A healthy nation is more productive and this benefits economy and society in general.

Outcomes of the study may in particular help other health care facilities and the county governments to have a better understanding of running the managed equipment service projects in the health sector. To begin with, there is a need for reorientation towards managing the equipment service pegged on the program concept in a bid to benchmark with multilateral health service providers. Secondly, there is need to give a feedback on how resources allocated are utilized and the outcomes being attained. Thirdly, the nature of impacts being realized may translate into the degree of high structures laid down and ultimately the health sector deliverables parameters in Kenya.

Kenya being the first country in Sub-Saharan Africa to implement the management equipment service model, it may provide literature to be used by scholars in future studies on the outcomes of managed equipment model in the Sub-Saharan health care context.

As a result, policymakers and researchers may find it valuable to comprehend the aspect of performance of managed equipment service programs and the constituent elements expected to influence the delivery of health services and how the current systems can be improved. The study's findings are expected to improve Kenya's health-care facilities.

1.6 Scope of the study

The study determined the effect of contract management, staff skills and knowledge, monitoring and evaluation and stakeholder involvement on performance of managed equipment service projects in healthcare service provision in Kenya. The ultimate goal of MES initiatives is to offer Kenyans with excellent, continuous health care regardless of where they live in the country. The study was confined to two hospitals in each of the 47 counties in Kenya and the 4 national hospitals in Kenya. The results were expected to help address the challenges noted in the Kenyan healthcare sector. The study was done in period of twelve weeks.

1.7 Limitation of the study - mitigation

The limitations that were encountered in the study include; cooperation from targeted participants which did not come easily. To mitigate this, the researcher made sure that the respondents are informed on the importance of the study and what is expected of them.

1.8 Organization of the study

The backdrop of the problem, the statement of the problem, the research objectives, the relevance of the investigation, the scope of the study, and the study's limits are all presented in the first chapter. Chapter two was a review literature, where both the theoretical and empirical review was discussed, the summary of the literature and also gaps was identified and the conceptual framework as well. This was followed by chapter three which

dealt with the study methodology. These include study design, target population, sample size, data collection tools, validity and reliability of the study tools, data collection means, data analysis and presentation and diagnostic tests.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

A review of the literature, as well as theoretical and empirical investigations, was presented in this chapter. It highlighted the theoretical review on which the study was built. It also explored the empirical literature and also the gap that the study addressed. The literature was mainly on project management and managed equipment services.

2.2 Theoretical review

The study was anchored on theory-based evaluations that have been basically used to understand how the hospitals adopt and also develop managed equipment services. The theories were; resource-based view, theory of change and the institutional theory.

2.2.1 Institutional theory

This theory was first suggested by William Richard Scott in 1995. The theory explains the process by which routines, structures, norms and rules get to be established as a behavior that is acceptable. Not only does institutional theory describe why organizational structures and practices get entrenched, but it also explains how and why change happens. Two types of institutional pressure are described by Jennings (1994) as being useful in achieving change. Coercive pressures can encourage change in an organization either directly or indirectly via institutional dependencies when new regulations are imposed and enforced. Second, during moments of (economic or political) change or high uncertainty, mimetic impulses to mimic successful forms might encourage change. New standards or practices gain legitimacy in the environment as they become more generally recognized and followed. Finally, these norms

and/or procedures gain enough legitimacy that refusing to follow them is considered as unreasonable.

The Institutional Theory identifies strategic options stemming from the role of legitimacy in affecting a firm's economic success. Changing the game's rules, which were previously thought to be socially constructed, would result in the addition of variables to each of the five forces. Institutional methods, for example, could create barriers to new entrants. According to Meyer and Rowan (1977) Organizations are more than just production systems that operate in a world of suppliers, consumers, and competitors; they are also social and cultural systems embedded in a 'institutional' context that includes a variety of actors such as the state, professions, interest groups, the media, and public opinion. As a result, it is impossible to comprehend organizational behavior without considering the impact of this institutional framework. Furthermore, its influence is resonant and durable.

In relation to the study, managers may be forced to institute some health management practices as a strategy that can be used to mimic and also outperform competition that other private institutions have used in order to earn a competitive advantage. The theory lays out numerous aspects of how such factors are developed, accepted, distributed, and changed over time to keep MES performing well. Hence the theory helped in explaining the role played by monitoring and evaluation and contract management in ensuring the performance of managed equipment services in healthcare provision in Kenya.

2.2.2 Resource Based View Theory

The resource-based view was a theory that emerged in 1980s and 1990s developed by Wernerfelt (1984); Prahalad and Hamel (1996); Barney (1986, 1991). The core idea of the theory is that instead of looking at the competitiveness in the business environment to acquire a market niche and competition and threats edge over, the company can however look at its resources and ability it has already. As per the RBV it is very easy to exploit novel opportunities by use of available resources and competencies, other than the acquisition of novel skills and knowledge for every varied opportunity. The RBV main focus is on these resources and this should be given a priority within organizational strategy development. Tangible and intangible resources are the two sorts of resources. Physical assets are tangible assets, whereas intangible assets are everything that does not have a physical presence but can still be owned by a firm.

The theory contends that idiosyncratic resources and also the capabilities of firms are the major sources of a competitive advantage that is sustained. It investigates the importance of internal resources especially in the determination of the firm's actions in the creation and also maintenance of a competitive advantage and also an improvement in the overall performance. It is important to note that the possession of the resources does not essentially warrant the development of a competitive advantage or even the creation of value. Superior performance is obtained when the firms are in a position to effectively manage, allocate and also exploit resources (Barney, 1986).

The RBV is one of the most influential theories of strategic management. The term "resource" is considered to be very broad in nature, it refers to both the physical assets which include; location, equipment and even plants and those assets that are not tangible for

instance; organizational assets, management skill and knowledge. Resource-based theory perceives an organization to consist of a bundle of idiosyncratic assets and resources that emphasize on the rate of use, in-imitable, un-substitutable and valuable resources so as to gain some competitive advantage (Barney, 1986).

The organizations that have the capability to match the resources correctly to the specific programs and events easily develop the capabilities that result in better performance. A health organization may choose to focus on ensuring that they implement managed equipment services to expose the negative performance of its competitors in giving high-end services to the patients. For the running of MES, resources will be required mostly the right skills that will be needed to run the programs. One of the goals of this research is to determine if the skills and knowledge in place affects performance of MES. Therefore, this theory helped in explaining the extent to which staff skills and knowledge influence the performance of managed equipment services in healthcare provision in Kenya.

2.2.3 Stakeholder Theory

This theory advanced by Edward Freeman in 1984 fronts that stakeholders are the people affected by an institution and its workings. The theory argues that institutions should not only make profits for their owners but also consider the well-being of those that surround them. It could include the local community, the media, suppliers and more. The theory notes that the corporate environment is an ecosystem of related groups all of whom need to be taken into account and their needs, meet to keep the institution thriving and in progress in the long run.

Stakeholders' theory argues that when an institution treats its beneficiaries badly, it will eventually fail. If the same institution forces projects on communities that are disadvantageous, it is bound to fail too. No company can ignore its stakeholders and expect to succeed. It might experience short term profits but as the stakeholders become discontented the genesis of its downfall starts. The stakeholder theory proposes the involvement of stakeholders in organizations activities. Therefore, it supported the objective the level to which involvement of stakeholder influences the performance of managed equipment service to healthcare provision in Kenya.

Table 2.1: Summary of theories

Theory	Year	Proponent	Argument	Relevance to study
Institutional theory	1977	Meyer, Rowan, DiMaggio & Powell	Organizational changes are driven by functional considerations and external influences.	Training Awareness of MES parameters Alignment with strategic business goals
Resource Based View theory	1980	Wernerfelt, Prahalad and Hamel and Barney	Rather than looking to the competitive environment for sources of competitive advantage, institutions should look within the enterprise	Abiding with workflow and timelines Cycle time
Stakeholder Theory.	1984	R. Edward Freeman	Institutions must be willing to consider the interests of the internal and the external stakeholder so as to ensure optimal	Customer satisfaction Employee satisfaction Stakeholder involvement

Source: Researcher (2021)

2.3 Empirical Literature

The provision of better-quality health care services to the people is a priority for many hospitals (Dickersbach & Passon, 2015). The provision of quality health care services has a great impact on the satisfaction of the customers. A majority of health care professionals in Kenya are demotivated by the poor state of health services particularly lack of medical equipment in most of the healthcare facilities in the country (Chen, Dutta & Maina, 2016). As such, it is difficult to guarantee delivery of quality care; thus, resulting in a myriad of problems in the care of the patients. Also, there is an increase in operational costs due to the inefficiencies that are experienced; hence, the potential growth of the hospital is limited. This section examined existing studies on the impact of managed equipment services on health care provision.

2.3.1 Skills and knowledge and Project Performance

Skills and knowledge has been used as a resource for efficient action planning in institutions (Cross, Gomez & Money, 2013). Knowledge is considered one of the most important resources in an organization since it enables individuals to be more intelligent, effective and efficient in delivering the expected duties. In the US, a study done on the quality of the training that medical staff underwent on MES projects that were implemented time to time (Health Foundation, 2012). The study observed that their training was combined with other training needs for project management. The regular training was observed to greatly improve quality of services and implementation of MES. The staff, the study goes on to note will require internal or external training. Every staff member is needed to upgrade his skills

through training seminars and workshops as the nature of projects changes every now and then. The study relied on questionnaires in gathering the data and it fell short of naming the quality parameters that needed to be incorporated. Some of these parameters could have included usage of computerized systems, designing of an evaluation systems, managing communication among others. Mackenbach & McKee, (2013) in their study done in Belgium observed that the success of MES projects was attributed to rigorous training that the staff were made to go through. There were very few cases of failure in implementation of MES projects. This study too does not give a breakdown of the specifications of training to be given.

In Japan Ishida et al., (2014) noted that lack of adequate knowledge and being conversant with MES equipment as basis for failure of healthcare and the expected impact of effective service delivery on a study on medical equipment management in that country. They suggested that operations managers should be deployed to oversee the process and that they should be tasked to identify training needs and roll it out on a need basis. For those who had the needed skills, they were efficient and effective and also gave quality reports. The study also observed that staff members tend to interpret things their own way and this resulted in errors. The study whose data was collected through questionnaires just like many others only recommended general training. Training has its advantages but limitation. Ideally the process should begin from when recruitment starts.

Laura & Comyn (2015) did a study on integrating core work skills in vocational training in a combined six countries namely Australia; Chile; India; Jamaica; Malawi; and the Philippines. Among their objectives was to analyze how skills have been embedded in employability in technical training institutions. They used a combination of documentary review and

interviews to get various opinions of participants. They noted that insufficient skills and knowledge is to blame for the vocational training institutes not delivering results. They note that the easiest way to address this problem is by instituting training programs where skills can be obtained and later be put to practice. The study does not define the nature of training programs and how to go about it.

Hedda & Kamara (2017) in a study on delivery of emergency services enhancement in terms of quality observed that skills and knowledge among nurses in Sierra Leone affected quality service delivery of MES projects. The country was facing the Ebola pandemic in 2014 when the study was being carried out. It noted that lack of a well trained workforce hampered service delivery and control of the disease. It recommended regular assessments of educational interventions to determine what is needed to add to the skills that the healthcare personnel have. The study which was done through field interviews however failed to capture the type of training that needed to be done since it was focusing on quality. Some of the ways to address quality in training includes proper job designation and recruiting from the private sector rather than internally .

2.3.2 Stakeholder Involvement and Project Performance

Project Management Book of Knowledge lists down proper stakeholder involvement as one of the key requirements for a project to be successful. It goes on to list that the success criteria should be developed from the beginning of a project and stakeholders alerted (Project Management Institute, 2014).

The MES projects in the healthcare sector in Kenya at first faced resistance especially from the county governments (Olotch, 2018). The projects were implemented without sensitizing

all the stakeholders in the project's development and implementation. For a project of a complex nature like the MES projects, stakeholder involvement is critical. Besides, in Kenya, public participation is a key requirement for any project that touches on the public (Njogu, 2013). Kenya's ministry of health dictates that stakeholder involvement is critical in both at the national government and county government in a bid of ensuring that the project gets the political and social will by Kenyans. The MES contracts including carried out in Kenya have a strategy for establishing stakeholder involvement establish stakeholder committees throughout the project's life cycle to allow for the examination of issues affecting the MES project. However, this is rarely followed

Existing literature shows that absence of stakeholder involvement in the execution of projects is the main hurdle in a project realizing the goals that were intended for it to achieve. Stakeholder involvement is very crucial as it enables the project beneficiaries feel that they own the project. The stakeholder involvement helps cement the decision making process and strengthens the democratic process (Njogu, 2013).

Nilsson, Pyddoke, Hulten & Alexandersson, (2013) did a comparative study of two railway projects in Sweden and sought to analyze what affected the stakeholder management process in such MES and other projects. The study which was done through observations established that the stakeholder management process depended on how the project managers presented the negatives and positives of a project. They note that project managers/owners need to communicate and engage the stakeholders to realize intended benefits and define the negative impacts. The study failed short of recommending some of the means of engaging the stakeholders.

Muff & Williamson (2014) in a study titled stakeholder involvement for solving complex conducted through mixed methods of interviews and observations observed that successful MES project management can only happen when stakeholders are communicated and informed in a clear manner. They identified that proper communication is crucial for a stakeholder engagement process. They go on to note that other project objectives can be achieved if communication is done in the right way. When information is shared with stakeholders, the engagement process helps provide primary allusions that lead towards more effective and logical approaches for engaging stakeholders. The study however failed to give solutions of how to improve the communication process

Lückmann & Färber (2016) in a study on cultural differences impact on project stakeholder participation conducted through questionnaires observed that early stakeholder involvement is one of the cornerstones of relational project delivery methods in MES projects. They note that the various tiers of stakeholders, each with its own set of criteria must be considered and managed. Involvement of stakeholders, they go on to add enables the development of innovative solutions and exchange of ideas. The stakeholders should be categorized based on their levels, roles, responsibilities and their objectives. The study however did not elaborate the process of involving stakeholders.

Samandar (2016) did a study in Pakistan on stakeholder management in MES carried out in the construction industry through interviews. He established that understanding stakeholders' needs and constraints is the most critical factor that ascertains the performance and success of MES and other projects. He goes on to add that trust and commitment should be built among the stakeholders and the project owners to realize the intended goals. The study however fell short of recommending ways that the stakeholders need to be involved.

Butt, Naaranoja & Savolainen (2016) in a study on stakeholder communication conducted through secondary data analysis note that proper stakeholder involvement leads to a straightforward project culture that in turn brings efficiency and performance. The study did not however elaborate on how to conduct the communication process. For the MES healthcare projects to perform, proper stakeholder channels should be instituted.

Sekou, Abdul, Baker and Aziz (2019) in a study done on stakeholders involvement influence on development project performance in Guinea observe that proper stakeholder engagement is crucial for a project to perform. The study conducted through interviews notes these stakeholders as the government, construction companies, and international organizations like United Nations. This study did not however look at the main critical shareholder who is the project beneficiary.

Non-inclusion of key stakeholders in the project undertaking implies that the personnel overseeing the project delivery have less accountability and maybe tempted to drive the project in their own way. They tend to push the projects their own way and have no sense of belonging in successful implementation of a project. The literature showed that absence of proper stakeholder involvement is among the hurdles into realization of project success.

2.3.3 M and Evaluation and Project Performance

M & E is crucial to the MES effective delivery as it gives direction on the payment calculations that should be made in a given contract (Bottle & Aylin, 2017). In the healthcare sector, it may be hard to measure the outcomes given the fact that public interest goals might not be affiliated to making profits objectives of public healthcare providers. MES projects in the healthcare sector have existed but monitoring and evaluation has not been happening

leading to poor performance. In Kenya, there has been very little experience of monitoring in the undertaking of private public partnership financed social infrastructure projects like MES projects which has resulted in issues in developing a way that makes sure better service delivery especially in the healthcare sector. This therefore calls for benchmarks and resources that can be relied on to ensure that a well-placed monitoring and evaluation system is in place to guarantee maintainable, effective delivery of services.

The process of project monitoring or intervention on health involves systematic data collection by use of precise indicators in measuring outcomes. Evaluation comprises creating rigorous metrics in the measurement of project outcomes. It is a collective effort that assists execution firms, donors, partners and stakeholders in sharing information and determines methods that are highly effective in assisting them to attain their goals. Also, M&E helps in ensuring that individuals living in developing nation profit from programs that purpose to enhance the quality of their lives (Armstrong & Baron, 2013).

Monitoring and assessment aid in the tracking of project performance throughout time and gives aims for and observed status of a project as noted by Phiri (2015) who did an assessment on the impact of project M&E on project outcomes. Results showed that M&E as management functions have an impact on the performance of projects. This is shown in practices such as M&E planning in which before the execution of projects, suitable indicators on performance are determined and a schedule of data collection is developed. The method of analysis to show performance of a project is also under planning. This ensures that all needed measures of performance are improved and handled in M&E planning.

Rastegari & Salonen (2015) in a study titled formulating maintenance strategy done through secondary data analysis. They note that it helps in assessing weaknesses and strongpoints of the policy under implementation. It is also important too as it helps the management go through resources allocation and justify the investment they have made. From the shortcomings noted, the management is able to work on the strategy and improve it as well as helping in adopting the latest trends in the in the strategy in place. This study attempted to establish other benefits and it will be done through primary data analysis.

Monitoring and evaluation are two most essential aspects of making sure many projects succeed, according to Otieno (2015), who studied the roles of M&E in projects. Unfortunately, even though many project developers know them, they are frequently given little priority, and as a consequence, they are typically finished only to fulfill the requirements of most funding organizations, rather than to use them as a tool to ensure project success. Singh, Chandurkar, & Dutt, (2017) noted that M&E was the significant impacting element in projects. Safari and Kisimbii (2020) studied the influence of M&E on county government funded projects performance and found that M&E training Influences County funded projects performance. Their studies focused on all general but for this study, the focus will be on MES projects.

2.3.4 Contract Management and Project Performance

The MES arrangement would in an ideal world define key matters like ways of payment, service needs approved, workflow and delivery timelines of the numerous project aspects (World Economic Forum, 2016). Proper contract management is for that reason significant in making sure that the MES arrangement results in sustained efficiency, in so doing advancing the anticipated health additions. The management of responsibility and risk warrants that

both public and private sector entities fulfill their responsibilities. Furthermore, a solid contract management structure ensures that the parties have a healthy working relationship (Evans & Saponaro, 2012).

Managed equipment services create a pool of equipment that is primarily set on the existing inventory requirements (Bradford, 2014). Sultan (2014) on a study on use of cloud computing on healthcare provision observes that contract features and functions will definitely be linked to the requirements on the workload that has been projected at the end of a particular period. The study however did not explore different scenarios of contracts would translate into different performance terms.

In Ghana, the private healthcare sector is noted as having limited technical knowhow on the contract management processes in the MES projects (Ministry of Health, Ghana, 2014). This study conducted through interviews noted that the limited knowhow often led to spike in costs and failure to complete contracts on time. The study recommended a monitoring and evaluation system as a way of ensuring successful contract implementation and improved results. The study notes that for the MES projects to achieve in the healthcare sector, the institutions must invest in the contract process. It also notes that training programs should be offered by providing incentives, leadership and abiding by institutional arrangements. Stakeholders in the contract process must be respected in the roles that they engage in. There should also be a dedicated program to track the contracts to ensure timelines are followed (Ministry of Health, Ghana, 2014). The researcher also recommended that contract management procedures be adopted in the implementation of the larger social services besides the healthcare sector. The study did not however come up with a standardized method of getting to impart the technical knowhow to handle the contract process.

Compliant procurement has to take place so as to effectively meet the needs of a health facility (Ruivo, Oliveira & Neto, 2015). Libersky, Lipson, and Liao (2015) assert that the procurement of the necessary equipment is done appropriately so as to ensure that the suppliers meet the requirements and also that the hospital does not need to spend unnecessarily. The health facility that signs an agreement for the managed equipment services is fully involved in the tendering process. They are in full control of every other decision that is made. It is to ensure they are aware of all the services that they are likely to get and the total cost that they are likely to incur. They would then decide whether the venture is worth investing in (Mosadeghrad, 2014).

Gamble, Thompson & Peteraf (2019) in a study on essentials of strategic management assert that contracts are definitely backed by the replacement cycles that are within the contract period. Their study which was done through interviews went on to observe that contracts help bringing improved compliance with set obligations. The study however falls short of indicating the parameters to follow in checking the compliance.

Maluka *et al*, (2018) in their study conducted through interviews on the role of contract management on the effectiveness of MES healthcare projects in Tanzania notes that contract management plays a key part in the performance of these projects. Lack of a well-defined contract process they note affects the MES projects delivery and the overall performance of the healthcare sector. They recommend that more qualified workforce should be employed and establishment of e-contact management solution to get a visibility of active contracts at every cycle of the project. This will also help in getting strong technical supplier evaluation and also enforce penalty clauses for the breach of contract on the suppliers' side. This way,

they note, makes contracting to be transformed into a project management competency. The study omitted what the ideal parameters that constitutes a well-defined contract process.

Komakech (2020) researched on the link between contract management and the delivery of healthcare services in Local Governments in Uganda case of Serere district. The researcher established from the study done through observations that the local governments play a political, administrative and policy making role which is the main component of contract administration. He recommends for establishment of independent contracting management department for an easier tracking of contracts in the healthcare sector. He also proposed for more communication flow between the entity and the contractor as a way of ensuring performance of the MES in the Ugandan healthcare sector. The researcher however did not indicate how by so doing, the performance of the healthcare services was going to go on an upward trend.

2.4 Summary of literature and research gaps

The literature has effectively identified issues influencing the MES integration and success as skills and knowledge, stakeholder involvement, contract management and monitoring and evaluation. This is summarized in the table below. There is a gap in empirical studies on key factors affecting the integration and performance of MES in the context of sub-Saharan Africa. The previous research even from developed economies is focused more on the benefits and less on the challenges impacting the integration and successful performance of managed equipment model. This is because the adoption of managed equipment is still new in developing economies like Kenya. The difference in health structure and practices between developed and developing economies further limits the use literatures from developed economies. This study aim was to fill these gaps by investigating the impact of

stakeholder involvement, skills and knowledge of staff, performance monitoring and role of contract management on the integration and performance of managed equipment services in private public partnerships in Kenyan hospitals.

Table 2.2: Summary of Empirical Literature

Author	Title	Key Findings	Research gaps
Espigares and Torress (2015)	PPP as a new method to provide healthcare services in UK	Despite their growing popularity, PPP projects still account for a small percentage of total public fixed investment.	(Contextual gap) The study was conducted in healthcare services in UK
Laura and Comyn (2015)	Integrating core work skills in vocational training in a combined six countries globally	They noted that insufficient skills and knowledge is to blame for the vocational training institutes not delivering results	(Contextual gap) The study was conducted in learning institutions
Samandar (2016)	Stakeholder management in MES carried out in the construction industry through interviews in Pakistan	Understanding stakeholders' needs and constraints is the most critical factor that ascertains the performance and success of MES and other projects.	(conceptual gap) Do not provide the parameters of performance monitoring
Lückmann & Färber (2016)	Cultural differences impact on project stakeholder participation	Early stakeholder involvement is one of the cornerstones of relational project delivery methods in MES projects.	(conceptual gap) Do not provide the parameters of performance monitoring
Vian (2017)	Differences between a government-run hospital and the PPP-run hospital that replaced it	Well-functioning support systems kept the hospital clean and equipment functioning, reduced stock outs, and allowed staff to do the jobs they were trained to do	(methodological gap) The study was done through in-depth interviews and key informants.

Bakibinga (2018)	In Nairobi, Kenya, the impact of improved PPPs on maternal, newborn, and child health care and outcomes	The development of six one-stop primary level centres has enhanced access to and utilization of healthcare services by women of childbearing age and children in the slums.	(methodological gap) The study was done through quasi-experimental study
Asasira and Ahimbisibwe (2018).	PPPs in Health Care and Its Impact on Health Outcomes in Uganda's Ruharo Mission Hospital	Health services were delivered adequately to clients	(conceptual gap) Do not provide the parameters of performance monitoring
Hellowell, (2018)	Are PPPs the future of delivery in healthcare in sub-Saharan Africa? In Lesotho	While PPPs may improve the quality of healthcare services, dangers arise from the state's inability to conduct competitive procurements, draft thorough contracts, and effectively budget for them.	(contextual gap) The study was conducted in healthcare services in Lesotho
Maluka et al, (2018)	The role of contract management on the effectiveness of MES healthcare projects in Tanzania	Management plays a key part in the performance of these projects	(conceptual gap) Do not provide the parameters of performance monitoring
Parker (2019)	Promoting population health with public-private partnerships	Positive evaluations of the use of PPPs in health promotion were more likely to be labeled "not independent" and of poor quality.	(conceptual gap) Falls short of giving information on performance of MES.
Sekou, Abdul, Baker and Aziz (2019)	Stakeholders involvement influence on development project performance in Guinea	Proper stakeholder engagement is crucial for a project to perform.	(Contextual gap) The study was conducted in institutions in Guinea
Hanawi and Qattan (2019)	An analysis of public-private partnerships and sustainable health care giving in the kingdom of Saudi	The exact nature of the fusion of government and non-government forces is a topic of speculation	(Knowledge gap) This study focus was on sustainable health care provision

	Arabia		
Al-Hanawi (2020)	Obstacles to the establishment of PPPs in the Saudi Arabian healthcare sector	Legal impediments, such as delays in gaining approval and permissions, as well as changes in legislation and regulation, were identified as the top three impediments by respondents	(Knowledge gap) This study focused on implementation of PPPs in healthcare
Komakech (2020)	Relationship between contract management and the delivery of healthcare services in Local Governments in Uganda	Local governments play a political, administrative and policy making role which is the main component of contract administration	(conceptual gap) Falls short of giving information on performance of MES.

Source: Researcher (2021)

2.5 Conceptual Framework

According to Cooper and Schindler (2013), a conceptual framework is an abstract or general idea inferred or deduced from specific cases, or a collection of broad ideas and principles drawn from relevant fields of inquiry that are utilized to structure a subsequent presentation. The independent variables were staff skills and knowledge, stakeholder involvement, monitoring and evaluation and contract management. The dependent variable was performance of MES projects.

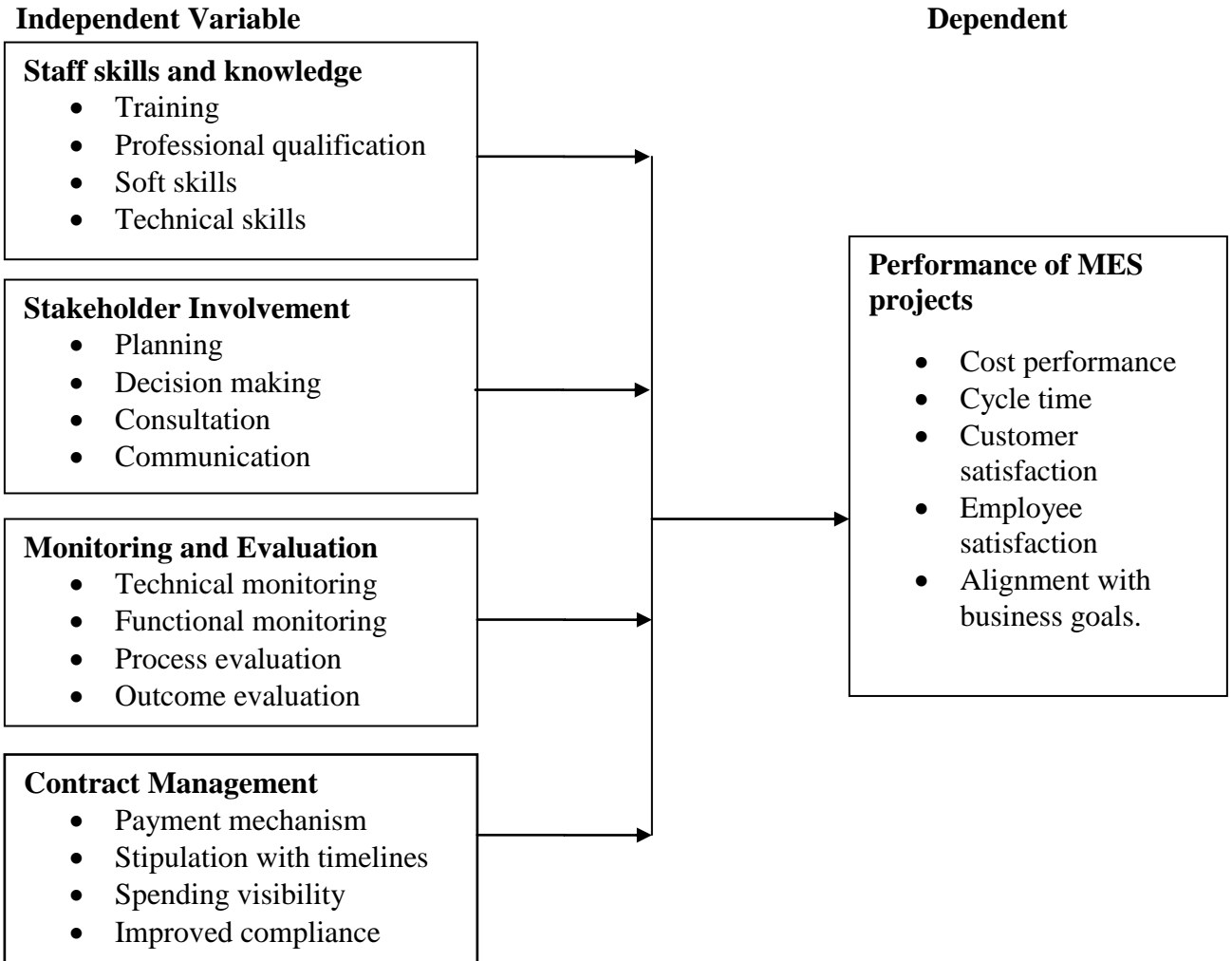


Figure 2.1: Conceptual Framework

Source: Researcher (2021)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter provided an overview of the methods that were used in the collection and also the processing of data. The study design, target population, inclusion and exclusion criteria, sampling strategy and processes, data collection tools, data collection processes, study tools reliability and validity, analysis and presentation, and ethical aspects were all included.

3.2 Research Design

The research employed a descriptive study design. The descriptive design was adopted to enhance knowledge about the phenomenon of study gained when the research is about certain predictions, narratives and features regarding situations or persons (Kothari, 2014). It was appropriate for both qualitative and quantitative studies and was used to respond to "what and how" questions (Jagtap & Jagtap, 2015). To ensure that results were properly described and interpreted, the approach condensed huge amount of information to those that can be managed and presented in charts and graphs form. This research design was suitable in analyzing the effect of private-public partnership on the performance of managed equipment services in healthcare provision in Kenya.

3.3 Target Population

The targeted population of this research was 2 hospitals in each of the 47 counties that are under MES programs in Kenya and 4 national hospitals. These hospitals were selected because only two hospitals from each county benefited from MES. The population was 98 hospitals.

Table 3.1: Target Population

Category	Frequency	Percent
National hospitals	4	4%
County hospitals	94	96%
Total	98	100%

3.4 Sample size

The sample that was utilized in this research was arrived at through simple random sampling method where a sample of 47 out of 94 hospitals in every county and 4 National Referral hospitals with outsourced specialized state-of-the-art medical equipment was used. Creswell (2013) explains that a 50 percent sample size is suitable for social sciences research. So, a sample of 50 percent of the study population ($94 \times 50 \text{ percent} = 47$). The unit of observation was the hospital supervisor, doctor, nurse, procurement officer and a subordinate officer. The study also adopted simple random sampling to get the 5 respondents from each hospital. The five respondents were obtained because it is believed that they are involved in public private partnership activities in hospitals. The study respondents were 255 participants.

Table 3.2: Sample Size

Category	Frequency	Sample Size
National hospitals	4	4%
County hospitals	94	47%
Total	98	51%

3.5 Data collection Tools and Instruments

Primary data was collected using questionnaires. The questionnaire was structured to open ended and close ended questions. The questionnaire was used because it allows for

collection of large amount of data from a dispersed population. The questionnaires were prepared in a simple way to enable the respondents easily comprehend the questions.

The questionnaire approach was appropriate for the drive of collecting reliable and accurate data. The questionnaire had six parts. Part A obtained general information of the respondents and Part B focused on stakeholder involvement. While Part C dealt with information about the staff skills and knowledge, Part D was concerned with gathering information about the role of contract management while Part E dealt with performance monitoring. Part F dealt with the dependent variable; performance of MES projects.

3.6 Pilot Testing

Piloting was conducted to determine the validity and reliability of the study tool. It was done in Murang'a and Machakos Counties since they were within the easy reach of the researcher. The five employees from each of the two counties was utilized to check the reliability and validity of the items used in the questionnaire and suitability of language applied in the tool to reveal vague questions and unclear instruments.

3.6.1 Validity of Data collection instruments

The capability of research tools to test that they are designed to test is referred to as validity (Schmitt, 2013). It all comes down to measuring the right variables in the study. Content validity showed whether the tool items adequately cover the all content that it ought to cover. The input of project management experts was vital in making sure that the study tool contained valid content. Expert reaction was integrated to warrant that the correct variables were measured. Construct validity of the study tool was assessed, as stated by Bryman (2016). Before the questionnaire was used to obtain the necessary data, it was reviewed by

the supervisor to determine its ability to collect the data needed to response the study questions of interest. A pilot study was then conducted on the questionnaire to determine whether there was a chance that some of the questions in the questionnaire would be misunderstood or avoided by the study participants.

3.6.2 Reliability of the research instruments

Sekeran (2013) defines reliability as the ability of research instruments to produce steady results in repeated testing or studies. Reliability is the inclination in the direction of consistency and as a result, diverse metrics of the same idea or the similar measurements replicated over time must give the same outcomes. Reliability is equivalent with the test consistency, survey, observation, or other measuring tool (Kothari, 2014). The internal consistency measure was utilized to test for reliability. The Cronbach's alpha was adopted to assess the research's internal consistency. An item with alpha value of 0.7 and more was considered reliable measure while those below 0.7 were considered not reliable measure of internal consistency.

3.7 Data Collection Procedures

The researcher got a research permit from NACOSTI. The researcher visited the 47 county hospitals to arrange for the date of administering the questionnaires. The questionnaires were then disseminated by the investigator for the main research and collect them later. This provided respondents enough time to answer the questionnaires.

3.8 Data Analysis and Presentation

A self-administered questionnaire was adopted to get data. This approach was settled upon since the interviewees are literate. At the end of each day, editing was done before the researcher finished with the respondents to check for mistakes and obvious omissions that

could lead to the wrong conclusion. The collected data was processed and analyzed manually as well as electronically using SPSS version 21. For ease of understanding, the presentation used narrative description and diagrammatic presentation in the form of tables, graphs, and charts. Descriptive statistics like means, standard deviation, percentages and frequencies were used for data analysis and interpretation. Correlation analysis was adopted to identify link among variables.

Regression analysis was employed to make a prediction and determine how the variables influence the performance of managed equipment services projects in health service provision. SPSS software program was utilized. Performance of managed equipment service System Y_i can be elaborated by the following empirical model

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon_i \dots \dots \dots i$$

Where:

X_1 = Stakeholder involvement

X_2 = Staff knowledge and skills

X_3 = Contract management

X_4 = Monitoring and evaluation with ϵ representing the error term.

β_0 = constant coefficient

β_0 - β_4 = are regression coefficients to be estimated

ϵ = Error term

3.9 Diagnostic Tests

The regression model assumptions that were done comprised the normality, multicollinearity, autocorrelation and homoscedasticity tests. These were as elaborated herein;

3.9.1 Tests of Normality

The normal distribution is a probability distribution that plots all of its values symmetrically and produces results that are centered on the probability's mean. Testing normality aims to ascertain if the data used has a normal dispersion (Balakrishnan, Voinov & Nikulin, 2013). In this study, the Shapiro–Wilk test was used to ensure that the data was normal. The level of significance for this study was set at 5 percent. The assumption on normality was $p > 0.05$, for its lack the assumption was $p < 0.05$. If the study data was established not to be normally spread, a non-parametric version of the similar test was carried out.

3.9.2 Multicollinearity

The test for multicollinearity determines if the predictor variables in a study have a great correlation. The main issues is that as there is increase in the level of multicollinearity, the approximations on coefficient in the model of regression faces instability, and there could be high expansion on coefficients standard errors (Cooper & Schindler, 2013). The Variance Inflation Factor (VIF) and values on tolerance was adopted to check for multicollinearity. The value of 3 on VIF and tolerance values greater than 0.1 showing lack of multicollinearity on the variables.

3.9.3 Autocorrelation

Linear regression data must have little or no autocorrelation. In a situation where residual figures fail to be independent of one another, autocorrelation occurs; this is an indication that $y(x+1)$ figures depends on the value of $y(x)$ (Cooper & Schindler, 2013). Autocorrelation may be tested by use of a scatterplot, but it could also be determined using the Durbin-Watson test in a linear regression model. On tests on Durbin-d Watson's, the null hypothesis residuals are un-autocorrelated linearly. The d figure has a range of 0 to 4, and if it is found to be between 0 and 2, it indicates the lack of autocorrelation. If the d figures are 1.5 d 2.5, it indicates that there is no autocorrelation. The Durbin-Watson test examines linear autocorrelation for only direct items, which are the effects of first order.

3.9.4 Homoscedasticity

Homoscedasticity is the situation whereby the error term is similar for all predictor variable figures. Heteroscedasticity (homoscedasticity violation) occurs when the size of the error term varies across independent variable values (Creswell, 2013). The scatter plot is the best way to measure homoscedasticity. If there is presence of homoscedasticity then the graph would be somewhat like a shotgun blast of randomly distributed data.

3.10 Ethical Considerations

The study was done in line with ethical standards in order to guard the subjects from any harm caused by their partaking in the study. To begin, subjects' identities were kept confidential and anonymous through avoidance of usage of real identifications. Prior to the research, a consent form was signed as an agreement to partake in the study on a voluntary basis. The goal of the study was described to the participants, and all ethical requirements

were followed throughout the study (Harriss & Atkinson 2015). A permit was obtained from NACOSTI for authorizing the research to be carried out.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter covered the study findings on the effect of public-private partnership on performance of managed equipment service projects in healthcare service provision. It covered the response rate, reliability results, general information, descriptive statistics and inferential statistics.

4.2 Response Rate

A total of 255 people formed the study sample. They were all issued with questionnaires from which 228 were filled and returned the questionnaires creating a response rate of 89 percent. This response rate was adequate for drawing conclusions for the study. The response rate was typical.

Table 4.1: Response Rate

Response	Frequency	Percent
Returned	228	89
Unreturned	27	11
Total	255	100

Source: Research Data (2021)

4.3 Reliability Results

A reliability analysis was conducted to determine the questionnaire's reliability. The study relied on Cronbach's Alpha. Gliem and Gliem (2003) established a baseline for the investigation by setting the Alpha value criterion at 0.7. As shown in Table 4.2.

Table 4.2: Reliability Results

Variable	Cronbach's Alpha	Number of Items
Staff skills and knowledge	0.816	5
Stakeholder involvement	0.795	5
Monitoring and evaluation	0.802	5
Contract management	0.871	5

Source: Research Data (2021)

The findings in Table 4.2 demonstrate that staff skills and knowledge had a Cronbach value of 0.816, stakeholder involvement had a Cronbach value of 0.795, monitoring and evaluation had a Cronbach value of 0.802 and contract management has a Cronbach value of 0.871. This demonstrates that every variable was reliable.

4.4 General Information

This segment covers the analysis of the respondents' general information. This include, gender, age, level of education, position in the organ and length of service in the healthcare sector.

4.4.1 Gender of Respondents

The respondents were needed to indicate their gender. Figure 4.1 shows the results.

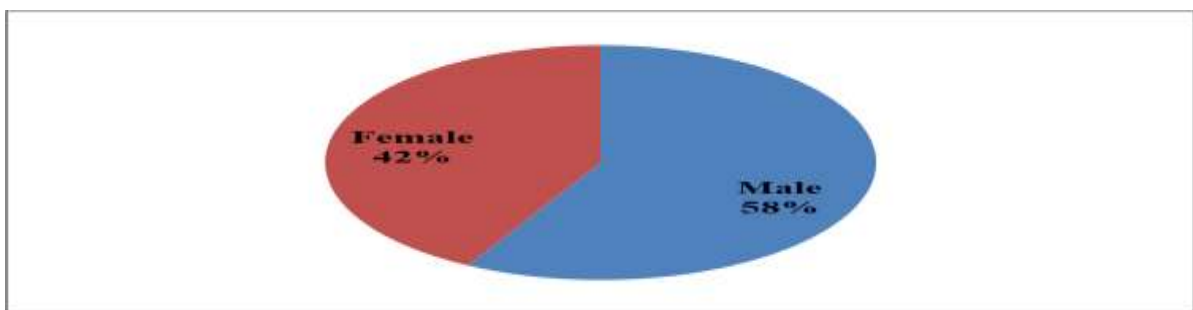


Figure 4.1: Gender of Respondents

According to Figure 4.1, the majority of respondents (58 percent) were male, while 42 percent were female. Because both genders participated in the study, this infers that the study

was gender sensitive. The findings are linked to those of Miseda (2020) in whose study on health PPPs, majority of the respondents was male covering 69 percent.

4.4.2 Respondents Age Bracket

Respondents were enquired to indicate their age bracket. The findings are as shown in Figure 4.2.

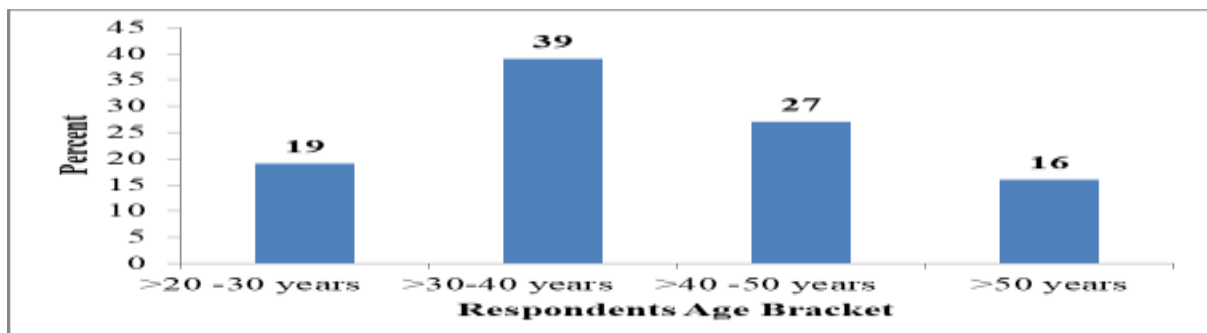


Figure 4.2: Respondents Age Bracket

The results show that, 39 percent were of the age between 30-40 years, 27 percent were of the age between 40-50 years, 19 percent were of the age between 20-30 years and 17 percent were above 50 years. This implies that the hospitals employ individuals of different age groups. This may also mean that they have varied level of experience, so, they would give information required for the study. The findings are related to those of Minjire (2015) whose majority of the respondent's age group was between 30-39 years (38.64 percent).

4.4.3 Respondents Highest Education Qualification

The study sought to ascertain the respondents' highest education qualification. The results were as shown in Figure 4.3.

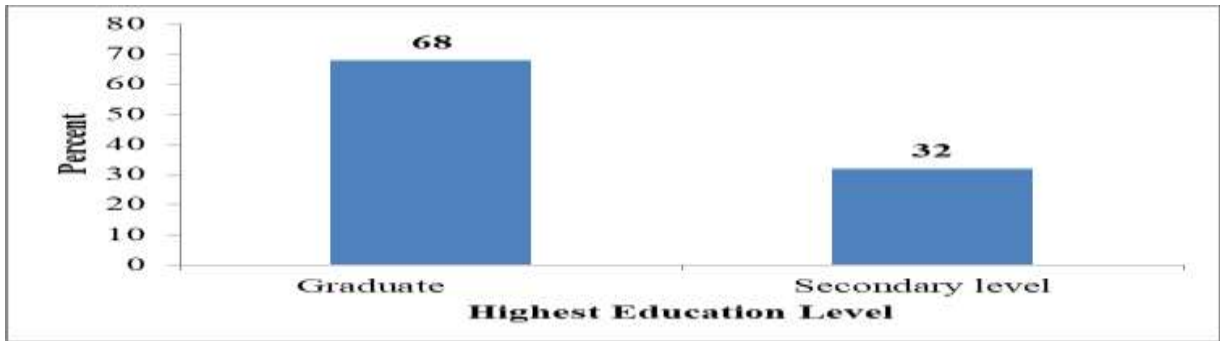


Figure 4.3: Respondents Highest Education Qualification

The results show that 68 percent of the respondents were graduates while 32 percent had secondary level education qualification. This implies that participants were able to respond to the questionnaires. The findings are related to those of Minjire (2015) whose majority of the respondents were graduates represented by 55.5 percent.

4.4.4 Respondents Position in the Organization

Respondents were required to indicate their position in the organization. The study outcomes were as demonstrated in Figure 4.4.

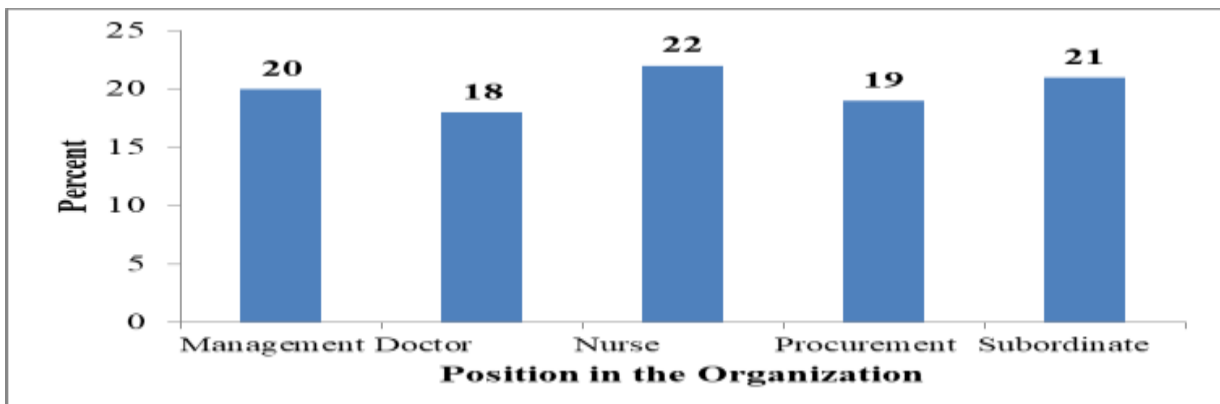


Figure 4.4: Respondents Position in the Organization

The results show that, 22 percent of the respondents were nurses, 21 percent were subordinates, 20 percent were management employees, 19 percent were procurement officers whereas 18 percent were doctors. This implies that employees in different positions took

part in the study. The findings differed from those of Miseda (2020) who's majority of respondents were clinical officers represented by 39 percent.

4.4.5 Respondents Length of Service in Healthcare Sector

Respondents were required indicate the length of period they have worked in the healthcare sector. The findings were as presented in Figure 4.5.

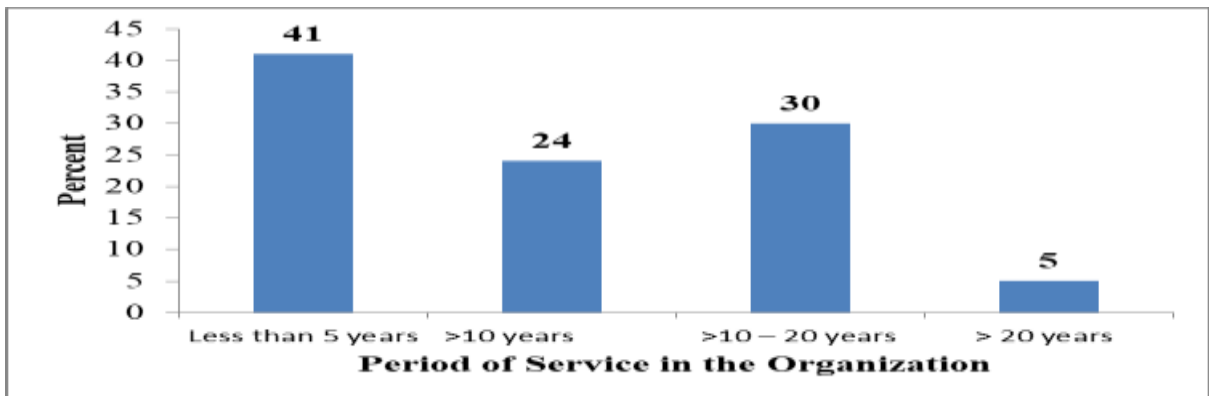


Figure 4.5: Respondents Length of Service in Healthcare Sector

The results show that, majority 41 percent had worked in the healthcare sector for less than 5 years, 30 percent, 30 percent had worked in health sector for a period between 10-20 years, 24 percent for less than 10 years and 5 percent for over 20 years. This means that the participants had worked in the healthcare long enough to give information required in the study. The findings differed from those of Miseda (2020) whose majority of the respondents had an experience of between 10 to 15 years.

4.5 Descriptive Statistics

4.5.1 Staff skills and knowledge influence performance on MES

The following statements give an indication in handling of skills and knowledge in relation to performance of managed equipment services. On a scale of 1-5 the respondents were required to specify their level of agreement or disagreement with the statements. The

outcomes were as shown in Table 4.3.

Table 4.3: Staff skills and knowledge influence performance on MES

Statement	n	Mean	Std. Dev.
Necessary skills play an essential part in MES projects performance	228	4.197	1.007
Training play an essential part in MES projects performance	228	4.123	0.976
Professional qualification play an essential part in MES projects performance	228	4.377	1.328
Soft skills play an essential part in MES projects performance	228	4.272	1.171
Technical skills play an essential part in MES projects performance	228	4.140	0.992
Overall mean		4.222	0.896

The respondents agreed that professional qualification play a key role in performance of MES projects indicated by (M = 4.377, Std. Dev = 1.328), soft skills play a vital part in performance of MES projects as indicated by (M = 4.272, Std. Dev = 1.171), necessary skills play a vital part in performance of MES projects as indicated by (M = 4.197, Std. Dev = 1.007), technical skills play a vital part in the performance of MES projects as indicated (M = 4.140, Std. Dev = 0.992) and training play an essential MES projects performance as indicated by (M = 4.123, Std. Dev = 0.976). The overall mean is 4.222 and standard deviation 0.896.

The findings concur with those of Mackenbach & McKee, (2013) who observed that the success of MES projects was attributed to rigorous training that the staff was made to go through. The findings are also in agreement with Health Foundation (2012) in their study observed that their training was combined with other training needs for project management. The regular training was observed to greatly improve quality of services and implementation

of MES. Hedda and Kamara (2017) noted that lack of a well trained workforce hampered service delivery and control of the disease.

The study sought if the employees have ever attended any training on MES. Results are as shown in Figure 4.6

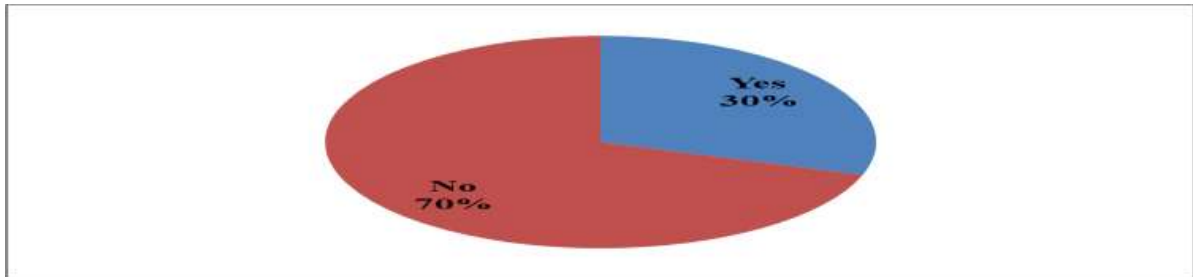


Figure 4.6: Training on MES

The outcomes show that 70 percent of the respondents had not attended MES training while 30 percent indicated that they had attended MES training. This suggests that most of the employees have attended training on MES. The respondents indicated that they attended training in the level five hospitals in Kenya. The area of training as indicated by the respondents was on how to use the state-of-the-art medical equipment's. The findings concur with those of Hedda and Kamara (2017) that lack of a well trained workforce hampered service delivery and control of the disease.

The respondents who said yes were also asked to show the period of their training. As shown in Table 4.4

Table 4.4: MES Training Duration

Category	Frequency	Percent
3 months	19	28
6 months	31	46
9 months	13	19
1 year and above	5	7
Total	68	100

From the outcomes in Table 4.4, 46 percent of the respondents specified their training duration was 6 months, 28 percent training duration was 3 months, 19 percent training duration was 9 months and 7 percent training period was 1 year and above. The findings concur to those of Mackenbach and McKee, (2013) that the success of MES projects is attributed to rigorous training.

The study aimed to find out if the training was useful to their handling of MES. The results were as presented in Figure 4.7.

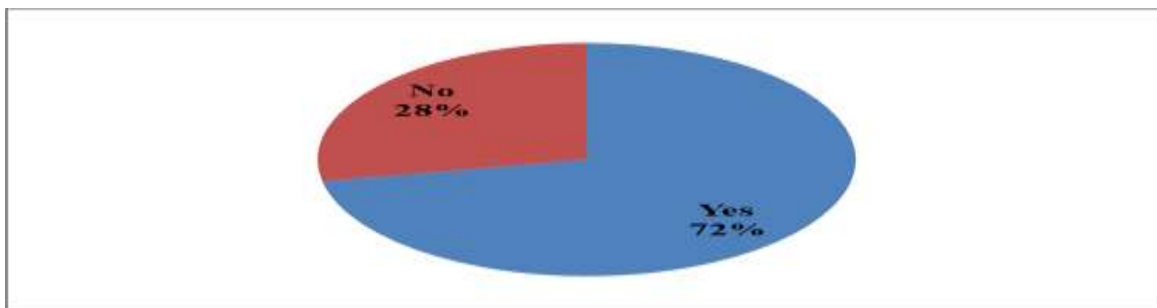


Figure 4.7: Whether the Training was Useful

The findings in Figure 4.6 show that, 72 percent of the participants were of the opinion that the training was useful while 28 percent opined that it was not useful. Since majority of the respondents said yes, it implies that training was useful. The findings concur to those of Mackenbach and McKee, (2013) that the success of MES projects is attributed to rigorous training.

Those who said yes were further asked to indicate the impact the training had on their services delivery to the project. Figure 4.8 shows the results.

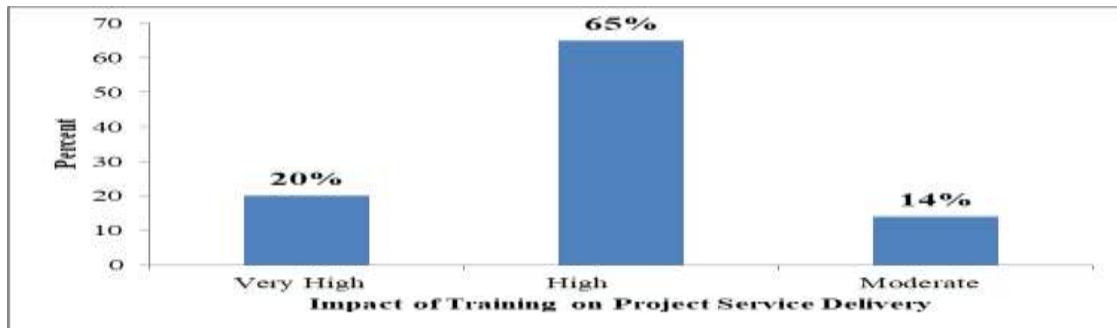


Figure 4.8: Impact of Training on Project Service Delivery

From Figure 4.8, majority (65 percent) indicated that the MES training had a high effect on their services delivery to the project, 20 percent indicated that the training had a very high effect on their services delivery to the project while 14 percent indicated that the training had a moderate effects. Therefore, the impact of training on respondent's services delivery to the project was high. Further, the respondents were asked whether they feel that they have the adequate knowledge to handle MES products. They whole indicated that they have adequate knowledge to handle MES products. Further, it was indicted staff skills and knowledge help to enhance efficiency at work since the employees are knowledgeable on how to use the medical equipment. The findings are related to those of (Health Foundation, 2012) that regular training is observed to greatly improve quality of services and implementation of MES.

4.5.2 Stakeholder involvement influencing performance of MES

The following are statements on stakeholders involvement influence on performance of MES. The respondents were inquired to state their level of agreement. The presentation of the outcomes were in Table 4.5

Table 4.5: Stakeholder Involvement Influencing Performance of MES

Statement	n	Mean	Std. Dev
Participation of stakeholders play an essential role in MES projects performance	228	3.882	0.898
Participation of stakeholders in planning play an essential role in MES projects performance	228	3.978	0.888
Participation of stakeholders in decision making play an essential role in MES projects performance	228	3.991	0.871
Consultation with stakeholders play an essential part in MES projects performance	228	3.947	0.896
Communication with stakeholders play an essential part in MES projects performance	228	4.149	0.984
Overall mean		3.989	0.907

From the participants, the participants agreed that communication with stakeholders play a key role in performance of MES projects indicated by (M = 4.149 and Std. Dev = 0.984), participation of stakeholders in decision making play a great part in performance of MES projects demonstrated by (M = 3.991, Std. Dev = 0.871), participation of stakeholders in planning play a great part in performance of MES projects indicated by (M = 3.978, Std. Dev = 0.888), consultation with stakeholders play a great part in performance of MES projects indicated by (M = 3.947, Std. Dev = 0.896) and participation of stakeholders play a great part in performance of MES projects indicated by (M = 3.882, Std. Dev = 0.898). The overall mean is 3.989 and standard deviation 0.907.

The findings agrees with those of Muff and Williamson (2014) who observed that successful MES project management can only happen when stakeholders are communicated and informed in a clear manner. Njogu (2013) noted that stakeholder involvement is very crucial as it enables the project beneficiaries feel that they own the project. The stakeholder

involvement helps cement the decision making process and strengthens the democratic process. Muff & Williamson (2014) found that when information is shared with stakeholders, the engagement process helps provide primary allusions that lead towards more effective and logical approaches for engaging stakeholders. Samandar (2016) established that understanding stakeholders' needs and constraints is the most critical factor that ascertains the performance and success of MES and other projects.

The respondents were also asked to show their thought on stakeholder's support the strategic plan and especially MES programs as indicated in Figure 4.9.

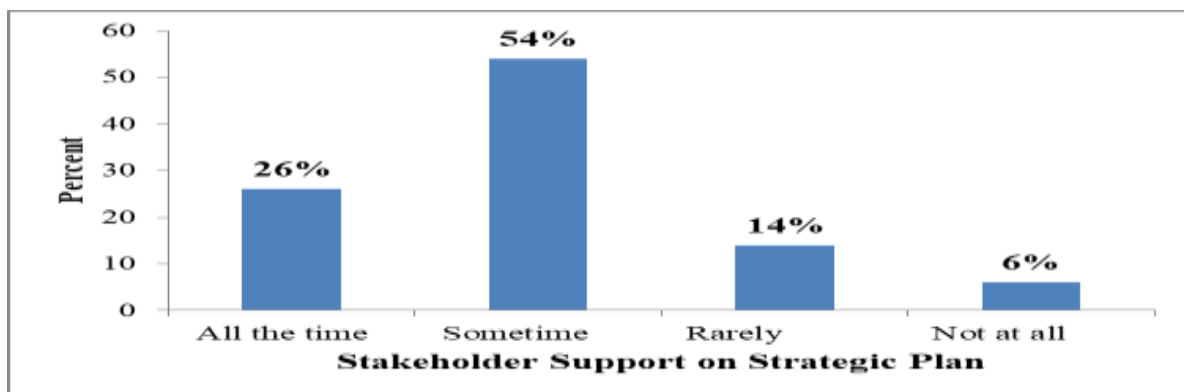


Figure 4.9: Stakeholder Support on Strategic Plan

The outcomes in Figure 4.9 expresses that, 54 percent of the participants noted that stakeholders support the strategic plan and especially MES programs sometimes, 26 percent indicated all the time, 14 percent indicated rarely and 6 percent indicated not at all. This implies that the support provided by stakeholders and especially MES programs happens sometimes. The findings concur to those of Lückmann & Färber (2016) that involvement of stakeholders enables the development of innovative solutions and exchange of ideas.

Respondents were also asked how much they believe stakeholder involvement adds to the attainment of healthcare facility performance through MES. As shown in Figure 4.10.

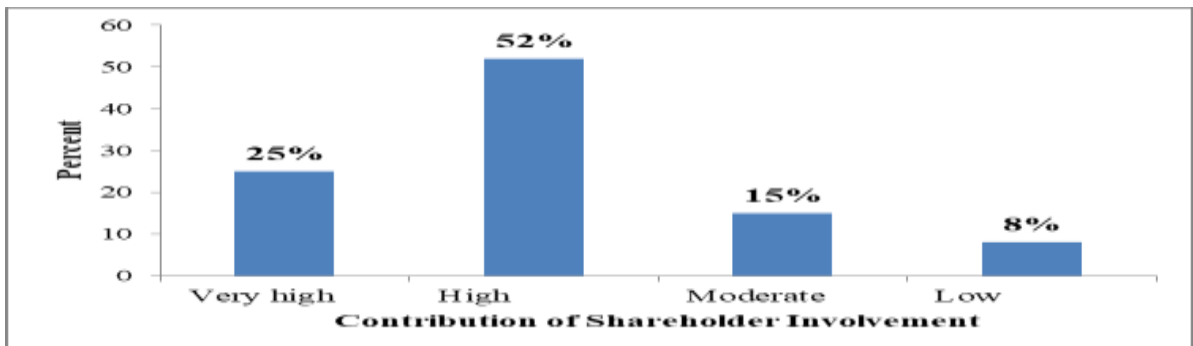


Figure 4.10: Contribution of Shareholder Involvement

The outcomes in Figure 4.10 shows that, 52 percent of the respondents were of the opinion that stakeholder engagement adds to the attainment of the healthcare facility performance through MES to a high extent, 25 percent to a very high extent, 15 percent to a moderate extent and 8 percent to a low extent. This means that stakeholder engagement adds to the attainment of the healthcare facility performance through MES to a high extent. The findings concur to those of Njogu (2013) that stakeholder involvement is very crucial as it enables the project beneficiaries feel that they own the project. The stakeholder involvement helps cement the decision making process and strengthens the democratic process.

The respondents were required to show which of the stakeholders as follows are involved in designing the MES programs. The outcomes are as indicated in Figure 4.11

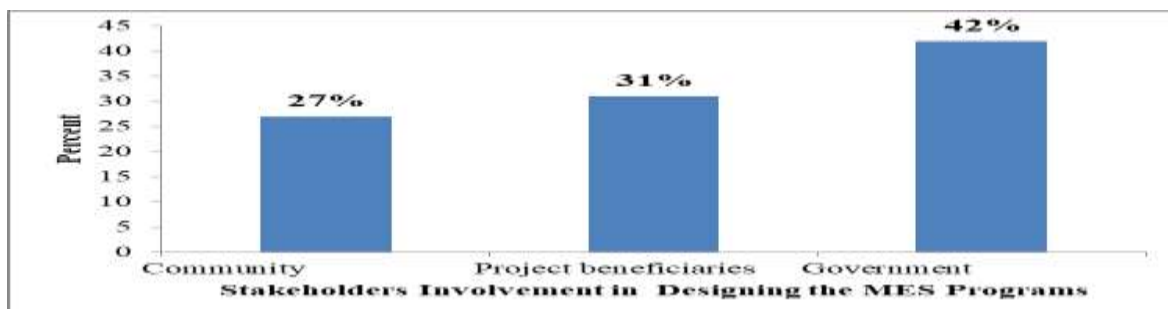


Figure 4.11: Stakeholders Involvement in Designing the MES Programs

From the outcomes in Figure 4.11, 42 percent of the respondents noted that the government is involved in designing the MES programs, 31 percent indicate project beneficiaries are involved while 27 percent indicated that the community is involved in designing the MES programs. This implies that the stakeholder who is highly involved in designing the MES programs is the government. The findings concur with those of Njogu (2013) that stakeholder involvement helps cement the decision making process and strengthens the democratic process.

4.5.3 Role of monitoring and evaluation influencing performance of MES

On the following statements on the role of M&E on performance of MES the respondents were requested to show the level of your agreement. The results were as shown in Table 4.6.

Table 4.6: Role of Monitoring and Evaluation Influencing Performance of MES

Statement	n	Mean	Std. Dev.
Regular M & E plays a key an essential part in MES projects delivery performance	228	3.912	0.946
Technical monitoring plays an essential part in MES projects delivery performance	228	4.048	0.954
Functional monitoring plays an essential part in MES projects delivery performance	228	4.118	0.953
Process evaluation plays an essential part in MES projects delivery performance	228	3.868	1.095

Outcome evaluation play an essential part in MES projects delivery performance	228	3.868	0.930
Overall mean		3.963	0.976

From the outcomes in Table 4.6, the participants agreed that functional monitoring as an essential part in MES projects performance delivery indicated by (M = 4.118 and standard deviation , Std. Dev = 0.953), technical monitoring plays an essential part in performance delivery of MES projects demonstrated by (M = 4.048, Std. Dev = 0.954), regular monitoring and evaluation is essential in MES projects performance delivery indicated by (M = 3.912, Std. Dev = 0.946), process evaluation plays is essential in MES projects performance delivery indicated by (M = 3.868, Std. Dev = 0.930 and outcome evaluation plays a great part in performance delivery of MES projects as indicated by (M = 3.868, Std. Dev = 1.095). The overall mean score was 3.963 and standard deviation 0.976. The findings are in agreement with those of Phiri (2015) who found that M & E as management functions have an impact on the performance of projects. Otieno (2015) noted that M&E when done in the right manner and time are the major essential parts in ensuring many projects success. Safari and Kisimbii (2020) found that M&E training impacts County financed project's performance.

The respondents were also asked to indicate whether their healthcare facility operates a formal M&E system for MES projects. The outcomes were as presented in Figure 4.12.

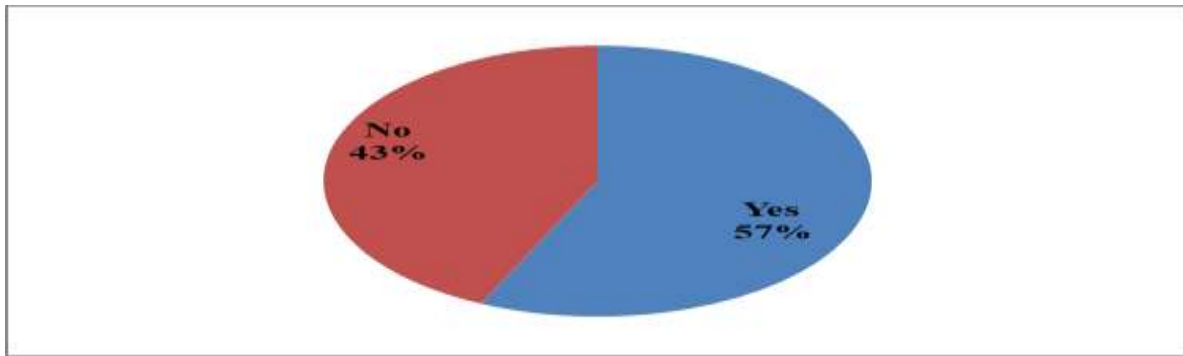


Figure 4.12: Operation of Formal Monitoring and Evaluation System for MES Projects

From the outcomes, 57 percent of the respondents agreed that their healthcare facility operate a formal monitoring and evaluation system for MES projects while 43 percent indicated no.

This implies that most healthcare facilities operate a formal monitoring and evaluation system for MES projects. The outcomes concur to those of who noted that Singh, Chandurkar,

& Dutt, (2017) noted that M&E was the significant driving element in projects.

Those who indicated yes were further asked to indicate which of the following employee groups these procedures applicable are to. The outcomes were as shown in Figure 4.13.

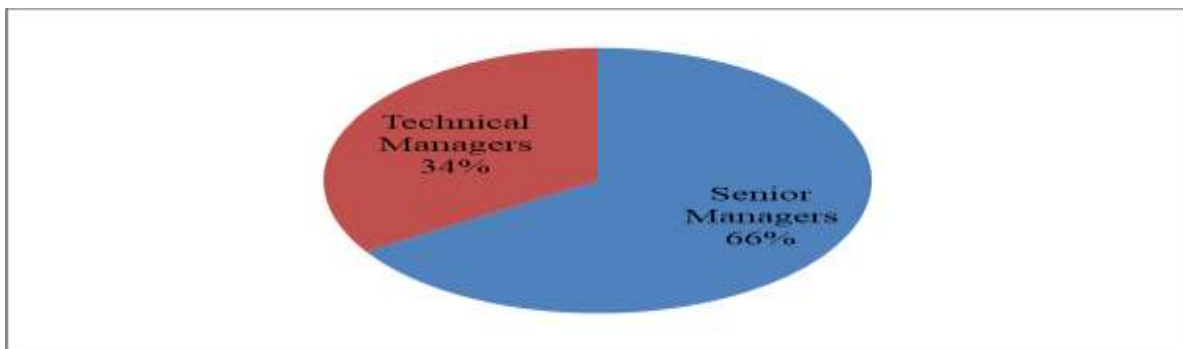


Figure 4.13: Monitoring and Evaluation System for MES Projects

From the outcomes, 66 percent of the respondents noted that the process apply to senior managers while 34 percent indicated that the process apply to technical managers. This implies that monitoring and evaluation system for MES projects mainly implies to senior

managers. The findings are related to those of Safari and Kisimbii (2020) that M&E training Influences County funded projects performance.

The respondents were required to show the techniques that are used in their organization for assessing performance. The outcomes were as indicated in Figure 4.14.

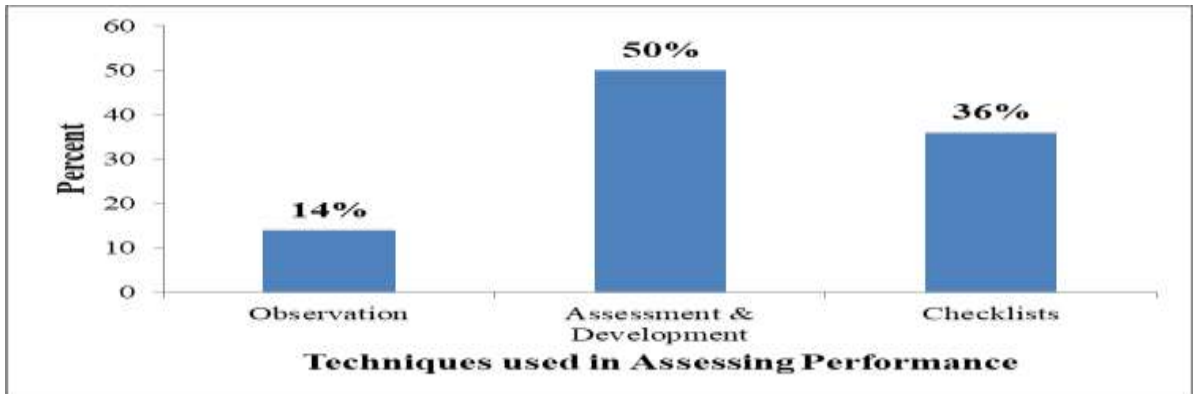


Figure 4.14: Techniques used in Assessing Performance

From the results, 50 percent of the respondents noted that assessment and development are used in their organization for assessing performance, 36 percent indicated that they use checklists and 14 percent indicated that they use observation. This implies that most hospital use assessment and development for assessing performance. The findings concur with those of Cromwell, Trisolini, Mitchell and Greenwald (2014) who explained that healthcare performance can be viewed in reference to efficiency in the administration, compliance, safety, experience and satisfaction of patients, quality of services and cost of care.

The respondents were asked to indicate if they are satisfied with monitoring and evaluation schemes put in place. The results were as indicated in Figure 4.15.

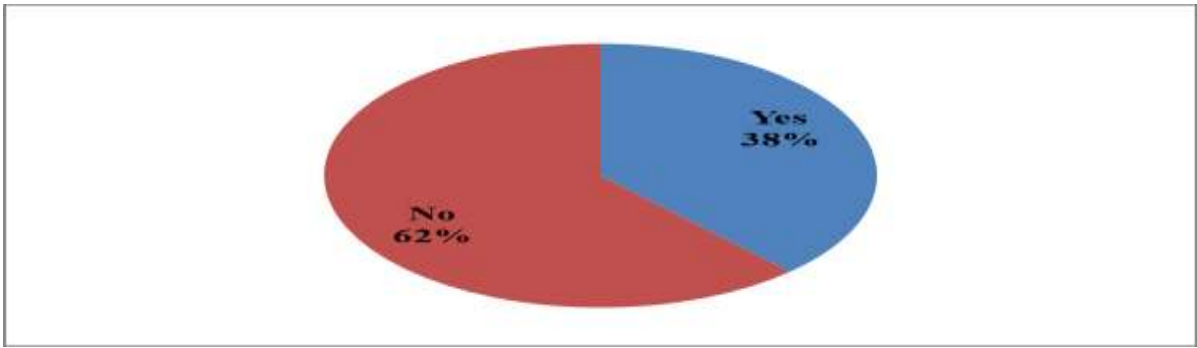


Figure 4.15: M and E Schemes

From the findings, 62 percent of the respondents noted that they were not satisfied with M & E schemes put in place while 38 percent indicated that they were satisfied. This suggests that most staff are not satisfied with monitoring and evaluation schemes used in healthcare. The findings concur with those of Otieno (2015) that M&E when done in the right manner and time are the major essential parts in ensuring many projects success.

The respondents were required to show whether they believe the M & E schemes in place help realize efficiency. The findings were as indicated in Figure 4.16.

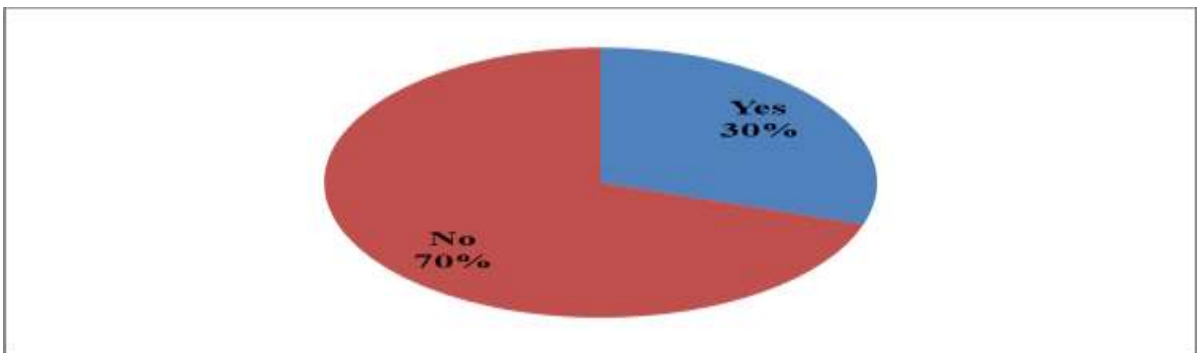


Figure 4.16: Use of Monitoring and Evaluation Schemes to Realize Efficiency

The outcomes in Figure 4.15 shows that 70 percent of the respondents noted that they do not believe the monitoring and evaluation schemes in place help realize efficiency while 30 percent indicated yes. This implies that most of the employees do not believe the monitoring and evaluation schemes in the healthcare. The findings concur with those of

Otieno (2015) that M&E when done in the right manner and time are the major essential parts in ensuring many projects success.

4.5.4 Role of Contract Management on the Performance of MES

On the following statements on contract management influencing performance of MES, the respondents were required to show their level of agreement.

Table 4.7: Role of Contract Management on the Performance of MES

Statement	n	Mean	Std. Dev.
Proper contract management is essential in performance delivery of MES projects	228	3.930	0.919
Payment mechanism is essential in performance delivery of MES projects	228	3.991	0.970
Stipulation with timelines is essential in performance delivery of MES projects	228	3.925	0.887
Spending visibility is essential in performance delivery of MES projects	228	4.154	0.984
Improved compliance plays is essential in performance delivery of MES projects	228	4.031	0.920
Overall Mean		4.006	0.936

Outcomes in table 4.7, show that the respondents agreed that spending visibility is essential in performance delivery of MES projects demonstrated by (M = 4.154, Std. Dev = 0.984), improved compliance is essential in performance delivery of MES projects as indicated by (M = 4.031, Std. Dev = 0.920), payment mechanism plays is essential in performance delivery of MES projects as demonstrated by (M = 3.991, Std. Dev = 0.970), proper contract management is essential in performance delivery of MES projects indicated by (M = 3.930, Std. Dev = 0.919) and stipulation with timelines is essential in performance delivery of MES projects indicated by (M = 3.925, Std. Dev = 0.887). The overall mean score is 4.006 and standard deviation of 0.936.

The findings agrees with those of Maluka *et al*, (2018) who notes that contract management plays a great part in performance of these projects. Lack of a well-defined contract process they note affects the MES projects delivery and the overall performance of the healthcare sector. Komakech (2020) established from the study done through observations that the local governments play a political, administrative and policy making role which is the main component of contract administration.

The respondents were asked to show if the funds for MES programs are availed promptly and proper payment mechanisms followed. The findings were as indicated in Figure 4.17.

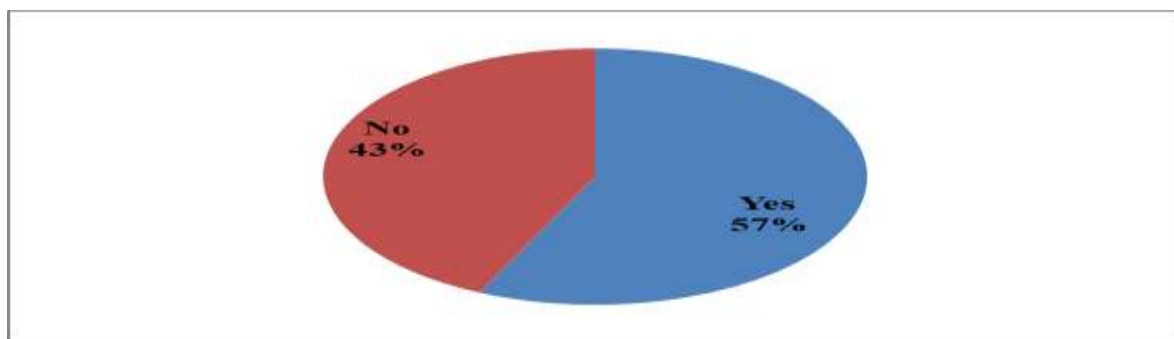


Figure 4.17: Prompt Provision of Funds for MES Programs

From the outcomes in Figure 4.17, 57 percent of the respondents agreed that funds for MES programs are availed promptly and proper payment mechanisms followed while 43 percent indicated no. This implies that funds for MES programs are availed promptly and proper payment mechanisms followed. On whether the availability of the funds by the county government affects the performance of the MES programs. The respondents indicated yes because funds are essential in ensuring smooth running of the MES programs. Ministry of Health, Ghana (2014) indicated that there should also be a dedicated program to track the contracts to ensure timelines are followed.

The respondents were required to indicate if there ease of procurement. Figure 4.18 demonstrates the results.

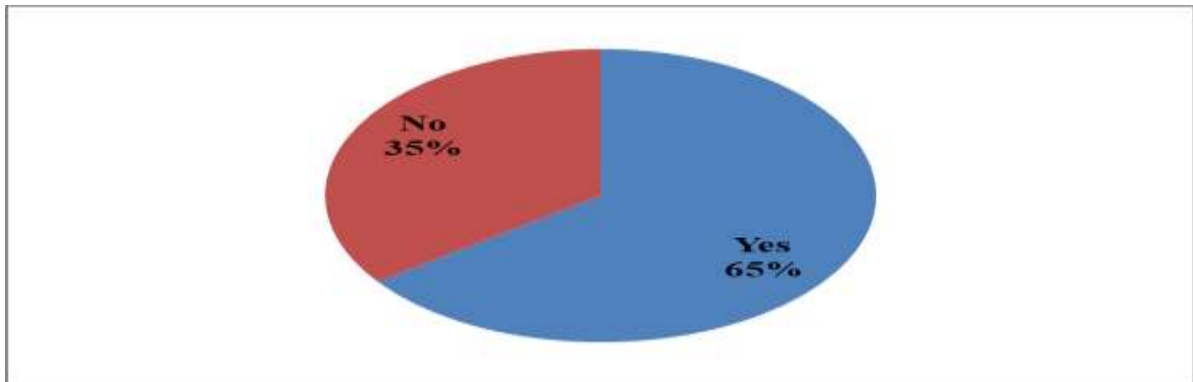


Figure 4.18: Ease of Procurement

From the outcomes, 65 percent of the employees agreed that there is ease in procurement while 35 percent indicated no. The ease of procurement is possible because funds are availed on time and further a systematic procurement process is adhered to select the best suppliers. The electronic procurement method has also been adopted which makes the procurement process efficient. The findings concur with those of Libersky, Lipson, and Liao (2015) who assert that the procurement of the necessary equipment is done appropriately so as to ensure that the suppliers meet the requirements and also that the hospital does not need to spend unnecessarily.

The respondents were required to show if they perceived that the employees have needed knowledge and experience to organize the MES contracts. The results were as indicated in Figure 4.19.

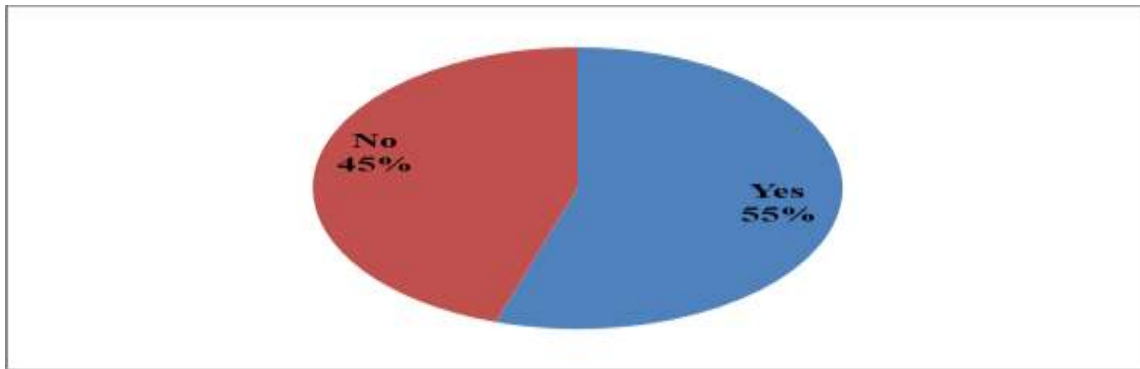


Figure 4.19: Employees have Appropriate Knowledge and Experience

From Table 4.18, majority (55 percent) indicated that they perceived that the employees have needed knowledge and experience to organize the MES contracts while 45 percent indicated that they do not feel like employees have needed knowledge and experience to organize the MES contracts. This implies that employees have needed knowledge and experience to organize the MES contracts. The study concur with those of Ministry of Health, Ghana (2014) notes that for the MES projects to perform in the healthcare sector, the institutions must invest in the contract process. It also notes that training programs should be offered by providing incentives, leadership and abiding by institutional arrangements.

The respondents were required to show whether the firm has received good value from the beginning of the MES contract. Outcomes are as shown in table 4.8.

Table 4.8: Value of MES Contract

Category	Frequency	Percent
Strongly agree	36	16
Agree	112	49
Disagree	52	23
Strongly disagree	28	12
Total	228	100

From the outcomes in Table 4.8, 49 percent of the respondents agreed that the firm has received good value from the beginning of the MES contract, 23 percent disagreed, 16

percent strongly agreed while 12 percent strongly disagreed. This implies that most organizations in the healthcare have received good value from the beginning of the MES contract. The findings are related to Evans and Saponaro (2012) that a solid contract management structure ensures that the parties have a healthy working relationship.

The respondents were asked to indicate whether there are performance metrics in place so that to know if the provider of service is performing a proper job. Results were as indicated in Figure 4.20.

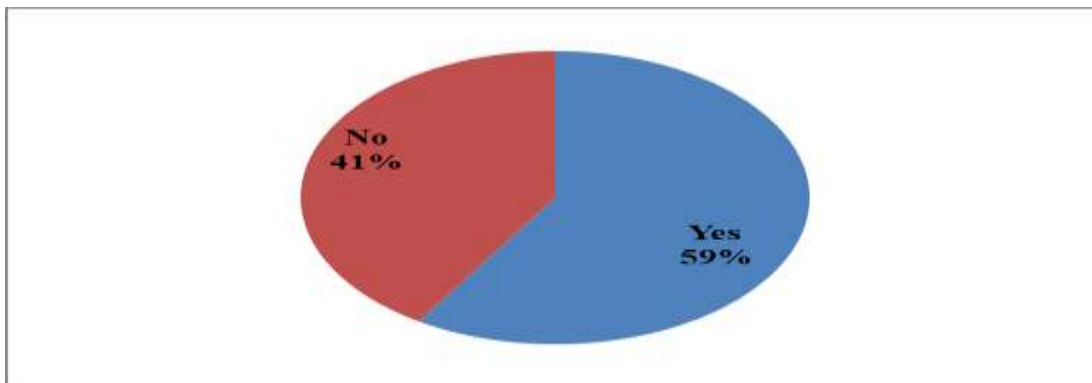


Figure 4.20: Performance Measures in Place

From the outcomes, 59 percent of the respondent's agreed that there are performance metrics in place so that to know whether the provider of services is performing an outstanding job while 41 percent indicated no. This implies that the organization have performance metrics in place so that to understand if the service provider is performing a great job. The findings concur with those of Evans and Saponaro (2012) noted that proper contract management is for that reason significant in making sure that the MES arrangement results in sustained efficiency, in so doing advancing the anticipated health additions.

4.5.5 Performance of MES Projects

On the following statements on performance of MES, the respondents were required to show their level of agreement.

Table 4.9: Performance of MES Projects

Statement	n	Mean	Std. Dev
Cost performance of MES projects has improved	228	3.895	0.819
Cycle time of MES projects has improved	228	3.982	0.877
MES projects has improved customer satisfaction	228	4.053	0.920
MES projects has improved employee satisfaction	228	4.031	0.927
MES projects are highly aligned with business goals.	228	3.829	0.803
Overall Mean		3.958	0.8692

From the outcomes in Table 4.9, the respondents were in agreement that MES projects has improved satisfaction of consumers as shown by a mean of 4.053, MES projects has improved employee satisfaction shown by a mean of 4.031, cycle time of MES projects has improved shown by a mean of 3.982, cost performance of MES projects has improved shown by a mean of 3.895 and MES projects are highly aligned with business goals shown by a mean of 3.829. The findings concur with those of Cromwell, Trisolini, Mitchell and Greenwald (2014) who explained that healthcare performance can be viewed in reference to efficiency in the administration, compliance, safety, experience and satisfaction of patients, quality of services and cost of care.

The respondent's were required to rate the performance of the MES healthcare projects in their County.

Table 4.10: Performance of MES Projects

Category	Frequency	Percent
Very effective	28	12
Effective	89	39

Ineffective	54	24
Very ineffective	34	15
Don't know	23	10
Total	228	100

From the outcomes 39 percent of the respondents show that performance of the MES healthcare projects in their County is effective, 24 percent indicated ineffective, 15 percent very ineffective, 12 percent very effective and 10 percent don't know. This implies that performance of the MES healthcare projects in their County is effective. The findings are related to those of Dimitropoulos (2016) who indicated that performance in non-revenue driven environments tends to be measured using the three E's - economy, efficiency, and effectiveness.

The respondents were asked to show whether they have any difficulties in using any of the MES projects in their county. As shown in Figure 4.21.

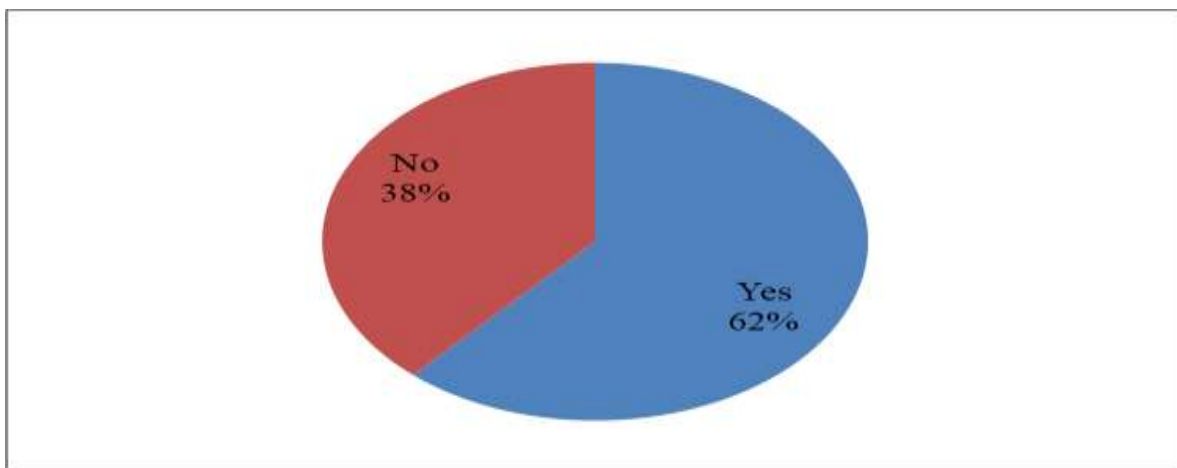


Figure 4.21: Difficulties in Using any of the MES Projects

From the outcomes in Figure 4.20, majority 62 percent noted that they have difficulties in using any of the MES projects in their county while 28 percent indicated that they do not have any difficulties. This implies that most employees have difficulties in using any of the MES projects in their county. The findings concur with those of Frost and Sullivan (2015)

posit that the fragmented nature of the healthcare industry and internal hospital structures inhibit productive and institutionalized care.

4.6 Diagnostic Tests

Before performing regression analysis, tests were done on obtained data to see if the assumptions of multiple regressions are achieved. The following was looked at autocorrelation, homoscedasticity, multicollinearity, and the assumption of normality.

4.6.1 Tests of Normality

The Shapiro-Wilk test was used in the study to determine the normality of the error term.

The results of the test are shown in Table 4.11.

Table 4.11: Shapiro-Wilk W test for normal data

Variables	Shapiro-Wilk		
	Statistic	df	Sig.
Staff skills and knowledge	0.847	228	.058
Stakeholder involvement	0.803	228	.079
Monitoring and evaluation	0.914	228	.054
Contract management	0.868	228	.060

This test's null hypothesis on if there is normal distribution of the population. In the case where the value of p value is below the alpha value, we reject the hypothesis, and it is evident that tested information was not from a population that is distributed normally. It also means, the information are out of the ordinary. A p-value that is more than the selected alpha, we accept the hypothesis meaning information is distributed normally.

Results demonstrate that, the values of p all variables were as follows; staff skills and knowledge (p = 0.058), stakeholder involvement (p = 0.079), monitoring and evaluation (p = 0.054) and contract management (p = 0.060). This demonstrates that all variables were

distributed in a normal way, and thus the data achieves the assumption of regression analysis of data normality.

4.6.2 Multicollinearity

The VIF was adopted in testing for multicollinearity. Indicated in Table 4.12.

Table 4.12: Test for Multicollinearity

Variable	Tolerance	VIF
Staff skills and knowledge	.554	1.74
Stakeholder involvement	.662	1.53
Monitoring and evaluation	.658	1.60
Contract management	.574	1.49

Bryman and Cramer (2012) notes that, if the value of VIF is more than 4, more investigation is necessary; when there are multiple variables with a value of VIF greater than five, one of them must be removed. According to the outcomes, the VIF figures for each variable were below 5, indicating that multicollinearity amid the variables does not exist. Because the variables were discovered to have low correlations amid themselves, the outcomes of multiple regression analysis were not out of context.

4.6.3 Autocorrelation

Serial autocorrelation was ascertained using Durbin-Watson test and the outcomes were as indicated in Table 4.13

Table 4.13: Durbin-Watson Autocorrelation Test

Model	Durbin-Watson
1	2.180

The values of d range from 0 to 4, and if the values are 1.5 d 2.5, it indicates that there is no autocorrelation. Table 4 shows that the value of d was 2.180; because this value is within in

the range 1.5 d 2.5, we make a conclusion that there exists no autocorrelation in the information and that regression analysis may be performed using the data.

4.7 Inferential Statistics

This section discussed correlation and multiple regression analysis.

4.7.1 Correlational Analysis

In correlation the link between independent and dependent variables is investigated. In this study, Pearson Moment Correlation was used. Table 4.14 displays the results.

Table 4.14: Correlational Analysis

		Performance of MES projects	Staff Skills and Knowledge	Stakeholder Involvement	Monitoring and Evaluation	Contract Management
Performance of MES projects	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	228				
Staff Skills and Knowledge	Pearson Correlation	.873**	1			
	Sig. (2-tailed)	.001				
	N	228	228			
Stakeholder Involvement	Pearson Correlation	.809**	.471**	1		
	Sig. (2-tailed)	.001	.032			
	N	228	228	228		
Monitoring and Evaluation	Pearson Correlation	.823**	.365**	.324**	1	
	Sig. (2-tailed)	.001	.048	.051		
	N	228	228	228	228	
Contract Management	Pearson Correlation	.816**	.265**	.224**	.203	.1
	Sig. (2-tailed)	.001	.057	.063	.070	
	N	228	228	228	228	228

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

The outcomes showed a very strong positive correlation between staff skills and knowledge and performance of MES projects as shown by $r = 0.873$ and $p\text{-value} = 0.001$; stakeholder involvement and performance of MES projects had a very strong positive correlation as shown by $r = 0.809$ and $p\text{-value} = 0.001$; there was also a very strong positive correlation

on monitoring and evaluation and performance of MES projects as shown by $r = 0.823$ and $p\text{-value} = 0.001$; and contract management and performance of MES projects had a very strong positive correlation as shown by $r = 0.816$ and $p\text{-value} = 0.001$. This implies that staff skills and knowledge, stakeholder involvement, monitoring and evaluation and contract management had a significant connection with performance of MES projects. The findings concur with those of Yuan (2012) noted that PPP projects performance is highly impacted by reasonable procurement, contract management, public sector design and planning, effective control process in the private sector, and finally satisfaction of the public and private sectors.

4.7.2 Model Summary

The model summary is used to examine the variations of the dependent variable due to changes in the independent variables.

Table 4.15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.829 ^a	.687	.673	.10736

Source: Research Data (2021)

Analysis was done on the variations of performance of MES projects due to changes of staff skills and knowledge, stakeholder involvement, monitoring and evaluation and contract management. From the results, the adjusted R squared was 0.673 meaning that there were 67.3 percent variations of performance of MES projects due to changes of staff skills and knowledge, stakeholder involvement, monitoring and evaluation and contract management. The remaining 32.7 percent infer that there are other elements influencing MES project performance that were not addressed in the research. The findings are related to those of

Roehrich, Lewis and George (2014) that PPPs can put together the private actors strengths like the innovation, technical skills and knowledge, management efficiency and the spirit of entrepreneurship, and the public actors role comprising local knowledge, social responsibility, social justice and public accountability, to form an conducive environment for delivery of high quality health services and infrastructure.

4.7.3 Analysis of Variance

To ascertain if the data used is significant ANOVA was used.

Table 4.16: ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.371	4	9.592	171.299	.000 ^b
	Residual	12.564	223	.056		
	Total	100.935	227			

According to the model summary statistics, the regression model had a significance level of 0.000, indicating that there existed significant link among the variables. The calculated F value, from table 4.7 (171.299) was more than the F critical value, gotten from the f-distributions tables (2.412) an indication that there was a significant link amid staff skills and knowledge, stakeholder involvement, M&E and contract management and the dependent variable performance of MES projects. The p value below 0.05 indicates that the model is significant and that the independent variables can be used to predict MES project performance. The findings concur with those of Yuan (2012) noted that PPP projects performance is highly impacted by reasonable procurement, contract management, public sector design and planning, effective control process in the private sector, and finally satisfaction of the public and private sectors.

4.7.4 Beta Coefficients of the study Variables

The regression equation was

$$Y = 1.185 + 0.403 X_1 + 0.359 X_2 + 0.372 X_3 + 0.391 X_4 + \epsilon$$

From the above regression equation, it was noted that holding staff skills and knowledge, stakeholder involvement, monitoring and evaluation and contract management to a constant zero, performance of MES projects would be at a constant value of 1.185.

Table 4.17: Coefficients

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	1.185	0.131		9.046	.000
Staff Skills and Knowledge ¹	.403	0.109	.384	3.697	.002
Stakeholder Involvement	.359	0.095	.317	3.779	.002
Monitoring and Evaluation	.372	0.102	.329	3.647	.002
Contract Management	.391	0.098	0.336	3.990	.002

Staff skills and knowledge was statistically significant to performance of MES projects in Kenya ($\beta = 0.403$, $P = 0.002$). This infers that staff skills and knowledge had a significant positive link with MES projects performance. Therefore, an increase in staff skills and knowledge would cause the increase performance of MES projects. The findings agree with those of Mackenbach & McKee, (2013) who explained that the success of MES projects was attributed to rigorous training that the staffs were made to go through.

It was also revealed that stakeholder involvement was statistically significant to performance of MES projects in Kenya ($\beta = 0.359$, $P = 0.002$). This shows that stakeholder involvement

significantly and positively influences performance of MES projects. So, a unit raise in stakeholder's involvement would result to raise in performance of MES projects. The findings agrees with those of Muff and Williamson (2014) who observed that successful MES project management can only happen when stakeholders are communicated and informed in a clear manner.

Further, M&E was statistically significant to performance of MES projects in Kenya ($\beta = 0.372, P = 0.002$). This implies that M&E had a substantial positive link with performance of MES projects. Therefore, a raise in monitoring and evaluation would result to raise in performance of MES projects. The outcomes are related to those of Miseda (2020) who suggested that effective M&E of project improves the foundation for evidence-based decisions on project management.

Contract management was statistically significant to performance of MES projects in Kenya indicated by ($\beta = 0.391, P = 0.002$). This infers that contract management significantly positively link with performance of MES projects. Therefore, a raise in contract management would result to raise in performance of MES projects. The outcomes concur with those of Maluka *et al*, (2018) who notes that contract management plays a key part in the performance of these projects.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter entails summarizing of results on the effect of public-private partnership on performance of managed equipment service projects in healthcare service provision in Kenya, conclusions and recommendations.

5.2 Summary of Findings

The study aim was to assess the effect of private public partnership and performance of managed equipment services projects in health service provision in Kenya. The specific study goals were; to examine the level to which staff skills and knowledge, stakeholder involvement, performance monitoring and contract management influence the performance of Managed Equipment Services in healthcare provision in Kenya. The study utilized descriptive and explanatory research design. The target population of this research was the 98 hospitals that are under MES programs in Kenya. The study adopted the simple random sampling to select 47 hospitals from the 98 hospitals that are implementing the MES programs.

Primary data was obtained by use of self-administered questionnaires which used a person in the management, a doctor, a nurse, a procurement officer and a subordinate staff. Piloting was done to establish the validity and reliability of the instruments. Data gathered was presented in form of percentages and frequency. SPSS software was used to aid in data analysis. Analysis was done by use of descriptive an inferential statistics. Descriptive analysis entailed the calculation of metrics of central tendency and dispersions that is means and standard deviations. Correlation analysis was utilized to identify relationships among

variables. Regression analysis was used to make a prediction and determine how the variables influence the performance of managed equipment services projects in health service provision.

5.2.1 Staff Skills and Knowledge

The first objective of the study was to examine the level to which staff skills and knowledge influence the performance of managed equipment service projects in healthcare service provision in Kenya. The study found that professional qualification is vital in the performance of MES projects, soft skills play a significant part in the performance of MES projects, necessary skills play an essential part in the performance of MES projects, technical skills also is significant in the performance of MES projects and training performs a key part in the performance of MES projects. The study also revealed that many employees have attended training on MES in the level five hospitals in Kenya. The MES training was mainly about the use the state-of-the-art medical equipment's. It was also revealed that the impact of training on employee services delivery to the project was high.. Further, it was noted that staff skills and knowledge help to enhance efficiency at work since the employees are knowledgeable on how to use the medical equipment. A positive strong correlation was also revealed between staff skills and knowledge and performance of MES projects.

5.2.2 Stakeholder Involvement

The study sought to determine the extent to which staff skills and knowledge influence the performance of managed equipment service projects in healthcare service provision. It was established that communication with stakeholders is essential in performance of MES projects, participation of stakeholders in decision making is vital in performance of MES projects, participation of stakeholders in planning is vital in performance of MES projects,

consultation with stakeholders is essential in performance of MES projects and participation of stakeholders is a big part in the performance of MES projects. Further, the results showed that support provided by stakeholders and especially MES programs happens at times. Also, stakeholder involvement adds to the attainment of the healthcare facility performance through MES to a high extent and the government is the stakeholder who is highly involved in designing the MES programs. Stakeholder involvement and performance of MES projects had a strong positive correlation.

5.2.3 Monitoring and Evaluation

The study also sought to assess the role played by monitoring and evaluation in ensuring the performance of managed equipment service projects in healthcare service provision in Kenya. It was revealed that functional monitoring is vital in performance delivery of MES projects, technical monitoring is vital in the performance delivery of MES projects, regular M&E plays a vital part in the performance delivery of MES projects, process evaluation is vital in performance delivery of MES projects and outcome evaluation plays a vital part in the performance delivery of MES projects. It was revealed that healthcare facilities operate a formal M&E system for MES projects. Further, M&E system for MES projects mainly applies to senior managers. Also, hospitals use assessment and development for assessing performance, the employees are not satisfied with monitoring and evaluation schemes used in healthcare and the employees do not believe that monitoring and evaluation schemes in the healthcare. Results also noted that M&E and performance of MES projects had a strong positive correlation.

5.2.4 Contract Management

The study also aimed to review the role played by contract management in ensuring the performance of managed equipment service projects in healthcare service provision in Kenya. It was revealed that spending visibility is vital in performance delivery of MES projects, improved compliance is vital in performance delivery of MES projects, payment mechanism is vital in performance delivery of MES projects, proper contract management is vital in performance delivery of MES projects and stipulation with timelines is vital in the performance delivery of MES projects. The study also found that funds for MES programs are availed promptly and proper payment mechanisms followed, an electronic procurement method has also been adopted which makes the procurement process efficient, employees have appropriate knowledge and experience to manage the MES contracts, organizations in the healthcare have received good value from the beginning of the MES contract and organizations have performance metrics in place to determine if the provider of service is performing an outstanding job. It was also found that contract management and managed equipment service projects had strong positive correlation.

5.3 Conclusions

The study found that professional qualification; soft skills, necessary skills, technical skills and training are vital in the performance of MES projects. Further staff skills and knowledge had a statistically significant effect on performance of MES projects in Kenya. Therefore, the study concludes staff skills and knowledge is positively related to performance of MES projects.

The study results demonstrated a positive correlation amid stakeholder involvement and performance of MES projects in Kenya. Further, stakeholder involvement was statistically

significant to performance of MES projects in Kenya. Involvement by stakeholder had also a involvement of stakeholder results to an upturn in performance of MES projects.

It was found that functional monitoring, technical monitoring, regular monitoring and evaluation, process evaluation and outcome evaluation play a vital role in the performance of MES projects. It was also revealed that M&E was statistically significant to performance of Kenyan MES projects. The study resolves that M&E is positively related with performance of MES projects.

The study found that spending visibility, improved compliance, payment mechanism, proper contract management and stipulation with timelines play a significant role in the performance of MES projects in Kenya. Further, contract management was statistically significant to performance of Kenyan MES projects. The study concludes that contract management positively influences performance of MES projects.

5.4 Recommendations

The study found that professional qualification; soft skills, necessary skills, technical skills and training have a significant part to play in performance of MES projects. This study suggests that the hospitals in Kenya should ensure that they hire employees with soft and technical skills and they should also be professionally qualified. Further, the employees should receive proper training on MES; this would help them to undertake their tasks effectively.

The study revealed that communication, participation of stakeholders in planning, decision making and consultation with stakeholder significantly influences performance of MES projects. The study recommends that hospitals in Kenya should ensure that they

communicate and consult with their stakeholders on the projects they wish to undertake. Further, stakeholders should be allowed to partake in planning and decision making. Their opinions would be a big part in performance of MES projects.

The study also indicated that functional monitoring, technical monitoring, regular monitoring and evaluation, process evaluation and outcome evaluation is vital in performance of MES projects. Therefore, the study recommends that the hospitals in Kenya should adopt functional, technical, regular, evaluation, process monitoring and outcome evaluations. This would be helpful in checking the progress of the MES projects.

The study found that spending visibility, improved compliance, payment mechanism, proper contract management and stipulation with timelines play a significant role in the performance of MES projects in Kenya. The study recommends that the hospitals should adopt proper contract management, adhere to stipulated timelines and ensure that their spending is properly accounted for through frequent provision of financial performance.

5.5 Suggestions for Further Research

This study aim was to analyze the effect of public-private partnership on performance of managed equipment service projects in healthcare service provision in Kenya. It recommended that other studies should be conducted to cover 32.7 percent of the unexplained variables other than staff skills and knowledge, stakeholder involvement, monitoring and evaluation and contract management. Further, this study should be replicated in level five hospitals and a comparison of the results made.

REFERENCES

- Achieng (2013) Performance measurement approaches in Public -Private Partnership in Kenya *Qualitative Research in Accounting & Management*, 9, 1, 44-65.
- Aloo, Z. (2017). Factors influencing provision of healthcare services in the devolved system of government in Kisumu East Sub County, Kenya. UON Press.
- Aluvaala, J., Nyamai, R., Were, F., Wasunna, A., Kosgei, R., Karumbi, J., & English, M. (2015). Assessment of neonatal care in clinical training facilities in Kenya. *Archives of disease in childhood*, 100(1), 42-47.
- Balakrishnan, N., Voinov, V., & Nikulin, M. S. (2013). *Chi-Squared Goodness of Fit Tests with Applications*. Burlington: Elsevier Science.
- Bebe, B. O., Mwangi, J. G., & Ozor, N. (2016). Changes in agri-business outcomes among the dairy beneficiaries of contracted extension service delivery model in Kenya. *Journal of Agricultural Extension*, 20(1), 53-65.
- Bottle, A., & Aylin, P. (2017). *Statistical methods for healthcare performance monitoring*. Boca Raton: Taylor & Francis Press.
- Bradford, B. (2014). Understanding a sustainable print environment: managed print services. *Graphix*, 41(2), 32-33.
- Bryman, A. (2016). *Social research methods*. Oxford university press.
- Butt, A., Naaranoja, M., & Savolainen, J. (November 01, 2016). Project change stakeholder communication. *International Journal of Project Management*, 34, 8, 1579-1595.
- Calder, J. (2013). Programme evaluation and quality: A comprehensive guide to setting up an evaluation system. Routledge.
- Chakraborty, N. M., Mbondo, M., & Wanderi, J. (2016). Evaluating the impact of social franchising on family planning use in Kenya. *Journal of Health, Population and Nutrition*, 35(1), 19.

- Chen, A., Dutta, A., & Maina, T. (2016). *Assessing the Quality of Primary Healthcare Services in Kenya*. Nairobi: Health Policy Project
- Cornelissen, J. P., Durand, R., Fiss, P. C., Lammers, J. C., & Vaara, E. (2015). Putting communication front and center in institutional theory and analysis. *Academy of Management Review*, *40*, 1, 10-27.
- Cross, J., Gomez, R., & Money, K. (2013). *Little Black Book for Managers: How to Maximize Your Key Management Moments of Power*. Somerset: Wiley.
- Curtis, L. A. (2013). *Unit costs of health and social care 2013*. Personal Social Services Research Unit, University of Kent.
- Daim, T. U., & Brem, A. (2020). *Managing medical technological innovations: Exploring multiple perspectives*. Singapore : World Scientific, [2020]
- De Menil, V. P., & Knapp, M. (2015). Participation of psychiatric nurses in public and private mental healthcare in Kenya. *Bjpsych. International*, *12*, 1, 19-21
- Denis, O. O. (January 01, 2017). The Roles of Infrastructure and Resources on Implementation of Free Maternal Healthcare Services in Machakos Level 5 Hospital, Machakos County, Kenya. *Science Journal of Public Health*, *5*, 1, 49.
- Dickersbach, J. T., & Passon, M. F. (2015). *Service Parts Planning with SAP SCMTm: Processes, Structures, and Functions*. Springer.
- Dimitropoulos, P. E. (2016). *Performance Management in Healthcare organizations: Concept and Practicum*. <http://www.springer.com/978-3-319-57347-2>.
- Eckerson, W. W. (2013). *Performance dashboards: Measuring, monitoring, and managing your business*. Hoboken, N.J: Wiley.
- Edoh, T. O. C., Pawar, P. A., & Loko, L. Y. (January 01, 2018). *Challenges Facing Health Service Delivery in Developing Countries and Solution Approaches: National University of Sciences, Technology, Engineering and Mathematics, Benin*

- Elvin, S., & Mutangabende, S. (December 30, 2016). Assessing progress and pitfalls of the Millennium Development Goals in Zimbabwe: A critical analysis. *Africa's Public Service Delivery and Performance Review*, 4, 4, 573-605
- Enthoven, A. C. (2014). *Theory and practice of managed competition in health care finance*. Elsevier.
- Evans, G. E., & Saponaro, M. Z. (2012). *Collection management basics*. Santa Barbara, California: Libraries Unlimited, an imprint of ABC-CLIO, LLC.
- Frost and Sullivan (2015). *North American Managed Equipment Services for Hospitals*. Customer Value Leadership Award.
- Future Health Index (2016), Measuring perceptions of accessibility and integration of healthcare systems and adoption of connected healthcare. Amsterdam: IOS Press.
- Gakii, J. (2013). *Demand for health care in Kenya: The effect of health insurance*. Nairobi, Kenya : Kenya Institute for Public Policy Research and Analysis,
- Gamble, J. E., Thompson, A. A., & Peteraf, M. A. (2019). *Essentials of strategic management: The quest for competitive advantage*. New York: McGraw-Hill Irwin.
- Hanson, K., Puplampu, K. P., & Shaw, T. M. (2018). *From millennium development goals to sustainable development goals: Rethinking African development*. Abingdon, Oxon ; New York, NY : Routledge
- Harriss, D. J., & Atkinson, G. (2015). Ethical standards in sport and exercise science research: 2016 update. *Int J Sports Med*, 36(14), pp. 1121-1124.
- HeddaBøeNyhus, & Michael M. Kamara. (2017). Quality improvement in emergency service delivery: Assessment of knowledge and skills amongst emergency nurses at Connaught Hospital, Sierra Leone. *African Journal of Emergency Medicine*, 7, 3, 113-117.

- Hitt, M. A., Carnes, C. M., & Xu, K. (2016). A current view of resource-based theory in operations management: A response to Bromiley and Rau. *Journal of Operations Management*, 41(10), 107-109.
- Hospitals of Distinction (2012). *Regular renewal of hospital equipment assured by innovative MES agreement. Ieee Antennas and Propagation Society Newsletter*, 31, 5, 1-72.
- Ishida, K., Hirose, M., Fujiwara, K., Tsuruta, H., & Ikeda, N. (2014). Analysis of Medical Equipment Management in Relation to the Mandatory Medical Equipment Safety Manager (MESM) in Japan. *Journal of Healthcare Engineering*, 5, 3, 329-346.
- Jagtap, S. and Jagtap, S. (2015). Aesthetic design process: Descriptive design research and ways forward. In *ICoRD 15–Research into Design Across Boundaries Volume 1* (pp. 375-385). Springer, New Delhi.
- Keohane, R. O., & Martin, L. L. (2014). Institutional theory as a research program. *The Realism Reader*, 320.
- Kerzner, H. (2017). *Project management metrics, KPIs, and dashboards: A guide to measuring and monitoring project performance*. Hoboken, New Jersey : John Wiley & Sons, Inc
- Kinley C. A. (2012). *Healthcare Technology: A Strategic Approach to Medical Device Management*: East Tennessee State University.
- Kĩrĩ, M. P., Muthaka, D. I., & Murithi, G. (2017). *Inequalities in health care service delivery in Kenya*. Nairobi, Kenya : Kenya Institute for Public Policy Research and Analysis
- Kiringai, J., & World Bank,. (2014). *Laying the foundation for a robust health care system in Kenya*.
- Kloep, M. J. (2012). *Managed equipment services as a conceptual business opportunity model for the GCC with focus on UAE: An institutional and economic analysis*. Burgdorf: Herz.

- Komakech, R., (2020) Contract Management and Service Delivery in Local Governments in Uganda. Uganda: Uganda Debt Network.
- Kozlenkova, I. V., Samaha, S. A., & Palmatier, R. W. (2014). Resource-based theory in marketing. *Journal of the Academy of Marketing Science*, 42(1), 1-21.
- Laura, C. and Comyn P. (2015) Integrating core work skills into TVET systems: Six country case studies. *International Labour Organization*
- Law, C. C. (2019). *Managing enterprise resource planning adoption and business processes: A holistic approach*. Newcastle upon Tyne : Cambridge Scholars Publishing
- Leon, A. (2014). *Enterprise resource planning*. New Delhi: McGraw-Hill Education (India) Pte Ltd.
- Libersky, J., Lipson, D., & Liao, K. (2015). *Hand in Hand: Enhancing the Synergy between Money Follows the Person and Managed Long-Term Services and Supports*. Mathematica Policy Research.
- Logan M. & Patel B. (2012). *Medical device interoperability: a safer path forward*. Arlington: AAMI.
- Lückmann, P., & Färber, K. (2016). The Impact of Cultural Differences on Project Stakeholder Engagement: A Review of Case Study Research in International Project Management. *Procedia Computer Science*, 100, 85-94.
- Lumia, M. (2015). Company law instruments to streamline business contract operations. Department of Accounting, Business Law, Aalto University, School of Economics.
- Macchi, C. R., & Kessler, R. (2018). *Training to deliver integrated care: Skills aimed at the future of healthcare*. Cham, Switzerland Springer International Publishing
- MacCormick, N., & Weinberger, O. (2013). *An institutional theory of law: new approaches to legal positivism* (Vol. 3). Springer Science & Business Media.

- Mackenbach, J., & McKee, M. (2013). *Successes And Failures Of Health Policy In Europe: Four Decades Of Divergent Trends And Converging Challenges*. Maidenhead: McGraw-Hill Education
- Maluka, S., Dereck, C.,Dungumaro, E., Masawe, C., Krishna, R.,& Zubin, S., (2018) Contracting- out primary health care services in Tanzania towards UHC: how policy processes and context influence policy design and implementation
- Manya, A., Sahay, S., Braa, J., & Shisia, B., (2018). IST-Africa Week Conference (IST-Africa). (May 01, 2018). Understanding the Effects of Decentralization on Health Information
- Markiewicz, A., & Patrick, I. (2016). *Developing monitoring and evaluation frameworks*. Los Angeles, Calif. Sage
- Masmoudi, M., Houria, Z. B., &Masmoudi, F. (2014). Multi-criteria decision making for Medical equipment maintenance: Insourcing, outsourcing and service contract. In *Control, Decision and Information Technologies (CoDIT), 2014 International Conference on* (pp. 269-275). IEEE.
- Ministry of Health (2016). *Reversing the trends: The second National Health Sector strategic plan of Kenya: Annual operational plan*. Nairobi
- Miseda, J. O. (2020). *Analysis of critical success factors for Health Public-Private Partnerships: A case of the Managed Equipment Services (MES) in Narok County*. Thesis, Strathmore University.
- Mosadeghrad, A. M. (2014). Factors influencing healthcare service quality. *International journal of health policy and management*, 3(2), 77.
- Mothupi, M. C. (2014). Use of herbal medicine during pregnancy among women with access to public healthcare in Nairobi, Kenya: a cross-sectional survey. *BMC complementary and alternative medicine*, 14(1), 432.

- Muchelule Y., & Waruhia, M (2019). Influence of project management practices on performance of public private partnership projects in Kiambu County, Kenya. *International Journal of Management and Commerce Innovations*
- Muff, K., & Williamson, A. (2014). *The Collaboratory: A co-creative stakeholder engagement process for solving complex problems*. Muff, Katrin: Books.
- Muloki, A & Muchiri S (2019). Kenya Health System Assessment. Washington, DC: Palladium, Health Policy Plus.
- Nilsson, J.-E., Pyddoke, R., Hulten, S., & Alexandersson, G. (2013). The Liberalisation of Railway Passenger Transport in Sweden. *Journal of Transport Economics and Policy*, 47, 307-312.
- Nisar, T. (2017). Risk management in Public-Private Partnership contracts. *Public Organization Review*, 7(10), 1–19.
- Njogu, K. (2013). *Youth and peaceful elections in Kenya*. Oxford: Twaweza Communications.
- Ochara, N. M. (2012). An Organizing Vision for E-Participation Projects in Africa. London : Taylor and Francis
- Oemig, F., & Snelick, R. (2016). *Healthcare Interoperability Standards Compliance Handbook: Conformance and Testing of Healthcare Data Exchange Standards*. Cham: Springer International Publishing
- Ogola, G. O. & Nzulwa, J. (2018) Influence of performance contracting on service delivery in state corporations in Kenya: UON Press.
- Olotch, C. (2018). Managed Equipment Services (MES) -Healthcare for sustainable development. The Kenya MES experience. Nairobi, Kenya
- Ombogo, J (2014). Challenges of strategy implementation of public private partnership in infrastructure development at rift valley railways Kenya limited. Nairobi, Kenya

- Onkundi, Karori Eston Hezron, & Bichanga, Walter Okibo. (2016). *Factors Influencing Inventory Management Performance In Public Health Sector: A Case Study Of Public Health Sector In Kisii County*. The International Institute for Science, Technology and Education (IISTE).
- Onyango, E. (2016). Response strategies adopted by the ministry of health to challenges of devolved healthcare services in Kenya. *African Journal of Primary Health Care and Family Medicine*, v6 n1 (20140101): 1-8
- Phillips, R. (2012). *Stakeholder theory: Impact and prospects*. Cheltenham, United Kingdom
- Project Management Institute. (2008). *A guide to the project management body of knowledge*. Pennsylvania: Project Management Institute.
- Rani, N. A. A., Baharum, M. R., Akbar, A. R. N., & Nawawi, A. H. (2015). *Perception of Maintenance Management Strategy on Healthcare Facilities*. (Procedia--social and behavioral sciences.)
- Rastegari, A., Rastegari, A., &Salonen, A. (January 01, 2015). Strategic maintenance management: Formulating maintenance strategy. *International Journal of Comadem*, 18, 1, 5-14.
- Richardson, L., & Murphy, T. (2018). *Bringing Reconciliation to Healthcare in Canada: Wise Practices for Healthcare Leaders*.
- Ruivo, P., Oliveira, T., & Neto, M. (2015). Using resource-based view theory to assess the value of ERP commercial-packages in SMEs. *Computers in Industry*, 73, 105-116.
- Salyers, E. J., Gallagher, S. H., Collins, M. D., & Halford, S. D. (2017). *U.S. Patent No. 9,820,150*. Washington, DC: U.S. Patent and Trademark Office.
- Samandar K. (2016) To Analyze Factors Influencing Stakeholders' Engagement Process in Construction Projects. *Science and Engineering Ethics*, v21 n3 (201506): 655-681
- Schmitt, N. (2013). *Validity*. [New York] : Oxford University Press

- Sekou, M. M, Abdul M, Tambi, B, Ibrahim A, Abdul A (2019) *Influence of Stakeholders Involvement on Development Project Performance in Guinea*. International Journal of Academic Research.
- Setia, M. S. (2016). Methodology series module 3: Cross-sectional studies. *Indian journal of dermatology*, 61(3), 261.
- Smith, L. T. (2013). *Decolonizing methodologies: Research and indigenous peoples*. Zed Books Ltd.
- Suddaby, R. (2015). Can institutional theory be critical?. *Journal of Management Inquiry*, 24(1), 93-95.
- Suhairi, K., and Ford L. (2013). "The measurement of optimization performance of managed service division with ITIL framework using statistical process control." *Journal of Networks* 8.3 (2013): 518.
- Sultan, N. (2014). Making use of cloud computing for healthcare provision: Opportunities and challenges. *International Journal of Information Management*, 34(2), 177-184.
- The Health Foundation (2012). Quality improvement training for healthcare professionals.
- Vecchi, V., & Hellowell, M. (2018). *Public-Private Partnerships in Health: Improving Infrastructure and Technology*.
- Wada, I. (2019). *Public Private Partnership (PPP) in Healthcare: Experience of Garki Hospital Abuja The Pioneer PPP in Nigeria Health Sector*
- Waikenda M (2019) *Influence of Stakeholders' Participation on Performance of County Governments in Kenya*. Nairobi: UoN Publishers.
- Wakaria, E. N., Rombo, C. O., Oduor, M., Kambale, S. M., Tilock, K., Kimani, D., & Mwangi, J. (2017). Implementing SLMTA in the Kenya national blood transfusion service: lessons learned. *African journal of laboratory medicine*, 6(1), 1-7.
- Wangūi, M. Y., & World Bank. (2015). *Integrating Social Accountability in Healthcare Delivery: Lessons Drawn from Kenya*. Nairobi: UoN Publishers

- Warwick-Booth, L., South, J., Cross, R., Woodall, J., & Day, R. (2014). *Using the theory of change to support an evaluation of a health promotion intervention*. Los Angeles, California: SAGE
- Wernerfelt, B. (2016). *Adaptation, Specialization, and the Theory of the Firm: Foundations of the Resource-based View*. Cambridge University Press.
- WHO (2015). *Second WHO global forum on medical devices: priority medical devices for universal health coverage*. Geneva.
- Williams, O. F. (2014). *Sustainable development: The UN Millennium Development Goals, the UN Global Compact, and the common good*. University of Notre Dame, 2014
- World Economic Forum. (2016). *The global competitiveness report: World Economic Forum, Geneva, Switzerland*. Basingstoke: Palgrave Macmillan.
- Yadav, N., Aliasgari, M., & Poellabauer, C. (January 01, 2020). *Mobile Healthcare in an Increasingly Connected Developing World*. Hershey PA : Medical Information Science
- Zhang, Xing, & Oyama, Tatsuo. (2016). *Investigating the health care delivery system in Japan and reviewing the local public hospital reform*. Dove Press.

APPENDICES

Appendix I: Questionnaire

This questionnaire is intended on collecting information on Public- Private Partnership and performance of managed equipment service projects in health service provision in Kenya. Please read the questions carefully prior to responding. The information provided will be stored confidentially and utilized solely for study purposes. Respond by ticking where appropriate. Thank you.

Part A: General Information

1. Kindly indicate your gender.

Female []

Male []

2. Kindly indicate your age bracket

Less than 20 years []

>20 -30 years []

>30-40 years []

>40 -50 years []

>50 years []

3. Kindly indicate your highest education qualification.

Graduate []

Secondary level []

Primary level []

4. Kindly indicate your position in the organization.

Management []

Doctor []

Nurse []

Procurement []

Subordinate []

5. Kindly indicate the number of years you have worked in the healthcare sector.

Less than 5 years []

>10 years []

>10 – 20 years []

> 20 years []

Part B : Staff skills and knowledge influence performance on MES

6. The following statements give an indication in handling of skills and knowledge in relation to performance of managed equipment services . On a scale of 1-5 please indicate your level of agreement or disagreement with the statement on managed equipment services practice.

1. Strongly disagree 2. Disagree 3. Moderate 4. Agree 5. Strongly agree

Statement	1	2	3	4	5
Necessary skills play a key role in the performance of MES projects					
Training play an indispensable part in performance of MES projects					
Professional qualification play an crucial part in performance of MES projects					
Soft skills play an crucial part in performance of MES projects					
Technical skills play an crucial role in performance of MES projects					

7. Have you ever attended any training on MES? Yes [] No []

8. If yes, give the information on training by filling the table below

Institution of training _____

Area of training _____

Duration of training

3 months []

6 months []

9 months []

1 year and above []

9. Was the training useful to your on handling MES

Yes []

No []

10. If yes, what impact has the training helped you in services delivery to the project

Very High []

High []

Moderate []

No impact []

11. Do you feel that you have the adequate knowledge to handle MES products?

Yes []

No []

12. How else does staff skills and knowledge influence performance of MES?

.....
.....
.....

PART C: Stakeholder involvement influencing performance of MES

13. The following is a statement on stakeholders influencing performance of MES. Indicate the level of your agreement.

1. Strongly disagree 2. Disagree 3. Moderate 4. Agree 5. Strongly agree

Statement	1	2	3	4	5
Participation of stakeholders play a key role in the performance of MES projects					
Participation of stakeholders in planning play an crucial part in performance of MES projects					
Participation of stakeholders in decision making play an crucial part in performance of MES projects					
Consultation with stakeholders play an essential part in performance of MES projects					
Communication with stakeholders play an essential part in performance of MES projects					

14. Do you think stakeholders support the strategic plan and especially MES programs?

All the time []

Sometime []

Rarely []

Not at all []

15. To what extent do you think stakeholder involvement adds to the attainment of the healthcare facility performance through MES?

- Very high []
- High []
- Moderate []
- Low []

16. Normally, the following stakeholders are involved in designing the MES programs

- Community []
- Project beneficiaries []
- Government []
- None are involved []

17. How else does stakeholder involvement influence performance of MES?

.....

.....

.....

PART D: Role of monitoring and evaluation influencing performance of MES

18. The following is a statement on the role of monitoring and evaluation on performance of MES. Indicate the level of your agreement.

1. Strongly disagree 2. Disagree 3. Moderate 4. Agree 5. Strongly agree

Statement	1	2	3	4	5
Regular monitoring and evaluation play an crucial part in in the performance delivery of MES projects					
Technical monitoring play an crucial part in performance delivery of MES projects					
Functional monitoring play an indispensable part in performance delivery of MES projects					
Process evaluation play an indispensable part in performance delivery of					

MES projects					
Outcome evaluation play an indispensable part in performance delivery of MES projects					

19. Does your healthcare facility operate a formal monitoring and evaluation system for MES projects?

❖ Yes []

❖ No []

If yes, which of the following groups of employees do these process apply to?

Senior Managers Technical Managers Others

For others please specify) _____

20. What are the techniques that are used in your organization for assessing performance?

Observation []

Assessment & Development []

Checklists []

Other Please specify _____

21. Are you satisfied with monitoring and evaluation schemes put in place?

❖ Yes []

❖ No []

22. Do you believe the monitoring and evaluation schemes in place help realize efficiency?

❖ Yes []

❖ No []

23. How else does monitoring and evaluation influence performance of MES?

.....

Part E : Role of contract management on the performance of MES

24. The following is a statement on contract management influencing performance of MES. Indicate the level of your agreement.

1. Strongly disagree 2. Disagree 3. Moderate 4. Agree 5. Strongly agree

Statement	1	2	3	4	5
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Proper contract management play an essential part in performance delivery of MES projects					
Payment mechanism play an essential part in performance delivery of MES projects					
Stipulation with timelines play an essential part in performance delivery of MES projects					
Spending visibility play an essential part in performance delivery of MES projects					
Improved compliance play an essential part in performance delivery of MES projects					

25. Are the funds for MES programs availed promptly and proper payment mechanisms followed?

Yes

No

26. Do u think the availability of the funds by the county government affects the performance of the MES programs? Explain

27. Is there ease of procurement?

Yes

No

28. Elaborate on your answer above

29. Do you feel like the employees have appropriate knowledge and experience to manage the MES contracts?

Yes

No []

30. The organization has received good value from the beginning of the MES contract

Strongly agree []

Agree []

Disagree []

Strongly disagree []

31. Are there performance measures in place so that you know if the service provider is doing a good job?

Yes []

No []

32. Are workflow and timelines followed?

Yes []

No []

33. How else does contract management influence performance of MES?

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PART F: Performance of MES Projects

34. The following is a statement on performance of MES. Indicate the level of your agreement.

1. Strongly disagree 2. Disagree 3. Moderate 4. Agree 5. Strongly agree

Statement	1	2	3	4	5
Cost performance of MES projects has improved					
Cycle time of MES projects has improved					
MES projects has improved customer satisfaction					
MES projects has improved employee satisfaction					

MES projects are highly aligned with business goals.					
--	--	--	--	--	--

35. How would you rate the performance of the MES healthcare projects in your County?

- Very effective ()
- Effective ()
- Ineffective ()
- Very ineffective ()
- Don't know ()

Why do you say so?

.....

.....

36. Do you have any difficulties in using any of the MES projects in your county?

- Yes ()
- No ()

37. What would you suggest as a way of improving the performance of MES projects

Appendix II: List of Hospitals Under MES Programs

1. AIC Kijabe Hospital
2. Alupe Sub County Hospital
3. Athi River Sub County Hospital
4. Baragoi Sub-County Hospital
5. Baringo County Referral Hospital
6. Baringo County Referral Hospital
7. Bungoma County Referral Hospital
8. Bura Level 4 Hospital
9. Busia County Referral Hospital
10. Chuka General Hospital
11. Coast General Teaching and Referral Hospital
12. Embu Level 5 Hospital
13. Emuhaya Sub County Hospital
14. Garissa County Referral Hospital
15. Gichiche Hospital
16. Hola Level 5 Hospital
17. Homa Bay County Referral Hospital
18. Isiolo District Hospital
19. Iten County Referral Hospital
20. Jaramogi Oginga Odinga Teaching and Referral Hospital
21. Kabarnet Referral Hospital
22. Kajiado County Referral Hospital
23. Kakamega County General Teaching & Referral Hospital
24. Kapenguria County Referral Hospital
25. Kapkatet Hospital
26. Kapsabet County Referral Hospital
27. Kapsara Sub-County Hospital
28. Kapteldon Sub-County Hospital
29. Kenyatta National Hospital
30. Kenyatta University Teaching, Referral And Research Hospital
31. Kericho County Referral Hospital
32. Kerugoya County Referral Hospital
33. Kiambu County Referral Hospital
34. Kianjokoma Sub County Hospital
35. Kigumo Hospital
36. Kilifi District Hospital
37. Kirinyanga Central Sub County Hospital
38. Kisii Teaching & Referral Hospital
39. Kisumu County Hospital
40. Kitale County Referral Hospital
41. Kitui County Referral Hospital
42. Kwale Sub-County Hospital
43. Lam County Hospital
44. Leheley Sub-County Hospital
45. Longisa County Referral Hospital
46. Loruugum Sub-County Hospital

47. Lowdar County Referral Hospital
48. Macalder Sub-County Hospital
49. Machakos Level 5 Hospital
50. Makindu Sub-County Hospital
51. Makeni County Referral Hospital
52. Malindi Sub County Hospital
53. Mama Lucy Kibaki Hospital
54. Mandera County Referral Hospital
55. Mandera North Sub County Hospital
56. Manga Sub County Hospital
57. Marani Sub-County Hospital
58. Marimanti Level 4 Hospital
59. Marsabit County Referral Hospital
60. Mathari National & Teaching Hospital
61. Mbagathi District Hospital
62. Merti Sub-County Hospital
63. Meru Teaching And Referral Hospital
64. Migori County Referral Hospital
65. Mkono Sub Country Hoospital
66. Moi Teaching And Referral Hospital
67. Moiben Sub County Hospital
68. Mombasa Hospital
69. Moyale Sub County Referral Hospital
70. Mpeketoni Sub-County Hospital
71. Msambweni County Referral Hospital
72. Muranga Level 5 Hospital
73. Muthara Sub County Hospital
74. Mwataate Sub County Hospital
75. Mwingi Level IV Hospital
76. Nakuru Level 6 Hospital
77. Nakuru Level 6 Hospital
78. Nandi Hills Sub County Hospital
79. Nanyuki Teaching And Referral Hospital
80. Narok County Referral Hospital
81. National Spinal Injury Referral Hospital
82. Ngong Sub County Hospital
83. Njoro County Hospital
84. Nyahururu County Referral Hospital
85. Subukia Sub County Hospital
86. Nyamira County Referral Hospital
87. Nyeri County Referral Hospital
88. Othaya Sub. County Hospital
89. Rachuonyo County Hospital
90. Samburu County Referral Hospital
91. Siaya County Referral Hospital
92. Sigor Sub- County Hospital

93. Taveta Sub-County Hospital
94. Thika Level 5 Hospital
95. Vihiga District Hospital
96. Wajir County Referral Hospital
97. Webuye Hospital
98. Yala Sub-County Hospital

Appendix III: Approval Letter from Graduate School

Appendix IV: NACOSTI permit