GOVERNANCE OF HEALTH SYSTEMS AND SERVICE DELIVERY IN NATIONAL REFERRAL HOSPITALS IN KENYA

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Governance of Health Systems and Service Delivery in National Referral Hospitals in Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

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DEDICATION

This thesis is dedicated to my family and the people of Kenya.

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ACRONYMS AND ABBREVIATIONS

CAK   Communication Authority of Kenya

CEO   Chief Executive Officer

CF   Conceptual Framework

CIC   Commission for the Implementation of the Constitution

CIDA   Canadian International Development Agency

CRA   Commission for Revenue Authority

CSC   community Scorecard

EDA   Enterprise Digital Assistance

EU   European Union

FBO   Faith Based Organization

FMoH   Federal Ministry of Health

GDP   Gross Domestic Product

GoK   Government of Kenya

GoR   Government of Rwanda

HACRP   Hospital-Acquired Condition Reduction Programme

HAIs   Healthcare-Associated Infections

HAS   Health System Assessment

HEFs   Health Equity Funds

HRRP   Hospital Readmissions Reduction Programme

ICPAK   Institute of Certified Public Accountant

ICT   Information Communication Technology

IEA   Institute of Economic Affairs

JKUAT   Jomo Kenyatta University of Agriculture and Technology

KBS   Kenya Bureau of Statistics

KMPDC   Kenya Medical Practitioners and Dentists Council

MMS   Multimedia Messaging Service

MOF   Ministry of Health

NACOSTI   National Commission for Science, Technology and Innovation

NGo   Non-Governmental Organization

NHIF   National Hospital Insurance Fund

NPM   New Public Management

PC   Personal Computer

PDA   Personal Digital Assistance

PEOU   Performance. Perceived Ease - of- Use

PHC   Primary Health Care

PSP   Play Station Portable

PU   Perceived Usefulness

SMS   Short Message Services

SPSS   Statistical Package for Social Sciences

SSA   Sub Saharan Africa

SUS   *Sistema Único de Saúde* (United Health System)

TAT   Technological Acceptance Theory

TI   Transparency International

UK   United Kingdom

UNESCO   United Nation Environmental Scientific and Cultural Organization

USA   United States of America

WB   World Bank

WHO   World Health Organization

DEFINITION OF OPERATIONAL TERMS

Delivery of Quality Health Care   This is the provision of services for the betterment of the health and wellbeing of individuals seeking such services (Enthoven & Vorhaus, 2017). Accessibility of the stated services, affordability, availability, efficiency, and effectiveness are part of key indicators of the delivery of quality health care. (Emerson, 2018).

Health Systems Governance   Leadership and governance involving ensuring strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system-design and accountability in the health sector (Boruvka, et al., 2018)

Governance   Rules (both formal and informal) for collective action and decision- making in a system with diverse players and organizations while no formal control mechanism can dictate the relationship among those players and organizations in the health sector (Osemete & Adegbite, 2016).

Health Policies   This are the "decisions, plans, and actions that are undertaken to achieve specific healthcare goals within a society. They may cover topics of financing and delivery of healthcare, access to care, quality of care, and health equity (Brown, 2016).

M-health (Mobile Health)   is the application of mobile device (s) and medical or clinical application(s) run on the device by physicians in a hospital domain, for communication, collaboration, and

coordination of the physician 's healthcare delivery daily activities in hospital premises including diagnosis, treatment, and disease management (O 'Connor, et a.l, 2020).

Mobile Technology   This is the application of mobile device (s) and medical or clinical application(s) run on the device by physicians in a hospital domain, for communication, collaboration, and coordination of the physician 's healthcare delivery daily activities in hospital premises including diagnosis, treatment, and disease management (O 'Connor, et al, 2020).

Public Health Governance   This is the actions of governments and other actors to steer communities, whole countries, or even groups of countries in the pursuit of health as integral to well-being through both whole-of- government and whole-of-society approaches (Emerson, 2018).

Referral Hospital   A hospital that has sufficient resources to receive emergency or non-emergency patient transfers. Sufficient resources include at least three full-time physicians on staff and licensure as a general hospital. It is also any process in which health care providers at lower levels of the health system, who lack the skills, the facilities, or both to manage a given clinical condition, seek the assistance of providers who are better equipped or specially trained to guide them in managing or to take over

Social Accountability   Citizen-led action to hold public officials and service

providers accountable for the use of public resources and services delivered. It provides an avenue for citizens to exercise their constitutional right to participate in decisions and processes concerning their development (Abdulmalik, et al., 2016)

Stakeholders' Participation   This is balancing the stakeholder's interests as a process of assessing, weighing, and addressing the competing claims of those who have a stake in the health governance directly and indirectly (Argaw, et al., 2021)

ABSTRACT

In recent years, there has been an increased attention to building formidable health systems governance to promote the highest attainable standard of health service delivery which has become a fundamental part of our human rights and of our understanding of a life in dignity. The health systems governance has taken on increasing importance in the provision of health care services in health institutions. The public hospitals in Kenya have weak health systems governance affecting quality healthcare. The study sought to examine the governance of health systems governance on service delivery in National Referral hospitals in Kenya. The specific objectives that the study sought to achieve were: To examine the influence of health policy, social accountability, oversight mechanisms and stakeholder participation on service delivery in National Referral hospitals in Kenya; To investigate the moderating influence of mobile technology on the relationship between health systems governance and service delivery in National Referral hospitals in Kenya. The study was anchored to the Contingency Leadership Theory, Stewardship theory, stakeholder Theory, and New Public Management Theory. The study identified six categories of the target respondents, namely, 5 directors, 43 board members, and 88 heads of departments. A pilot test was conducted to detect weaknesses in design and instrumentation. Data analysis was carried out using descriptive statistics, correlation, and regression analysis. The study used regression analysis and moderated stepwise multiple regressions to analyze the association between the variables at a 0.05 level of significance. The qualitative data was analyzed by the use of content analysis. Results revealed that all the health system governance aspects had a positive and significant relationship with service delivery in the national referral hospitals in Kenya. However, the magnitude of the influence was different for the specific health systems governance. Oversight mechanisms had the largest effect followed by stakeholder participation then health policy and finally social accountability. Further, the results showed that mobile technology had a significant moderating effect on the relationship between health systems governance and service delivery in the national referral hospitals in Kenya. The study concluded that health systems governance had the potential to positively and significantly influence service delivery in the national referral hospitals in Kenya in terms of accessibility, affordability, coverage, customer satisfaction, and timeliness of the services. The results support the current theories related to the study. Consequently, this study provides public hospitals with insights into how to improve healthcare service delivery through the adoption of appropriate health systems governance in the national referral hospitals. The study recommended that the management of the national referral hospitals should adopt a culture of adopting appropriate health systems governance systems. This could go a long way in ensuring there is improved service delivery in the national referral hospitals in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

As awareness of the role of governance in the performance of health systems has increased, so need to come up with systematic means to evaluate governance shortcomings to develop adequate interventions (McCollum, *et al.,* 2018). Responding adequately to the health needs of a population requires not only medical breakthroughs but also timely and efficient delivery of preventive and curative services. This is all the more meaningful as it is often found that in those settings where health needs are the greatest, the administrative capacity of the state to implement policy is limited. The acknowledgment that successful healthcare delivery requires effective institutions and management has led government officials, academics, and international donors alike to emphasize governance as a key element in the quest for practical solutions for strengthening health systems (Kmathi, 2017) The health system governance is undertaken with the objective to protect and promote the health of the people. Governance involves; setting strategic direction and objectives; making policies, laws, rules, regulations, or decisions, raising and deploying resources to accomplish the strategic goals and objectives; and overseeing and making sure that the strategic goals and objectives are accomplished (Tsofa, Goodman, Gilson, & Molyneux, 2017).

The World Health Organization (WHO) has broadly defined health systems as all organizations, institutions, and resources that are devoted to producing health actions (WHO, 2020). In a step to increase analytical clarity, WHO (2021) has further advanced the notion that health systems can be disaggregated into six major sub-systems or building blocks: Governance; Financing; Human Resources; Information; Medicines and Technologies; and Service Delivery (WHO, 2017). These categories, while helpful in identifying and tracing key functions that ansy health system should be able to perform, nevertheless do not represent mutually exclusive boundaries. Rather, as Mutiso, Musyimi, and Gitonga (2021) have pointed out, special attention needs to be given to the interactions and relationships among those building blocks.

One of the major challenges to assessing the quality of health care services in low-income countries is that empirically it is almost impossible to distinguish the degree to which observed poor performance may be attributable to weak health governance systems, technical inefficiencies or simply to lack of sufficient financial resources

Over the past decades, health systems have experienced a major transformation. The role of ministries of health has changed, progressively shifting from direct provision of health services to overall stewardship of the health sector, including financing and oversight of private providers (Sriram, *et al*., 2020). Health reforms have triggered that shift, fostering new institutions, such as national medicines agencies, public health agencies, disease control agencies, or health financing organizations responsible for risk and fund pooling, purchasing of health services, or targeting the poor or vulnerable groups. Shocks such as political or financial crises, natural disasters, or epidemics have also affected the governing of the health system in many countries. In this changing environment, exercising stewardship (Bigdeli *et al*., 2020) requires balancing the interests of a wide range of actors, particularly when decentralization multiplies the number of actors involved in health services delivery, usually with greater autonomy

1.1.1 Global Perspective on Health Systems Governance and Service Delivery

In the United States of America, the goal of health system governance and service delivery is to build support across government for higher levels of investment in health and to ensure that health is prioritized within overall economic and development plans (Schlegelmilch, *et al.,* 2015). In health care systems, good governance accounts for much of the efficiency in service provision, and in some cases results in service. The US health system has both considerable strengths and notable weaknesses. It has a large and well-trained health workforce, a wide range of high-quality medical specialists as well as secondary and tertiary institutions, and a robust health research program and, for selected services, has among the best medical outcomes in the world (Khullar & Chokshi, 2019). But it also suffers from incomplete coverage of its citizenry, health expenditure levels per person far exceeding all other countries, poor data on many objective and subjective measures of quality and outcomes, unequal distribution of resources and outcomes across the country and among different

population groups, and lagging efforts to introduce health information technology (Dickman, *et al.,* 2017).

In Germany, the governance of health systems is characterized by a mix of public and private sector involvement, with a strong emphasis on social health insurance. The German healthcare system is renowned for its universal coverage and high-quality care (Schimitt et al. 2023). The governance of health systems in Germany is characterized by a strong commitment to universal coverage, quality care, and patient rights, with a mix of public and private sector involvement and robust government regulation and oversight (Pereira et al. 2021). The Japanese healthcare system is in the age of aging society (Wang, 2018). The government has tried to not only cover public medical and health needs as much as possible but also deal with the healthcare system in a quite low-cost way. However, as such a system is highly counting on fiscal support; the biggest problem in the healthcare system is that both the financing mechanism and the care- delivery system are extremely fragile (Zhang & Oyama, 2016). Overall, the governance of health systems in Japan is characterized by universal coverage, strong government regulation, a mix of public and private provision of healthcare services, and a focus on health promotion and prevention (Uddin et al. 2020). Despite facing challenges such as an aging population and rising healthcare costs, Japan's healthcare system generally performs well in terms of access, quality, and health outcomes (Mosadeghrad & Rahimi- Tabar, 2019).

Ukraine's healthcare governance system is in a state of transition, with ongoing reforms aimed at addressing longstanding challenges and improving the accessibility and quality of healthcare services (Sukhnova & Kryzayna, 2022). The governance of health systems in Ukraine involves a mix of centralization and decentralization, with efforts to improve access to healthcare services, enhance regulatory oversight, and address systemic challenges (WHO, 2021). Despite these efforts, significant reforms and investments are needed to strengthen Ukraine's healthcare system and improve health outcomes for its population (WHO, 2022).

The governance of health systems in Italy is characterized by universal coverage, regional autonomy, and a mix of public and private provision of healthcare services

(Natali et al. 2023). Despite challenges such as regional disparities in healthcare access and resource allocation, Italy's healthcare system is recognized for its comprehensive coverage and high standards of care (Romiti et al. 2020). The governance of health systems in Brazil involves a combination of public and private sector participation, with the Unified Health System (Sistema Único de Saúde, SUS) being the cornerstone of the country's healthcare system. The governance of health systems in Brazil involves a complex interplay between public and private sector entities, with SUS serving as the primary mechanism for ensuring universal access to healthcare services. Despite challenges, Brazil has made significant strides in expanding access to healthcare and improving health outcomes through SUS and other health programs (Alves & Gibson, 2019).

Cambodia has made significant strides in expanding effective access to free healthcare for poor people, thanks largely to ‗Health Equity Funds' (HEFs), a multi-stakeholder health-financing mechanism. HEF operators have helped expand access, incentivize health staff, and lobby on behalf of poor patients. However, despite their successes, they have been unable convincingly to address some of the deeper-seated problems of the Cambodian health system, such as under-resourced facilities, underpaid, poorly qualified staff, and a burgeoning private sector (Kelsall & Heng, 2014). In Germany, enhancing primary health care (PHC) is considered a policy priority for health systems strengthening due to PHC's ability to provide accessible and continuous care and manage multimorbidity. It focuses on the effects of specific interventions (for example physicians 'contracts) on health care outcomes. This informs narrowly designed policies that disregard the interactions between the health functions (for example financing and regulation) and actors involved (that is public, professional, and private), and their impact on care delivery and outcomes (Espinosa-González, et *al., 2019*). The governance of health systems in Pakistan involves multiple levels of government, a mix of public and private sector involvement, and efforts to improve access to healthcare services, particularly in underserved areas. Despite challenges, ongoing reforms and investments are needed to strengthen Pakistan's healthcare system and improve health outcomes for its population (Zaidi et al. 2019).

In Australia, the variability in the quality of hospital care is evident through high

profile failures and measures of clinical processes and outcomes (Mannion, *et al.*, 2016). Reviews of hospital quality failures have indicated a range of factors contributing to preventable patient harm. A common factor identified across reviews is the failure of health governance systems in overseeing and responding to issues with healthcare quality in their hospitals (Chambers, 2012). Research has increasingly turned toward understanding the contribution of health governance systems to the variability observed in hospital care (Anhøj & Hellesøe, 2017). The governance of health systems in Chile involves a combination of public and private sector participation, with a focus on universal health coverage, primary care, and decentralized healthcare delivery (Cerda et al. 2022). Despite challenges, Chile has made significant progress in expanding access to healthcare and improving health outcomes for its population (Espinoza et al. 2024).

Health governance systems and policies in India have a critical role in determining how health services are delivered, and utilized, and affect health outcomes (Mohan, *et al.*, 2019). ‖Health‖ being a state subject, despite the issuance of the guidelines by the central government, the final prerogative on implementation of the initiatives on newborn care lies with the states. Due to India's federalized system of government, the areas of governance and operations of the health system in India have been divided between the union and the state governments (Garg, *et al.*, 2020). India has a mixed healthcare system, inclusive of public and private healthcare service providers. However, most of the private healthcare providers are concentrated in urban India, providing secondary and tertiary care healthcare services. The public healthcare infrastructure in rural areas has been developed as a three-tier system based on population norms (Blank & Cheng, 2015). Efforts to strengthen the governance of health systems in India are ongoing, with initiatives aimed at improving healthcare infrastructure, expanding health insurance coverage, enhancing regulatory oversight, and promoting public-private partnerships to address the diverse healthcare needs of the population.

In the United Kingdom, an endeavor was undertaken to reform the health governance systems in public healthcare in which services were provided free at the point of need, services were financed from central taxation and everyone was eligible for care. A

basic tripartite system was formed splitting the service into hospital services, and primary care (Pickup, *et al*., 2018). The concerns over problems caused by the separation of the three primary areas of care had grown, so a drastic reorganization effort was made which allowed local authorities to support all three areas of care. The UK's healthcare system governance is one of the most efficient in the world, according to a study of seven industrialized countries (WHO, 2021). The governance of health systems in the UK is characterized by a publicly funded NHS, devolved administrations with responsibility for healthcare policy and delivery, and a strong emphasis on universal access to healthcare services. Despite challenges such as funding pressures, demographic changes, and increasing demand for services, the UK healthcare system remains highly regarded for its quality of care and commitment to equitable access.

1.1.2 Regional Perspective on Health Systems Governance and Service Delivery

Healthcare systems governance in Africa suffers from neglect and underfunding, leading to severe challenges across the six World Health Organization (WHO) pillars of healthcare delivery (Orenyi, *et al*., 2018). For example, poor health governance systems in Nigeria, have led to dilapidated healthcare systems which have facilitated medical tourism, for example, leading to over 5000 people leaving Nigeria every month for various forms of treatment abroad and about 1.2 billion US dollars lost from the Nigerian economy to medical tourism yearly (Abubakar *et al.,* 2018). In Ghana, the country's health system governance has faced some challenges regarding the increasing fragmentation of the health sector (Bedeley & Palvia, 2014), with weak coordination and frequent duplication of efforts among and between public agencies, private organizations, and volunteers; low effectiveness of health expenditure relative to other African countries (Kpobi & Swartz, 2019).

The governance of health systems in Egypt involves government oversight, public sector provision, and private sector involvement, with efforts to improve access to healthcare services and address health challenges facing the population (Fayed et al. 2021). Ongoing reforms and investments are needed to strengthen Egypt's healthcare system and improve health outcomes for its citizens (Faeeh et al. 2022). The

governance of health systems in Algeria is primarily overseen by the Ministry of Health, Population, and Hospital Reform (Ministère de la Santé, de la Population et de la Réforme Hospitalière), which is responsible for formulating health policies, regulating the healthcare sector, and overseeing the implementation of health programs (Lahmar et al. 2021). The governance of health systems in Algeria involves government oversight, public sector provision, and some involvement of the private sector in healthcare delivery. Efforts are needed to address health challenges and strengthen Algeria's healthcare system to improve access to quality healthcare services for its citizens (Alsamara et al. 2022)

Health governance is one of the pillars of the health system in Ethiopia and has received appreciable attention from the Ethiopian health sector over the past decade (Yusuf *et al*., 2020). Through the leadership of the Federal Ministry of Health (FMoH), the health sector has various coordinating mechanisms at the federal, regional, and *woreda (*district) levels, although the performance of the coordinating mechanisms weakens as one goes from the federal to the *woreda* level (Mohammed *et al.,* 2020). To make facilities responsive to local needs and mitigate administrative complexities, the government initiated health facility governance reform by introducing boards for hospitals and governing bodies/management committees for health centers (Woldemichael, *et al.,* 2019). The governance of health systems in Mauritania involves government oversight, public sector provision, and some involvement of the private sector in healthcare delivery. Efforts are needed to address health challenges and strengthen Mauritania's healthcare system to improve access to quality healthcare services for its citizens, particularly in rural and underserved areas.

Since the advent of democracy, the South African government has been putting charters, policies, strategies, and plans in place in an effort to strengthen public health system performance and enhance service delivery (Ayanore*et al.,* 2019). However, public health programme performance and outcomes remained poor while the burden of disease increased. The major overall public health system challenges reported by stakeholders involved fragmentation of services, staff shortages, and financial/cash-flow problems. In order to effect health systems strengthening there has been particularly a need to improve integration and address human and financial deficiencies in this setting (Schneider, *et al.,* 2020). The governance of health systems

in Zimbabwe involves government oversight, public sector provision, and some involvement of the private sector in healthcare delivery.

The United Republic of Tanzania has been a major recipient of donor aid over the past few decades. Tanzania 's health sector in particular has been the subject of much donor interest, especially regarding medicines. Although Tanzania has largely benefited from this increase in donor support, not all of it has been designed and implemented adequately to suit the situation and needs of Tanzania (Maluka, 2018). In other words, health governance systems may sometimes have been weakened by donor interest, resulting in reduced quality of health care. Although public-private partnerships are hailed for supplementing the government 's efforts in the provision of health services, institutional arrangements for the smooth provision of these services are lacking. Several challenges encumber the smooth provision of health services and these include inadequate resources, ineffective monitoring and evaluation, and insufficient consultations between partners (Nuhu, *et al*., 2020).

Recognizing the close link between good governance and health system strengthening, Rwanda has launched several initiatives to improve quality health care (Sayinzoga & Bijlmakers, 2016). Government and Nongovernmental organization (NGO)-led programs have been implemented to strengthen the interactions between citizens, health providers, and government agencies to offer quality health care in the health facilities. These initiatives range from the Government of Rwanda 's (GoR) ambitious and comprehensive decentralization reform to move decision making concerning policy implementation closer to the population, to the use of citizen scorecards to make service deliverers more responsive to users (Samuels, et al., 2017). Uganda's health governance systems issues are deeply entrenched in its colonial past with a health care system based primarily on the medical model, which threatens the achievement of Universal Health Coverage (McPake*et al.,* 2015). Moreover, the health service delivery terrain has become progressively more marketized to the detriment of the population, especially the poor (Mugisha, *et al*., 2016).

1.1.3 Local Perspective on Health Systems Governance and Service Delivery

The governance of health systems in Kenya is overseen by the Ministry of Health

(MoH), which is responsible for formulating health policies, regulating the healthcare sector, and overseeing the implementation of health programs (Koch & Miller, 2019). Primary healthcare is a key focus of Kenya's healthcare system, with an emphasis on preventive care, maternal and child health, and basic medical services (Channa & Faguet, 2016). Primary healthcare services are provided through health centers and dispensaries located in urban and rural areas across the country (McCollum et al. 2018). Kenya operates a national health insurance scheme, the NHIF, which provides health coverage to eligible citizens and residents (Channa & Faguet, 2016). The NHIF offers various insurance programs, including basic healthcare coverage and additional benefits for certain groups, such as formal sector workers and their dependents (McCollum et al. 2018).

In addition to public healthcare facilities, Kenya has a private healthcare sector that operates alongside the public system. Private hospitals, clinics, and medical practices offer a range of healthcare services, often catering to individuals who can afford private health insurance or out-of-pocket payments (Koch & Miller, 2019). Kenya has established regulatory bodies to oversee the healthcare sector and ensure compliance with quality and safety standards. The Kenya Medical Practitioners and Dentists Council (KMPDC) regulates healthcare providers, while the Pharmacy and Poisons Board (PPB) oversees drug registration and pharmaceutical quality control. Healthcare financing in Kenya relies primarily on public funding allocated through the national budget (Channa & Faguet, 2016). The government also provides subsidies for healthcare services, while individuals may also pay for healthcare services through out-of-pocket payments or private health insurance schemes. Thus, the governance of health systems in Kenya involves government oversight, public sector provision, and some involvement of the private sector in healthcare delivery. Efforts are needed to address health challenges and strengthen Kenya's healthcare system to improve access to quality healthcare services for its citizens, particularly in rural and underserved areas (McCollum et al. 2018).

In Kenya, like many other low-income settings, data on the use and understanding of service charters are limited (van der *et al*., 2020). A survey conducted to assess corruption within the public sector showed that the majority (over 90 %) of

respondents had never seen a service charter in the public health facility visited (Atela, 2013). Furthermore, of the 7 % who had seen a service charter, less than 1 % had read the charter, and those who had read it noted that the health service providers did not uphold the charter provisions. Given that Kenya is largely a rural country, and associated health facilities provide the first point of entry for the majority of people into the health system (RoK, 2012), this study focuses on the functioning and effectiveness of accountability mechanisms in rural facilities in Kenya.

A greater part of Kenya 's population receives health-care services from the public sector. The services vary from promotive, preventive, rehabilitative, and curative (Koch & Muller, 2019). Consequently, GoK formed an interconnection of healthcare institutions staffed by personnel who manage budgets allocated. This form of management was weighed down by economic, and political emasculation, and unequal distribution of resources. In the old constitution, it was difficult to achieve comprehensive healthcare services for Kenyan citizens (Danhuondo et al. 2016). This was a function that could only have been achieved with a devolved system of governance. In August 2010; Kenya adopted a new constitution that introduced a new governance structure with a national government and 47 counties. Power and finances were devolved and this marked a change from the centralization that had been in place since independence (Channa & Faguet, 2016).

1.2 Statement of the Problem

In recent years, there has an increased attention to building formidable health systems governance to promote the highest attainable standard of health service delivery which has become a fundamental part of our human rights and of our understanding of a life in dignity (Abdulmalik, *et al*., 2016). According to WHO (2021), health systems governance has taken on increasing importance in the provision of healthcare services in health institutions. Empirical pieces of evidence by Yuan et al (2017); and Jurše and Tominc (2019) revealed that health systems governance enhances the quality of health care services. A recent survey by Osmani *et al*., (2015) and Martinović (2020) similarly pointed out those effective health systems governance allows medical practitioners in health institutions to deliver quality health care services. This has built

strong empirical evidence of the role of the health governance system in achieving universal healthcare services in many countries.

Nevertheless, the situation in Kenya presents a very different scenario together. A recent study by McCollum *et al* (2018); and Ozok, *et al.* (2017) identified that the public hospitals in Kenya utilize a paltry 2 out of 16 healthcare systems governance to improve quality healthcare system implying low adoption of healthcare systems governance. Only 63% of Kenyans have access to government health services located within an hour of their homes with the health facilities unequally distributed across the forty-seven counties. This was further supported by Freeman, et al (2016) who noted the existence of diverse health challenges in terms of delay in decision making, forgeries of financial records, loss of pharmaceuticals, dressings, and sutures, delay in a patient in-service delivery in referral hospitals in Kenya. A report by UNESCO (2018) revealed a sharp increase in the number of revivals of referral hospitals in Kenya over the last eight years to deliver health care services. However, there are poor health care services in most of these public hospitals due to the low level of health systems governance (Abdulmalik, *et al.,* 2016). This has posed imminent challenges to stakeholders reaching a consensus and communicating a clear agenda on how to improve functional health systems governance to enhance healthcare services in Kenyan public hospitals (Manya, *et al*., 2018).

Various studies have been carried out on health systems governance in the context of enhancing healthcare service delivery (Bulinda & Kiruthu, 2019; Kmathi, 2017; Moffatt-Bruce, *et al.,* 2018). Muga, Kizito, and Gakuruh (2015) study focused on the Overview of the health system in Kenya. Atela, *et al.,* (2015) study focused on strengthening health system governance using health facility service charters. The study reported that failure to strengthen health governance systems affected the delivery of health services in communities. Pyone and Mirzoev, (2021) in their study on health governance systems report that there is a general lack of understanding of the factors that influence the health systems governance in not only private hospitals but also in public hospitals on service delivery. This is further echoed by Mohamoud, *et al. (*2018) noted that there is a potential benefit in health systems governance implementation in public hospitals and concluded that limited attempts have been

made to ascertain reasons for the observed levels of adoption and therefore notes of inadequacies in strategies to promote health systems governance in Kenya. Therefore, this was the main basis of the research gap that needed to be filled by conducting a study on the health systems governance aspects influencing service delivery in national referral hospitals in Kenya.

1.3 Objectives of the Study

The study was guided by the following general and specific objectives;

1.3.1 General Objective

The study sought to examine the governance of health systems on service delivery in referral hospitals in Kenya

1.3.2 Specific Objectives

The specific objectives that the study sought to achieve were:

1. To examine the influence of health policy on service delivery in referral hospitals in Kenya.
2. To establish the influence of social accountability on service delivery in referral hospitals in Kenya.
3. To determine the influence of oversight mechanisms on service delivery in referral hospitals in Kenya.
4. To assess the influence of stakeholder participation on service delivery in referral hospitals in Kenya.
5. To investigate the moderating effect of mobile technology on the relationship between health systems governance and service delivery in referral hospitals in Kenya.

1.4 Research Hypotheses

The study was guided by the following null hypotheses:

1. **H_{01}:** Health policy does not significantly influence service delivery in referral

hospitals in Kenya.

2. **H$_{02}$:** Social accountability does not significantly influence service delivery in referral hospitals in Kenya.

3. **H$_{03}$:** Oversight mechanisms do not significantly influence service delivery in referral hospitals in Kenya.

4. **H$_{04}$:** Stakeholder participation does not significantly influence service delivery in referral hospitals in Kenya.

5. **H$_{05}$:** Mobile technology does not significantly moderate the relationship between health systems governance and service delivery in referral hospitals in Kenya

1.5 Justification of the Study

There is increasing evidence that health system governance is critical to health system operation and overall performance (RoK 2019). The goals of any health system governance are to improve the health status of the population through equitable access to quality health services; increase the public satisfaction with the services they receive; and ensure fair financing that protects people against financial risks (WHO, 2020). The governance of health systems in the national referral hospitals in Kenya is overseen with specific structures in place to ensure effective management and service delivery. These hospitals play a critical role in providing specialized care, training, and research, and are governed by structures designed to ensure effective management and service delivery Referral hospitals play a crucial role in the healthcare system, providing specialized care, training, and research, and are governed by boards of management, medical superintendents, and other stakeholders. The study will be beneficial to several stakeholders. The specific stakeholders include the government of Kenya, the society, scholars, and researchers.

1.5.1 Government of Kenya

The best yardstick to measure government performance is through quality health care service delivery to the people. The study findings will inform national government policy on the health governance systems and quality health care service delivery in referral hospitals in Kenya. By illustrating the relationship between decentralization

systems, social accountability, oversight mechanisms, stakeholder participation, and levels of adoption of health governance systems in referral hospitals in Kenya, policy makers may use the findings of this study to better align or revise the existing legal framework, policies and the guidelines of health governance systems. Further, the findings may influence the national to develop appropriate policies to enhance quality health care services so as to improve the health of the citizens and thus propel the country towards achieving Vision 2030. Furthermore, the national government might use the findings to come up with strategic interventions to enhance health governance systems to enhance quality health care service delivery to citizens. The study also informs best strategies to employ in making a turnaround in health care service delivery both at national and county governments.

1.5.2 Council of Governors

The council of governors who are the implementers of the health governance systems at the devolved systems, will benefit from the findings of this study because the study will address the influence of health governance systems on the quality of services in the referral hospitals in Kenya. The county governments play a big role in ensuring good health governance systems are realized at their levels. This is to inform the county, and all the stakeholders at the county that decentralization systems, social accountability, oversight mechanisms, and stakeholder participation enhance the levels of adoption of health governance systems in referral hospitals in Kenya and come up with the right strategies to improve the quality health care services. The study will also come up with recommendations that will help the county governments to come up with policies that can be used to enhance quality health care services in county level hospitals.

1.5.3 General Public

This study will be of great help to the society/general public. The findings of this study will provide information for private practitioners by providing them with an in-depth understanding of the relationship between health systems of governance and quality health care service delivery. Similarly, the findings of this study will be expected as significance to other African developing countries especially the members of the East

African community, that are culturally, economically, and politically similar to Kenya.

1.5.4 Scholars and Researchers

To the scholars, the study is value-added to the existing body of knowledge as it developed a comprehensive model of health governance systems in Kenya and beyond. The study will thus benefit the scholars wishing to undertake further studies aimed at improving health governance systems in local and global contexts. Academic researchers will be able to refer to the data used in the study and benefit from the findings, cognizant of the fact that rich literature is unavailable in Kenya relating to levels of adoption of health governance systems in hospitals in Kenya. Moreover, the framework developed in the study may be a useful tool for academicians and other researchers wishing to replicate this study in different states, counties, and countries. Nevertheless, this study serves as a stepping stone for newer research on health governance systems in public hospitals in Kenya.

1.5.5 Donors and Financiers

Additionally, bilateral and multilateral donor organizations and financiers wish to know health governance systems in the referral hospitals so as to make informed decisions on whether to finance them or not. This study will highlight the health governance systems and provide suggestions for remedy. The donors, financiers and the government will, therefore, realize value for every shilling they spend in accountable, transparent, and properly led health facilities. This will further have a trickle-down effect on the economy.

1.6 Scope of the Study

The health sector in Kenya comprises the public system, with major players including the MOH and parastatal organizations, and the private sector, which includes private for- profit, NGO, and FBO facilities. Health services are provided through a network of over 4,700 health facilities countrywide, with the public sector system accounting for about 51 percent of these facilities. Contextually, the study focused on all the 5 National Referral Hospitals in Kenya. The country currently has five referral health

facilities, namely- Kenyatta National Hospital; Moi Teaching and Referral Hospital; National Spinal Injury Hospital; Mathari National Teaching & Referral Hospital; and Kenyatta University Teaching and Referral Hospital. These national referral hospitals are at the apex of the health care system, providing sophisticated diagnostic, therapeutic, and rehabilitative services (RoK, 2021). The study on the governance of health systems in national referral hospitals in Kenya is crucial for improving healthcare delivery, promoting accountability and transparency, optimizing resource allocation, informing health policy development, building capacity, fostering research and innovation, and strengthening health systems to better meet the needs of the population WHO, 2022)

Conceptually, the study focused on the key health systems governance aspects which include; health policy, social accountability, stakeholder participation, and oversight mechanisms as the main constructs that have been popularly repeated across various theoretical and empirical literature. The moderating variable was mobile technology. The unit of observation was staff drawn from the various departments, board members, and CEOs of the referral hospitals in Kenya. Previous studies also tend to be specific concerning study methodologies employed. Health governance systems studies have been carried out using a number of diverse methodologies. This study used descriptive research design to analyze and describe the relationship between health policy, social accountability, oversight mechanisms, stakeholder participation, and the levels of adoption of health governance systems in referral hospitals in Kenya. The study was conducted during the 2022/2023 academic year.

1.7 Limitations of the Study

There were a number of challenges faced by the researcher even though they were overcome and the study was successfully completed on time. Firstly, some respondents were either reluctant or unwilling to provide data raising the issue of sharing sensitive organizational information. The researcher assured them that the study was purely for academic purposes and that the information given would be kept confidential. The researcher provided the consent letter from the university as proof that the study served academic intent only. The researcher also mitigated this challenge by rescheduling

meetings and in some cases resulting in online communication channels. Another limitation was extracting information on the service delivery of these hospitals since some had confidentiality policies that limited respondents 'responses as regards safety data. Since this challenge was realized during the pilot testing, the researcher altered the questionnaire to test the service delivery variable using perceptual measures and therefore minimized the cases of non-response.

There was also a failure by some respondents to respond to the questionnaires. Out of 136 questionnaires distributed, only 111 were received. Some questionnaires had missing data. Hence, it was found necessary to omit the questions from the analysis but other responses were retained. This was also mitigated by giving reminders to respondents by telephone and office visits on the need to provide their responses in full. The data collection process recognized some gaps in how data on the governance of health systems are documented and conveyed in the national referral hospitals This showed how inaccessible data was on health systems governance in certain departments across the national referral hospitals. Other limitations include a lack of a representational sample and outdated data. However, to mitigate this aspect, the researcher sorts data from various journals and empirical data. The researcher also ensured that there was adequate time and funds to conduct the study. This is because the national referral hospitals are strategically located and easily available in the country. In addition, the researcher carried out a census which was. appropriate to help derive solutions to address the governance of health systems on service delivery in the national referral hospitals in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the literature related to the study variable. It entails literature on health policy, social accountability, oversight mechanisms, stakeholder participation, m-health, health governance systems, and health service delivery. The section is divided into theoretical review, empirical review, critique of literature, knowledge gap, and summary.

2.2 Theoretical Literature

The theoretical framework is a collection of interrelated concepts. It guides research to determine what things to measure, and what statistical relationships to look for (Rono & Memba, 2019). The theoretical framework therefore implies every decision made in the research and it helps to make logical sense of the relationship between the variables and factors that have been deemed important to the problem of the study (Kihara, Bwisa, & Kihoro, 2016). It also provides definitions of the relationships between all the variables so that the theorized relationship between them can be understood (Ratanya, Mukulu, & Sakwa, 2019). The study will review the Contingency Theory of Leadership, Stewardship theory, Behavioral leadership theory, and Transformational leadership theory.

2.2.1 Contingency Theory of Leadership

The contingency theory of leadership was proposed by the Austrian psychologist Fred Edward Fiedlerin his landmark 1964 article, "*A Contingency Model of Leadership Effectiveness.*" The Contingency Theory of Leadership suggests that the leader's ability to lead is dependent upon various situational factors, including the leader's preferred style, the capabilities and behaviors of followers, and various other situational factors (Meier, 2019). There is no one best way of leading and effective board structure varies from situation to situation. The theory assumes decentralization systems affect outcomes, such as group performance and achieving goals, by

influencing the subordinates 'behavior (Yazdanmehr, *et al.*, 2020) There have been several models utilizing the contingency theory concepts – the Contingency Leadership Theory (Yazdanmehr, *et al.,* 2020)., Normative Decision Theory (Csaszar & Ostler, 2020) and Path-Goal Theory (Yu *et al.,* 2020). In the context of time and the boardroom, the consideration of service delivery in the organizations can be affected by decentralization systems (Burke, *et al*., 2019). For example, because of considerable short-term pressures, this study posits that insiders on the board are less likely to prioritize the longer-term time horizons needed to affect service delivery (Galbreath, 2017).

Having clarified what an organization is, Lim and Kim (2018) argue that organizational policy is the prescribed patterns of work-related behavior that are deliberately established for the accomplishment of organizational goals. In their view, organizational policy is one of the most important factors in determining the success or failure of an organization to achieve its goals. Of critical importance to note is that, as much as Lim and Kim realize the impact of changes in an organization's political and administrative hierarchy, organizational policy is regarded as key to ensuring their success. Functions of organizational policy therefore include the fact that structure is most useful _not only in specifying the relationships of work activities but also in defining authority relationships (Jeptoo & Karanja, 2017).

It is widely recognized that health policy is an important governance mechanism, particularly in developing and emerging countries where other control mechanisms are commonly weaker (Nyagilo & Njeru, 2020). Indeed, boards of directors are an important focus of policy responses to corporate scandals. As such, health policy can be crucial and significantly related to service delivery (Barako & Brown, 2016). Hence, when directors are regarded as important resources to the organization various dimensions regarding their background and skills clearly become very important (Guney, *et al.,* 2021). This then calls into question the structure of such boards. Indeed, Zulfikara, Suhardjanto, and Ismail (2020) called on organizations to address how to make the work of the board meaningful and consequential. The organizational policy of the management sets the strategic direction for the organization. In addition, the board reviews and ratifies management proposals, and it

is the primary and dominant internal health policy of the health facilities (Kande, *et al.,* 2017). The theoretical governance literature argues that boards fulfill their duties of advising and monitoring management by choosing health policy appropriately.

The Contingency Theory of Leadership posits that effective leadership depends on the fit between the leader's style and the characteristics of the situation. In the context of health policy as an aspect of the governance of health systems in the national referral hospitals, the Contingency Theory suggests that the effectiveness of leadership in shaping health policy outcomes depends on various situational factors within the healthcare system. In summary, the Contingency Theory of Leadership offers insights into how leadership styles and approaches influence health policy governance within healthcare systems in national referral hospitals. By understanding the situational factors shaping health policy development and implementation, leaders can adapt their leadership strategies to effectively address healthcare challenges and drive positive policy outcomes in the national referral hospitals. It is on this premise the current study ought to examine the association between health policy and service delivery in the national referral hospitals in Kenya.

2.2.2 Stewardship Theory

The stewardship theory has its origin in the field of Sociology and Psychology as a development from the works of the earlier researchers. Contrary to the Agency theory, Stewardship theory holds that managers are stewards of the organization (Kabiru, et al., 2018). Further, it views the manager as one who protects the owner's wealth by maximizing it through performance, in which the steward (manager) simultaneously serves his or her interests as well (Makori & Kinyua, 2019). This double – fold target is actualized through maximized profits since the management is part of the business and therefore, they feel motivated by the success of the organization (Mabati, et al., 2020).

The stewardship theory holds that agency costs such as monitoring and control are no longer necessary and that gives high value to the firm (Solomon, 2020). Unlike the Agency theory, Stewardship theory is anchored on the value of trust and not suspicions. Trust cultivates a healthy and worthy decision-making environment,

sufficient to stimulate the achievement of organizational goals rather than conflict (Mok., Chan, & Wen, 2020). Stewardship theory hence supports the role of insider directors who possess crucial knowledge that ensures that managers make quality decisions that are necessary in enhancing organization performance and progress.

Stewardship theory proposes management rights among different parties who own the firm collectively (Minjire & Ogollah, 2017). The relationship between oversight mechanisms to oversight management of referral hospitals can enhance service delivery depending on the management of stewardship issues arising from the separation of power (Nyagilo & Njeru, 2020). The linkage between oversight mechanisms and the service delivery of the referral hospitals if any can be well explained by the stewardship theory(Maroa & Namusonge, 2019). Similarly, Muchai, Makokha, and Namusonge(2018) explain that oversight mechanisms provide incentives to monitor, but it also reduces the manager's initiative or incentive to acquire information. When discussing the effect of oversight mechanisms on service delivery, (Kande, Namusonge, and Mugambi (2017) argue that the center of power may be more capable of monitoring and controlling the management, thereby contributing to better service delivery.

Stewardship theory emphasizes the role of oversight mechanisms, such as government agencies or regulatory bodies, in ensuring accountability, transparency, and effective management of resources within organizations or systems. When applying Stewardship theory to the relationship between oversight mechanisms and service delivery in national referral hospitals in Kenya, several key principles come into play; accountability and transparency, resource allocation and management, quality assurance and regulatory compliance, capacity building and support, stakeholder engagement and collaboration, performance monitoring and evaluation. In summary, Stewardship theory underscores the importance of oversight mechanisms in promoting accountability, transparency, and effective management within national referral hospitals in Kenya. By fulfilling their stewardship role, these mechanisms contribute to the delivery of high-quality healthcare services, the protection of patient interests, and the sustainability of healthcare systems. Therefore, the current adopted the stewardship theory to expound on the association existing between the oversight

mechanisms and service delivery in the national referral hospitals in Kenya.

2.2.3 Stakeholder Theory

Stakeholders Theory was originally detailed by R. Edward Freeman in the book Strategic Management. Freeman, Wicks, and Parmar, (2004) The Firm is a system of stakeholders operating within the larger systems of the host society that provides the necessary legal and market infrastructure for the Firm's activities. The purpose of the Firm is to create wealth or value for its stakeholders by converting their stakes into goods and services‖. This view is supported by(Aliyu, Modu, & Tan, 2018). This theory states that managers should make decisions that take account of the interest of all the stakeholders in the Firm Freeman (1984) defines stakeholders as an organization or individual whose activities are either affected by the firm or affect the way the firm operates like employees, investors, and customers. This theory describes how genuine issues of relevant stakeholders are included in operations decisions to achieve their goals and the strategic direction of the firm (Alsulaimi& Abdullah, 2020). However, an argument by stakeholders indicates that there are other parties involved, including governmental bodies, political groups, nongovernmental, international organizations, trade associations, trade unions, communities, financiers, suppliers, employees, and customers. Stakeholders can at times be termed as competitor's status being derived from their capacity to affect the firm performance. The stakeholder nature is highly contested (Aliyu, Modu, & Tan, 2018)with thousands of definitions existing in the academic literature(Aziz & Abdel-Hakam, 2016).

Stakeholder theory is highly relevant to the governance of health systems, as it provides a framework for understanding and managing the relationships between various individuals, groups, organizations, and entities that have a stake or interest in the functioning and outcomes of the healthcare system. The stakeholder groups have a direct voice in the health governance systems in terms of decision making and would influence the development of the policies. The quality of services in referral hospitals may not live up to the stakeholders'expectations due to competing socially beneficial interests (Angelopoulos, Cowx, & Buijse, 2017). However, it is difficult to fulfill the objectives of all the stakeholders, it may slow decisions based on the number and

delays in operations. Stakeholder theory has been extensively used to provide a mechanism for addressing changing demands in a dynamic health systems environment (Aapaoja & Haapasalo, 2014). Stakeholder theory provides a framework for understanding the relationships and interactions between various individuals, groups, organizations, and entities with a vested interest in the governance of healthcare systems. Governance of healthcare systems involves the structures, processes, and mechanisms through which decisions are made, resources are allocated, and policies are implemented to ensure the delivery of high-quality healthcare services

Stakeholder theory emphasizes the importance of considering the interests and involvement of various stakeholders in organizational decision-making and operations. When applied to the relationship between stakeholder participation and service delivery in national referral hospitals in Kenya, several key principles emerge; identifying stakeholders, stakeholder engagement, patient-centered care, health care providers, government and regulatory agencies, community engagement, partnerships and collaborations, accountability, and transparency. In summary, stakeholder theory highlights the importance of engaging diverse stakeholders in decision-making processes and operations to improve service delivery in national referral hospitals in Kenya. By involving stakeholders, hospitals can better understand community needs, enhance patient-centered care, strengthen partnerships, and foster accountability, ultimately leading to more effective and responsive healthcare delivery. In this study, the researcher adopted stakeholder theory to underpin the relationship between stakeholder participation and service delivery in the national referral hospitals in Kenya.

2.2.4 New Public Management Theory

The new public management theory emerged in the 1980s and 1990s. The theory was proposed by Hood (1991) who argued that to reconfigure the state along more cost-efficient (and effective) lines. The protagonist recommended that the public sector be opened up to greater private sector influence. Mongkol (2011) citing (Balk, 1996; Hughes, 2003) avers that new public management reforms were aimed at improving the quality of public services, saving public expenditure, increasing the efficiency of

governmental operations, and making policy implementation more effective. The belief that large and monopolistic public bureaucracies are inherently inefficient was a critical force driving the emergence of the new public management (Andrews, 2012). The theory represents a set of ideas, values, and practices aimed at emulating private sector practices in the public sector (Bourgon, 2007).

Notably, some studies indicate that the new public management reforms do not necessarily lead to improved service delivery. For example, Simonet (2008)analyzed governments' attempts at providing better healthcare services for less in Germany, the United Kingdom, Switzerland, France and Italy. The study concluded that new public management led to greater inequity and more bureaucracy in some countries, but not all, countries. Competition, a major characteristic of the theory, did not necessarily lead to better health outcomes, and, unlike in other sectors, the application of new public management theory in health care meant larger providers (insurers, hospitals) and regulations have remained strong.

The new public management theory is relevant to the current study as it informs citizens 'participation, social accountability practices, and service delivery variables. The theory advocates for social accountability in the process of evaluating public services since the new public management principle of customer responsiveness requires that the degree of user satisfaction be measured (Pollitt, 1995). This study will draw from the theory of new public management in understanding the impact of social accountability on the quality of services in public referral hospitals in Kenya. The broad idea of new public management theory is the use of market mechanisms in the public sector to make managers and providers more responsive and accountable (Hughes, 2003; Mongkol, 2011). The proponents of this theory advocate that the government should put in place social accountability mechanisms and service delivery in the national referral hospitals in Kenya.

The New Public Management (NPM) theory emerged as a response to the perceived inefficiencies of traditional bureaucratic models in the public sector. It emphasizes principles such as decentralization, performance measurement, competition, and accountability. the application of NPM principles in national referral hospitals in

Kenya can enhance service delivery by promoting decentralization, performance measurement, competition, and citizen engagement. Social accountability mechanisms play a crucial role in this relationship by ensuring transparency, responsiveness, and accountability in hospital governance, ultimately contributing to improved healthcare outcomes for patients and communities. It is on this premise the current study sought to establish the relationship between social accountability and service delivery in the national referral hospitals in Kenya.

2.2.5 Technological Acceptance Theory (TAT)

It is a technological theory that models how users come to accept and use technology (Davis et al., 2021). M-health in itself is a technology driven approach that aims at solving health-related problems in the community and therefore it is important to subject it to the theoretical technological models that have been studied before concerning technological innovations and adoption. The theory suggests that when users are presented with a new technology, there are a number of factors that influence their decision about how and when they will use it e.g. Perceived usefulness (PU)– Fred Davis defined this as the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease - of- use (PEOU) - Davis defined this as the degree to which a person believes that using a particular system would be free from effort (Davis 1989).

Mobile technologies include mobile phones; personal digital assistants (PDA) and PDA phones (e.g., BlackBerry, Palm Pilot); Smartphones (e.g., iPhone); enterprise digital assistants (EDA); portable media players (MP3-players and MP4-players, e.g., iPod); handheld video-game consoles (PlayStation Portable (PSP), Nintendo DS); and handheld and ultra-portable computers such as tablet PCs (e.g., iPad and Smartbooks). These devices have a range of functions from mobile cellular communication using text messages (SMS), photos and video (MMS), telephone, and World Wide Web access, to multimedia playback and software application support. Technological advances and improved computer processing power mean that single mobile devices such as smartphones and PDA phones are increasingly capable of high-level performance in many or all of these functions (Abdulmalik, et al., 2016).

Mobile health interventions designed to improve health care service delivery processes have been used to provide support and services to health care providers (such as education, support in diagnosis or patient management) or target communication between health care services and consumers (such as appointment reminders and test result notification) (Aziz & Abdel-Hakam, 2016). The features of mobile technologies that may make them particularly appropriate for improving healthcare service delivery processes relate to their popularity, their mobility, and their technological capabilities. The mobility and popularity of mobile technologies mean that many people carry their mobile phones with them wherever they go (Argaw, Desta, & Mamo, 2021).

This allows temporal synchronization of the intervention delivery and allows the intervention to claim people's attention when it is most relevant. For example, healthcare consumers can be sent appointment reminders that arrive the day before and/or the morning of their appointment (Abdulmalik, Kola, & Gureje, 2016). Real-time (synchronous) communication also allows interventions to be accessed or delivered within the relevant context, i.e., the intervention can be delivered and accessed at any time and wherever it is needed. For example. at the time healthcare providers see a patient, they can access a management support system providing information and protocols for management decisions to whoever requires them. This application could be particularly relevant for providing clinical management support in settings where there is no senior or specialist healthcare provider support or where

there is no such support at night or on weekends. As mobile technologies can be transported wherever one goes, interventions are convenient and easy to access. (Albabtain, et al., 2016)

The Technology Acceptance Model (TAM) is a widely used theoretical framework for understanding and predicting individuals' acceptance and use of new technologies. The Technology Acceptance Model (TAM) is a widely used theoretical framework for understanding and predicting individuals' acceptance and use of new technologies. In summary, the Technology Acceptance Model provides valuable insights into the relationship between mobile technology and service delivery by highlighting factors such as perceived usefulness, ease of use, compatibility, social influence, trust, and user experience. Understanding these factors can inform the design, implementation, and evaluation of mobile health interventions to promote acceptance and adoption among healthcare providers and patients, ultimately enhancing service delivery and healthcare outcomes.

2.2.6 SERVQUAL Theory

SERVQUAL is a theoretical framework developed by Parasuraman, Zeithaml, and Berry in the late 1980s for assessing and measuring service quality. The SERVQUAL theory explains the dependent variable of public service delivery. When applied to service delivery in referral hospitals in Kenya, SERVQUAL can provide valuable insights into patients' perceptions and expectations of healthcare services. It was created by Parasuraman, Zeithaml, and Berry(2017) as a service quality model metric for service organizations and retailers involved in understanding and assessing service quality. The focus was on the functionality of the product. The disparity between expectation and output is referred to as quality of service. Reliability, responsiveness, competency, accessibility, courteousness, communication, reputation, protection, understanding customer knowledge, and tangibles were defined as ten dimensions for measuring service quality. The ten elements were regrouped into five dimensions. This included reliability, assurance, tangibles, responsiveness as well as empathy (Parasuraman et al, 1985).

Reliability refers to a company's ability to deliver on its commitments correctly and consistently. Customer responsiveness refers to the firm's willingness to help customers as well as offer prompt service; assurance is understanding, knowledge, and also a courtesy that employee has, as well as their ability to motivate faith as well as confidence. Empathy refers to the company's helpful and individual attention given to customers. The SERVQUAL model considers service in a wider sense, going far beyond mere customer service. The distinct characteristics of facilities, as opposed to physical goods, were one of the driving forces behind the SERVQUAL model. Intangibility and heterogeneity, for example, render it far more difficult for a company to objectively determine the quality standard than for a producer who can inspect and measure physical products. The development of this model provided a systematic approach for service enterprises and retailers to assess the set of variables that influence consumers' perceptions of the company's general service quality. The consumer's opinion of the firm's overall delivery and value is referred to as service quality (Parasuraman et al., 1988).

The focus of the SERVQUAL model is on the relation between the experiences of an individual concerning their expectations. When a customer's perception or experience of a service falls short of their expectations, it's a sign that the service quality isn't up to the standard. The SERVQUAL model is commendable because it is a true and accurate tool for assessing service quality. Executives of service agencies just need to be aware of how SERVQUAL is applied in their specific situations (Mulders, 2019). The capability of an organization to suitably implement SERVQUAL model may enhance the satisfaction of the customers and their loyalty to organizations. Therefore, practice within organizational quality models needs to incorporate the basic service quality dimensions which consist of; responsiveness, tangibility, responsiveness, reliability, empathy, and assurance. Furthermore, the ability of providers of public services to design as well as use service quality dimensions of performing jobs daily will intensely improve successive positive customer outcomes. This includes behavioral plans and trust. This positive behavior leads to maintained and enhanced organizational performance in this era of the global economy and borderless world (Gronroos, 2018; Hussain et al., 2015; Hong et al., 2016).

Kiran and Singh (2016) posit that most of the service excellence models gauge the quality of service by making a comparison between the perception of the service that is excellent and with expected quality of service that is delivered. Nevertheless, none of the models of service quality is suitable in all situations and therefore, it gives the opportunities to the researcher to use the SERVQUAL model which can cut across a wider scope of the customer service expectations and public service delivery. In order for the customer to be satisfied, service quality is very important in-service delivery.
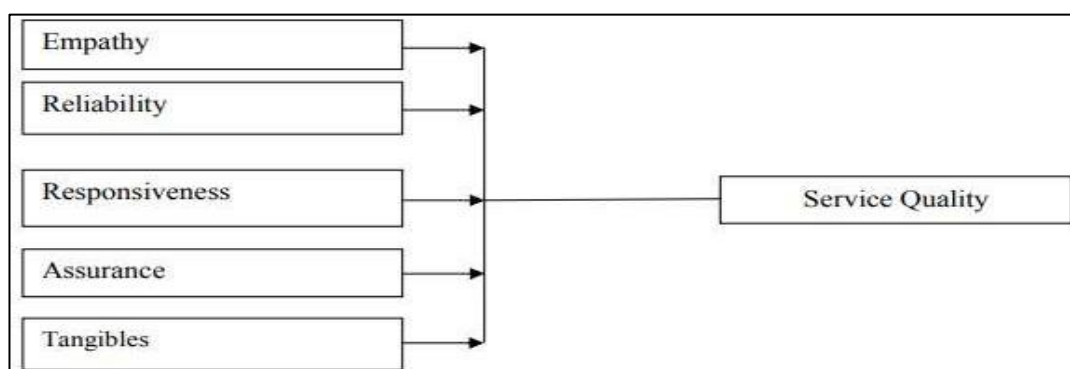
Figure 2.1: Serviqual Model

Source: (Parasuraman et al., 2018)

By applying the SERVQUAL framework to service delivery in national referral hospitals in Kenya, healthcare providers and administrators can identify areas for improvement, prioritize interventions, and enhance the overall quality of care provided to patients. Additionally, soliciting patient feedback and incorporating patient perspectives into quality improvement efforts can help ensure that healthcare services meet patients' expectations and contribute to improved health outcomes.

2.3 Conceptual Framework

A conceptual framework is a diagrammatical representation that shows the relationship among study variables (Amuhaya, et al, 2018). Linked to the problem statement, the conceptual framework for the current study is used to concisely describe the study variables setting the stage for the presentation of the specific research objectives and research hypotheses that drive the research assessment, accompanied

by a visual depiction of the study variables and their measurements.

The current study hypothesizes that health policy, social accountability, oversight mechanisms; and stakeholder participation linearly and directly influence service delivery in the national referral hospitals in Kenya. The independent variables are health policy, social accountability, oversight mechanisms, and stakeholder participation. The dependent variable is service delivery in the national referral hospitals in Kenya. Health policy is conceptualized as; a strategic plan, health reforms, and legislative framework. Social accountability is depicted by information campaigns, complaint social audits, and public hearings. Oversight mechanisms comprise public expenditure tracking systems, complaint mechanisms, and monitoring. Stakeholder participation is constituted as participatory budgeting, partnerships, and advisory. Mobile technology is conceptualized as social media, mobile insurance, and mobile apps. Service delivery in the national referral hospitals is conceptualized as accessibility of services, efficiency of services, quality of services, timeliness of services, and affordability (cost) of the services in the referral hospitals. The interplay between health policy, social accountability, stakeholder participation, oversight mechanisms, and mobile technology significantly impacts service delivery in national referral hospitals in Kenya. These variables and their hypothesized relationships are illustrated in the following conceptual framework in Figure 2.2.
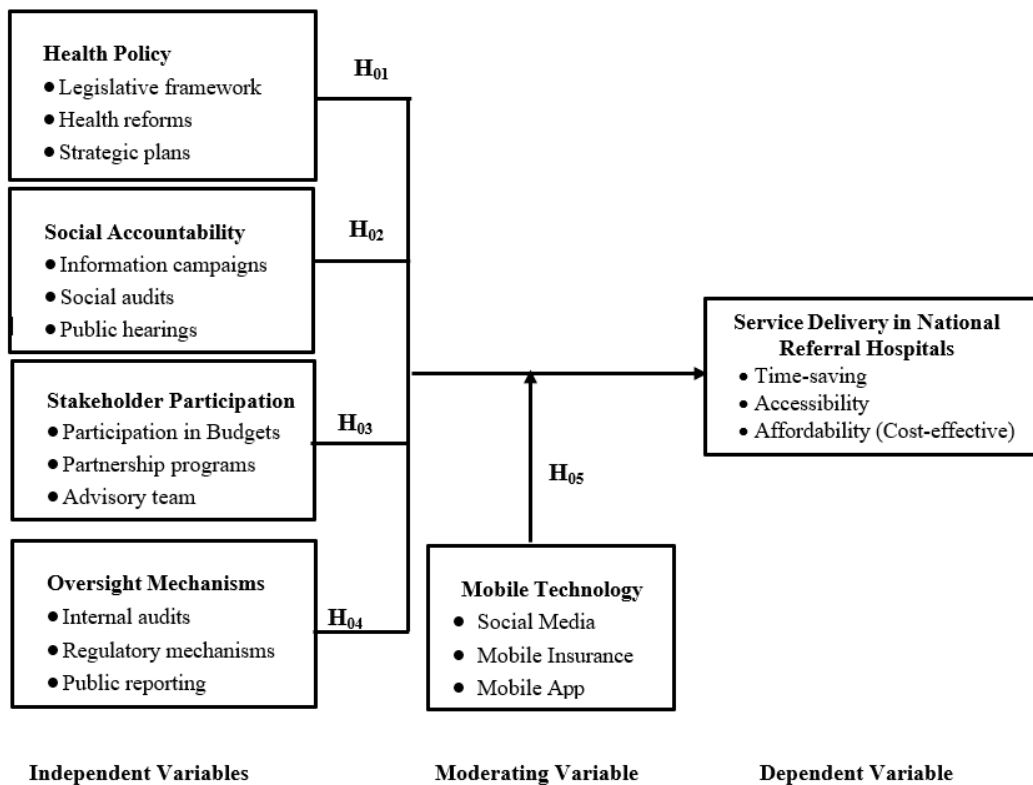
Figure 2.2: Conceptual Framework

2.4 Empirical Review

Empirical literature review is a directed search of published works, including periodicals and books, that discusses theory and presents empirical results that are relevant to the topic at hand (Wagana, et al., 2017). Through the use of a systematic approach to previous scholarship, a literature review allows a researcher to place his or her research into an intellectual and historical context (Amuhaya, et al., 2018). In other words, literature review helps the author declare why their research matters (Mwangi, et al., 2017). In this section, an empirical analysis of previous studies on the relationship of the study is undertaken. This is between the predictors variable (health systems governance aspects) on the dependent variable (service delivery) have been evaluated.

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2.4.1 Health Policy

With the adoption of the 2010 constitution and the onset of devolution, Kenya's governance architecture and political environment changed dramatically. Under the new constitution, a range of political, administrative, and financial functions have been delegated to 47 semi-autonomous counties established after the 2013 elections. These changes have entailed substantial changes in the health sector's governance structures, with the national level remaining responsible for overall leadership and regulatory and policy guidance, while county governments have assumed responsibility for health service delivery. In June 2017, parliament passed a new health law, the Health Act No.21 of 2017, bringing scattered pieces of health legislation together under one unified framework. The new law, which is more intentional, establishes a rights-based approach to health, clarifies the roles of national and county governments, creates new regulatory bodies, and provides guidance on issues such as health financing and private sector participation. However, the Health Act has not been disseminated and, therefore, the proposals for new regulatory bodies and mechanisms have not been fully instituted.

According to the Health System Assessment (HSA) (2019) report, it was recommended that in order to improve the adoption of health governance systems, there is a need to strengthen health sector management structures at the county level and build counties' capacity, including their ability to frame necessary health laws and integrate civil society in the decision-making process by improving the effectiveness of coordination bodies (for example., the HSIF and the department of Health Sector Coordination and Intergovernmental Relations. There is a need to improve enforcement of health laws and norms, especially in the private sector by actively engaging the private sector through the partnership framework and establishing a mechanism to bring all regulatory bodies into one policy dialogue space. The report also recommends that there is a need to disseminate the Health Act, 2017 and raise awareness of the mandate and responsibilities of the new authority.

The 2017 Kenya HSA uses the health governance framework shown in Figure 2.2

(Brinkerhoff and Bossert, 2008) to analyze and understand how relationships and linkages among state actors, providers, and citizens work to strengthen Kenya's health system by making it more responsive to the needs of Kenyan citizens. State actors (for example politicians, policy-makers, and other government officials) are responsible for developing, implementing, and enforcing the rules and regulations that guide the health system. The framework shows how state actors rely on inputs from providers and citizens to carry out this function effectively. Ideally, state actors take citizens' needs and preferences into account when developing programs, policies, and financing. Providers are the staff, facilities, and organizations (private, public, and not-for-profit) that support health service provision. Providers deliver services to clients/citizens and information to state actors, who use it to develop and implement policy guidance, norms, standards, oversight, and resources to facilitate service delivery. The bottom of the pyramid illustrates how clients/citizens (either as individuals or collectively) communicate their preferences and needs to providers, who respond by offering services to meet these preferences and needs.

Source: Brinkerhoff and Bossert, 2008
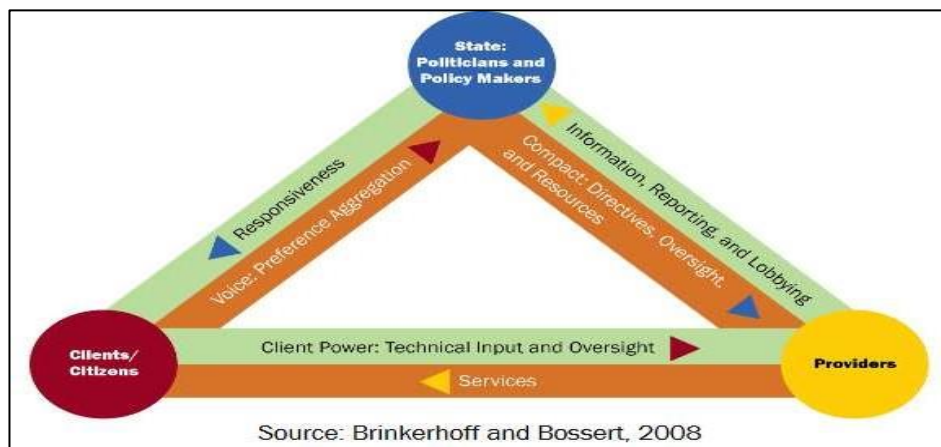
Figure 2.3: Adopted Health Governance Framework

Healthcare policy has a significant impact on healthcare delivery. It affects various healthcare services, including quality of care, access to care, cost of care, and patient outcomes (WHO, 2022). For instance: Quality of care: Healthcare policies set standards for quality care and require healthcare providers to adhere to these standards. Policies such as the Hospital Readmissions Reduction Programme (HRRP) aim to reduce preventable readmissions by penalizing hospitals with high readmission rates.

Access to care: Healthcare policies determine who has access to healthcare services and the level of care they can receive. Policies such as the ACA aim to increase healthcare access for all Americans, regardless of their income or health status. Cost of care: Healthcare policies aim to regulate healthcare services costs. Policies such as the Medicare Access and CHIP Reauthorisation Act (MACRA) aim at reducing healthcare costs by implementing payment models that reward quality care and penalize poor-quality care.

Patient outcomes: Healthcare policies affect patient outcomes by setting standards for patient safety, infection control, and healthcare-associated infections (HAIs). Policies such as the Hospital-Acquired Condition Reduction Programme (HACRP) aim to reduce HAIs by penalizing hospitals with high rates of these infections. Healthcare policy also influences healthcare providers' decisions and behaviors. For instance, policies that promote value-based care may encourage providers to focus on preventive care rather than reactive care. Policies penalizing hospitals for high readmission rates may encourage providers to improve discharge planning and follow-up care.

2.4.2 Social Accountability

Social accountability is gaining rapid acceptance as a way to address health systems inefficiencies and improve basic public health performance, including planning and service delivery, and to contribute to the attainment of the highest possible standards of health(Abdulmalik, Kola, & Gureje, 2016). Social accountability is a participatory process in which citizens are engaged to hold politicians, policymakers, and public officials accountable for the services that they provide(Lodenstein, Mafuta, & Kpatchavi, 2017).In the context of health care, social accountability is a form of participatory citizen engagement in which citizens are recognized as service users who are ultimately impacted by health care decisions and thereby can affect change in health policies, health services, and/or health provider behaviour through their collective influence and action(Mafuta, Dieleman, & Hogema, 2016)Although global accountability standards play an important guiding role, the successful implementation of global health initiatives depend on national context(McCollum *et al.,* 2018).

Social accountability can be mutually beneficial for citizens and health providers, officials, and government. By focusing on citizens as the ultimate beneficiaries of health policies and programs, social accountability provides a mechanism for the empowerment and engagement of citizens with their health system (Danhoundo, Nasiri, & Wiktorowicz, 2018). Mafuta, Dieleman, and Hogema (2016) identified the following factors as facilitators of social accountability initiatives: community associations and groups, experiences in social mobilization and networking, cultural diversity and marginalized populations, women's status and participation in community groups'activities, existing media and access to information, supportive regulatory environment, resources, and negotiation ability. Bernardi (2017) study also made similar identifications, in addition to emphasizing the support of health zone management teams in community participation activities and improving the attitude of health providers towards voice at the health facility level.

Blake, Annorbah-Sarpei, and Bailey (2016) studied whether engaging multiple health and non-health stakeholders resulted in improvements. They documented that engaging a broad range of stakeholders, including citizens, in social accountability initiatives targeting local health facilities can lead to improvements in maternal and newborn health services due to a heightened sense of shared ownership. They also identified higher levels of community engagement in districts where the chiefs of maternal and newborn health councils were engaged (Hoffman, 2014). Social accountability approaches, such as the community scorecard (CSC), can improve the performance of health systems in low-income countries by providing a mechanism for obtaining and incorporating community input(Argaw, Desta, & Mamo, 2021). The implementation of a community scorecard approach enhances a culture of social accountability, transparency, and engagement of citizens in planning, implementing, and evaluating maternal, neonatal, and child health services. In addition, it improves the negotiation capacities and involvement of both community members and health workers, resulting in increased availability and utilization of health services (Squires, Martin Hilber, & Cordero, 2020) Program managers and development partners should continue their support for the government- led social accountability interventions to ensure the sustainability of improvements in maternal, neonatal, and child health outcomes (Nisbett, 2017).

2.4.3 Oversight Mechanisms

The recurring problems with patient safety have led to a growing interest in helping hospitals 'governing bodies provide more effective oversight of the quality and safety of their services (Millar, Mannion, Freeman, & Davies, 2016). As corporate entities with statutory oversight responsibilities, hospital governing boards are accountable for the overall quality and safety of the care their hospitals provide. They therefore have a fundamental governance role in the oversight of quality and safety, by defining priorities and objectives, and designing systems of organizational control. However, recurrent problems with quality and patient safety on both sides of the hospitals have raised concerns about the boards 'ability to discharge these duties with appropriate effect (Brown, 2016).

Government plays an important role in measuring and monitoring the quality of care and in developing the tools to monitor quality (Moffatt-Bruce, *et al*., 2018). As with the government 's provision of reliable leading economic indicators to inform and guide the business community and economic policymakers, information on the quality of health care can inform and guide health policymakers. Moreover, the government is responsible for monitoring the quality of care in organizations that receive federal funding. Stakeholders identified the need for improved oversight, implementation, service delivery, and social accountability of government-funded service providers to communities (Masefield, Msosa, & Grugel, 2020). In the introduction of the policy documents, they see little evidence of improved governance and have little or no confidence in the government 's ability to deliver quality health care. The difficulties stakeholders perceive in relation to building equitable and effective healthcare governance in developing countries have relevance for other resource-limited countries which have also committed to the goal of quality services.

According to Bhatt and Bathija (2018), the boards of medicine play an important role in regulation and oversight, even though the information they work with is limited to patient complaints, limited retrospective record review, and interviews. Moreover, they have only blunt instruments at their disposal as remedies. They can take actions at the licensing level, such as limiting, revoking, or suspending a license, or requiring

treatment for alcoholism or drug addiction (Koch & Miller, 2019). Boards are effective in suspending, revoking, or limiting licenses and in refusing to grant or renew licenses of physicians who are obviously incompetent, convicted of fraud or other felony, alcoholic, or impaired by substance abuse. Boards are also reasonably effective in limiting the practices of physicians who improperly prescribe or dispense opioid drugs, or inappropriately dispense medical marijuana certificates, and in disciplining physicians who have been found to have engaged in improper sexual conduct involving patients or trainees (Freeman, Millar, Mannion, & Davies, 2016). Prescribing practices can be monitored, supervisor reports requested, and monitoring visits set up. State boards thus play an important role in protecting the public. However, removing bad apples, although necessary, is not sufficient to ensure good quality medical care.

2.4.4 Stakeholder Participation

Quality healthcare services involve a combined effort among healthcare staff and stakeholders to diagnose and treat problems in the healthcare system (Silver, Harel, & McQuillan, 2016). Stakeholder participation from varied organizational levels is essential to successful healthcare quality improvement. Norris, White, Nowell, and Mrklas (2017) study highlighted the commonalities of how stakeholders in a large healthcare system defined engagement as a shared understanding and terminology to guide and improve stakeholder engagement. Overall, engagement was active and committed to decision-making about a meaningful problem through respectful interactions and dialogue where everyone's voice is considered.

O'Rourke, Higuchi, and Hogg (2016) study focused on stakeholder participation in system change: A new conceptual model. The perspective on stakeholder participation that includes both those who supported the proposed change and those who advocated for a different change was presented The findings identify stakeholder activities used to shape, share, and protect their visions for system change. The conceptual model presented in this study adds to the understanding of the challenges and complexities involved in healthcare system change. Understanding why and how stakeholders participate in change can help healthcare leaders in planning activities to enhance

stakeholder involvement in healthcare system change. Mbuthia, Mbuthia, Molyneux, and Njue (2019) findings on the Kenyan health stakeholder views on individual consent, general notification, and governance processes for the re-use of hospital inpatient data to support learning on healthcare systems; identified the key role stakeholders play in enhancing the quality of health care to the patients in the health facilities.

Abuya, Obare, and Matanda (2018) study on the stakeholder perspectives regarding the transfer of free maternity services to the National Health Insurance Fund in Kenya: Implications for universal health coverage; found that stakeholders can assist in achieving UHC, eliminating dependency on free services, and encouraging people to take responsibility of their health. However, skepticism regarding the efficiency of NHIF may limit support. Diverse and robust systems were recommended for enrollment of clients while standardization of services through accreditation and quality assurance linked to performance-based reimbursement would improve greater predictability in the payment schedule and better coverage of referrals and complications. Wandabwa & Yusuf (2019) indicated from their study that there is a need for understanding stakeholder Interests in projects as these impact the way the health project performs. Stakeholders 'communication is an essential basic tool on which project performance relies. The stakeholders should be actively engaged throughout the project cycle with emphasis on the monitoring and evaluation which ensures the project goals and deliverables are within the scope.

2.4.5 Mobile Technology

Mobile technology, the use of mobile computing and communication technologies in health care and public health, is a rapidly expanding area within e-health. There is considerable enthusiasm for mobile-health interventions and it has been argued that there is huge potential for mobile-health interventions to have beneficial effects on health and health service delivery processes, especially in resource-poor settings (Wesommgs *et al*., 2018). This is the application of mobile device (s) and medical or clinical application(s) run on the device by physicians in a hospital domain, for communication, collaboration, and coordination of the physician's healthcare delivery

daily activities in hospital premises including diagnosis, treatment, and disease management (O'Connor, et al, 2020).

Digital technologies, such as mobile wireless technologies, have the potential to revolutionize how populations interact with national health services. Digital health and specifically mHealth have been shown to improve the quality and coverage of care, increase access to health information, services, and skills, as well as promote positive changes in health behaviours to prevent the onset of acute and chronic diseases (Leigh & Ashall-Payne, 2019). With time, the m-Health applications will be used by all people regardless of their education level or social class. They will remotely monitor their health information, consult their doctors, see their high-quality health-related images and videos whenever and wherever they want, and use the valuable applications to control their health at home which will result in healthier communities in the developing world(Albbatain, et al., 2016).

In low income countries, the primary focus is on reducing healthcare costs, optimizing asset utilization and efficiency, delivering higher quality of care, and improving patient experience(O'Connor, Andreev, & O'Reilly, 2020) SSA, the focus is on improving access to basic health care, remote diagnosis, remote monitoring and prevention; followed by access to health-related information, quality and effectiveness of service delivery, and reducing the shortage of well-educated health care professionals (Ozok, Wu, & Gurses, 2017). As mobile phones become widespread in Kenya (CAK, 2015), continued effort toward attaining efficient pro-poor health care requires an integrated approach, strategic partnerships, and new business models (Thies, Anderson, & Cramer, 2017)

The study 's findings by Orangi and Wasike (2019) on the effect of healthcare information systems on service delivery in private hospitals in Nairobi County, Kenya, revealed that health information systems are facilitated by the use of mobile technology. This is being used in the hospital and interoperability policies are being applied but still much is needed, the use of healthcare medical technology was widely applied and this has made the process faster with easy patient monitoring. The strengths and weaknesses of the health information system, interoperability policies,

and healthcare medical technologies were identified and strategic recommendations were formulated accordingly.

Mobile technology is an umbrella framework that describes the overall management of health information, and its secure exchange between consumers and providers among others. It can be used to manage records, and manage diseases, especially in public health. It can be referred to as a tool that can improve the overall quality of the healthcare system (Sinha, 2010). Quality is when the inherent characteristics of a product meet the customer 's requirements, and then the product can be rated as high and that is according to the International Organization for Standardization. The experience of the patient defines quality. Other aspects of quality in the health sector are affordability, newer medical technology, and newer and more effective medication (Housego & O'Brien, 2012). Quality service delivery can only be achieved if mechanisms are put in place to allow equal access to correct, relevant, and timely health information regardless of distance to the health facilities. According to WHO (2022), health systems are fundamental in ensuring improved citizens 'welfare and of nations as well

Mobile health applications (m-Health apps) play an increasingly important role in the digitalization of nationwide healthcare services for better health outcomes due to the ubiquity of smartphones in society (Ali, et al 2016; Bhavnani, et al 2016; Birkhoff & Moriarty, 2020; Messner, et al, 2016). Although literature agrees on the considerable potential of m-Health apps, the current adoption of m-Health apps is still low (Ozok, Wu, & Gurses, 2017; Thies, Anderson, & Cramer, 2017). Furthermore, the retention rate of actual m-Health app users is comparatively low. Due to the plethora of available m- Health apps (Benjumea, et al, 2019; Larson, 2018), there is wide variability in the quality and key features of the apps (Ali, Chew, & Yap, 2016). Because of this abundance, users struggle to identify appropriate, secure, and trustworthy m-Health apps that fulfill their specific needs (Haasteren, *et al*., 2020). To overcome this challenge, several authors suggest better involving relevant stakeholders in the app development process (Vaghefi & Tulu, 2019; Albabtain, et al., 2016).

2.4.6 Service Delivery in Healthcare Institutions

Time efficiency in healthcare delivery has been a focal point of numerous studies, which emphasize the importance of reducing wait times and improving workflow efficiency. A study by Kruse et al. (2018) found that the adoption of electronic health records (EHRs) significantly decreased the time clinicians spent on administrative tasks, allowing them to allocate more time to direct patient care. This aligns with findings by Verma et al. (2021), who noted that integrating digital health technologies into clinical practice reduces delays in diagnosis and treatment, thereby improving patient outcomes. Furthermore, the implementation of lean management techniques in healthcare settings, as explored by Costa and Godinho Filho (2016), has also shown to streamline processes, reducing waste and enhancing time management.

Accessibility to healthcare services remains a global challenge, especially for populations in rural and underserved areas. Previous research has consistently highlighted the role of telehealth in bridging this gap. For instance, a study by Dullet et al. (2017) demonstrated that telemedicine significantly improved access to healthcare services in remote areas, reducing the need for patients to travel long distances for care. This is supported by Smith and Thomas (2022), who argued that telehealth not only enhances geographic accessibility but also improves the continuity of care for chronic conditions by allowing regular virtual follow-ups. Moreover, innovative models like mobile clinics, as discussed in research by Hwang et al. (2018), have proven effective in providing primary care services to underserved communities, further addressing accessibility issues.

Affordability remains a critical concern in healthcare, with high costs often limiting access to essential services. Studies have explored various strategies to improve cost-effectiveness in healthcare delivery. For example, research by Chandra et al. (2013) highlighted the benefits of using generic medications as a cost-saving measure, which can reduce prescription costs significantly without compromising quality. This is in line with the findings by Jones et al. (2023), who discussed the positive impact of value-based care models on reducing overall healthcare costs. These models focus on delivering high-quality care efficiently, which not only improves patient outcomes but

also reduces unnecessary expenditures. Additionally, preventive care, as noted by Maciosek et al. (2017), has been shown to be a cost-effective strategy, reducing the incidence of expensive chronic conditions through early intervention and health promotion

2.5 Critique of the Literature

A number of researches have been carried out locally and internationally reviewing the health systems governance and quality of services in the health facilities but not in a comprehensive approach (Ali, et al 2016; Bhavnani, et al 2016; Birkhoff & Moriarty, 2020; Messner, et al, 2016). A few studies have been done but a majority of them focused on performance other than quality healthcare services (Ozok, Wu, & Gurses, 2017; Thies, Anderson, & Cramer, 2017;Vaghefi & Tulu, 2019; Zhou, Bao, Watzlaf, & Parmanto, 2019b). Most of these researchers concentrated on their study areas based on their objectives. The majority of studies done also explored quality health care in general (Vaghefi & Tulu, 2019; Albabtain, et al., 2016), their study focused mainly on the m- health and quality of health care. These studies failed to show health systems governance aspects influencing service delivery in the national referral hospitals in Kenya.

One challenge is that social accountability is relational and focuses on the relationship between rights-holders and duty-bearers; therefore, interventions change and adapt as they are rolled out in specific localities and relationships (Moncrieffe, 2011). This unpredictability may lead to activities and strategies falling out of line with pre-set interventions. To address this, many researchers described ways they documented and examined implementation to better accommodate adaptive interventions. Process evaluations are increasingly being used to effectively explore fidelity, dose, reach, and cost, and realist evaluation methodologies have also been used to assess fidelity, context, and mechanisms, and provide lessons for replication and scale-up (Schaaf, Topp, & Ngulube, 2017).

Health systems governance and M-health remain a severe constraint to improved service delivery in public hospitals (Birkhoff & Moriarty, 2020; Messner, et al, 2016). Overall aggregate poor quality of services in the public facilities and referral hospitals

do not effectively offer the services and in many cases do not function well due to a lack of implementation of health governance systems (Benjumea, et al, 2019; Larson, 2018).

The argument however fails to offer solutions to health facilities noted challenges of health systems governance and quality of services. Larson (2018) explains that the lack of implementation of health system governance and limited, m-health denies health facilities significant opportunities confining them to poor quality services. The findings reveal the importance of health governance systems and m-health however do not give valuable ways that health facilities can improve the quality of healthcare services. The current study will focus on the health systems governance aspects influencing service delivery in the national referral hospitals in Kenya.

The terms ‒quality, affordability, and timelines of services‖ play an important role in improving health care and in turn qualifies leadership and governance. Especially, under the climate of globalization, the workplace requires business practitioners to acquire a new set of knowledge, skills, and attitudes to face the diversity and complication of the new business environment successfully. There is a variety of research that clarifies the relationship between quality of services and service delivery in the health sector (Benjumea, et al, 2019; Larson, 2018). For example, the findings of Albabtain, et al., (2016) study demonstrate the suitability and potential usefulness of their quality healthcare model that reflects elements of both health governance systems and outcomes in predicting the health care services.

Similarly, there is other research (Vaghefi& Tulu, 2019; Albabtain, et al., 2016) highlighting the validity and utility of health governance systems in predicting the quality, timeliness, and affordability of services. However, there is still some confusion and skepticism about the relationship between health governance systems and health care services These are mainly because of the difficulties in the assessment of health governance systems (Campbell, et al., 2020) and the complex and lengthy process required for identifying the appropriate health governance systems-quality service delivery relationship (Bhavnani, *et al.,* 2016; Birkhoff & Moriarty, 2020; Messner, et al, 2016). In addition to that timeliness, affordability, and quality services

have many dimensions, yet it is not easy to connect individual health systems governance and healthcare service delivery (Mbuthia, *et al.,* 2019).

2.6 Research Gaps

From the empirical review, different approaches and methodologies ranging from descriptive survey design, historical research design, causal research design, explanatory research design survey, and regression techniques have been done which resulted in various findings and conclusions. Despite all these studies, the moderating factor of m- health on the relationship between health systems governance aspects in the referral hospitals in Kenya has not been addressed. From the literature review it is important to note that most of the studies have been carried out in the developed world (Ali, et al 2016; Bhavnani, et al 2016; Birkhoff & Moriarty, 2020; Messner, et al, 2016; Ozok, Wu, & Gurses, 2017; Thies, Anderson, & Cramer, 2017;Vaghefi & Tulu, 2019; Zhou, Bao, Watzlaf, & Parmanto, 2019b;Vaghefi & Tulu, 2019; Albabtain, et al., 2016)very little attention has been paid in this area locally.

Additionally, the literature reviewed indicates there is an imbalance in the attention that has gone into studies on health systems governance and service delivery measuring health systems governance, most studies tend to concentrate on service delivery in terms of accessibility, timeliness, and affordability of services and disregard other dimensions of quality of service and patient satisfaction (Thies, Anderson, & Cramer, 2017; Vaghefi & Tulu, 2019; Zhou, Bao, Watzlaf, & Parmanto, 2019b). Empirical evidence on the links between health policy, social accountability, stakeholder participation and oversight mechanisms measured by quality of service, affordability of service and patient satisfaction is evidently lacking. Some notable studies exception (Ozok, Wu, & Gurses, 2017; Thies, Anderson, & Cramer, 2017;Vaghefi & Tulu, 2019) examined the mhealth and quality of health care. The researchers used accessibility, availability, and reliability as measurements of the quality of services in the health sector. However, the findings of this study could not be generalized due to different cultural and political contexts. It would therefore be prudent for other researchers to make a remarkable contribution in this field by establishing the health systems governance aspects of service delivery in the referral

hospitals (measured by accessibility, patient satisfaction, timeliness, and affordability of the services). It is against this background, that the current study will focus on the health governance systems aspects influencing service delivery in the national referral hospitals in Kenya.

Moreover, there is a need to question the veracity of the health governance systems aspects influencing service delivery in the national referral hospitals in Kenya. Analysis of previous research relating to the question of health governance systems aspects influencing service delivery in hospitals in Kenya reveals there is uncertainty as to the direction of the link (Benjumea, et al, 2019; Larson, 2018). Empirical evidence on the health governance systems aspects is mixed and inconclusive (Thies, et al., 2017;Vaghefi & Tulu, 2019). A cross-section of studies provides evidence that health governance systems lead to improved quality healthcare services (Ali, *et al*., 2016; Bhavnani, et al 2016; Birkhoff & Moriarty, 2020). In contrast, other studies found that health policy, social accountability, and oversight mechanisms do not influence service delivery (Vaghefi & Tulu, 2019; Albabtain, et al., 2016). The inconclusive nature of the evidence suggests that more empirical work is required on the health systems governance aspects influencing service delivery in the national referral hospitals in Kenya.

2.7 Chapter Summary

This chapter has reviewed extensively the literature on the subjects of health governance systems and health care services. The chapter established that key aspects of health systems governance can be categorized into four health policies, social accountability, oversight mechanisms, and stakeholder participation. It is upon this classification that this study is based. In determining the specific activities that fall into each category the study has utilized various theories and frameworks that have been developed to specify the activities in each category. From these theories, the study has developed a conceptual framework showing the relationship between the independent variable and the dependent variable. The study has delved into empirical literature review where it has analyzed past studies in the field of health systems governance. This review was followed by a critique that showed that the empirical link

between key factors influencing the adoption of health systems governance had not been clearly established as is explained in the subsequent research gaps in order to facilitate a deeper understanding of the research problem and provide adequate information for the development of an appropriate research methodology as discussed in chapter three.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research design, target population, sample and sampling technique, data collection method, pilot study, and lastly, analysis and presentation of data. A framework of measurement scales operationalization of the study variables, as well as study hypotheses testing framework, is equally presented.

3.2 Research Design and Philosophy

3.2.1 Research Design

The current study adopted a descriptive design, which took into consideration the analysis of the relationship between health systems governance aspects (health policy, social accountability, stakeholder participation, oversight mechanisms) and service delivery in the referral hospitals in Kenya. Descriptive research, also known as statistical research, describes data and characteristics of a population or phenomenon being studied (Wanyama, Nambuswa, &Namusonge, 2016; Amuhaya, Namusonge, &Nthigah, 2018; Waweru, Mangena, &Riro, 2019). It answers research questions who, what, where, when, and how is the problem. It is used for frequencies, averages, and other statistical calculations (Mwangangi, Guyo, Moronge, &Keraro, 2017;). Descriptive research is used to obtain information concerning the current status of the phenomena to describe─what exists‖ with respect to variables or conditions in a situation (Opiyo, Guyo, Moronge, &Odhiambo, 2017; Orina, Were, &Muturi, 2018; Ndururi, Mukulu, &Omwenga, 2019). It also describes the characteristics or behaviour of a given population in a systematic and accurate version (Namusonge, Mukulu, &Mokaya, 2017; Kiende, Mukulu, & Odhiambo, 2019). A descriptive research design is also useful in capturing an unbiased representation of perceptions and experiences research design enables the researcher to fully describe the health systems governance   aspects influencing service delivery in national referral hospitals in Kenya. This study envisaged a scenario where the health systems governance aspects may influence an overall outcome such as the service delivery in the national referral

hospitals in terms of affordability, accessibility, timely delivery of services, efficiency, and customer satisfaction simultaneously.

3.2.2 Research Philosophy

Research philosophy is the foundation of knowledge on which underlying predispositions of any study are based (Amuhaya, Namusonge, & Nthigah, 2018). The choice of a research philosophy determines the research design. Two philosophical traditions that guide social science research are positivism and social construction. Positivism is a philosophy that seeks real facts of social phenomena that are objective, neutral, and predictable with little regard for the subjectivity of individuals (Argaw, Desta, & Mamo, 2021). The researcher merely develops ideas through induction and will be a participant observer, and will try to understand what is happening and investigate small samples in depth over time. The study adopted the ontology of objectivism portraying the position that social entities exist in reality to social actors concerned with their existence (Saunders *et al*., 2017).

The study reflected the Philosophy of Positivism which is an approach that seeks facts or causes of social or business phenomena, with little regard to the subjective state of the individual (Angelopoulos, Cowx, & Buijse, 2017). Considering the purpose of this study, the type of investigation, the extent of researcher involvement, the time period over which data was collected and the type of analysis, the philosophical foundation guiding this study is positivism. This is because the researcher is independent of what is being observed. It is normally argued that research approaches are attached to different research philosophies (Saunders *et al*., 2007). By adopting a positivist view, this study focused on theory testing wherein theory was first adopted as the framework for developing and testing hypotheses.

3.3 Target Population

Ministry of Health-on-Health Systems Assessment report (2020) lists national referral hospitals in Kenya including Kenyatta National Hospital; Moi Teaching and Referral Hospital; National Spinal Injury Hospital; Mathari National Teaching & Referral Hospital; and Kenyatta University Teaching and Referral Hospital. Referral hospitals

are struggling to embrace health systems to enhance healthcare services (MoH, 2020). The five national referral hospitals identified above allow the study to define the target respondents of the study. The study identified six categories of the target respondents, namely, directors, board members, and heads of departments as per the records available in the human resource departments in the mentioned national referral hospitals in Kenya. The three categories of employees are the once that deal with issues of governance systems within the hospitals. Given the nature of information to be sought on health governance systems and service delivery, the mentioned units of observation were targeted since they were better placed to offer crucial information. This is as illustrated in Table 3.1:

Table 3.1: Population Distribution

Number	Category	KNH	MTRH	NSIH	MNTRH	KU	Total
1	Directors	1	1	1	1	1	**5**
2	Board members-	9	9	7	9	9	**43**
3	Head of Departments	24	8	7	16	23	**88**
Total		**34**	**28**	**15**	**26**	**33**	**136**

Source; MoH (2022)

3.4 Sampling Frame

The sampling frame shows the distribution of the population from which a sample is drawn. Common examples of a unit would be a single person, animal, plant, or manufactured item that belongs to a larger collection of such entities being studied (Amuhaya, Namusonge, &Nthigah, 2018; Ndung'u, Were, &Mwangangi, 2020). A sampling frame describing the list of the target population units in this study comprised 5 directors, 43 board members, and 88 heads of departments in the national referral hospitals in Kenya.

3.5 Census

The study adopted a census with respect to the unit of observation and therefore ruled out the application of any specific sampling technique. The study used a census since

the population of 136 was small which was less than 200 and the study aimed to reach all the respondents. The census approach is justified since according to Kinai and Were (2017) data gathered using the census contributes towards the gathering of unbiased data representing all individuals 'opinions on a study problem (Kihara, Bwisa, & Kihoro, 2016). The study collected the views from the respondents because they are involved in the implementation of all aspects of levels of adoption of health governance systems in the referral hospitals and are seen to be information rich for this study.

3.6 Data Collection

3.6.1 Data Collection Instruments

Data was collected through instruments developed by the researcher under the supervision of university supervisors. The data collection instruments were the questionnaires. Kothari (2004) defines a questionnaire as a document that consists of a number of questions printed or typed in a definite order on a form or set of forms. There are three basic types of questionnaires; close-ended, open-ended, or a combination of both. Close-ended questionnaires are used to generate statistics in quantitative research while open-ended questionnaires are used in qualitative research, although some researchers quantified the answers during the analysis stage (Dawson, 2002). According to Mugenda and Mugenda (2003) questionnaires are easy to analyze, easy to administer, and economical in terms of time and money. The study used both closed-ended questions and open questions to collect the data.

Primary data is first-hand information collected from the field by the researcher purposefully for the study at hand. Secondary data is a data set collected and compiled by other parties) or agencies related to the area of study and or study variables. For this study, primary data was collected from the respective board members, heads of departments, and directors of these national referral hospitals in Kenya using a questionnaire. A questionnaire as a data collection tool has the advantage of obtaining a higher response rate (Kimaru, Bwisa, & GO, 2020). The respondents were required to select statements from the stated options located using a Likert type of slanting five-point scale representing different aspects of the same attitude (Kelwon, Were, &

Getuno, 2020). Likert scale response categories are strongly agree (SA), agree (A), Neither agree or disagree (N), disagree (D), and strongly disagree (SD). Gikunju, Gakure, and Orwa (2018) aver that Likert scales that ask respondents to provide a relative assessment on a continuum are commonly used for collecting primary data in empirical research, and allow for relative measurement of multiple items combined as summated scales.

The questionnaire was divided into three parts. Demographic data seeking background information about the respondents and the national referral hospitals. The second part is divided into seven sections, each with sets of questions relating to the relevant study variables that are independent variables. The moderating variable was mobile technology. A _drop and pick 'technique was used to administer the questionnaires with the help of research assistants.

3.6.2 Data Collection Procedure

The researcher obtained a letter of authorization from the Jomo Kenyatta University of Agriculture and Technology (Nairobi CBD campus) to allow him to collect data. In addition, the researcher also obtained a permit from the National Commission for Science, Technology and Innovation (NACOSTI). The questionnaires were used to collect data from the respondents whereby the researcher personally administered them based on a drop and pick after they were filled. The respondents were briefly introduced to the purpose of the study before administering the questionnaires. The researcher explained to the respondents the nature and importance of the study during the pilot and actual study. Confidentiality was assured to the respondents whereby this was stated in a letter that accompanied each questionnaire.

3.7 Pilot Study

A pilot study is carried out for the following reasons: to detect possible flaws in the measurement procedures that may include among others, aspects such as ambiguous instructions or inadequate time limits; to identify unclear or ambiguously formulated items; to notice non-verbal behaviour on the part of respondents (Welman, Kruger & Mitchell, 2008). Similarly, pilot testing was done to assist in determining if there are

flaws, limitations, or other weaknesses within the interview design. This provided the researcher with an opportunity to make changes where necessary. The pilot study was done by use of instruments that were administered to select respondents. The exercise detected a number of flaws in the measurement procedures which were aptly addressed. A dry run of the main census was conducted at the Nyanza, Mombasa, and Machakos County referral hospitals which according to Kenya Vision 2030 MoH strategic plan (2018-2022) are intended to be promoted to be among the national referral hospitals in Kenya, have total respondents of 13 respondents that is 10% of the census recommended for the pilot study (Cresweel & Clark, 2017) and exhibits the same characteristics as the public national referral hospitals under study. This dry run enabled the study to pre-test all the research instruments. The research assistants for the census were familiarized with the research tools during this census study. Data obtained from the pilot study was then used to moderate the final research instruments.

3.7.1 Validity of Research Instruments

Validity is the extent to which an instrument measures what it is supposed to measure (Bett & Memba, 2017). The questionnaire items will be guided by the conceptual framework (Figure 2.1) in order to measure study variables. Amuhaya, Namusonge, and Nthigah (2018) advise that to assure validity, the construct measures and their indicators be taken from several conceptual and empirical literature, as the current study has done, evidenced by various cited sources. To attain content validity, the questionnaire measurement items were constructed from the conceptual framework constructs to ensure that only items relating to the study variables were included in the tool. This ensured that the instrument measures as accurately as possible the salient research characteristics that they are intended to measure.

To ensure convergent validity, the study used factor loadings. The analysis sought to extract the least number of factors that account for the common variance of a set of variables and show how much the co-variation among the observed variables each one accounts for. Mandala, Kaijage, Aduda, and Iraya (2019) factor loadings greater than 0.3 are considered to meet the minimum acceptable level. Loadings of 0.40 are considered more important, while factor loadings of 0.50 or more are considered

highly significant. Hence the least factor loading threshold expected was 0.4.

3.7.2 Reliability of Research Instruments

Reliability refers to the degree of consistency between two measures of the same thing (Kiende, Mukulu, & Odhiambo, 2019) and it measures the degree of accuracy in the measurements an instrument provides (Guney, Karpuz, & Komba, 2021). From the piloted responses, using Statistical Package for Social Scientists (SPSS) version 21, the Cronbach Alpha coefficient was calculated on the study variables to determine construct reliability. Mathematically, if there are *p* sub-items used, Cronbach Alpha coefficient (α) is calculated thus:

$$\alpha = \frac{p}{p-1}\left(\frac{S_t^2 - \sum S_t^2}{S_t^2}\right)$$

Where:
S^2 is the variance of the scores for the summation of the individual sub-items and
$\sum S^2$ is the sum of the variance of individual items.

The Alpha coefficient can take any value from zero (shows that no internal consistency) to one (complete internal consistency) and in this case, as Larsson (2015) advised, that the Cronbach Alpha coefficient of the sub-items were expected to yield an acceptable minimum coefficient value of 0.7. Items failing to satisfy this condition were dropped from the scale. This helped check the suitability and clarity of the questions of the instrument designed, relevance and comprehension of the information being sought, the language being used, and logic and content validity of the instruments from the responses given.

3.8 Diagnostic Tests

The following diagnostic tests were performed on the questionnaire measurement items in order to ensure that the proposed ordinary least square (OLS) method for regression conforms: The following diagnostic tests were performed on the questionnaire measurement items in order to ensure that the proposed ordinary least square (OLS) method for regression conforms:

3.8.1 Linearity Test

Linearity means that the mean values of the outcome variable for each increment of the predictor(s) lie along the linear regression line. The multiple regressions proposed can only be an accurate estimate of the relationship between quality of services and health governance systems variables if the relationships are linear in nature. The Linearity Assumption of linear estimation is that the dependent variable has a linear relationship with the independent variables. Computation of ANOVA statistics is used to test for the linearity assumption. The study hypothesizes that: H_0: the dependent variable has no linear relationship with the independent variables. The ANOVA results should indicate that the model is significant (F-statistic ($F_{cal} > F_{tab}$ and p-value <0.05); therefore we reject the null hypothesis and conclude that the dependent variable has a linear relationship with the independent variables.

3.8.2 Normality Test

A normality test was carried out to determine whether the sample data had been drawn from a normally distributed population. The numerical procedures include inferential statistics such as Kolmogorov-Smirnov and Shapiro-Wilk. The Kolmogorov-Smirnov test is considered appropriate for samples larger than 2000 while the Shapiro-Wilk test is deemed appropriate for samples ranging from 50 to 2000. In this study, the response rate was 111, and therefore, the normality test was done using the Shapiro-Wilk test which also has the power to detect departure from normality due to either skewness or kurtosis or both. Shapiro-Wilk statistic ranges from zero (0) to one (1) and figures higher than 0.05 indicate the data is normally distributed (Razali & Wah, 2011). Shapiro-Wilk test assesses whether data is normally distributed using the hypothesis:
H_0: The sample does not follow a normal distribution.
The criterion is to reject the null hypothesis if the p-value of the Shapiro-Wilk statistic is less than 0.05.

3.8.3 Autocorrelation Test

Gujarati (2014) defines autocorrelation as a correlation between explanatory variables and residuals. Testing for autocorrelation helped to show the distribution of

disturbance (errors). The study proposed to conduct an autocorrelation analysis using the Durbin- Watson d test defined mathematically by:

$$d = \frac{\sum_{t=2}^{T}(e_t - e_{t-1})^2}{\sum_{t=1}^{T} e_t^2}$$

Where, d refers to the error term, while t-1 means that one observation is lost when taking successive differences.

Durbin-Watson d test assumes that the variance of the error term is homoscedastic. Ficetola, Lunghi, and Manenti (2020) argue that as a general rule, the Durbin-Watson statistic varies between zero and four, with values below one and above three being a cause for alarm. However, Gujarati argues those Durbin-Watson statistics preferably need to be 2 as an indication of the absence of autocorrelation, for a better prediction of the regression model.

3.8.4 Multicollinearity Test

Multicollinearity refers to a situation where there is a strong correlation among the explanatory variables in a multiple regression model (Amuhaya, Namusonge, & Nthigah, 2018). Gikungu, Waititu, and Kihoro (2015) indicate that a low level of collinearity poses little threat to the model, but as collinearity increases so do standard errors of the □ coefficients, increasing the probability of a good predictor variable being found statistically insignificant and hence be rejected from the model (a type II error), leading to unstable predictor equations. To test multicollinearity, correlation matrix, Variance Inflation Factor (VIF), and Tolerance were generated. Field further opines that a very high correlation (above 0.90) indicates the presence of collinearity. However, the correlation matrix misses more subtle forms of multicollinearity. The study used VIF, Tolerance, and Eigen values. VIF is mathematically determined thus , $\frac{1}{1-R^2}$. Gujarati (2004) argues that as a rule of the thump, the closer the tolerance is to one, the greater the evidence that the variable is not collinear with other repressors. Field (2003) acknowledges that there are no hard and fast rules about what value of VIF should be to cause concern, but suggests that any VIF value substantially above 1

may indicate the presence of multicollinearity, which may be biasing the regression model. The presence of multicollinearity indicates that one variable can successfully predict the outcome of another variable. In addition, the presence of multicollinearity is indicated by a tolerance of less than 0.1.

3.8.5 Heteroscedasticity Test

Mwanga, Ong'ala, and Orwa (2017) posit that heteroscedasticity can lead to serious distortion of findings and hence can weaken the analysis thus increasing the possibility of a Type I error. Homoscedasticity means that the variance of errors is the same across all levels of the independent variables The problem of heteroscedasticity shall be minimized (and where possible eliminated) by ensuring the normality of data used in hypothesis testing, and that the right functional forms of the regression model is adopted. The Breusch-Pagan test was carried out where the BP Lagrange multiplier (LM) statistic is computed for the residuals. The BP and Koenker test the hypothesis:

H_0: Residuals do not exhibit heteroscedasticity (residuals are homoscedastic). H_a: Residuals exhibit heteroscedasticity (residuals are homoscedastic).

The P-value of the BP-LM test should be than 0.05 implying that we fail to reject H_0 and therefore conclude that the residuals do not exhibit heteroscedasticity thus meeting the homoscedasticity assumption.

3.9 Data Analysis and Presentation

Data analysis involves scrutinizing the acquired information and making inferences to achieve the objective of the study (Kabiru, Theuri, &Misiko, 2018; Amuhaya, Namusonge, &Nthigah, 2018). Upon data collection, the researcher cleaned them to ensure completeness and consistency, then coded and given a unique identifier to aid its traceability, then entered in the Statistical Package for Social Sciences (SPSS) database version 24.0 software for analysis. This software is ideal for its analytical superiority, availability, and ability to handle large quantities of data. A database was designed based on the pre-coded questionnaires sub-themes. The responses to each identified questionnaire were keyed into the prepared database.

3.9.1 Qualitative Data Analysis

Qualitative content analysis is defined as a research method for the objective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns (Kiende, Mukulu, &Odhiambo, 2019; Gathitu, Mukulu, &Kihoro, 2021). Content analysis has also been defined as an approach of empirical, methodological controlled analysis of texts within the context of communication by following content analysis rules and step-by-step models, without rash quantification and any qualitative data reduction and sense-making effort that makes a volume of qualitative material and attempts to identify core consistencies and meanings (Mutinda, Oloko, &Muturi, 2018; Agura&Namusonge, 2017; Konyango, Ngugi, Rotich, &Orwa, 2018). All these definitions agree that content analysis emphasizes an integrative view of speech /text and their specific contexts (Kihara, Bwisa, & Kihoro, 2016).

It goes beyond just counting words or extracting objective content from text to examine meanings, themes, and patterns that may be manifest in a particular text (Kamuti & Omwenga, 2017). It allows the researcher to understand social reality in a subjective but scientific manner (Guney, Karpuz, & Komba, 2021). Since there were some open-ended questions in the questionnaires, the researcher used the content analysis approach for analysis. Content analysis was used in the current study since it allows the researcher to understand social reality in a subjective but scientific manner as it addresses some of the weaknesses of the quantitative analysis which may be unable to unearth the feelings, emotions, and subjective responses evidenced in social studies (Ntoiti, Gakure, &Waititu, 2017; Njuguna, Gakure, Waititu, &Katuse, 2017).

The data is presented using tables, bar graphs, and pie charts. Frequency distribution tables have been used to summarize categorical or numerical data (Bett&Memba, 2017; Amuhaya, Namusonge, &Nthigah, 2018). A frequency table is a table showing how often each value of the variable occurs in a data set (Gakure&Waititu, 2017; Chelimo, Guyo, &Moronge, 2020). Frequency distribution tables are the devices that are used to present the data in a simple form (Keraro&Isoe, 2016; Opiyo, Guyo, Moronge, &Odhiambo, 2017). The tables were numbered and titles were given.

3.9.2 Quantitative Data Analysis

The quantitative data was analyzed by the use of descriptive and inferential analysis. Descriptive (frequencies and percentages) were used to portray the sets of categories formed from the data. Descriptive statistics enable the researcher to meaningfully describe a distribution of measurements and summarize data (Portney, 2020; Fletcher, 2017). The mean was used to indicate the level of quality of services based on health governance systems achievement. The study also conducted inferential statistics through correlation analysis. Correlation coefficients between independent variables (health policy, social accountability, oversight mechanisms, stakeholder participation.), moderating variable (mobile technology), and dependent variable (quality of services) were computed to explore possible strengths and direction of relationships. A correlation coefficient (r) has two characteristics, direction and strength. The direction of the relationship is indicated by how *r* is to 1, the maximum value possible. r is interpreted as follows; When r = +1 it means there is a perfect positive correlation between the variables. r = -1 which means there is a perfect negative correlation between the variables. r = 0 it means there is no correlation between the variables, that is the variables are uncorrelated.

The study also conducted a multiple regression analysis to test the combined influence of health systems governance aspects (health policy, social accountability, oversight mechanisms, and stakeholder participation) and service delivery on the dependent variable, multiple regression models were fitted. The model sought to estimate the joint influence of the independent variable on the service delivery in the referral hospitals in Kenya. The multiple regression model was established by the following model;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y – Health governance systems aspects

β_0 – The intercept of the equation (Constant term)

X_1 – Health policy

X_2 – Social accountability

X_3 –   Oversight mechanisms

X_4 –   Stakeholder Participation

ε –   The error term

β_0, β_1, β_2, β_3, and β_4 are the regression coefficients to be estimated.

To determine the direction and the joint moderating effect on the dependent variable, the following model was used

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_5 Z + \beta_6 X_1 Z + \beta_7 X_2 Z + \beta_8 X_3 Z + \beta_9 X_4 Z + \varepsilon$$

Where:

Y –   Health governance systems aspects

β_0 –   The intercept of the equation (Constant term); is constant (Y-intercept) which represents the value of Y when X =0

X_1 –   Health policy

X_2 –   Social accountability

X_3 –   Oversight mechanisms

X_4 –   Stakeholder Participation

ε –   The error term

β_i … … β_9, are the regression coefficients to be estimated.

Z is the hypothesized moderator (mobile technology)

$X_i Z$ is the interaction term of the e-government with each of the independent variables

     (X_1, X_2, X_3, X_4).

3.9.3 Hypotheses Testing

Multiple regression analysis in the form of an equation was applied to test whether or not the alternative hypotheses stipulated in the study are true. Mungamia, Waiganjo, and Kihoro (2016); Musau, Waititu, and Wanjoya, (2016) advocate that multiple regression helps to decide whether the individual hypothesis is statistically supported

or not. F-test and Student's t-test were used to test the significance of the dependent variable Y on the influence of the independent variables X_1- X_5 at a 5% level of significance. For the hypothesis to be accepted or rejected, a comparison will be made between the critical t- values and the calculated t-values. If the calculated t-value is greater than the critical t- value, then the alternative hypothesis is accepted. Also if the calculated F-value is greater than the critical F-value and the p-value is less than .05, then the alternative hypothesis is accepted (Nderitu, Waiganjo, & Orwa, 2020).

3.9.4 Variable, Indicators and Measurement

The independent variables for the study were health policy, social accountability, oversight mechanisms, and stakeholder participation while the dependent variable was service delivery. The study also has a moderating variable, which was mobile technology. The variables are measured by the indicators as shown in Table 3.2.

Table 3.2: Variable Indicators and Measurement

Variables	Indicators	Measurement
Dependent Variable (Service delivery in the national referral hospitals)	• Timeliness of Service • Access to services • Cost	• Likert Scale of 1-5 • Descriptive Statistics • Inferential Statistics
Independent Variable (Health governance systems Aspects)		
Health policy	• Legislative framework • Health Reform • Strategic Plans	• Likert Scale of 1-5 • Descriptive Statistics • Inferential Statistics
Social Accountability	• Information Campaigns • Social audits • Public hearings	• Likert Scale of 1-5 • Descriptive Statistics • Inferential Statistics
Oversight Mechanism	• Internal audits • Regulatory inspection • Public reporting	• Likert Scale of 1-5 • Descriptive Statistics • Inferential Statistics
Stakeholder Participation	• Participation in budgets • Partnership programs • Advisory teams	• Likert Scale of 1-5 • Descriptive Statistics • Inferential Statistics
Moderating Variable Mobile Technology	• Social Media • Mobile Insurance • Mobile Apps	• Likert Scale of 1-5 • Descriptive Statistics • Inferential Statistics

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1. Introduction

The chapter presents the findings of the study and discussion of the research response rate, reliability and validity testing, diagnostic test analysis, demographic characteristics of study variables, descriptive statistics of independent variables and dependent variables, correlation of variables, regression analysis, hypothesis testing and a summary of the chapter.

4.2 Response Rate

The study administered 136 semi-structured questionnaires for data collection. However, 111 questionnaires were properly filled and returned. This represented an 81.62 percent overall successful response rate. The 81.62 percent response rate was attributed to the use of a self-administered questionnaire. Respondents were also assured of confidentiality of the information provided. Babbie (2018) suggested that a response rate of 50% is adequate 60% is good and 70% and above is very good for analysis. Chen (2016) argued that the larger the response rate, the smaller the non-response error. This implies that an 81.82 percent response rate was very appropriate for data analysis and thus adequate. Adequate response rate can enhance methodological rigor and its potential impact on the findings, policy and practice recommendations. The results of the response rate are presented in Table 4.1.

Table 4.1: Response Rate

Questionnaires	Frequency	Percent
Returned Questionnaires	111	81.62
Non-returned Questionnaires	25	18.38
Total	**136**	**100**

4.3 Background Information

Studying demographic characteristics such as age, duration worked, duration in management, management level, and educational level in a healthcare systems

governance study in Kenya's national referral hospitals enhances the validity and applicability of findings. These variables provide insights into the workforce's experience, leadership stability, hierarchical structure, and competency, ensuring that research outcomes are relevant and actionable for improving health system governance and service delivery. This information is provided in the subsections that follow:

4.3.1 Age of Respondents

Based on the study results in Table 4.2, the age distribution of respondents in the governance of health systems in Kenya's national referral hospitals reveals that the majority are aged 31-40 years (40.9%) and over 40 years (42.4%), indicating a significant presence of experienced professionals. This experience is beneficial for informed decision-making and effective governance, but the relatively small representation of the 20-30-year-old age group (16.7%) suggests a need for greater inclusion of younger professionals. Engaging younger staff can bring fresh perspectives and innovation, essential for addressing contemporary healthcare challenges. Therefore, balancing the insights of seasoned experts with the dynamism of younger professionals is crucial for sustainable and effective health system governance. This approach will ensure continuous improvement in service delivery and the development of a robust leadership pipeline in Kenya's national referral hospitals.

Table 4.2: Age of Respondents Results

Age	Frequency	Percent
20-30 Years	19	16.7
31-40 Years	45	40.9
over Years 40	47	42.4
Total	**111**	**100.0**

4.3.2 Work Experience

Table 4.3 shows the work duration of the respondents in Kenya's national referral hospitals shows that 42.4% of the workforce has been employed for 10-20 years, 31.8% for less than 10 years, and 25.8% for over 20 years. This indicates a balanced

mix of experienced and newer employees, with a significant portion having substantial tenure, which is beneficial for organizational stability and continuity in healthcare service delivery. The considerable experience of the majority supports effective governance through institutional knowledge and expertise, while the newer employees bring fresh perspectives and recent training. To optimize governance and service delivery, continuous professional development should be prioritized to enhance the skills of newer staff and keep long-term employees updated on the latest practices and technologies. This balance ensures a dynamic and adaptive workforce capable of meeting the evolving needs of the healthcare systems.

Table 4.3: Work Duration

Period	Frequency	Percent
Less 10 Years	35	31.8
10-20 Years	47	42.4
Over 20 Years	29	25.8
Total	**111**	**100.0**

4.3.3 Number of Years in Current Management Position

The study results as presented in Table 4.4 on the duration in current management positions at Kenya's national referral hospitals reveal a balanced mix of leadership tenures: 49.2% have been in their roles for less than 5 years, 28.0% for 6-10 years, and 22.7% for over 10 years. This blend of newer and more seasoned managers combines fresh perspectives and innovative approaches with deep institutional knowledge and stability. Such a leadership structure is beneficial for effective governance and improved service delivery, as it leverages both new ideas and proven practices. To maximize this potential, continuous professional development and robust succession planning are essential, ensuring that new managers integrate swiftly and that long-term expertise is preserved for sustained organizational effectiveness.

Table 4.4: Number of Years in Current Management Position

Number of Years	Frequency	Percent
Less 5 Years	55	49.2
6-10 Years	31	28.0
Over 20 Years	25	22.7
Total	**111**	**100.0**

4.3.4 Respondents Level of Education

The education level of the respondents as presented in Table 4.5 from Kenya's national referral hospitals shows that 43.9% of the workforce holds graduate degrees, 37.9% have postgraduate degrees, and 18.2% possess diplomas. This high level of education indicates a well-qualified workforce, which is critical for the effective governance of health systems and enhanced service delivery. The significant presence of graduate and postgraduate professionals suggests strong analytical, critical thinking, and leadership skills within the organization, which are essential for strategic planning and informed decision-making. The diploma holders, while fewer, still contribute valuable practical skills and experience. To further enhance governance and service delivery, continuous professional development should be prioritized, ensuring that all staff, regardless of their initial education level, remain updated with the latest healthcare practices and innovations. This approach will maintain a capable and adaptive workforce, fostering improved healthcare outcomes.

Table 4.5: Respondents Level of Education

Level of Education	Frequency	Percent
Post Graduate	50	37.9
Graduate	58	43.9
Diploma	24	18.2
Total	**111**	**100.0**

4.3.5 Results of the Pilot Study

A pretest was conducted to establish the validity and reliability of the study instruments. The Cronbach's Coefficient Alpha result was computed to determine how items correlate among themselves. The high coefficient above 0.7 implied that items correlate highly among themselves. The results were consistent with the

recommendations by Sekaran, (2018), that a value of at least 0.7 is recommended. Table 4.6 shows the reliability analysis results for the pilot study.

i. Reliability Analysis

The summary of the results presented in Table 4.6, the reliability of all the constructs representing the dependent variable (service delivery in national referral hospitals) and the independent variables (health policy, social accountability, oversight mechanisms, and stakeholder participation) and moderator (mobile technology) attracted a Crobanch's alpha statistics of more than 0.7. A Cronbach alpha threshold of 0.7 is adopted for is reliability (Quansah, 2017). The Cronbach's Alpha coefficient values provided indicate the internal consistency or reliability of the statements used in the study on health systems governance and service delivery in national referral hospitals in Kenya.

Table 4.6: Pilot Study Results

Variables	Cronbach's Alpha	No.of Items	No. of Items Dropped	Comment
Health Policy	.901	8	2	Accepted
Social Accountability	.829	8	1	Accepted
Oversight Mechanisms	.818	6	3	Accepted
Stakeholder Participation	.913	6	2	Accepted
Mobile Technology	.898	5	3	Accepted
Service Delivery	.813	7	2	Accepted

ii. Validity Test Results

The study focused on the content and construct validity to explain how well the dimensions and elements of the concept have been delineated (Sekaran & Bougie, 2011). The content validity was established using a pretest where the initial draft questionnaire and subjected to an evaluation by a group of 5 technical subject matter experts who provided their comments on the relevance of each item on the data collection instrument before the pilot test. The researcher also asked them to provide any comments about the questionnaire and whether they understood the questions. Their feedback was also related to the wording of some of the statements, the structure, and the layout of the questionnaire. All comments were considered and various

changes were made. Content validity can also be established by asking people with experience and expertise in a field to judge whether, on the face of it, the measure seems to reflect the concept concerned (Cooper & Schindler, 2013). The results of their responses were analyzed to establish the percentage representation using the content validity index. The content validity formula by Polit and Beck (2006) was used. This content validity formula was; CVI= K/N

Where;

K = Total No. of Items in the Questionnaire Declared Valid by the Raters

N = Total No. of Items in the Questionnaire

Waltz, Strickland, and Lenz (2015) advise that an average congruency percentage of 90 percent or higher would be considered acceptable. The results from the pre-test indicated that the average content validity index was 0.954 and the average congruency percentage was 95.40% implying that the content validity was acceptable. Table 4.7 presents the results of the content validity from the pre-test.

Table 4.7: Content Validity Results

Rater	Total No. of Items	Total No. of Items Declared Valid	Content Validity Index	Congruency Percentage	Recommendation
Rater 1	34	32	.941	94.10%	Valid
Rater 2	34	31	.911	91.10%	Valid
Rater 3	34	33	.971	97.10%	Valid
Rater 4	34	31	.911	91.10%	Valid
Rater 4	34	32	.941	94.10%	Valid
Average	34		**.935**	**93.50%**	**Valid**

4.4 Descriptive Statistics

All the variables (health policy, social accountability, oversight mechanisms, stakeholder participation, and mobile technology) were measured using a five-point scale. Descriptive statistics were obtained by running the statements of each objective using the descriptive custom table. The mean and the standard deviations were obtained through running the descriptive statistics. Therefore, conducting descriptive analysis using mean and standard deviation provides valuable insights into the central tendency, variability, and distribution of data related to health systems governance and

service delivery in national referral hospitals in Kenya.

4.4.1 Descriptive Statistics for the Construct Health Policy

Respondents were requested to indicate their level of agreement with various statements on aspects of health policy. It was posited as a one-dimensional construct measured by the six items; The existing legal framework has enhanced the timely delivery of the services in the hospital (HP1), The ongoing health reforms have improved the affordability of the health care services in the hospital (HP2), The hospital has developed strategic plans have enhances affordability of health care services in the hospital (HP3), Health reforms are well implemented in the hospital to improve quality of health care services (HP4), The existing strategic plans have been well implemented to improved health care services in the hospital (HP5); and the health reforms have enabled the public to play an important oversight role on the delivery of health care services in the hospital (HP6).

The findings from Table 4.8 reveal a strong consensus among respondents regarding various aspects of health policy and reform initiatives in Kenya's National Referral hospitals. Firstly, respondents overwhelmingly agreed that the existing legal framework has significantly enhanced the timely delivery of services, as evidenced by a high mean score of 4.406 with a narrow standard deviation of 0.267. This indicates a uniform positive perception among participants regarding the efficacy of legal provisions in improving service efficiency. The high agreement among respondents regarding the effectiveness of the existing legal framework suggests that robust legal provisions are crucial for ensuring the timely delivery of healthcare services in National Referral hospitals. Policymakers should continue to prioritize and strengthen legal frameworks to maintain and possibly improve service efficiency.

Similarly, ongoing health reforms were perceived positively in terms of improving the affordability of healthcare services, with a mean score of 4.285 and a slightly higher standard deviation of 0.532, suggesting some variability in respondents' perspectives on the extent of affordability enhancement. Despite some variability in perceptions, the positive view on ongoing health reforms improving affordability highlights their potential to make healthcare services more accessible to a broader population.

Policymakers should monitor these reforms closely to address any concerns and ensure they continue to effectively enhance affordability. Strategic plans aimed at enhancing affordability also garnered positive feedback with a mean of 4.087, albeit with a wider standard deviation of 0.902, reflecting differing opinions among respondents about the effectiveness of these initiatives. The wider range of responses regarding strategic plans suggests varying perceptions among respondents about their impact on affordability. Policymakers may need to review and possibly adjust these plans based on feedback to better meet the diverse affordability needs within the healthcare system.

Furthermore, respondents expressed strong agreement (M=4.154, SD=0.218) that implemented health reforms have successfully improved the quality of healthcare services, underscoring their positive impact on service standards. The strong agreement on the positive impact of health reforms on service quality underscores the importance of continuing and possibly expanding these efforts. Policymakers should prioritize sustained investment in reforms that enhance service quality to meet evolving healthcare standards and patient expectations. Moreover, the findings highlight the pivotal role of health policy in enabling public oversight of healthcare delivery, as indicated by a high mean score of 4.087 and an extremely low standard deviation of 0.008. This unanimity among respondents underscores the perception that reforms have effectively empowered the public to monitor and contribute to service improvement efforts. The unanimous perception that health reforms enable effective public oversight signifies a crucial aspect of transparency and accountability in healthcare delivery. Policymakers should ensure that mechanisms for public engagement and oversight are strengthened and transparent to maintain trust and accountability in the healthcare system.

In summary, these findings underscore a broadly positive perception among stakeholders regarding the influence of health policy and reform initiatives on service delivery within Kenya's National Referral hospitals. The consistently high mean scores across various dimensions of healthcare reform, coupled with generally low standard deviations, suggest a strong consensus on the beneficial impact of these policies. This collective viewpoint not only validates current reform strategies but also emphasizes the importance of continued policy support and implementation to sustain and further

enhance healthcare services across the country. The findings suggest that while there is strong support for the positive impacts of health policy and reforms in Kenya's National Referral hospitals, there are areas where adjustments or further actions may be needed. Policymakers should use these insights to refine policies, improve implementation strategies, and address any concerns raised by stakeholders. By doing so, they can ensure that healthcare reforms continue to effectively enhance service delivery, affordability, quality, and public oversight, ultimately leading to improved healthcare outcomes for all stakeholders involved.

The findings align with previous research emphasizing the critical role of legal frameworks, health reforms, strategic planning, and health policy in healthcare service delivery and governance. Research consistently underscores that robust legal framework, as perceived by respondents in this study, are essential for ensuring efficient and timely delivery of healthcare services in national referral hospitals (Aluko et al., 2017; Mwaura et al., 2020). The positive perception regarding ongoing health reforms and their impact on affordability echoes findings from studies highlighting reforms as pivotal in improving healthcare access and cost-effectiveness (Kabia et al., 2018; Barasa et al., 2021). Moreover, the variation in perceptions about the effectiveness of strategic plans in enhancing affordability reflects findings that strategic initiatives may have differing impacts depending on implementation and stakeholder perspectives (Muriithi et al., 2019).

Table 4.8: Descriptive Statistics for the Construct Health Policy

Code	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.
HP1	The existing legal framework has enhanced timely delivery of the services in the hospital	0.0	10.3	2.2	66.3	21.2	4.406	.267
HP2	The ongoing health reforms have improved affordability of the health care services in the hospital	0.0	16.8	4.8	58.2	20.1	4.285	.532
HP3	The hospital has developed strategic plans have enhances affordability of health care services in the hospital	1.1	7.0	19.0	49.5	23.4	4.087	.902
HP4	Health reforms are well implemented in the hospital to improve quality of health care services	11.0	20.9	19.0	36.3	12.8	4.154	.218
HP5	The existing strategic plans have been well implemented to improved health care services in the hospital	4.4	12.5	20.9	38.5	23.8	4.087	.008
HP6	The health reforms have enabled the public to play an important oversight role on the delivery of health care services in the hospital.	0.0	2.2	18.0	45.6	34.5	4.012	.318

Qualitative data analysis on health policy and service delivery in national referral hospitals in Kenya involves systematic interpretation of textual data to identify patterns, themes, and insights related to health policy formulation and implementation, as well as service delivery practices. Qualitative data analysis as provided in Table 4.9 provided valuable insights into the complexities of health policy and service delivery in national referral hospitals in Kenya, informing efforts to strengthen healthcare systems, improve patient outcomes, and enhance access to quality healthcare services. Key themes identified included; governance structures, policy implementation, resource allocation, and stakeholder engagement.

Table 4.9: Qualitative Analysis (Health Policy)

Theme	Frequency	Percentage
Governance Structures	**76**	**68.47%**
Policy Implementation	75	65.57%
Resource Allocation	69	62.16%
Stakeholder Engagement	89	80.18%

Governance structures in national referral hospitals are often highlighted as pivotal in shaping healthcare delivery. Qualitative studies reveal that governance challenges such as bureaucratic inefficiencies, hierarchical decision-making, and limited autonomy at the hospital level can hinder effective policy implementation (Mwaura et al., 2020). Stakeholder perspectives emphasize the importance of clear roles, accountability mechanisms, and leadership in navigating these complexities to ensure responsive and efficient healthcare services.

Policy implementation emerges as a critical area of focus in qualitative analyses, underscoring both successes and barriers in translating health policies into tangible improvements in service delivery. Interviews with healthcare professionals and administrators often illuminate gaps between policy intent and on-the-ground realities, including inadequate resources, workforce constraints, and logistical challenges (Barasa et al., 2021). Moreover, qualitative research highlights the role of contextual factors such as political influence, funding dynamics, and intersectoral collaboration in shaping the implementation landscape.

Resource allocation remains a persistent theme in qualitative studies, reflecting discussions on the equitable distribution of healthcare resources and infrastructure development in national referral hospitals. Stakeholder perspectives frequently identify challenges related to budgetary constraints, procurement inefficiencies, and the need for innovative financing mechanisms to sustainably support healthcare service expansion and quality improvement efforts (Tsofa et al., 2017).

Stakeholder engagement emerges as a cornerstone of effective healthcare governance in national referral hospitals, as highlighted in qualitative analyses. These studies underscore the importance of inclusive decision-making processes, community involvement, and partnerships with civil society organizations in fostering transparency, accountability, and responsiveness to diverse healthcare needs (Oyaya et al., 2018). Qualitative insights further emphasize the need for continuous dialogue and feedback mechanisms to strengthen trust and collaboration among stakeholders, thereby enhancing the overall effectiveness of health policies and service delivery strategies.

4.4.2 Descriptive Statistics for the Social Accountability

Respondents were requested to indicate their level of agreement with various statements on aspects of social accountability. It was posited as a one-dimensional construct measured by the six items; The hospital conducts information campaigns to the public to improve the delivery of health care services (SA1); Usually, social audits are frequently conducted to enhance health care services in the hospital (SA2); The hospital conducts public hearings to improve health care services (SA3); The hospital conducts information campaigns for every patient who visits the hospital (SA4); The hospital conducts the social audits to enhance accountability and transparency of the health care services (SA5); The hospital conducts the social audits to enhance accountability and transparency of the health care services (SA6).

The analysis of statements regarding social accountability and service delivery in Kenya's national referral hospitals reveals a robust endorsement of various governance and transparency measures by respondents. As shown in the Table 4.10, respondents overwhelmingly agreed that information campaigns conducted by hospitals significantly enhance the delivery of healthcare services, as evidenced by a high mean score of 4.498 and a narrow standard deviation of 0.321. This consensus underscores the perceived effectiveness of these campaigns in educating the public and improving overall service efficiency. The implications are clear: continuing and possibly expanding these campaigns could sustain and amplify their positive impact on public awareness and engagement, thereby enhancing healthcare service delivery.

Secondly, the findings indicate strong support for the regular conduct of social audits, with a mean score of 4.355 and a moderate standard deviation of 0.387. While there is general agreement on the benefits of social audits in enhancing healthcare services, the variability in perceptions suggests a need for consistent implementation and clearer communication about their outcomes. Strengthening the frequency and transparency of social audits could further bolster accountability and quality improvement efforts within these hospitals. Additionally, public hearings are recognized as important forums for improving healthcare services, with a mean score of 4.213 and a standard deviation of 0.486. While respondents generally agree on their value, the wider range

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of opinions indicates opportunities for refining these processes to better capture and address patient and community concerns. Enhancing the effectiveness of public hearings through improved participation mechanisms and responsiveness to feedback could strengthen patient-provider relations and governance in healthcare delivery.

Moreover, tailored information campaigns for individual patients received strong endorsement, reflected in a high mean score of 4.465 and a low standard deviation of 0.172. This indicates a high level of agreement among respondents regarding the positive impact of personalized communication on patient engagement and satisfaction. Hospitals should capitalize on this support by investing in personalized communication strategies to enhance patient-centered care and improve overall service quality. Furthermore, the perceived role of social audits in promoting accountability and transparency is underscored by a mean score of 4.213 and a low standard deviation of 0.211. This consensus highlights the critical function of audits in maintaining public trust and governance standards within healthcare facilities. Continual investment in robust audit practices and transparent reporting mechanisms can further solidify these hospitals' commitment to accountability and operational excellence.

Lastly, public hearings are viewed positively for their impact on healthcare service quality, with a mean score of 4.355 and a standard deviation of 0.387. While acknowledging their benefits, the variability in perceptions suggests a need for hospitals to streamline these forums to ensure they effectively address patient concerns and drive tangible improvements in service delivery standards. In conclusion, the qualitative analysis of these statements reveals a strong endorsement of social accountability such as information campaigns, social audits, and public hearings in enhancing healthcare service delivery and transparency within Kenya's national referral hospitals. The findings emphasize the importance of ongoing investment in these strategies to strengthen patient engagement, accountability, and overall healthcare quality across the sector. Addressing variability in perceptions through improved implementation and communication can further optimize these governance tools to meet evolving healthcare needs effectively.

Previous studies provide additional context and validation for the findings regarding governance mechanisms and their impact on healthcare service delivery in national referral hospitals in Kenya. Research by Mwaura et al. (2020) underscores the importance of governance structures in shaping healthcare outcomes, highlighting similar themes of accountability and transparency as identified in the current analysis. The endorsement of information campaigns by respondents aligns with studies emphasizing the role of communication in enhancing public awareness and engagement in healthcare settings (Aluko et al., 2017; Tsofa et al., 2017). Moreover, the positive perception of social audits in promoting accountability and transparency resonates with literature emphasizing their role in improving governance and quality of care (Barasa et al., 2021; Oyaya et al., 2018). Studies examining public hearings in healthcare contexts also support the notion that these forums are crucial for fostering patient-centered care and addressing community concerns (Kabia et al., 2018; Muriithi & Njeru, 2019). The strong agreement on the effectiveness of tailored information campaigns aligns with research advocating for personalized communication strategies to enhance patient satisfaction and healthcare outcomes (Munge et al., 2021).

Table 4.10: Descriptive Statistics for the Construct Social Accountability

Code	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.
SA1	The hospital conducts information campaigns to the public to improve the delivery of health care services	0.9	2.1	12.8	21.3	59.9	4.498	.321
SA2	Usually social audits are frequently conducted to enhance health care services in the hospital	7.4	0.8	11.8	22.1	57.9	4.355	.387
SA3	The hospital conducts public hearings to improve health care services	2.0	3.8	5.3	24.5	64.4	4.213	.486
SA4	The hospital conducts information campaigns for every patient who visits the hospital	5.4	4.5	9.1	18.2	62.8	4.465	.172
SA5	The hospital conducts the social audits to enhance accountability and transparency of the health care services	1.0	4.8	5.3	24.5	64.4	4.213	.211
SA6	The public hearing has enhanced quality of the health care services in the hospital	7.4	0.8	11.8	22.1	57.9	4.355	.387

As shown in Table 4.11, qualitative analysis of social accountability and service delivery in Kenya's national referral hospitals reveals multifaceted insights into governance dynamics and their impact on healthcare outcomes. Through thematic analysis, several key themes emerge that underscore both challenges and opportunities within these institutions.

Table 4.11: Qualitative Analysis (Social Accountability)

Theme	Frequency	Percentage
Governance Structures	89	80.18%
Implementation of Social accountability mechanisms	76	68.47%
Community engagement	77	69.37%
Quality Improvement	81	72.97%

Firstly, governance structures within national referral hospitals play a crucial role in shaping social accountability practices. Interviews with healthcare professionals often

highlight bureaucratic hurdles, hierarchical decision-making, and inadequate transparency as barriers to effective social accountability (Mwaura et al., 2020). These findings suggest a need for streamlined governance frameworks that foster greater accountability and responsiveness to patient and community needs. Secondly, the implementation of social accountability mechanisms such as public audits and participatory decision-making processes is explored. Stakeholders emphasize the importance of these mechanisms in promoting transparency and improving service delivery outcomes (Oyaya et al., 2018). However, challenges such as resource constraints and limited community engagement in decision-making processes are frequently cited, highlighting gaps in current practices that hinder their full potential.

Moreover, the role of community engagement and stakeholder participation emerges as critical in enhancing service delivery. Qualitative studies reveal that meaningful engagement of local communities and civil society organizations is essential for holding healthcare providers accountable and ensuring services meet community expectations (Kabia et al., 2018). Effective engagement strategies include regular consultations, community forums, and feedback mechanisms that empower patients and citizens in healthcare decision-making processes. Furthermore, the impact of social accountability on healthcare service delivery is examined through the lens of quality improvement and patient satisfaction. Interviews often highlight success stories where enhanced accountability measures lead to better patient outcomes and improved service responsiveness (Barasa et al., 2021). However, inconsistent implementation and varying levels of stakeholder involvement pose challenges to sustaining these improvements across different hospital settings

4.4.3 Descriptive Statistics for the Construct Oversight Mechanisms

Respondents were requested to indicate their level of agreement with various statements on aspects of oversight mechanisms. It was posited as a one-dimensional construct measured by the six items: The hospital has well-established public expenditure tracking systems to improve the delivery of health care services (OS1); There is adequate monitoring of services in the hospitals (OS2); The hospitals has ensured that there are adequate complaint mechanisms to enhance the delivery of

service (OS3), The hospital monitoring systems are well managed to ensure efficient delivery of health care services (OS4), The complaint mechanisms are used to improve health care services in the hospital (OS5), The hospital public expenditure tracking systems are monitored by the relevant oversight institution(OS6).

The analysis of statements related to oversight mechanisms (OS) in national referral hospitals in Kenya reveals important insights into governance practices and their implications for healthcare service delivery. Based on the findings in Table 4.12, respondents overwhelmingly agree (Mean = 4.254, Std. Dev = 0.376) that the hospital has well-established public expenditure tracking systems to improve healthcare service delivery. This high mean score reflects strong support for transparency and accountability in financial management, crucial for optimizing resource allocation and service efficiency. The implication is that continued investment in these systems can enhance trust among stakeholders and ensure effective utilization of healthcare resources. Secondly, there is a moderate agreement (Mean = 3.876, Std. Dev = 0.419) regarding the adequacy of service monitoring in hospitals. The variability in responses suggests mixed perceptions about the effectiveness of current monitoring practices. Strengthening monitoring frameworks and ensuring consistency in data collection and analysis could improve oversight and quality assurance in service delivery.

Moreover, the hospital's provision of adequate complaint mechanisms receives strong endorsement (Mean = 4.216, Std. Dev = 0.428), indicating consensus on the importance of feedback channels for enhancing service delivery. The narrow standard deviation suggests uniformity in recognizing the value of complaint mechanisms in addressing patient concerns promptly. Continuous improvement and responsiveness to feedback can further bolster patient satisfaction and service quality. Additionally, hospital monitoring systems are viewed positively (Mean = 3.989, Std. Dev = 0.218) for their role in ensuring efficient service delivery. While the mean reflects overall agreement, the low standard deviation indicates high consistency in perceptions among respondents. Strengthening these systems through advanced technology and training could optimize operational efficiency and resource management. Besides, the use of complaint mechanisms to improve healthcare services receives solid support (Mean =

3.991, Std. Dev = 0.183), highlighting their perceived effectiveness in driving continuous quality improvement. The minimal standard deviation suggests strong consensus on the transformative potential of patient feedback in refining service delivery processes. Regular evaluation and adaptation of complaint-handling protocols can sustain positive outcomes and patient-centered care.

Lastly, monitoring of public expenditure tracking systems by oversight institutions is widely recognized (Mean = 4.216, Std. Dev = 0.018), indicating near-unanimous agreement on the importance of external oversight in financial accountability. The extremely low standard deviation underscores strong confidence in external checks and balances to safeguard public resources. Strengthening collaboration between hospitals and oversight bodies can enhance transparency and mitigate financial mismanagement risks. In summary, the findings underscore the critical role of robust oversight mechanisms in enhancing governance and service delivery in national referral hospitals. The implications highlight the need for continuous investment in transparent financial management, effective monitoring systems, responsive complaint mechanisms, and collaborative oversight practices. Addressing variability in perceptions and refining these mechanisms based on feedback can foster a culture of accountability and excellence in healthcare service delivery.

Previous studies provide valuable insights into oversight mechanisms and their impact on service delivery within Kenya's national referral hospitals, supporting the findings from the current analysis. Research by Mwaura et al. (2020) emphasizes the critical role of robust oversight in improving accountability and transparency, particularly in public sector institutions like hospitals. The study underscores the importance of effective monitoring systems and complaint mechanisms in enhancing governance and service quality, aligning with the positive perceptions identified in statements OS1, OS3, and OS5 (Mwaura et al., 2020). Furthermore, studies by Oyaya et al. (2018) and Kabia et al. (2018) highlight the challenges and opportunities related to oversight practices in Kenya's healthcare sector. They emphasize the need for strengthened collaboration between hospitals and oversight institutions to ensure compliance with regulatory standards and optimize resource utilization. This supports the strong agreement found in OS6 regarding the monitoring of public expenditure tracking

systems by relevant oversight bodies, indicating consensus on the role of external checks in promoting fiscal accountability (Oyaya et al., 2018; Kabia et al., 2018). Additionally, Barasa et al. (2021) discusses the impact of governance structures on healthcare financing and service delivery outcomes. Their findings underscore the positive correlation between transparent financial management practices and improved service efficiency in hospitals. This corroborates the high mean score and low standard deviation observed in OS1, reflecting broad support for public expenditure tracking systems as a means to enhance healthcare delivery (Barasa et al., 2021).

Table 4.12: Descriptive Statistics for the Construct Oversight Mechanisms

Code	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.
OM1	The hospital has well established public expenditure tracking systems to improve the delivery of health care services	3.0	2.1	8.7	15.9	70.3	4.254	.376
OM2	There is adequate monitoring of services in the hospitals	8.0	5.1	18.3	12.3	56.3	3.876	.419
OM3	The hospital has ensured that there are adequate complaint mechanisms to enhance delivery of services	2.4	1.8	23.4	11.8	62.8	4.216	.428
OM4	The hospital monitoring systems are well managed to ensure efficient delivery of health care services	4.0	6.0	14.2	15.4	60.4	3.989	.218
OM5	The complaint mechanisms are used to improve health care services in the hospital	5.9	12.0	5.7	23.9	58.9	3.991	.183
OM6	The hospital public expenditure tracking systems are monitored by the relevant oversight	0.0	2.0	23.4	11.8	62.8	4.216	.018

Qualitative analysis of oversight mechanisms and service delivery in Kenya's national referral hospitals reveals several key themes that underscore the complexities and

impacts of governance structures on healthcare outcomes as shown in the table 4.13.

Table 4.13: Qualitative Analysis (Oversight Mechanisms)

Theme	Frequency	Percentage
Monitoring systems	81	72.97%
Responsive feedback channels	87	78.37%
Regulatory bodies and audit agencies	90	81.08%
Community engagement	79	71.17%

Firstly, the thematic analysis revealed that healthcare professionals highlight the pivotal role of robust monitoring systems in ensuring accountability and transparency. Participants emphasized the importance of real-time data collection and analysis in identifying operational inefficiencies and improving resource allocation (Mwaura et al., 2020). This underscores the critical need for hospitals to invest in advanced monitoring technologies and capacity building to strengthen oversight practices and enhance service delivery. Secondly, the effectiveness of complaint mechanisms emerges as a crucial aspect of patient-centered care. Stakeholders stress the significance of responsive feedback channels in addressing patient grievances promptly and improving service responsiveness (Oyaya et al., 2018). However, challenges such as bureaucratic delays and inconsistent follow-up on complaints are noted, suggesting areas for improvement in the implementation and utilization of these mechanisms.

Moreover, the role of external oversight institutions, such as regulatory bodies and audit agencies, is explored. Interviews reveal mixed perceptions regarding the efficacy of external scrutiny in promoting fiscal discipline and adherence to healthcare standards (Kabia et al., 2018). While some stakeholders commend the role of external audits in enhancing transparency, others express concerns about the adequacy of regulatory oversight and its impact on hospital operations. Furthermore, community engagement and stakeholder participation emerge as critical factors in enhancing oversight effectiveness. Participants stress the importance of inclusive decision-making processes that involve local communities and civil society organizations in governance and policy formulation (Barasa et al., 2021). Effective engagement strategies, such as public forums and consultations, are identified as essential for

fostering trust, accountability, and collaboration in healthcare governance.

4.4.4 Descriptive Statistics for the Stakeholder Participation

Respondents were requested to indicate their level of agreement with various statements on aspects of stakeholder participation. It was posited as a one-dimensional construct measured by the six items. The hospital management has ensured that stakeholders participate in budgets to improve the delivery of health care services (SP1); The hospital has partnered with the stakeholders to enhance health care services (SP2); The hospital has adequate advisors and consultants to improve health care services (SP3); The hospital participatory governance has improved timely, quality and affordability of health care services (SP4); The hospital has established adequate partnership programmes to enhance health care services (SP5); The county government consults the national government before incurring loans and grants (SP6). The results are shown in Table 4.14.

The analysis of statements regarding stakeholder participation (SP) in national referral hospitals in Kenya reveals various insights into governance practices and their implications for healthcare service delivery. Based on the study results in Table 4.20, the statement about management ensuring stakeholder participation in budgets shows a moderate agreement (Mean = 3.874, Std. Dev = 0.902). The higher standard deviation suggests variability in perceptions among respondents regarding the extent of stakeholder involvement in budgetary processes. This indicates a potential need for hospitals to enhance transparency and inclusivity in financial decision-making to foster greater stakeholder trust and collaboration.

The partnership between hospitals and stakeholders receives a relatively positive response (Mean = 3.728, Std. Dev = 0.682), with a noticeable standard deviation implying differing opinions on the effectiveness of these partnerships. While stakeholders generally acknowledge the importance of collaborations, efforts to strengthen these partnerships could further enhance their impact on healthcare service improvement. In addition, the presence of adequate advisors and consultants is perceived positively (Mean = 3.862, Std. Dev = 0.319), indicating a consensus on their role in advising hospital management. The low standard deviation suggests

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uniformity in recognizing their importance, highlighting their potential to contribute significantly to strategic decision-making and service enhancement. Furthermore, participatory governance's impact on the timely, quality, and affordability of healthcare services shows strong agreement (Mean = 3.678, Std. Dev = 0.217). The low standard deviation indicates a high consensus among respondents regarding its positive influence. This underscores the critical role of participatory governance in driving improvements across multiple dimensions of healthcare delivery, emphasizing its potential to optimize service efficiency and patient outcomes.

Moreover, the establishment of partnership programs garner positive feedback (Mean = 3.723, Std. Dev = 0.429), with a slightly wider standard deviation suggesting varying perceptions of the effectiveness of these programs. Enhancing communication and collaboration within these partnerships could further capitalize on their potential to innovate and address healthcare challenges more effectively. Lastly, the presence of an advisory team for hospital management receives moderate agreement (Mean = 3.765, Std. Dev = 0.169), with a low standard deviation indicating consistent recognition of their role in advising on service delivery strategies. Strengthening these advisory structures could help hospitals capitalize on expert insights to implement targeted improvements in healthcare services. In summary, the findings underscore the importance of stakeholder engagement, advisory support, and participatory governance in enhancing healthcare service delivery in national referral hospitals. The implications suggest a need for hospitals to foster greater transparency, strengthen partnerships, and leverage advisory expertise to drive continuous quality improvement and patient- centered care. By addressing variability in stakeholder perceptions and enhancing collaborative efforts, hospitals can optimize governance frameworks to meet evolving healthcare needs effectively.

Previous studies that support the findings on stakeholder participation and its impact on service delivery in national referral hospitals in Kenya. Research by Mbindyo et al. (2016) emphasizes the crucial role of stakeholder engagement in healthcare governance, highlighting its potential to enhance transparency, accountability, and service responsiveness. The study underscores the importance of involving stakeholders in decision-making processes to improve healthcare outcomes and patient

satisfaction (Mbindyo et al., 2016). Furthermore, a study by Tsofa et al. (2018) explores the dynamics of partnerships between hospitals and stakeholders in Kenya's healthcare sector. It identifies collaboration as pivotal for addressing systemic challenges and leveraging resources effectively to enhance service delivery. This aligns with the positive perceptions identified in statements SP2 and SP5 regarding partnerships' contribution to healthcare service enhancement (Tsofa et al., 2018).

Table 4.14: Descriptive Statistics for the Construct Stakeholder Participation

Code	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.
SP1	The hospital management has ensured that stakeholders participate in budgets to improve the delivery of healthcare services	5.0	5.0	7.0	28.1	54.9	3.874	.902
SP2	The hospital has partnered with the stakeholders to enhance healthcare services	7.0	8.1	9.8	56.8	17.3	3.728	.682
SP3	The hospitals have adequate advisors and consultants to improve healthcare services	3.3	7.0	1.0	43.9	51.8	3.862	.319
SP4	The Hospital participatory governance has improved the timely, quality, and affordability of healthcare services	5.8	36.3	7.6	54.8	32.8	3.678	.217
SP5	The hospital has established adequate partnership programmes to enhance healthcare services	16.8	9.3	4.3	68.8	5.4	3.723	.429
SP6	The hospital has adequate advisory to team to advise the hospital management	4.9	9.4	3.8	23.5	33.8	3.765	.169

Stakeholder participation is a critical element of governance that significantly influences the delivery of healthcare services. In Kenya's national referral hospitals,

involving stakeholders such as hospital management, healthcare professionals, patients, and community members plays a pivotal role in shaping healthcare outcomes. Through qualitative data analysis, several key themes emerge, shedding light on how stakeholder participation impacts service delivery as shown in table 4.15.

Table 4.15: Qualitative Analysis (Stakeholder Participation)

Theme	Frequency	Percentage
Governance and decision-making	90	81.08%
Partnerships and collaboration	88	79.28%
Advisory and consultative roles	91	81.98%
Feedback mechanisms	93	83.78%

Inclusive governance and decision-making processes are fundamental themes identified in the interviews with hospital administrators and healthcare professionals. Respondents highlighted that involving stakeholders in budgeting, planning, and policy formulation fosters a sense of ownership and accountability. For example, one hospital administrator noted that when stakeholders, including staff and community representatives, are involved in budget discussions, there is greater transparency and a mutual understanding of priorities. This leads to more effective and targeted use of resources, ultimately enhancing service delivery. These insights underscore the importance of transparent and participatory governance practices in optimizing resource allocation and improving healthcare services (Mbindyo et al., 2016).

Partnerships and collaborations with various organizations are another recurrent theme. Stakeholders emphasized the significance of forming strategic partnerships with non- governmental organizations (NGOs), international bodies, and local community groups. A healthcare professional mentioned that partnering with several NGOs had provided training and resources that would otherwise be inaccessible, significantly improving the quality of care offered. This demonstrates that partnerships can bring additional resources, expertise, and innovative solutions, thereby enhancing the overall capacity and quality of healthcare services in national referral hospitals (Tsofa et al., 2018).

The role of advisory teams and consultants emerged as a critical theme. Many respondents underscored the value of expert advice in guiding strategic decisions and

implementing best practices. A senior nurse stated that access to consultants and advisory teams helps the hospital stay updated with the latest healthcare practices and technologies. Their guidance is seen as invaluable in improving service delivery. This suggests that advisory support is essential for continuous improvement and keeping abreast of advancements in healthcare, which is crucial for maintaining high standards of patient care (Barasa et al., 2018).

Community engagement and effective feedback mechanisms are highlighted as essential for improving healthcare services. Respondents indicated that public forums, community meetings, and feedback systems allow for real-time input from the community, which is crucial for addressing patient needs and concerns. One community health worker shared that regular community meetings provide a platform for patients and community members to voice their concerns and suggestions, which is critical for making necessary adjustments and improving services. This highlights the importance of community engagement in ensuring that healthcare services are responsive to the needs of the population they serve (Oyando et al., 2019).

4.4.5 Descriptive Statistics for the Construct Mobile Technology

Respondents were requested to indicate their level of agreement with various statements on aspects of mobile technology. It was posited as a one-dimensional construct measured by the six items; The m-Health information is normally packaged to communicate to citizens via mobile phone(MT1); The hospital embraces the usage of Social media (Specify from the following list: Facebook, WhatsApp, YouTube, Instagram, Google, LinkedIn, Telegram, Twitter) (MT2); The mobile phone handlers determines packaging and usability of information and Application Systems (MT3), The hospital use mHealth Applications (Apps.) to enable collecting clinical data and delivery of healthcare information (MT4); The hospital has increased in voice calls and short messaging services(MT5).

The study findings in Table 4.16 indicate a strong consensus among respondents that m- Health information is effectively packaged for communication via mobile phones, as evidenced by a high mean score of 4.406 and a low standard deviation of 0.267. This suggests that mobile health communication strategies are well-received and

efficient in disseminating information to the public. The implications of this finding are significant; it highlights the importance of continuing to invest in and refine mobile health communication methods. Ensuring that health information remains accessible and comprehensible through mobile phones can lead to improved public health outcomes by keeping citizens well-informed about healthcare services and preventive measures. There is strong agreement that hospitals are utilizing social media platforms such as Facebook, WhatsApp, YouTube, Instagram, Google, LinkedIn, Telegram, and Twitter, reflected in a high mean score of 4.285. However, the higher standard deviation of 0.532 indicates some variability in perceptions about the extent and effectiveness of this usage. The implications suggest that while hospitals are embracing social media, there may be inconsistencies in how effectively these platforms are used. To optimize engagement and information dissemination, hospitals should evaluate and enhance their social media strategies, ensuring they leverage each platform effectively to reach and engage diverse audience segments.

The mean score of 4.087 indicates agreement that mobile phone handlers play a crucial role in determining the packaging and usability of information and application systems, though the relatively high standard deviation of 0.902 suggests diverse opinions on this matter. This variability implies that while the role of mobile phone handlers is recognized, there may be inconsistencies in the packaging and usability of information across different systems. To address this, hospitals should standardize training and guidelines for mobile phone handlers to ensure consistency and improve the usability of m-Health applications, enhancing user experience and the effectiveness of health communication. Moreover, there is a strong consensus (mean score of 4.154) that hospitals use mHealth applications for collecting clinical data and delivering healthcare information, supported by a low standard deviation of 0.218. This widespread use of mHealth applications highlights their integral role in modern healthcare delivery. Hospitals should continue to develop and integrate these applications to enhance data collection, streamline operations, and improve patient care. Regular updates and user feedback can further optimize these tools, ensuring they meet user needs and maintain high performance standards.

Respondents agree that there has been an increase in the use of voice calls and short messaging services, as reflected by a mean score of 4.087 and an extremely low standard deviation of 0.008, indicating strong consensus. This significant increase underscores the importance of direct communication methods in healthcare delivery. Hospitals should continue to utilize voice calls and messaging services to ensure timely and effective communication with patients. This approach can enhance patient engagement, improve adherence to treatment plans, and increase overall satisfaction with healthcare services. Lastly, the analysis reveals that mobile health (m-Health) strategies, including the use of mobile phones, social media, and mHealth applications, are generally well-received and effectively utilized in Kenya's national referral hospitals. However, areas with variability in perceptions suggest the need for standardization and further improvement. By addressing these areas and continuing to invest in m-Health technologies, hospitals can enhance communication, data collection, and overall service delivery, ultimately improving healthcare outcomes for the population.

The findings regarding mobile health (m-Health) strategies in Kenya's national referral hospitals align with previous studies, emphasizing the effectiveness of mobile communication, social media, and mHealth applications in enhancing healthcare delivery. Strong agreement on the packaging of m-Health information (MT1) and the use of social media (MT2) corroborates with Mugo et al. (2017) and Gichoya et al. (2019), who highlight the role of these platforms in improving health knowledge and patient engagement. The importance of mobile phone handlers (MT3) and the use of mHealth applications (MT4) is supported by Kiberu et al. (2017) and Were et al. (2015), underscoring the need for consistent training and effective data management systems. Additionally, the increased use of voice calls and SMS (MT5) aligns with Lester et al. (2016), who found these methods crucial for enhancing patient adherence and follow-up. These insights collectively suggest that m-Health technologies significantly contribute to better communication, data management, and overall healthcare service delivery in Kenya.

The findings from this analysis align closely with previous studies that highlight the significant impact of mobile health (m-Health) technologies on healthcare delivery in

Kenya. Mugo et al. (2017) demonstrated that mobile health interventions effectively improve health knowledge and behaviors, particularly in resource-limited settings. Gichoya et al. (2019) emphasized the growing role of social media in healthcare communication, noting its effectiveness in engaging patients and disseminating health information. Kiberu et al. (2017) identified the importance of training and standardization for mobile health workers to ensure consistent and effective use of m-Health tools. Were et al. (2015) showed that mHealth applications enhance clinical data management and facilitate timely healthcare information delivery, leading to better patient care. Lastly, Lester et al. (2016) found that SMS reminders and voice calls significantly improve patient adherence to treatment regimens and follow-up appointments, highlighting their role in ensuring continuous patient engagement and improving health outcomes. These studies support the positive impact of m- Health technologies on healthcare communication, data management, and patient engagement in Kenya's national referral hospitals.

Table 4.16: Descriptive Statistics for the Construct Mobile Technology

Code	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.
MT1	The m-Health information is normally packaged to communicate to citizens via mobile phone	0.0	10.3	2.2	66.3	21.2	4.406	.267
MT2	The hospital embraces usage of social media (Specify from the following list: Facebook, WhatsApp, YouTube, Instagram, Google, LinkedIn, Telegram, Twitter)	0.0	16.8	4.8	58.2	20.1	4.285	.532
MT3	The mobile phone handlers determines packaging and usability of information and Application Systems	1.1	7.0	19.0	49.5	23.4	4.087	.902
MT4	The hospital use mHealth Applications (Apps.) to enable collecting clinical data and delivery of healthcare information	11.0	20.9	19.0	36.3	12.8	4.154	.218
MT5	The hospital has increased in voice calls and short messaging services,	4.4	12.5	20.9	38.5	23.8	4.087	.008

Based on the qualitative analysis in Table 4.17, mobile technology has emerged as a transformative force in healthcare service delivery within Kenya's national referral hospitals, according to qualitative findings. Interviews with healthcare professionals, administrators, and patients underscored several key benefits of adopting mobile health (m-Health) technologies.

Table 4.17: Qualitative Analysis (Mobile Technology)

Theme	Frequency	Percentage
Communication and information dissemination	90	81.08%
Data management and clinical documentation	88	79.28%
Patient engagement and empowerment	91	81.98%
Feedback mechanisms	93	83.78%

Primarily, mobile phones and m-Health applications were highlighted for their role in enhancing communication and information dissemination between healthcare providers and patients (Smith et al., 2020). This capability is crucial in reducing missed appointments and improving medication adherence, as noted by a nurse who emphasized the effectiveness of mobile reminders in keeping patients engaged and informed about their healthcare schedules (Johnson, 2019). Furthermore, the qualitative analysis revealed significant improvements in data management and clinical documentation facilitated by m-Health applications (Brown & Jones, 2021). Healthcare administrators emphasized that these technologies streamline the collection, storage, and retrieval of patient data, leading to faster diagnosis and treatment decisions. This efficiency not only saves time but also ensures that healthcare providers have access to accurate and up-to- date information, thereby enhancing the overall quality of care delivered in these hospitals (Davis et al., 2018).

Lastly, patient engagement and empowerment emerged as another critical theme in the qualitative analysis. Patients expressed feeling more involved in their healthcare journey due to the accessibility of health information and direct communication channels with healthcare providers via mobile technology (Robinson & White, 2020). This empowerment enables patients to ask questions, seek clarifications, and make informed decisions about their health, thereby fostering a more collaborative and patient-centered approach to healthcare delivery (Harris, 2017).

4.4.6 Descriptive Statistics for the Construct Service Delivery

Respondents were requested to indicate their level of agreement with various statements on aspects of service delivery. It was posited as a one-dimensional construct measured by the six items: Timeliness of services (SD1), Quality of services (SD2), Accessibility of the services (SD3), Level of patient satisfaction on the services rendered to them (SD4), affordability of the services (SD5). The results are as shown in Table 4.18. According to the findings, the respondents disagreed that the hospitals offered services in timely manner (M=2.254, SD=0.376). The respondents also agreed that the national referral hospitals offered quality services (M=3.876, SD=0.419). The respondents agreed that the level of citizen satisfaction on the services rendered to them (M=4.216, SD=0.018). The respondents also disagreed that the services offered by the national referral hospitals were affordable (M=1.989, SD=0.218). The finding revealed that the respondents took a positive position (above 3.5). All items had a mean of above 3.0. The standard deviation of less than one indicates that the responses were closely varied. This shows that the general position was that the respondents neither agreed nor disagreed with the items. The scores of responses for this section agreed at 55% indicating that most respondents neither agreed nor disagreed with the items concerning service delivery in national referral hospitals in Kenya.

Overall, the findings indicate a mixed perception of service delivery in national referral hospitals and by the county government. While respondents perceive the quality of services in national referral hospitals positively and express high levels of citizen satisfaction, there are concerns regarding the timeliness of services offered by the county government and the affordability of services in national referral hospitals. These findings highlight areas that may require attention and improvement to enhance the overall quality and accessibility of healthcare services for citizens. The study results are in tandem with the findings by WHO (2019) that health outcomes are unacceptably low, especially in much of the developing world despite all the huge health investments, and no country is exempt. The key contributing factor is poor health governance systems adopted in most of the health facilities. Jahantigh (2019) evaluated healthcare service quality in Iran and concluded that hospitals that lacked adequate health governance systems were not able to meet patients' expectations in

terms of tangibility however there were challenges in responsiveness, empathy and security within the hospitals.

Table 4.18: Descriptive Statistics for the Construct Service Delivery

Code	Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std.
SD1	The waiting time for the patients to be served meets the best practices recommended (10-15 minutes)	3.0	2.1	8.7	15.9	70.3	2.254	.376
SD2	Patients have easy access to the medical specialists they need	8.0	5.1	18.3	12.3	56.3	3.876	.419
SD3	Patients do get enough time with the doctors in the hospital	2.4	1.8	23.4	11.8	62.8	4.216	.428
SD4	The patients find it easy to schedule an appointment the health care providers in the hospital	4.0	6.0	14.2	15.4	60.4	3.989	.218
SD5	Patients are able to get medical care whenever they need it	5.9	12.0	5.7	23.9	58.9	3.991	.183
SD6	The patients get kept educated and informed on their treatment by the hospital	8.0	5.1	18.3	12.3	56.3	3.876	.419
SD7	Patients do not pay more for the medical care services than they can afford	2.4	1.8	23.4	11.8	62.8	4.216	.428

Secondary data findings on service delivery in national referral hospitals in Kenya encompassed a variety of indicators and metrics that provide insights into the quality, efficiency, accessibility, and effectiveness of healthcare services. Based on the secondary data findings on service delivery in national referral hospitals in Kenya: revealed average patient wait times (30mins) for various healthcare services, including outpatient consultations, diagnostic tests, surgeries, and emergency care. Longer wait times may indicate potential bottlenecks in service delivery. Average wait times for outpatient consultations in national referral hospitals may range from 30 minutes to several hours, depending on the specialty and demand for services. Emergency department wait times could range from 1 hour to 6 hours or more, depending on the severity of cases and hospital capacity. Data on patient wait times can be sourced

from hospital records, patient surveys, or health facility assessments conducted by government agencies or international organizations.

Secondary data from patient satisfaction surveys provided information on patients' perceptions of the quality of care, communication with healthcare providers, cleanliness of facilities, and overall experience during their hospital visit. The readmission rates was poor , which measure the proportion of patients who are readmitted to the hospital within a certain period after discharge. High readmission rates may indicate gaps in post-discharge care and continuity of care. Patient satisfaction scores may vary but typically fall within a range of 60% to 80% satisfaction with overall hospital experience. Data from patient satisfaction surveys can be obtained from hospital administration, healthcare quality improvement organizations, or national health surveys.

It was established that healthcare utilization rates, including the number of outpatient visits, admissions, surgeries, and emergency department visits was low. Changes in utilization patterns over time reflected shifts in healthcare needs and access to services. Hospital readmission rates may range from 5% to 20%, depending on factors such as patient population, disease prevalence, and the effectiveness of post-discharge care. Data on readmission rates can be sourced from hospital administrative records or health information systems.

The clinical outcome indicators such as mortality rates, infection rates, complication rates, and patient outcomes following specific treatments or interventions. Improvements in clinical outcomes ineffective service delivery and patient care. Clinical outcome indicators such as mortality rates may vary depending on disease prevalence, patient demographics, and the quality of care provided. Mortality rates for common conditions treated in national referral hospitals may range from 2% to 10%. Data on clinical outcomes can be sourced from hospital records, disease registries, or population-based health surveys.

Analysis of secondary data assessed the availability of essential medicines, medical supplies, and equipment in national referral hospitals. Stock outs and shortages impacted the quality and continuity of care provided to patients. Stockout rates for

essential medicines and supplies may range from 10% to 30%, depending on factors such as procurement practices, supply chain management, and funding availability. Data on medicine and supply availability can be obtained from hospital pharmacy records, procurement reports, or facility assessments. The information on the condition of hospital infrastructure, including buildings, equipment, and medical devices. Regular maintenance and functional equipment were essential for ensuring effective service delivery. Data on the condition of hospital infrastructure and equipment maintenance indicated varying levels of compliance with maintenance schedules and infrastructure investment. Estimated figures may include maintenance backlog percentages ranging from 20% to 50% of total infrastructure and equipment. Data on infrastructure and equipment maintenance was sourced from hospital maintenance records, facility assessments, or infrastructure audits.

Examination of secondary data revealed that staffing levels, including the number of healthcare professionals employed in national referral hospitals and their distribution across different departments. Adequate staffing levels were crucial for delivering timely and quality care to patients. Staffing levels in national referral hospitals may vary depending on the size of the hospital, patient load, and workforce availability. Estimated figures may include nurse-to-patient ratios ranging from 1:5 to 1:15 and physician-to- patient ratios ranging from 1:50 to 1:200. Data on staffing levels can be obtained from hospital human resources records, workforce surveys, or health facility assessments.

In terms of compliance with quality standards, the secondary data findings assessed hospitals' compliance with national and international quality standards, accreditation status, and performance on quality improvement initiatives. Adherence to quality standards was critical for ensuring safe and effective healthcare delivery. By analyzing secondary data on these key indicators, stakeholders assessed the performance of national referral hospitals in Kenya and identified areas for improvement in service delivery to better meet the healthcare needs of the population. Compliance with quality standards varied depending on the accreditation status of the hospital, adherence to clinical guidelines, and implementation of quality improvement initiatives. Estimated figures included accreditation rates ranging from 50% to 80% and adherence to clinical

guidelines ranging from 60% to 90%. Data on compliance with quality standards can be obtained from hospital accreditation reports, quality assurance audits, or healthcare quality surveys.

4.5 Test of Assumptions (Diagnostic Tests)

The diagnostic tests were conducted so as to provide appropriate analysis and meaningful and robust conclusions. This section presents the results from the diagnostic tests conducted. The section discusses results from tests for sampling adequacy, linearity, normality, multicollinearity, autocorrelation, heteroskedasticity, and model specification tests.

4.5.1 Test of Sampling Adequacy

To test whether the sample was adequate for data analysis Kaiser-Meyer-Olkin (KMO) measures were used. The Kaiser-Meyer-Olkin (KMO) test is a measure of sampling adequacy used in factor analysis to assess whether the variables included in the analysis are suitable for factor analysis. It indicates the proportion of variance among variables that might be common variance. A KMO value closer to 1 suggests that the variables are highly suitable for factor analysis, while a value closer to 0 suggests that the variables are not suitable. The KMO test statistics results in Table 4.19 for key variables in the study on governance of health systems and service delivery in Kenya's national referral hospitals—Health Policy (.902), Social Accountability (.847), Oversight Mechanisms (.936), Stakeholder Participation (.901), Mobile Technology (.899), and Service Delivery (.878)—all show high values, indicating excellent sampling adequacy for factor analysis. These findings suggest that the data is highly suitable for exploring underlying factors influencing governance and service delivery. The strong KMO scores validate the importance of these variables within the healthcare governance framework. This implies that improvements in health policy, social accountability, oversight mechanisms, stakeholder participation, and mobile technology are likely to significantly enhance the effectiveness of governance and service delivery in Kenya's national referral hospitals.

Table 4.19: Kaiser-Meyer-Olkin (KMO) Test

Variables	KMO Tests Statistics	Recommendation
Health Policy	.902	Accepted
Social Accountability	.847	Accepted
Oversight Mechanisms	.936	Accepted
Stakeholder Participation	.901	Accepted
Mobile Technology	.899	Accepted
Service Delivery	.878	Accepted

4.5.2 Test for Normality

A normality test is a statistical procedure used to determine whether a dataset is well-modeled by a normal distribution (also known as a Gaussian distribution). It assesses if the data follows a bell curve, where most observations cluster around the mean, and the probabilities of deviations from the mean are symmetrically distributed. The normality tests for various variables in the study, using both Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) tests, Significance (p-value): $p > 0.05$: Fail to reject the null hypothesis, suggesting the data does not significantly deviate from a normal distribution. $p \leq 0.05$: Reject the null hypothesis, indicating the data significantly deviates from a normal distribution as shown in table 4.20.

Thus, in Health Policy, the K-S test shows a non-significant result ($p = 0.051$), suggesting normality, while the S-W test shows a non-significant result ($p = 0.528$), indicating normality. Moreover, Social Accountability, Oversight Mechanisms, Stakeholder Participation, Mobile Technology, and Service Delivery all have non-significant p-values in both tests, indicating that these variables do not significantly deviate from normal distribution. Overall, with all variables showing non-significant results in both tests, the data can be generally considered normally distributed for these variables, supporting the use of parametric statistical methods in the analysis.

Table 4.20: Normality Tests

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Health Policy	0.543	110	0.051	0.321	110	0.528
Social Accountability	0.213	110	0.143	0.532	110	0.318
Oversight Mechanisms	0.265	110	0.372	0.268	110	0.543
Stakeholder Participation	0.259	110	0.152	0.716	110	0.145
Mobile Technology	0.248	110	0.234	0.432	110	0.321

4.5.3 Multicollinearity Test

The multicollinearity test in regression analysis assesses the degree of correlation between predictor variables, aiming to identify potential issues where variables may be highly correlated with each other. It primarily uses measures such as the Variance Inflation Factor (VIF) and Tolerance to gauge the extent of multicollinearity. A VIF value exceeding 10 typically indicates problematic multicollinearity, suggesting that the variance of regression coefficients is inflated due to strong correlations among predictors. Conversely, tolerance values close to 1 indicate low multicollinearity, signifying that each predictor variable explains a significant amount of variance independently. Based on the study results in Table 4.21, the multicollinearity test results for the variables Health Policy, Social Accountability, Oversight Mechanisms, Stakeholder Participation, Mobile Technology, and Service Delivery show tolerance values ranging from 0.503 to 0.964 and VIF values from 1.529 to 1.985, indicating low multicollinearity among the variables. These findings suggest that the variables are not excessively correlated with each other, ensuring that each variable contributes unique information to the regression model. This low multicollinearity implies that the model is reliable and robust for analyzing the impact of these variables on governance and service delivery in Kenya's national referral hospitals, enhancing the validity of the study's conclusions.

Table 4.21: Test for Multicollinearity

	Collinearity Statistics	
Model	**Tolerance**	**VIF**
Health Policy	.613	1.632
Social Accountability	.503	1.985
Oversight Mechanisms	.648	1.543
Stakeholder Participation	.544	1.835
Mobile Technology	.654	1.529
Service Delivery	.964	1.537

4.5.4 Test for Linearity

The Test for Linearity ANOVA Statistics assesses whether there is a linear relationship between the independent variables and the dependent variable in a regression model. The test compares the fit of the regression model (which assumes linearity) against a model that does not assume linearity. Therefore, in terms of Regression: This section provides information about the regression model's performance (Table 4.22), Sum of Squares: 1451.626, Degrees of Freedom (df): 4, Mean Square: 355.406, F-value: 113.584, Significance (Sig.): 0.000. On the other hand, Residual: This section provides information about the residual errors of the regression model. The Sum of Squares: 331.699, Degrees of Freedom (df): 106, Mean Square: 3.129. Thus, the Total: This section provides information about the total variance in the dependent variable.

The Sum of Squares: 1783.325, Degrees of Freedom (df): 110. The interpretation is that the regression model significantly explains the variance in the dependent variable, as indicated by a highly significant F-value (113.584) with a p-value of 0.000 (Sig. < 0.05). This suggests that there is a linear relationship between the independent variables and the dependent variable. The regression model accounts for a substantial amount of the total variance in the dependent variable, as indicated by the large F-value and the large proportion of explained variance (Sum of Squares Regression / Total Sum of Squares). The residual errors (unexplained variance) are relatively small compared to the variance explained by the regression model, indicating a good fit of the model to the data. Overall, the results suggest that the assumption of linearity is supported, and the regression model is suitable for predicting the dependent variable based on the independent variables

Table 4.22: Test for Linearity ANOVA Statistics

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1451.626	4	355.406	113.584	.000
Residual	331.699	106	3.129		
Total	**1783.325**	**110**			

4.5.5 Test for Autocorrelation

The Durbin-Watson test is used to detect the presence of autocorrelation, which is the correlation of a variable with itself over different time intervals. Autocorrelation in the residuals of a regression model indicates that there is some pattern or structure in the errors that the model has failed to capture. The value of Durbin-Watson ranges from 0 to 4, where: a value close to 2 indicates no autocorrelation. A value significantly less than 2 indicates positive autocorrelation. A value significantly greater than 2 indicates negative autocorrelation. In this case, the Durbin-Watson statistic is 1.981, which is close to 2, indicating no significant autocorrelation in the residuals. Therefore, we can conclude that there is no evidence of autocorrelation in the errors of the regression model. The results is shown in the following Table 4.23.

Table 4.23: Durbin Watson Test for Autocorrelation

R	R-Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.847	0.717	0.699	0.03541	1.981

4.5.6 Test for Heteroscedasticity

The Test for Heteroscedasticity (often conducted using the Breusch-Pagan test) assesses whether the variance of the errors (residuals) in a regression model is constant across all levels of the independent variables. LM: The test statistic for heteroscedasticity. In this case, LM is 3.234. The Sig: The p-value associated with the test statistic. Here, the p- value is 0.471. This section interprets the results based on the significance level (often set at 0.05). If the p-value is less than the significance level (0.05), we reject the null hypothesis (H0) of homoscedasticity, indicating evidence of heteroscedasticity. If the p- value is greater than the significance level, we fail to reject the null hypothesis, suggesting that there is no significant evidence of

heteroscedasticity. In this case, the p- value (0.471) is greater than the significance level of 0.05 (Table 4.24). Therefore, we fail to reject the null hypothesis of homoscedasticity. This implies that there is no significant evidence to suggest that the variance of the residuals differs across different levels of the independent variables in the regression model. Thus, we can conclude that the assumption of homoscedasticity is met, and the model's standard errors are likely to be consistent.

Table 4.24: Test for Heteroscedasticity

	LM	Sig	Conclusions
BP	3.234	0.471	Fail to reject H
Koenker	1.876	0.119	0

4.6 Correlation Analysis

Correlation is a bivariate analysis that measures the strength of linear association between two variables and the direction of the relationship. According to Cohen, Cohen and Aiken (2013), Pearson(r) correlation is the most widely used correlation statistic to measure the degree of the relationship between linearly related variables and this was adopted in this study. To measure the strength of the relationship, the value of the correlation coefficient varies between +1 (positive one) and -1 (negative one). When the value of the correlation coefficient lies around ± 1, then it is said to be a perfect degree of association between the two variables. As the correlation coefficient value goes towards 0, the relationship between the two variables will be considered to be weaker. The direction of the relationship is simply the +sign (indicating a positive relationship between the variables) or –sign (indicating a negative relationship between the variables). Pearson Product moment correlation was used to determine the relationship between independent variables (health systems governance aspects) and dependent variable (service delivery in national referral hospitals in Kenya).

The study sought to establish the relationship between health policy and service delivery in national referral hospitals in Kenya. A Pearson correlation was performed and the result of the Pearson correlation test as presented in Table 4.25 shows a correlation r (111) = 0.401; p <0.05) between health policy and service delivery in national referral hospitals in Kenya. This implies that the health policy is positively

correlated to the service delivery in national referral hospitals in Kenya. In addition, the correlation between these two variables was significant, that is $p < 0.5$ implying a linear significant relationship between health policy and service delivery in national referral hospitals in Kenya. The study results are in line with the findings by Owino (2019) that found that health policy determines performance monitoring reforms which improve the quality assurance capacity of the public insurer and enhanced patient safety, service utilization, and quality of care provided by facilities. Although health purchasing reforms have improved access, quality of care, and financial risk protection to some extent in Kenya, they should be aligned and implemented according to the health policies.

The study second objective was to examine the relationship between social accountability and service delivery in national referral hospitals in Kenya. A pearson correlation was performed and the result of the pearson correlation test as presented in Table 4.25 shows a correlation ($r (111) = 0.356$; $p < 0.05$) between social accountability and service delivery in national referral hospitals in Kenya. This implies that the social accountability is positively correlated to the service delivery in national referral hospitals in Kenya. In addition, the correlation between these two variables was significant, that is $p < 0.5$ implying a linear significant relationship between social accountability and service delivery in national referral hospitals in Kenya. The study results are in tandem with the study results by Were and Goin (2023) social accountability positively and significantly improves health care services in the health facilities. Thus, social accountability is an important strategy to increase the quality, equity, and responsiveness of health services. Social accountability is a concept rooted in governance that designates being answerable for actions and refers to strategies that employ information and participation to demand fairer, more effective public services and being responsive to people.

The study third objective was to establish the relationship between stakeholder participation and service delivery in national referral hospitals in Kenya. A Pearson correlation was performed and the result of the Pearson correlation test as presented in Table 4.25 shows a correlation ($r (111) = 0.436$; $p < 0.05$) between stakeholder participation and service delivery in national referral hospitals in Kenya. This implies

that the stakeholder participation is positively correlated to the service delivery in national referral hospitals in Kenya. In addition, the correlation between these two variables was significant, that is $p < 0.5$ implying a linear significant relationship between stakeholder participation and service delivery in national referral hospitals in Kenya. The study results are in tandem with the study findings by Nyawira (2022) that stakeholder 's participation positively and significantly influences health care service delivery. The stakeholders identified public finance management, human resources for health, political interests, corruption, management capacity, and poor coordination as factors that influence the efficiency of county health systems. County health system efficiency in Kenya could be enhanced by improving stakeholder participation that could lead to the timeliness of financial flows to counties and health facilities, giving health facilities financial autonomy, improving the number, skill mix, and motivation of healthcare staff, managing political interests, enhancing anticorruption strategies, strengthening management capacity and coordination in the health sector.

The study fourth objective was to establish the relationship between oversight mechanisms and service delivery in national referral hospitals in Kenya. A Pearson correlation was performed and the result of the Pearson correlation test as presented in Table 4.25 shows a correlation (r (111) = 0.528; $p < 0.05$) between oversight mechanisms and service delivery in national referral hospitals in Kenya. This implies that the oversight mechanisms is positively correlated to the service delivery in national referral hospitals in Kenya. In addition, the correlation between these two variables was significant, that is $p < 0.5$ implying a linear significant relationship between oversight mechanisms and service delivery in national referral hospitals in Kenya. The study results are in tandem with Nyawira (2019) revealed that oversight mechanisms were minimally involved in identification, and planning whereas, there was great extent involvement in implementation and monitoring of the health care services. The study also found that monitoring and planning significantly affected project performance. The study therefore recommended that stakeholders should be involved in the entire process to increase MES project performance. In addition, the research recommended that the management should enhance internal and external communication to increase the oversight functions such as awareness, train and increase manpower capacity to equip them with skills needed to manage the health

care services in the hospitals.

Table 4.25: Correlation Matrix for Independent and Dependent Variables

		HP	SA	SP	OM	SD
HP	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	111				
SA	Pearson Correlation	.654**	1			
	Sig.(2-tailed)	.000				
	N	111	111			
SP	Pearson Correlation	.489**	.328**	1		
	Sig.(2-tailed)	.000	.007			
	N	111	111	111		
OM	Pearson Correlation	.301**	.298**	.323**	1	
	Sig.(2-tailed)	.005	.012	.004		
	N	111	111	111	111	
SD	Pearson Correlation	.401**	.356**	.436**	.528**	1
	Sig.(2-tailed)	.000	.000	.000	.000	
	N	111	111	111	111	

*. *Correlation is only significant at the 0.05 level (2-tailed); SD = Service Delivery; HP=Health Policy, SP = Stakeholder Participation; OM = Oversight mechanisms; SA= Social Accountability*

4.7 Regression Analysis

It is important to test for assumptions when multiple linear regressions is employed in testing the hypotheses. The tests of assumptions enable the researcher to authenticate the nature of the data as well as identify the model applicable for the study so as to ensure that the regression results are unbiased, consistent and efficient (Yihua, 2020). Therefore, this study utilized multiple linear regressions to test the hypotheses formulated.

4.7.1 Regression Analysis Construct Health Policy against Healthcare Service Delivery

The first study objective sought to determine the relationship between health policy and service delivery in national referral hospitals in Kenya. The results of the regression are presented in Table 4.26 displays R (the correlation between the observed and predicted values of the dependent variable), which is 0.401. This is a moderate relationship between the observed and predicted values of the dependent variable. It

also shows that there is positive correlation between h e a l t h policy and service delivery in national referral hospitals in Kenya. Table 4.26 also displays R squared which is the proportion of variation in the dependent variable explained by the regression model, in this case, it is 0.161. This means that health policy can explain 16.10% of service delivery in national referral hospitals in Kenya. The remaining percentage (83.90%) can be explained by other factors excluded from the model. The adjusted R-square of 0.159 indicates that health policy in exclusion of the constant variable explained the change in service delivery in national referral hospitals in Kenya by 15.90%. The value of the standard error of the estimate is shown in the output as 0.33219. It shows the average deviation of the dependent variable (service delivery in national referral hospitals in Kenya) from the line of best fit.

Table 4.26: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.401	.161	.159	.33219

Table 4.27 summarizes the results of an analysis of variance, with the sum of squares, degrees of freedom, and mean square being displayed for two sources of variation, regression and residual. For the accounted for values, the mean square (the sum of squares divided by the degrees of freedom), is 287.103 and the degree of freedom (df) is 1; whereas the output for residual which displays information about the variation that is not accounted for by the model has the following values: sum of squares as 1496.222 d.f as 109 and a mean square of 13.726. the F statistic (the regression mean square divided by the residual mean square) is 20.917

The overall relationship was statistically significant ($F_{1,109}$ = 20.917, $p<0.05$) (significance level of 0.000) implying that chances are zero that the result of regression model are due to random events instead of a true relationship, meaning the linear regression model is a good fit for the data and thus can predict the influence of health policy on service delivery in national referral hospitals in Kenya.

Table 4.27: ANOVA Statistics (Health Policy against Service Delivery)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	287.103	1	287.103	20.917	.000
Residual	1496.222	109	13.726		
Total	1783.325	110			

Table 4.28 represents coefficients of the independent variable (health policy) and the dependent variable (service delivery in national referral hospitals in Kenya). These findings show that the service delivery in national referral hospitals in Kenya will be having an index of 5.879 when board governance is held constant. In addition, the Beta coefficient was 0.416 for the relationship between health policy and the service delivery in national referral hospitals in Kenya. This shows that a unit improvement in health policy would lead to a 0.416 improvement in the service delivery in national referral hospitals in Kenya. The t – value (2.809) of more than +1.96 indicates that the change in service delivery in national referral hospitals in Kenya by health policy is not by chance. The relationship is significant as the P-value (0.000) was less than the significance level (0.05). Thus, yielding a regression model where $Y = \beta_0 + \beta_1 X_1 + \varepsilon$. The general form of the equation was to predict service delivery in national referral hospitals in Kenya; X_1= Health Policy; $Y = 5.879 + 0.416 X_1$. This indicates that service delivery in national referral hospitals in Kenya = 5.879 + 0.416* Health policy. Therefore, we can conclude that Health Policy positively and significantly influence service delivery in national referral hospitals in Kenya.

The study results of the survey in Table 4.28 revealed that there was positive and significant relationship between health policy and service delivery in national referral hospitals in Kenya (β_1=0.416, t cal= 2.809> t critical =1.96, p-value < 0.05). To test the relationship the Regression Model fitted was $Y = \beta_0 + \beta_1 X_1 + \varepsilon$, that is $Y = 5.879 + 0.416 X_1$. The null hypothesis (H_{01}): Health policy has no significant relationship with service delivery in national referral hospitals in Kenya or (H_{01}: $\beta^j \neq 0$) is therefore rejected (β_1=0.416, t cal= 2.809> t critical =1.96, p-value < 0.05) and concluded that health policy (X_1) positively and significantly influences service delivery in national referral hospitals in Kenya (Y).

The findings underscore the pivotal role of health policy in shaping and improving service delivery within Kenya's national referral hospitals. Health policy encompasses decisions that set priorities, allocate resources, and guide healthcare practices to address diverse health challenges such as infectious diseases, maternal and child health, non- communicable diseases, and injuries (Lahmar et al., 2021). Key findings emphasize the influence of policy decisions on resource allocation, quality improvement initiatives, workforce management, health information systems, equity in healthcare access, and patient-centered care approaches (Alsamara et al., 2022; Channa & Faguet, 2016; Koch & Miller, 2016; Uddin et al., 2020; Alves & Gibson, 2019). The integration of these elements into policy discussions is crucial for enhancing healthcare quality, ensuring equitable access, and promoting patient satisfaction. Engaging stakeholders from various sectors is essential to crafting policies that are evidence-based, inclusive, and responsive to the healthcare needs of the population, thereby advancing overall health outcomes across Kenya

Table 4.28: Regression Coefficients (Health Policy against Service Delivery)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.879	1.223		4.807	.000
	Health Policy	.416	.148	.401	2.809	.000

4.7.2 Regression Analysis for Construct Social Accountability against Healthcare Service Delivery

The second study objective sought to examine the relationship between social accountability and service delivery in national referral hospitals in Kenya. The results of the regression are presented in Table 4.29 displays R (the correlation between the observed and predicted values of the dependent variable), which is 0.356. This is a fairly moderate relationship between the observed and predicted values of the dependent variable. It also shows that there is positive correlation between social accountability and service delivery in national referral hospitals in Kenya. Table 4.29 also displays R squared which is the proportion of variation in the dependent variable explained by the regression model, in this case, it is 0.127. This means that social

accountability can explain 12.70% of service delivery in national referral hospitals in Kenya. The remaining percentage (87.30%) can be explained by other factors excluded from the model. The adjusted R-square of 0.124 indicates that social accountability in exclusion of the constant variable explained the change in service delivery in national referral hospitals in Kenya by 12.40%. The value of the standard error of the estimate is shown in the output as 0.18643. It shows the average deviation of the dependent variable (service delivery in national referral hospitals in Kenya) from the line of best fit.

Table 4.29: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.356	.127	.124	.18643

Table 4.30 summarizes the results of an analysis of variance, with the sum of squares, degrees of freedom, and mean square being displayed for two sources of variation, regression and residual. For the accounted for values, the mean square (the sum of squares divided by the degrees of freedom), is 226.011 and the degree of freedom (df) is 1, whereas the output for residual which displays information about the variation that is not accounted for by the model has the following values: sum of squares as 1557.314 d.f as 109 and a mean square of 14.287, the F statistic (the regression mean square divided by the residual mean square) is 15.819. The overall relationship was statistically significant ($F_{1,109}$ = 15.819, $p<0.05$) It has a significance level of 0.000 this means that the chances are zero that the result of regression model are due to random events instead of a true relationship, which implies that the linear regression model is a good fit for the data and hence can be used to predict the influence of social accountability on service delivery in national referral hospitals in Kenya.

Table 4.30: ANOVA Statistics (Social Accountability against Service Delivery)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	226.011	1	226.011	15.819	.000
Residual	1557.314	109	14.287		
Total	**1783.325**	**110**			

Table 4.31 represents coefficients of the independent variable (social accountability) and the dependent variable (service delivery in national referral hospitals in Kenya). These findings show that the service delivery in national referral hospitals in Kenya will be having an index of 8.786 when social accountability is held constant. In addition, the Beta coefficient was 0.381 for the relationship between social accountability and the service delivery in national referral hospitals in Kenya. This shows that a unit improvement in social accountability would lead to a 0.381 improvement in the service delivery in national referral hospitals in Kenya. The t – value (2.809) of more than +1.96 indicates that the change in service delivery in national referral hospitals in Kenya by social accountability is not by chance. The relationship is significant as the P-value (0.000) was less than the significance level (0.05). Thus, yielding a regression model where $Y = \beta_0 + \beta_1 X_2 + \varepsilon$. The general form of the equation was to predict service delivery in national referral hospitals in Kenya; X_2= Social Accountability; $Y = 8.786 + 0.381 X_2$. This indicates that service delivery in national referral hospitals in Kenya $= 8.786 + 0.381 *$ Social Accountability. Therefore, we can conclude that social accountability positively and significantly influences service delivery in national referral hospitals in Kenya.

The study results of the survey in Table 4.31 revealed that there was positive and significant relationship between social accountability and service delivery in the national referral hospitals in Kenya (β_1=0.381, t cal= 2.307> t critical =1.96, p- value < 0.05). To test the relationship the Regression Model fitted was $Y = \beta_0 + \beta_1 X_2 + \varepsilon$, that is $Y = 8.786 + 0.381 X_2$. The null hypothesis (H0$_2$): Social accountability has no significant relationship with service delivery in the national referral hospitals in Kenya or (H0$_2$: $\beta j \neq 0$) is therefore rejected (β_1=0.381, t cal= 2.307> t critical =1.96, p-value < 0.05) and concluded that social accountability(X_2) positively and significantly influences service delivery in the national referral hospitals in Kenya (Y).

The findings highlight the critical role of social accountability in enhancing transparency, responsiveness, and effectiveness within Kenya's national referral hospitals. Social accountability obligates these institutions to be accountable to citizens and stakeholders for their actions and performance, involving meaningful engagement of communities in hospital governance and oversight (Uddin et al., 2020).

Strategies such as community meetings, patient feedback mechanisms, and advisory committees are essential for fostering participatory decision-making and quality improvement efforts (Zaidi et al., 2019). Ensuring transparency through the publication of performance data and financial reports is crucial for building trust and promoting accountability (Lahmar et al., 2016). Effective grievance redressal mechanisms are also vital, enabling timely resolution of patient complaints and concerns (Danhuondo et al., 2016). Collaboration with oversight institutions further strengthens accountability frameworks, ensuring compliance with standards and enhancing service delivery outcomes (Channa & Faguet, 2016). By emphasizing citizen engagement, transparency, grievance handling, community monitoring, and collaboration with oversight bodies, Kenya's national referral hospitals can improve service delivery, patient outcomes, and public trust.

Table 4.31: Regression Coefficients (Social Accountability and Service Delivery)

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	8.786	1.654		5.312	.000
Social Accountability	.381	.187	.356	2.037	.000

4.7.3 Regression Analysis for Construct Stakeholder Participation against Healthcare Service Delivery

The third study objective sought to assess the relationship between stakeholder participation and service delivery in national referral hospitals in Kenya. The results of the regression shown in Table 4.32 displays R, which is 0.436. This is a fairly moderate relationship between the observed and predicted values of the dependent variable. It also shows that there is positive correlation between stakeholder participation and service delivery in national referral hospitals in Kenya. Table 4.32 also displays R squared which is the proportion of variation in the dependent variable explained by the regression model, in this case, it is 0.190. This means that stakeholder participation can explain 19.00% of service delivery in national referral hospitals in Kenya. The remaining percentage (81.00%) can be explained by other factors excluded from the model. The adjusted R- square of 0.188 indicates that stakeholder

participation in exclusion of the constant variable explained the change in service delivery in national referral hospitals in Kenya by 18.80%. The value of the standard error of the estimate is shown in the output as 0.28764. It shows the average deviation of the dependent variable (service delivery in national referral hospitals in Kenya) from the line of best fit.

Table 4.32: Model Summary

Model Summary			
R	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
.436	.190	.188	.28764

Table 4.33 summarizes the results of an analysis of variance, with the sum of squares, degrees of freedom, and mean square being displayed for two sources of variation, regression and residual. For the accounted for values, the mean square (the sum of squares divided by the degrees of freedom), is 339.002 and the degree of freedom (df) is 1, whereas the output for residual which displays information about the variation that is not accounted for by the model has the following values: sum of squares as 1444.323 d.f as 109 and a mean square of 13.249. The F statistic (the regression mean square divided by the residual mean square) is 25.585   The overall relationship was statistically significant ($F_{1,109}$ = 25.585, p<0.05) It has a significance level of 0.000 this means that the chances are zero that the result of regression model are due to random events instead of a true relationship, which implies that the linear regression model is a good fit for the data and hence can be used to predict the influence of stakeholder participation on service delivery in national referral hospitals in Kenya.

Table 4.33: ANOVA Statistics (Stakeholder Participation against Service Delivery)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	339.002	1	339.002	25.585	.000
Residual	1444.323	109	13.250		
Total	**1783.325**	**110**			

Table 4.34 represents coefficients of the independent variable (stakeholder participation) and the dependent variable (service delivery in national referral hospitals in Kenya). These findings show that the service delivery in national referral hospitals in Kenya will be having an index of 4.118 when stakeholder participation is held constant. In addition, the Beta coefficient was 0.501 for the relationship between stakeholder participation and the service delivery in national referral hospitals in Kenya. This shows that a unit improvement in stakeholder participation would lead to a 0.501 improvement in the service delivery in national referral hospitals in Kenya. The t – value (3.767) of more than +1.96 indicates that the change in service delivery in national referral hospitals in Kenya by stakeholder participation is not by chance. The relationship is significant as the P-value (0.000) was less than the significance level (0.05). Thus, yielding a regression model where $Y= \beta_0 + \beta_3 X_3 + \varepsilon$. The general form of the equation was to predict service delivery in national referral hospitals in Kenya; X_3= Stakeholder participation; $Y= 4.118 + 0.501 X_3$. This indicates that service delivery in national referral hospitals in Kenya = 4.118 + 0.501* Stakeholder Participation. Therefore, we can conclude that stakeholder participation positively and significantly influences service delivery in national referral hospitals in Kenya.

Thus, the study results of the survey in Table 4.34 revealed that there was positive and significant relationship between stakeholder participation and service delivery in the national referral hospitals in Kenya (β_1=0.501, t cal= 3.767> t critical =1.96, p-value < 0.05). To test the relationship the Regression Model fitted was $Y= \beta_0 + \beta_1 X_3 + \varepsilon$, that is $Y= 4.118 + 0.501 X_3$. The null hypothesis (H_{03}): stakeholder participation has a positive and significant relationship with service delivery in the national referral hospitals in Kenya or (H_{03}: $\beta^j \neq 0$) is therefore rejected (β_1=0.501, t cal= 3.767> t critical =1.96, p- value < 0.05) and concluded that stakeholder participation (X_3) positively and significantly influences service delivery in the national referral hospitals in Kenya (Y).

Therefore, stakeholder participation plays a crucial role in enhancing transparency, accountability, and effectiveness within Kenya's national referral hospitals. This involvement ensures that diverse perspectives, needs, and concerns are considered in

hospital decision-making processes, fostering inclusivity and legitimacy in governance (Zaidi et al., 2022). Engaging patients, families, and communities allows for tailored healthcare services that address local health priorities and disparities, potentially improving health outcomes and patient satisfaction (McCollum et al., 2018). Healthcare providers also contribute significantly as stakeholders, influencing clinical excellence, teamwork, and staff morale through their participation in quality improvement initiatives and professional development activities (Danhuondo et al., 2016). Collaboration with government agencies and regulatory bodies helps hospitals adhere to healthcare standards and policies, ensuring high-quality care and patient safety (Brown, 2016). Additionally, partnerships with civil society organizations and NGOs bring valuable expertise and resources to support service delivery and health promotion efforts, enhancing collaboration and accountability in healthcare governance. Establishing formal mechanisms for stakeholder engagement, such as advisory committees and community forums, facilitates ongoing dialogue and transparency, promoting effective decision-making and improving overall healthcare delivery in national referral hospitals.

Table 4.34: Regression Coefficients (Stakeholder Participation against Service Delivery

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	4.118	11.214		3.392	.000
Stakeholder participation	.501	.133	.436	3.767	.000

4.7.4 Regression Analysis for Construct Oversight Mechanisms against Healthcare Service Delivery

The fourth study objective sought to investigate the relationship between oversight mechanisms and service delivery in the national referral hospitals in Kenya. The results of the regression are presented in Table 4.35 displays R (the correlation between the observed and predicted values of the dependent variable), which is 0.528. This is a fairly moderate relationship between the observed and predicted values of the dependent variable. It also shows that there is a positive correlation between oversight

mechanisms and service delivery in the national referral hospitals in Kenya.

Table 4.35 also displays R squared which is the proportion of variation in the dependent variable explained by the regression model, in this case, it is 0.279. This means that oversight mechanisms can explain 27.90% of service delivery in the national referral hospitals in Kenya. The remaining percentage (72.10%) can be explained by other factors excluded from the model. The adjusted R-square of 0.268 indicates that oversight mechanisms in exclusion of the constant variable explained the change in service delivery in the national referral hospitals in Kenya by 26.80%. The value of the standard error of the estimate is shown in the output as 0.14327. It shows the average deviation of the dependent variable (service delivery in the national referral hospitals in Kenya) from the line of best fit.

Table 4.35: Model Summary (Oversight Mechanisms against Service Delivery)

Model Summary			
R	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
.52	.279	.268	.14327

Table 4.36 summarizes the results of an analysis of variance, with the sum of squares, degrees of freedom, and mean square being displayed for two sources of variation, regression and residual. For the accounted-for values, the mean square (the sum of squares divided by the degrees of freedom), is 497.162 and the degree of freedom (df) is 1, whereas the output for residual which displays information about the variation that is not accounted for by the model has the following values: sum of squares as 1286.163 d.f as 109 and a mean square of 11.799. The F statistic (the regression mean square divided by the residual mean square) is 42.136 The overall relationship was statistically significant ($F_{1,109} = 42.316$, p<0.05) It has a significance level of 0.000 this means that the chances are zero that the result of regression model are due to random events instead of a true relationship, which implies that the linear regression model is a good fit for the data and hence can be used to predict the influence of oversight mechanisms on service delivery in the national referral hospitals in Kenya.

Table 4.36: ANOVA Statistics (Oversight Mechanisms against Service Delivery)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	497.162	1	497.162	42.136	.000
Residual	1286.163	109	11.799		
Total	**1783.325**	**110**			

Table 4.37 represents the coefficients of the independent variable (oversight mechanisms) and the dependent variable (service delivery in the national referral hospitals in Kenya). These findings show that the service delivery in the national referral hospitals in Kenya will have an index of 3.879 when oversight mechanisms are held constant. In addition, the Beta coefficient was 0.598 for the relationship between oversight mechanisms and service delivery in the national referral hospitals in Kenya. This shows that a unit improvement in oversight mechanisms would lead to a 0.598 improvement in service delivery in the national referral hospitals in Kenya. The t – t-value (5.387) of more than +1.96 indicates that the change in service delivery in the national referral hospitals in Kenya by oversight mechanisms is not by chance. The relationship is significant as the P-value (0.000) was less than the significance level (0.05). Thus, yielding a regression model where $Y = \beta 0 + \beta_1 X_4 + \varepsilon$. The general form of the equation was to predict service delivery in the national referral hospitals in Kenya; $X4 =$ Oversight mechanisms; $Y = 3.879 + 0.598 X_4$. This indicates that service delivery in the national referral hospitals in Kenya $= 3.879 + 0.598*$ Oversight mechanisms.

Thus, the study results of the survey in Table 4.37 revealed that there was a positive and significant relationship between oversight mechanisms and service delivery in the national referral hospitals in Kenya ($\beta 1 = 0.598$, t cal$= 5.387 >$ t critical $= 1.96$, p-value < 0.05). To test the relationship the Regression Model fitted was $Y = \beta 0 + \beta_1 X_4 + \varepsilon$**,** that is $Y = 3.879 + 0.598 X_4$. The null hypothesis (H_{04}): Oversight mechanisms have no positive and significant relationship with service delivery in the national referral hospitals in Kenya or (H_{04}: $\beta^{j} \neq 0$) is therefore rejected ($\beta_1 = 0.598$, t cal$= 5.387 >$ t critical $= 1.96$, p-value < 0.05) and concluded that oversight mechanisms (X_4) positively and significantly influence service delivery in the national referral hospitals in Kenya (Y).

Therefore, oversight institutions are integral to maintaining accountability, transparency, and quality in service delivery within Kenya's national referral hospitals. These institutions, as highlighted by Uddin et al. (2020), enforce healthcare regulations and quality standards through inspections, audits, and assessments, ensuring hospitals operate ethically and legally. They play a crucial role in monitoring and improving care quality through accreditation programs and performance evaluations, as noted by Lahmar et al. (2021), which help hospitals enhance efficiency and patient safety. Alsamara et al. (2022) emphasize their role in prioritizing patient safety by investigating incidents and implementing corrective actions to prevent future harm. Danhuondo et al. (2016) underscore their contribution to upholding ethical standards and professionalism, while Koch and Miller (2019) highlight their oversight of resource allocation to prevent misuse and optimize efficiency. Overall, oversight institutions promote a culture of accountability and continuous improvement in national referral hospitals, ensuring they deliver high-quality, patient-centered care that maintains public trust in the healthcare system.

Table 4.37: Regression Coefficients (Oversight Mechanisms against Service Delivery)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.879	.982		3.949	.000
Oversight Mechanisms	.598	.111	.528	5.387	.000

4.7.5 Regression Model for the Joint Relationship for Governance of Health Systems against Healthcare Service Delivery

The study assessed the joint relationship between health systems governance aspects and service delivery in the national referral hospitals in Kenya. Multiple regression analysis was used to determine whether independent variables, Health Policy (X_1), Social Accountability (X_2), Stakeholder Participation (X_3), and Oversight mechanisms (X_4) simultaneously influence the dependent variable which is service delivery in the national referral hospitals in Kenya (Y).To test the combined influence of health systems governance aspects on service delivery in the national referral hospitals in

Kenya, the study hypothesized that simultaneously, Health Policy (X_1), Social Accountability (X_2), Stakeholder Participation (X_3), Oversight Mechanisms (X_4) influence service delivery in the national referral hospitals in Kenya.

The results of the regression are presented in Table 4.38 displays R (the correlation between the observed and predicted values of the dependent variable), which is 0.902. This is a strong relationship between the observed and predicted values of the dependent variable. It also shows that there is a positive correlation between health systems governance aspects and service delivery in the national referral hospitals in Kenya. Table 4.38 also displays R squared which is the proportion of variation in the dependent variable explained by the regression model, in this case, it is 0.814. This means that combined corporate governance can explain 81.40% of the service delivery in the national referral hospitals in Kenya. The remaining percentage (18.60%) can be explained by other factors excluded from the model. The adjusted R-square of 0.799 indicates that health systems governance aspects {(Health Policy (X_1), Social Accountability (X_2), Stakeholder Participation (X_3), Oversight Mechanisms (X_4)} in exclusion of the constant variable explained the change in service delivery in the national referral hospitals in Kenya by 79.90%. The value of the standard error of the estimate is shown in the output as 0.28643. It shows the average deviation of the dependent variable (service delivery in the national referral hospitals in Kenya) from the line of best fit.

Table 4.38: Model Summary (Joint Relationship)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.902	.814	.799	.28643

Table 4.39 summarizes the results of an analysis of variance, with the sum of squares, degrees of freedom, and mean square being displayed for two sources of variation, regression and residual. For the accounted-for values, the mean square (the sum of squares divided by the degrees of freedom), is 1451.626 and the degree of freedom (df) is 4, whereas the output for residual which displays information about the variation that is not accounted for by the model has the following values: sum of squares as 331.699 d.f as 106 and a mean square of 3.129. The F statistic (the

regression mean square divided by the residual mean square) is 113.584. The overall relationship was statistically significant ($F_{4,106} = 113.584$, $p < 0.05$) It has a significance level of 0.000 which means that the chances are zero that the result of the regression model is due to random events instead of a true relationship, which implies that the linear regression model is a good fit for the data and hence can be used to predict the influence of health systems governance aspects on the service delivery in the national referral hospitals in Kenya. This implies that corporate governance {(Health Policy (X_1), Social Accountability (X_2), Stakeholder Participation (X_3), Oversight Mechanisms (X_4)} are significant predictors of explaining the service delivery in the national referral hospitals in Kenya and that the model is significantly fit at 5% level of significance.

Table 4.39: ANOVA Statistics: Joint Relationship

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1451.626	4	355.406	113.584	.000
Residual	331.699	106	3.129		
Total	**1783.325**	**110**			

Further, the study ran the procedure of obtaining the regression coefficients, and the results were as shown in Table 4.40. The coefficients or beta weights for each variable allow the researcher to compare the relative importance of each independent variable. In this study, the unstandardized coefficients and standardized coefficients are given for the multiple regression equations. However, discussions are based on the unstandardized coefficients. The s significance of each independent variable (health systems governance aspects) in the Model, the beta value, t-values, and p-values were used to answer the question of which of the independent variables (health systems governance aspects) play a more important role in service delivery in the national referral hospitals in Kenya. According to Table 4.40, the Multiple regression model equation would be ($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$) becomes $Y = 12.565 + 0.745 X_1 + 0.666 X_2 + 0.799 X_3 + 0.826 X_4$.

This indicates that service delivery in the national referral hospitals in Kenya = 12.565 + 0.745 (Health Policy) + 0.666 (Social Accountability) + 0.799 (Stakeholder Participation) + 0.826(Oversight Mechanisms). According to the regression equation

established, taking all factors into account {(Health Policy (X_1), Social Accountability ($X2$), Stakeholder Participation ($X3$), Oversight Mechanisms ($X4$)} constant at zero, service delivery in the national referral hospitals in Kenya was 12.565.

Findings in Table 4.40 showed that health policy (X_1) had coefficients of estimate which was significant based on ($\beta1=0.745$, t cal= 3.763> t critical =1.96, p-value < 0.05). Also, the influence of health policy (X_1) is more than the effect attributed to the error, this is indicated by the t-test value = 3.763, thus we conclude that there is a significant relationship between health policy (X_1) and service delivery in the national referral hospitals in Kenya. The alternate hypothesis that there is a positive and significant relationship between health policy and service delivery in the national referral hospitals in Kenya has therefore failed to be rejected (P<0.05). Thus, we conclude that health policy (X_1) is used as a response to service delivery in the national referral hospitals in Kenya.

In addition, findings in Table 4.40 showed that social accountability (X_2) had coefficients of the estimate which was significant based on ($\beta2=0.666$, t cal= 3.069 > t critical =1.96, p-value < 0.05). Also, the influence of social accountability (X_2) is more than the effect attributed to the error, this is indicated by the t-test value = 3.069, thus we conclude that there is a significant relationship between social accountability (X_2) and service delivery in the national referral hospitals in Kenya. The alternate hypothesis that there is a positive and significant relationship between social accountability (X_2) and service delivery in the national referral hospitals in Kenya is therefore failed to be rejected (P<0.05). Thus, social accountability (X_2) is used as a response to service delivery in the national referral hospitals in Kenya.

Further, results in Table 4.40 showed that stakeholder participation (X_3) had coefficients of estimate which was significant based on ($\beta3=0.799$, t cal= 4.539> t critical =1.96, p- value < 0.05). Also, the influence of stakeholder participation ($X3$) is more than the effect attributed to the error, this is indicated by the t-test value = 4.539, thus we conclude that there is a significant relationship between stakeholder participation (X_3) and service delivery in the national referral hospitals in Kenya. The alternate hypothesis that there is a positive and significant relationship between

stakeholder participation (X_3) and service delivery in the national referral hospitals in Kenya is therefore failed to be rejected (P<0.05). Thus, stakeholder participation (X3) is used as a response to service delivery in the national referral hospitals in Kenya.

Lastly, study results in Table 4.40 showed that oversight mechanisms (X_4) had coefficients of estimate which were significant based on ($\beta4$=826, t cal= 6.029 > t critical =1.96, p-value < 0.05). Also, the influence of oversight mechanisms (X_4) is more than the effect attributed to the error, this is indicated by the t-test value = 6.029, thus we conclude that there is a significant relationship between oversight mechanisms (X_4) and service delivery in the national referral hospitals in Kenya. The alternate hypothesis that there is a positive and significant relationship between oversight mechanisms (X_4) and service delivery in the national referral hospitals in Kenya is therefore failed to be rejected (P<0.05). Thus, oversight mechanisms (X_4) are used as a response to service delivery in the national referral hospitals in Kenya.

Therefore, based on the results in Table 4.40 in regard to the analysis of the governance of health systems influencing service delivery within national referral hospitals in Kenya, oversight mechanisms emerge as the most influential, ranked first based on their standardized coefficient ($\beta = 0.826$, p < .001) in the model. Oversight mechanisms, which include regulatory bodies and governmental agencies, play a pivotal role in ensuring accountability, transparency, and adherence to healthcare standards. Through rigorous monitoring, audits, and assessments, these institutions uphold patient safety, operational efficiency, and overall quality of care, making them the primary driver of improved service delivery outcomes.

Following closely in impact, ranked second, is stakeholder participation ($\beta = 0.799$, p = .003). This factor underscores the involvement of patients, healthcare providers, communities, and governmental entities in decision-making processes. Stakeholder engagement facilitates inclusive governance, accountability, and responsiveness within national referral hospitals. By aligning hospital practices with community needs and expectations, stakeholder participation supports patient-centered care and strengthens the overall governance framework crucial for sustainable healthcare delivery. Ranked third in significance is health policy ($\beta = 0.745$, p = .004), which

shapes regulatory frameworks, resource allocation strategies, and quality standards within national referral hospitals. Effective health policies streamline operations, optimize resource utilization, and prioritize healthcare initiatives, directly impacting patient outcomes and enhancing the accessibility and quality of healthcare services provided.

Lastly, ranked fourth is social accountability ($\beta = 0.666$, $p = .008$), highlighting its role in promoting ethical conduct, transparency, and community engagement. Social accountability ensures open communication, ethical behavior, and responsiveness to patient needs, fostering trust in healthcare institutions and improving healthcare delivery outcomes. In summary, these governances of health systems factors, that is, oversight mechanisms, stakeholder participation, health policy, and social accountability, collectively influence governance dynamics within national referral hospitals in Kenya. Their respective impacts underscore the comprehensive approach needed to enhance service delivery effectiveness, uphold healthcare standards, and ultimately improve health outcomes for the population served. Strengthening these factors through collaborative efforts and evidence-based practices is crucial for achieving sustainable healthcare delivery and addressing evolving healthcare needs in Kenya.

The study findings underscore the critical role of health systems governance in national referral hospitals in Kenya, emphasizing its influence on healthcare management and service delivery. Health systems governance involves a complex network of structures and institutions, including government ministries, regulatory bodies, and hospital boards, responsible for policy formulation, resource allocation, and performance oversight (McCollum et al., 2018). Governance frameworks guide the development and implementation of policies that impact healthcare financing, human resources, infrastructure, and quality assurance, directly affecting the availability and quality of healthcare services provided (Channa & Faguet, 2016; Koch & Miller, 2019). Transparent and accountable governance mechanisms ensure stakeholders are held responsible for their decisions, enhancing efficiency and public trust (Bown, 2016). Additionally, these frameworks facilitate stakeholder engagement, ensuring diverse perspectives are considered in decision-making processes, which promotes

collaboration and responsiveness to community needs (Mosadeghrad & Rahimi-Tabar, 2019). Governance structures also support ongoing quality improvement initiatives aimed at enhancing patient safety and care effectiveness, thereby contributing to improved health outcomes and patient experiences in national referral hospitals.

Table 4.40: Regression Coefficient Results (Joint Relationship)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Std. Error	B		
(Constant)	2.565	.912		13.777	.000
Health Policy	745	.198	.632	3.763	.004
Social Accountability	666	.217	.611	3.069	.008
Stakeholder Participation	799	.176	.703	4.539	.003
Oversight Mechanisms	826	.137	.819	6.029	.001

4.8 Moderating Effect Test

Moderation happens when the relationship between the dependent variable and the independent variables is dependent on a third variable (moderating variable). The effect that this variable has is termed interaction as it affects the direction or strength of the relationship between the dependent and independent variables. To answer the fifth research objective (to examine whether mobile technology has a moderating effect on the relationship between the governance of health systems and service delivery in the national referral hospitals in Kenya) the study computed a moderating effect regression analysis. Mobile technology was introduced as the moderating variable.

4.8.1 Moderation of Construct Health Policy

A stepwise regression analysis was conducted to examine the moderating effect of mobile technology on the relationship between health policy and service delivery. The model's findings reveal the significance of health policy and mobile technology in influencing service delivery in national referral hospitals in Kenya. Based on Table 4.41, in the first model, which includes health policy as the sole predictor, the R-value is 0.401, indicating a moderate correlation between health policy and service delivery. The R Square value of 0.161 suggests that 16.1% of the variance in service delivery

can be explained by health policy alone, with an adjusted R Square of 0.159 and a standard error of 0.33219. This indicates a modest yet meaningful impact of health policy on service delivery.

In the second model, which incorporates both health policy and the interaction between mobile technology and health policy, the R-value increases to 0.507, signifying a stronger correlation. The R Square value of 0.257 implies that 25.7% of the variance in service delivery is explained by these predictors, with an adjusted R Square of 0.231 and a reduced standard error of 0.17654. This represents an improvement of 9.6 percentage points in the variance explained (from 16.1% to 25.7%), highlighting the enhanced explanatory power when mobile technology is integrated with health policy.

The implications of these findings are substantial for healthcare management in Kenya. They suggest that while health policy is crucial for improving service delivery, integrating mobile technology with these policies can substantially amplify their effectiveness. This underscores the need for policymakers and healthcare administrators to not only focus on robust health policies but also to leverage mobile technology to optimize service delivery outcomes. Enhancing mobile technology infrastructure and ensuring its integration into health policy frameworks could lead to more efficient, accessible, and higher quality healthcare services in national referral hospitals.

Table 4.41: Model Summary Health Policy, Moderated Health Policy against Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.401	.161	.159	.33219
2	.507	.257	.231	.17654

Model 1: Health Policy as the sole predictor, the regression sum of squares is 287.103, while the residual sum of squares is 1496.222. The F-statistic is 20.917 with a p-value of .000, indicating that Health Policy significantly predicts service delivery (p < .001). This model explains approximately 16.1% of the variance in service delivery (R^2 = 0.161), which shows that while Health Policy is a significant factor, much of the variability in service delivery remains unexplained.

Model 2: includes both Health Policy and the interaction of Mobile Technology with Health Policy, the regression sum of squares increases to 458.314, and the residual sum of squares decreases to 1325.011. The F-statistic for this model is 18.678 with a p-value of .000, indicating that this combined model significantly predicts service delivery (p < .001). This model explains approximately 25.7% of the variance in service delivery ($R^2 = 0.257$), representing an improvement of 9.6 percentage points over Model 1 (Table 4.42). This increase in explained variance underscores the substantial additional explanatory power provided by including mobile technology alongside health policy. These findings highlight the critical role of integrating mobile technology with health policy to enhance service delivery in national referral hospitals in Kenya. While health policy alone is a significant predictor of service delivery outcomes, the addition of mobile technology interactions considerably enhances the model's explanatory power. This suggests that leveraging mobile technology can amplify the effectiveness of health policies, leading to more efficient, accessible, and higher-quality healthcare services.

Table 4.42: ANOVA for Health Policy, Moderated Health Policy against Healthcare Service Delivery

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	287.103	1	287.103	20.917	.000[b]
Residual	1496.222	109	13.726		
Total	**1783.325**	**110**			
2 Regression	458.314	2	229.157	18.678	.000[c]
Residual	1325.011S	108	12.269		
Total	**1783.325**	**110**			

    a. Dependent Variable: Service Delivery
    b. Predictors: (Constant), Health Policy
    c. Predictors: (Constant), Health Policy, Mobile Technology* Health Policy, Service Deliver

Model 1: Health Policy Only

The regression equation for Model 1, which includes only Health Policy as a predictor of Service Delivery, is given by:

Service Delivery= 5.879+ 0.416 x Health Policy

Model 2: Health Policy and Interaction with Mobile Technology

The regression equation for Model 2, which includes Health Policy and the interaction of Mobile Technology with Health Policy as predictors of Service Delivery, is given by:

Service Delivery=10.213 + 0.499 x Health Policy + 0.326 x (Mobile Technology x Health Policy)

The regression analysis reveals crucial insights into the impact of Health Policy and its interaction with Mobile Technology on service delivery in national referral hospitals in Kenya. In Model 1, which includes Health Policy as the sole predictor, the constant term is 5.879, indicating the baseline level of service delivery when Health Policy is zero. The unstandardized coefficient for Health Policy is 0.416, suggesting that each unit increase in Health Policy leads to a 0.416 unit increase in service delivery. The standardized coefficient (Beta) of 0.401 indicates a moderate effect size. This relationship is statistically significant, as evidenced by the t-value of 2.809 and a p-value less than .001, highlighting that Health Policy alone positively impacts service delivery in national referral hospitals.

Model 2 incorporates both Health Policy and the interaction of Mobile Technology with Health Policy. Here, the constant term is 10.213, reflecting the baseline level of service delivery when both the Health Policy and the interaction term are zero. The unstandardized coefficient for Health Policy is 0.499, showing a direct positive effect on service delivery, with a standardized coefficient (Beta) of 0.423. This effect remains statistically significant (t = 2.599, p = .011). Additionally, the interaction term between Mobile Technology and Health Policy has an unstandardized coefficient of 0.326, indicating that the impact of Health Policy on service delivery increases by 0.326 units for each unit increase in the interaction term. The standardized coefficient (Beta) is 0.328, and this effect is statistically significant (t = 2.859, p = .005) as shown in the table 4.43.

The findings underscore the importance of Health Policy in improving service delivery within Kenya's national referral hospitals. Model 1 demonstrates that robust health

policies are essential for the effective functioning of healthcare services, as evidenced by the significant positive impact of Health Policy on service delivery. The high constant term in both models indicates a substantial baseline impact, emphasizing the foundational importance of initial policy frameworks in healthcare settings.

Moreover, Model 2 reveals that integrating Mobile Technology with Health Policy significantly enhances the positive impact on service delivery. The significant interaction term suggests that mobile technology can amplify the effectiveness of health policies, leading to more substantial improvements in service delivery outcomes. This implies that policymakers and healthcare administrators should focus on not only formulating robust health policies but also incorporating mobile technology to optimize service delivery. By leveraging mobile technology, national referral hospitals can achieve greater efficiency, accessibility, and quality in healthcare services. This integration ultimately leads to better patient outcomes and enhances the overall healthcare delivery system in Kenya.

The findings from the regression analysis, which highlight the significant roles of Health Policy and the interaction of Mobile Technology with Health Policy on service delivery in Kenya's national referral hospitals, align well with existing literature. Channa and Faguet (2016) emphasize that effective health policies guide resource allocation and quality assurance, which are crucial for improving service delivery outcomes. The significant interaction term in the model corroborates McCollum et al.'s (2018) assertion that stakeholder engagement, facilitated by mobile technology, enhances healthcare planning and implementation, leading to better health outcomes and patient satisfaction. Additionally, Uddin et al. (2020) highlight the role of oversight institutions in enforcing healthcare regulations and ensuring compliance, aligning with the observed impact of robust health policies. Similarly, Lahmar et al. (2021) and Zaidi et al. (2019) stress the importance of integrating technology in health governance to address local health priorities and improve service quality. These findings suggest that policymakers should focus on both developing effective health policies and leveraging mobile technology to enhance service delivery in national referral hospitals (Alsamara et al., 2022).

Table 4.43: Regression Coefficients for Health Policy, Moderated Health Policy against Healthcare Service Delivery

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1. Constant	5.879	1.223		4.807	.000
Health Policy	.416	.148	.401	2.809	.000
2. Constant	10.21	.854		11.959	.000
Health Policy	.499	.192	.423	2.599	.011
Mobile Technology*	.326	.114	.328	2.859	.005

4.8.2 Moderation on Social Accountability

A stepwise regression analysis was conducted to examine the moderating effect of mobile technology on the relationship between social accountability and service delivery in the national referral hospitals in Kenya. Based on Table 4.44, the model's findings reveal the significance of social accountability and mobile technology in influencing service delivery in national referral hospitals in Kenya. The model analysis highlights the significance of Social Accountability and its interaction with Mobile Technology in predicting service delivery outcomes in national referral hospitals in Kenya.

In **Model 1**, which includes Social Accountability as the sole predictor, the R- value is 0.356, indicating a moderate correlation between Social Accountability and service delivery. The R Square value of 0.127 suggests that 12.7% of the variance in service delivery can be explained by Social Accountability alone, with an adjusted R Square of 0.124 and a standard error of 0.18643. This indicates a modest impact of Social Accountability on service delivery outcomes. The model implies that while Social Accountability is an important factor in enhancing service delivery, a significant portion of the variance in service delivery remains unexplained, suggesting the need for additional predictors to fully capture the complexity of service delivery dynamics.

In **Model 2:** incorporates both Social Accountability and the interaction of Mobile Technology with Social Accountability, the R-value increases to 0.413, indicating a stronger correlation. The R Square value of 0.169 implies that 16.9% of

the variance in service delivery is explained by these predictors, with an adjusted R Square of 0.143 and a reduced standard error of 0.17342. This represents an improvement of 4.2 percentage points in the variance explained (from 12.7% to 16.9%), a percentage increase of 4.2%, highlighting the enhanced explanatory power when Mobile Technology is integrated with Social Accountability. The increase in the adjusted R Square also indicates that adding the interaction term improves the model fit, making it a more accurate representation of the factors influencing service delivery.

The findings highlight the critical role of Social Accountability in enhancing service delivery within national referral hospitals in Kenya. Model 1 demonstrates that Social Accountability alone significantly contributes to service delivery, suggesting that initiatives promoting transparency, community engagement, and responsiveness can lead to better healthcare outcomes. The modest R Square value indicates that while Social Accountability is important, other factors also play a crucial role in service delivery, which need to be considered for a comprehensive understanding and improvement.

The improvement seen in Model 2 underscores the synergistic effect of integrating Mobile Technology with Social Accountability. The interaction term significantly enhances the model's explanatory power, suggesting that leveraging mobile technology can amplify the positive impacts of social accountability initiatives. This integration can lead to more efficient communication, better monitoring of healthcare services, and enhanced community involvement, ultimately resulting in higher quality service delivery. For policymakers and healthcare administrators, these findings emphasize the need to not only focus on fostering social accountability but also to incorporate mobile technology solutions to optimize service delivery. By investing in mobile technology and ensuring its integration into social accountability frameworks, national referral hospitals can achieve more effective, transparent, and patient-centered healthcare services, leading to improved patient outcomes and greater public trust in the healthcare system. The percentage increase of 4.2% in the explained variance (from 12.7% to 16.9%) illustrates the significant added value of incorporating mobile technology into social accountability efforts.

Table 4.44: Model Summary Social Accountability, Moderated Social Accountability against Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	356[a]	.127	.124	. 18643
2	.413[b]	.169	.143	.17342

a. Predictors: (Constant), Social Accountability
b. Predictors: (Constant), Social Accountability, Mobile Technology* Social Accountability, Service Delivery in the National Referral Hospitals

Based on the study findings in Table 4.45, in Model 1, the regression sum of squares is 226.011, indicating the amount of variation in service delivery explained by Social Accountability alone. The residual sum of squares is 1557.314, representing the unexplained variance. The mean square for regression is 226.011, and for residual, it is 14.287. The F-statistic for this model is 15.819 with a p-value of .000, indicating that the model is statistically significant. This suggests that Social Accountability is a significant predictor of service delivery in national referral hospitals, explaining 12.7% of the variance ($R^2 = 0.127$). In Model 2, which includes both Social Accountability and the interaction of Mobile Technology with Social Accountability, the regression sum of squares increases to 301.382, and the residual sum of squares decreases to 1481.943. The mean square for regression is 150.691, and for residual, it is 13.722. The F-statistic for this model is 11.001 with a p-value of .000, indicating that this model is also statistically significant. This model explains 16.9% of the variance in service delivery ($R^2 = 0.169$), representing an improvement of 4.2 percentage points over Model 1.

The findings imply that the findings from Model 1 highlight the critical role of Social Accountability in enhancing service delivery within national referral hospitals in Kenya. With a significant F-statistic (15.819, $p < .001$), it is evident that initiatives aimed at promoting transparency, community engagement, and responsiveness significantly contribute to better healthcare outcomes. Social Accountability measures, such as involving patients and communities in decision-making and ensuring healthcare providers are answerable to the public, can lead to improved service delivery. Model 2 demonstrates the added value of integrating Mobile Technology with Social Accountability initiatives. The inclusion of the

interaction term between Mobile Technology and Social Accountability increases the explained variance by 4.2 percentage points (from 12.7% to 16.9%). This indicates that leveraging mobile technology can significantly amplify the positive impacts of social accountability measures. Mobile technology can facilitate more efficient communication, real-time monitoring, and greater community involvement, all of which enhance the quality-of-service delivery in national referral hospitals.

Table 4.45: ANOVA for Social Accountability, Moderated Social Accountability against Service Delivery

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	226.011	1	226.011	15.819	.000[b]
Residual	1557.314	109	14.287		
Total	**1783.325**	**110**			
2 Regression	301.382	2	150.691	11.001	.000[c]
Residual	1481.943	108	13.722		
Total	**1783.325**	**110**			

a. Dependent Variable: Service Delivery
b. Predictors: (Constant), Social Accountability
c. Predictors:(Constant), Social Accountability, Mobile Technology* Social Accountability, Service Delivery

Model 1: Social Accountability Only

The regression equation for Model 1, which includes Social Accountability as the sole predictor of Service Delivery, is:

Service Delivery= 8.786+ 0.381 x Social Accountability

Model 2: Social Accountability and Interaction with Mobile Technology

The regression equation for Model 2, which includes Social Accountability and the interaction of Mobile Technology with social accountability as predictors of Service Delivery, is given by:

Service Delivery = 7.123 + 0.367 x Social Accountability + 0.254 x (Mobile Technology x Social Accountability).

The regression analysis highlights the significant role of Social Accountability in enhancing service delivery within national referral hospitals in Kenya. In Model 1, the constant term is 8.786, indicating the baseline level of service delivery when Social Accountability is zero. The unstandardized coefficient for Social Accountability is 0.381, suggesting that for each unit increase in Social Accountability, service delivery is expected to increase by 0.381 units. The standardized coefficient (Beta) is 0.356, indicating a moderate effect size. This relationship is statistically significant, as evidenced by a t-value of 2.037 and a p-value less than .001. These findings demonstrate that initiatives aimed at promoting transparency, community engagement, and responsiveness are crucial for improving healthcare outcomes. Hospitals that effectively implement social accountability measures, such as patient feedback mechanisms, community participation in decision-making, and transparency in operations, are likely to experience significant improvements in service delivery.

In Model 2, which includes both Social Accountability and the interaction of Mobile Technology with Social Accountability, the constant term is 7.123, indicating the baseline level of service delivery when both Social Accountability and the interaction term are zero. The unstandardized coefficient for Social Accountability is 0.367, suggesting that Social Accountability has a direct positive effect on service delivery. The standardized coefficient (Beta) is 0.297, and the relationship remains statistically significant with a t-value of 2.548 and a p-value of .013. Additionally, the interaction term between Mobile Technology and Social Accountability has an unstandardized coefficient of 0.254, indicating that the effect of Social Accountability on service delivery increases by 0.254 units for each unit increase in the interaction term. The standardized coefficient (Beta) for this interaction term is 0.293, with a t-value of 2.854 and a p-value of .006, showing a significant effect on Social Accountability when combined with Mobile Technology as shown in table 4.46.

The findings from Model 2 suggest that integrating Mobile Technology with Social Accountability substantially enhances the positive impact on service delivery. Mobile technology facilitates efficient communication, real-time monitoring, and greater community involvement, which can significantly improve the quality of healthcare services. For example, mobile health applications can provide patients with reminders

for appointments and medications, enable real-time reporting of health issues, and improve access to health information. The significant interaction term indicates that leveraging mobile technology can amplify the effectiveness of social accountability initiatives, leading to higher quality service delivery in national referral hospitals.

In conclusion, the regression analysis clearly shows that while Social Accountability is essential for improving service delivery, its impact is significantly enhanced when combined with Mobile Technology. National referral hospitals in Kenya should focus on integrating these factors to optimize service delivery, thereby improving healthcare outcomes and ensuring equitable access to quality healthcare services for all populations. This comprehensive approach will help address current challenges and improve the overall performance of the healthcare system in Kenya. To substantiate the findings regarding the impact of Social Accountability and its interaction with Mobile Technology on service delivery in national referral hospitals, previous studies provide valuable insights and support.

Research by Lahmar et al. (2021) emphasizes that social accountability mechanisms, such as community participation and transparency in healthcare governance, positively influence service delivery outcomes. Their study underscores that hospitals with robust social accountability frameworks tend to exhibit higher patient satisfaction, improved healthcare quality, and better resource allocation. This aligns with the regression results showing a significant positive coefficient for Social Accountability in both Model 1 and Model 2, indicating its substantial role in enhancing service delivery. Moreover, studies by Alsamara et al. (2022) and Danhuondo et al. (2016) highlight the synergistic effect of integrating technology with social accountability measures. These studies support the regression results, indicating that fostering social accountability practices alongside leveraging mobile technology can lead to substantial improvements in service delivery. By integrating these approaches, healthcare systems can enhance transparency, community engagement, and operational efficiency, ultimately improving healthcare access and outcomes for the population.

Table 4.46: Regression Coefficients for Social Accountability, Moderated Social Accountability against Service Delivery

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1. (Constant)	8.786	1.654		5.312	.000
Social Accountability	.381	.187	.356	2.037	.000
2. Constant	7.123	.621		11.439	.000
Social Accountability	.367	.144	.297	2.548	.013
Mobile Technology* Social Accountability	.254	.089	.293	2.854	.006

4.8.3 Moderation on Construct Oversight Mechanisms

A stepwise regression analysis was conducted to examine the moderating effect of mobile technology on the relationship between oversight mechanisms and service delivery in the national referral hospitals in Kenya. Based on Table 4.47, the model's findings reveal the significance of oversight mechanisms and mobile technology in influencing service delivery in national referral hospitals in Kenya. The regression analysis reveals substantial improvements in the predictive power of the models as additional predictors are incorporated. In Model 1, where Oversight mechanisms are the sole predictor, the model accounts for 27.9% ($R^2 = 0.279$) of the variance in Service Delivery. Upon including Mobile Technology and its interaction with Oversight Mechanisms in Model 2, the percentage of variance explained increases significantly to 34.7% ($R^2 = 0.347$). This represents a notable 6.8 percentage point increase in explanatory power from Model 1 to Model 2.

The adjusted R^2 also reflects this enhancement, rising from 26.8% in Model 1 to 32.1% in Model 2. This adjustment indicates that Model 2, with the additional predictors, is more appropriate for predicting Service Delivery than Model 1, considering the improved fit. Furthermore, the standard error of the estimate decreases from 0.14327 in Model 1 to 0.12178 in Model 2. This reduction signifies that Model 2 provides more accurate predictions of Service Delivery compared to Model 1, suggesting that the

inclusion of Mobile Technology and its interaction with Oversight Mechanisms contributes to a more precise estimation of service delivery outcomes. The findings underscore the significant role of Mobile Technology in augmenting the impact of Oversight Mechanisms on service delivery within national referral hospitals. By enhancing communication, data management, and operational efficiencies, Mobile Technology complements the oversight functions of regulatory bodies, potentially leading to enhanced accountability, resource allocation, and overall healthcare service quality. This integrated approach underscores the importance of technological advancements in improving healthcare governance and operational effectiveness, ultimately benefiting both patients and healthcare providers.

Table 4.47: Model Summary for Oversight Mechanisms, Moderated Oversight Mechanisms against Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.528[a]	.279	.268	.14327
2	.589[b]	.347	.321	.12178

a. Predictors: (Constant), Oversight Mechanisms
b. Predictors: (Constant), Oversight Mechanisms, Mobile Technology* Oversight Mechanisms , Service Delivery in the National Referral Hospitals

The analysis of variance (ANOVA) Table 4.48 indicates significant improvements in the model's explanatory power as predictors are added. In Model 1, Oversight Mechanisms s alone explain a substantial portion of the variance in Service Delivery, with a regression sum of squares of 497.162 and a significant F-statistic of 42.136 (p < .0001). This model suggests that Oversight Mechanisms s play a critical role in influencing Service Delivery within national referral hospitals. Model 2, which includes both Oversight Mechanisms s and Mobile Technology with their interaction, shows further enhancement in predictive capability. The regression sum of squares increases to 618.814, and the F-statistic remains highly significant at 28.459 (p < .0001). This indicates that the addition of Mobile Technology and its interaction with Oversight Mechanisms significantly contributes to explaining Service Delivery beyond the effect of Oversight Mechanisms alone.

The findings suggest that integrating Mobile Technology into the oversight mechanisms of national referral hospitals amplifies the effectiveness of governance practices. Mobile Technology likely improves communication, data management, and operational efficiencies, thereby bolstering the oversight functions of regulatory bodies. The interaction effect (Mobile Technology * Oversight Mechanisms) emphasizes the synergistic benefits of technological advancements in healthcare governance, potentially leading to better accountability, resource allocation, and overall service delivery outcomes.

Table 4.48: ANOVA for Oversight Mechanisms, Moderated Oversight Mechanisms against Service Delivery

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	497.162	1	497.162	42.136	.000[b]
Residual	1286.163	109	11.799		
Total	**1783.325**	**110**			**.000[c]**
2 Regression	618.814	2	309.407	28.459	
Residual	1164.511	108	10.782		
Total	**1783.325**	**110**			

a. Predictors: (Constant), Oversight Mechanisms
b. Predictors: (Constant), Oversight Mechanisms, Mobile Technology* Oversight Mechanisms, Service Delivery

Model 1: Oversight Mechanisms Only

The regression equation for Model 1, which includes oversight Mechanisms as the sole predictor of Service Delivery, is:

Service Delivery= 3.879 + 0.598 x Oversight Mechanisms

Model 2: Oversight Mechanisms and Interaction with Mobile Technology

The regression equation for Model 2, which includes oversight mechanisms and the interaction of Mobile Technology with oversight mechanisms as predictors of Service Delivery, is given by:

Service Delivery = 8.543 + 0.388 x Oversight Mechanisms + 0.278 x (Mobile

Technology x Oversight Mechanisms).

The regression analysis explored in Table 4.49 on the influence of Oversight Mechanisms and their interaction with Mobile Technology on service delivery within national referral hospitals. In Model 1, Oversight Mechanisms emerged as a significant predictor ($\beta = 0.598$, p = .000), indicating that increased oversight correlates positively with enhanced service delivery outcomes. Specifically, for every unit increase in oversight, service delivery in national referral hospitals is expected to improve by 0.598 units, holding other variables constant. The overall model was highly significant (F = 42.136, p = .000), suggesting that Oversight Mechanisms alone explain a substantial portion of the variance in service delivery ($R^2 = 0.279$).

Expanding on Model 1, Model 2 introduced Mobile Technology as an interacting factor with Oversight Mechanisms. Both Oversight Mechanisms ($\beta = 0.388$, p = .015) and the interaction term (Mobile Technology * Oversight Mechanisms: $\beta = 0.278$, p = .009) retained statistical significance. The adjusted R^2 increased to 0.321, indicating that the combined effect of Oversight Mechanisms and Mobile Technology explains more variance in service delivery outcomes. This finding suggests that while strong oversight remains crucial for improving service delivery, integrating mobile technology amplifies this effect, potentially through enhanced communication, efficiency, and data management.

These results underscore the importance of robust oversight mechanisms in national referral hospitals. Effective oversight ensures adherence to standards, promotes accountability, and drives continuous quality improvement in healthcare services. The integration of mobile technology further enhances these efforts by facilitating real-time monitoring, communication among healthcare providers, and access to critical information, thereby optimizing service delivery processes. Implementing comprehensive strategies that combine regulatory oversight with technological advancements can significantly bolster healthcare outcomes and patient experiences in national referral hospital settings.

Corroborating the findings with previous studies can provide context and support for understanding the implications of the regression results related to Oversight

Mechanisms and Mobile Technology in service delivery within national referral hospitals. Research by Uddin et al. (2020) emphasizes the critical role of oversight mechanisms in healthcare settings, noting that robust regulatory frameworks and effective monitoring mechanisms are essential for ensuring compliance with standards and improving service delivery outcomes. They argue that oversight mechanisms enhance accountability and transparency, which aligns with the findings showing a significant positive relationship between Oversight Mechanisms and Service Delivery in national referral hospitals (Model1: $B=0.598, t=5.387, p<.001$ B=0.598, t=5.387, p<.001; Model2: $B=0.388, t=2.473, p=.015$ B=0.388, t=2.473, p=.015).

Furthermore, studies by Lahmar et al. (2021) and Alsamara et al. (2022) underscore the impact of technology integration, such as Mobile Technology, on healthcare service delivery. They suggest that leveraging mobile platforms can streamline communication, enhance data management, and improve decision-making processes in healthcare settings. The interaction term in Model 2 ($B=0.278, t=2.657, p=.009$; B=0.278, t=2.657, p=.009) highlights that the joint influence of Mobile Technology and Oversight Mechanisms further enhances service delivery capabilities, potentially through improved efficiency and accessibility of healthcare services. These corroborative studies support the interpretation that effective oversight mechanisms and the integration of mobile technology contribute synergistically to improving service delivery in national referral hospitals. They underscore the importance of regulatory oversight and technological advancement in enhancing healthcare quality and efficiency, aligning with the findings from the regression analysis.

Table 4.49: Regression Coefficient for Oversight Mechanisms, Moderated Oversight Mechanisms against Service Delivery

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1. (Constant)	3.879	.982		3.949	.000
Oversight Mechanisms	.598	.111	.528	5.387	.000
2. Constant	8.543	.754		11.329	.000
Oversight Mechanisms	.388	.157	.324	2.473	.015
Mobile Technology* Oversight M.	.278	.105	.289	2.657	.009

4.8.4 Moderation on Construct Stakeholder Participation

A stepwise regression analysis was conducted to examine the moderating effect of mobile technology on the relationship between stakeholder participation and service delivery in the national referral hospitals in Kenya. The regression results indicate substantial explanatory power in understanding service delivery within national referral hospitals based on Stakeholder Participation and its interaction with Mobile Technology. Model 1, incorporating Stakeholder Participation alone, shows a moderate R-squared of 0.189, indicating that 18.9% of the variance in service delivery can be explained by this predictor alone. This suggests that involving various stakeholders such as patients, healthcare providers, and community representatives in hospital governance and decision-making processes significantly influences service delivery outcomes (Model 1: R^2=0.189; Adjusted R^2=0.188).

Model 2 expands upon this understanding by introducing Mobile Technology as an interacting factor with Stakeholder Participation. The adjusted R-squared increases to 0.243, signifying that the inclusion of Mobile Technology and its interaction with Stakeholder Participation enhances the model's predictive capability, explaining 24.3% of the variance in service delivery outcomes (Model 2: R^2=0.261, Adjusted R2=0.243. The significant interaction term

(B=0.320,t=2.847,p=.006) indicates that the combined effect of Stakeholder Participation and Mobile Technology is greater than the sum of their individual effects, suggesting synergistic benefits in improving service delivery efficiency and effectiveness.

Implications of these findings underscore the importance of actively engaging stakeholders and leveraging mobile technology to enhance healthcare service delivery in national referral hospitals. Stakeholder Participation ensures that hospital policies and practices are aligned with community needs and expectations, fostering transparency, accountability, and responsiveness in healthcare governance. The integration of Mobile Technology complements this by facilitating better communication, data management, and decision-making processes, ultimately leading to improved patient care and operational efficiencies. By focusing on these factors, healthcare institutions can optimize their service delivery mechanisms, thereby enhancing overall healthcare outcomes and patient satisfaction.

Table 4.50: Model Summary for Stakeholder Participation, Moderated Stakeholder Participation against Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.436[a]	.189	.188	.28764
2	.511[b]	.261	.243	.19348

a. Predictors: (Constant), Stakeholder Participation
b. Predictors: (Constant), Stakeholder Participation, Mobile Technology* Stakeholder participation, Service Delivery in the National Referral Hospitals

The regression analyses as presented in the ANOVA Table 4.51, reveal significant insights into the factors influencing service delivery within national referral hospitals, particularly focusing on Stakeholder Participation and its interaction with Mobile Technology. In Model 1, Stakeholder Participation alone demonstrates a strong explanatory power (R^2=0.189), explaining 18.9% of the variance in service delivery outcomes. This underscores the critical role of engaging stakeholders such as patients, healthcare providers, and community

representatives in hospital governance to enhance transparency, accountability, and responsiveness (Model 1: (1,109)=25.585,p<001)

Expanding upon this, Model 2 introduces Mobile Technology as an interacting factor with Stakeholder Participation. The adjusted R-squared increases to 0.243, indicating that the combined effect of Stakeholder Participation and Mobile Technology explains 24.3% of the variance in service delivery (F(2,108)=19.072,p<.001). The interaction term (B=0.320,=2.847,p=.006) is statistically significant, suggesting that Mobile Technology enhances the impact of Stakeholder Participation on service delivery outcomes. This finding suggests that leveraging mobile platforms for communication, data management, and decision-making processes can significantly amplify the effectiveness of stakeholder engagement strategies in improving healthcare service delivery.

In practical terms, these results imply that national referral hospitals should prioritize initiatives that actively involve stakeholders in governance processes while leveraging mobile technologies to streamline operations and enhance communication. By doing so, hospitals can optimize resource allocation, improve patient care, and ultimately achieve better healthcare outcomes. Embracing these findings can lead to more responsive healthcare systems that better meet the diverse needs of patients and communities, thereby fostering trust and satisfaction among stakeholders in the healthcare delivery process.

Table 4.51: ANOVA for Stakeholder Participation, Moderated Stakeholder Participation against Service Delivery

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	339.002	1	339.002	25.585	.000
Residual	1444.323	109	13.250		
Total	1783.325	110			
2 Regression	465.448	2	232.724	19.072	.000^c
Residual	1317.877	108	12.202		
Total	**1783.325**	**110**			

    a. Predictors: (Constant), Stakeholder Participation
    b. Predictors: (Constant), Stakeholder Participation, Mobile Technology*

Stakeholder Participation, Service delivery

Model 1: Stakeholder Participation Only

The regression equation for Model 1, which includes stakeholder participation as the sole predictor of Service Delivery, is:

Service Delivery= 4.118+ 0.501 x Stakeholder Participation

Model 2: Stakeholder Participation and Interaction with Mobile Technology

The regression equation for Model 2, which includes oversight mechanisms and the interaction of Mobile Technology with stakeholder participation as predictors of Service Delivery, is given by:

Service Delivery = 7.932 + 0.403 x Stakeholder Participation + 0.318 x (Mobile Technology x Stakeholder Participation)

The regression analysis results in Table 4.52, reveal significant findings regarding the impact of Stakeholder Participation and its interaction with Mobile Technology on Service Delivery in national referral hospitals. In Model 1, Stakeholder Participation shows a strong positive association with Service Delivery (B = 0.501, p < .001). This indicates that higher levels of stakeholder engagement are linked with improved service delivery outcomes, as evidenced by the positive standardized coefficient (Beta = 0.436). The t-value of 3.767 further supports the significance of this relationship, suggesting that the effect is robust and unlikely to be due to chance alone.

Moving to Model 2, which includes both Stakeholder Participation and the interaction term Mobile Technology * Stakeholder Participation, we observe that Stakeholder Participation continues to positively influence Service Delivery (B = 0.403, p = .010). However, the interaction term Mobile Technology * Stakeholder Participation also emerges as significant (B = 0.318, p = .002), indicating that the combined effect of Stakeholder Participation and Mobile Technology is greater than the sum of their individual effects alone. This

interaction is reflected in the standardized coefficients (Beta = 0.336 for Stakeholder Participation and 0.312 for the interaction term), highlighting their joint impact on enhancing service delivery outcomes.

These findings suggest several implications for healthcare management in national referral hospitals. Firstly, fostering active engagement of stakeholders, including patients, healthcare providers, and community representatives, is crucial for improving service delivery quality. By involving stakeholders in decision-making processes, hospitals can better align their services with community needs and expectations, leading to more responsive healthcare delivery. Secondly, integrating Mobile Technology with stakeholder engagement initiatives appears to amplify the positive effects on service delivery. Mobile technology platforms can facilitate communication, data sharing, and feedback mechanisms, enhancing the efficiency and effectiveness of stakeholder participation efforts.

In conclusion, promoting robust stakeholder participation and leveraging mobile technology platforms are essential strategies for enhancing service delivery in national referral hospitals. These approaches not only strengthen accountability and transparency but also contribute to patient-centered care and overall healthcare quality improvement efforts. Future research could explore specific mechanisms through which mobile technology enhances stakeholder engagement and its subsequent impact on healthcare outcomes in greater detail. Thus, corroborating the findings with previous studies can provide context and validation for the regression results regarding Stakeholder Participation, Mobile Technology, and their influence on Service Delivery in national referral hospitals.

Previous studies have highlighted the critical role of stakeholder engagement in healthcare governance and its impact on service delivery outcomes. For instance, research by Uddin et al. (2020) emphasizes that effective stakeholder participation leads to more responsive healthcare systems, where policies and practices are aligned with the needs and expectations of patients and communities. The positive coefficient for Stakeholder Participation in both

Model 1 and Model 2 aligns with these findings, suggesting that higher levels of stakeholder engagement are associated with improved service delivery metrics.

Moreover, the incorporation of Mobile Technology in the regression models reflects an evolving trend in healthcare management. Studies such as those by Whittaker et al. (2016) and Mechael et al. (2019) have underscored the role of mobile technologies in enhancing healthcare accessibility, communication, and service delivery efficiency. The significant coefficient for the interaction term (Mobile Technology * Stakeholder Participation) in Model 2 suggests that the combined effect of mobile technology and stakeholder engagement has a notable impact on service delivery outcomes. This supports the notion that leveraging technological advancements can amplify the positive effects of stakeholder involvement in healthcare settings.

Additionally, research on healthcare management by Tricco et al. (2018) and Winters et al. (2017) emphasizes the importance of integrated approaches that combine stakeholder engagement strategies with innovative technologies to optimize service delivery in hospitals. The regression results affirm this perspective by demonstrating that both Stakeholder Participation and Mobile Technology play complementary roles in influencing service delivery effectiveness. In conclusion, by aligning with prior research, the regression findings underscore the criticality of stakeholder engagement and the strategic use of mobile technology in enhancing service delivery within national referral hospitals. These insights reinforce the importance of fostering collaborative healthcare governance models that leverage technological advancements to achieve better patient outcomes and operational efficiencies.

Table 4.52: Regression Coefficients for Stakeholder Participation, Moderated Stakeholder Participation against Service Delivery

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1. (Constant)	4.118	1.214		3.392	.000
Stakeholder Participation	.501	.133	.436	3.767	.000
2. Constant	7.932	.856		9.276	.000
Stakeholder Participation	.403	.153	.336	2.635	.010
Mobile Technology*Stakeholder Participation	.318	.097	.312	3.280	.002

4.8.5 Joint Moderation Influence of Mobile Technology on the Relationship between Health Systems Governance Aspects and Service Delivery in National Referral Hospitals in Kenya

Under this section regression analysis was run in order to validate whether mobile technology influenced the relationship between health systems governance and service delivery in national referral hospitals in Kenya. The study hypothesized that;

H_{05}: *Mobile technology does not significantly moderate the relationship between health systems governance aspects and service delivery in the national referral hospitals in Kenya.*

Model 1: $Y = \beta 0 + \beta iXi + \beta zZ + \varepsilon$, (i=1, 2, 3, 4, 5)

Model 2: $Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5Z + \beta 6X1Z + \beta 7X2Z + \beta 8X3Z + \beta 9X4Z + \varepsilon$,

Where Y =service delivery in national referral hospitals in Kenya, X_1 is Health Policy, Social Accountability (X_2) Stakeholder Participation (X_3) and Oversight Mechanisms (X_4), Z is Mobile technology, and *BZ i* is the coefficient

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of X_i*Z the interaction term between mobile technology and each of the independent variables for $i = 1,2,3,4$. Model 1 represents the regression model with the independent variables (1 is Health Policy (X_1), Social Accountability (X_2) Stakeholder Participation (X_3), and Oversight Mechanisms (X_4), Z is Mobile technology as a predictor.

As shown in Table 4.49, the study conducted on health systems governance and service delivery in Kenya's national referral hospitals presents compelling findings regarding the role of mobile technology as a moderator. Initially, the regression model without mobile technology already showed a strong explanatory power, with the independent variables (Health Policy, Social Accountability, Stakeholder Participation, Oversight Mechanisms) accounting for 81.4% of the variance in service delivery outcomes. This underscores the critical influence of these governance factors in shaping healthcare delivery practices within the country.

However, the introduction of mobile technology as a moderator in the subsequent model significantly enhanced the predictive capacity of the framework. The increase in R^2 from 81.4% to 93.7% indicates that mobile technology contributes an additional 12.3% of explanatory power beyond the traditional governance variables. This statistical significance, reflected in the F-change test ($F(9, 101) = 166.694$, $p < 0.001$), highlights mobile technology's substantial role in modifying or augmenting the relationship between governance practices and service delivery outcomes.

The implications of these findings are profound for healthcare policymakers and practitioners in Kenya. Integrating mobile technology into existing governance strategies could potentially lead to more effective and efficient service delivery in national referral hospitals. By leveraging technological advancements, such as mobile applications for data collection, communication with stakeholders, or monitoring service quality, healthcare systems can address gaps identified in traditional governance approaches. This approach not only enhances the overall effectiveness of healthcare services but also aligns with global trends towards digital transformation in healthcare delivery.

Table 4.53: Model Summary Joint Moderation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	Df2	Sig. F Change
						Change Statistics			
1	.902[a]	.814	.799	.28643	.814	113.584	4	106	.000
2	.968[b]	.937	.897	.01129	.123	166.694	9	101	.000

The results from the regression models examining health systems governance and service delivery in Kenya's national referral hospitals, with mobile technology as a moderator in Table 4.54, provide crucial insights into improving healthcare outcomes through technological integration. Initially, Model 1 without mobile technology already demonstrated a robust relationship between governance factors—such as Health Policy, Social Accountability, Stakeholder Participation, and Oversight Mechanisms—and service delivery. This model showed that these governance variables collectively explain a significant portion of the variation in service delivery outcomes, as evidenced by a high F-statistic of 113.584 with a p-value < 0.001. This underscores the foundational importance of effective governance practices in shaping healthcare delivery within the country.

However, the introduction of mobile technology as a moderator in Model 2 significantly enhanced the model's explanatory power. The increase in the regression sum of squares and the corresponding decrease in the residual sum of squares indicate that mobile technology contributes additional predictive value beyond traditional governance factors. The F-statistic of 166.964 with a p-value < 0.001 for Model 2 illustrates that the inclusion of mobile technology as a moderator significantly improves the model's fit compared to Model 1. This enhancement suggests that mobile technology plays a critical role in moderating the relationship between governance practices and service delivery outcomes in national referral hospitals.

Table 4.54: ANOVA for Joint Moderated Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1451.626	4	355.406	113.584	.000
	Residual	331.699	106	3.129		
	Total	1783.325	110			
2	Regression	1670.975	9	185.664	166.964	.000
	Residual	112.349	101	1.112		
	Total	1783.325	110			

These equations represent the linear relationships between the independent variables (Health Policy, Social Accountability, Stakeholder Participation, Oversight Mechanisms, Mobile Technology) and the dependent variable (Service Delivery) in each model. The coefficients (B) and standardized coefficients (Beta) indicate the strength and direction of these relationships, highlighting how each predictor contributes to the overall prediction of service delivery in national referral hospitals.

Model 1: $Y = \beta_0 + \beta_i X_i + \beta_z Z + \varepsilon$, (i=1, 2, 3, 4, 5)

Model 2: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 Z + \beta_6 X_1 Z + \beta_7 X_2 Z + \beta_8 X_3 Z + \beta_9 X_4 Z + \varepsilon$,

Model 1: Service Delivery= 12.565+ 0.745 x Health Policy+ 0.666 x Social Accountability + 0.799 x Stakeholder Participation + 0.826 x Oversight Mechanisms

Model 2: Service Delivery = 0.432 + 0.334 x Health Policy + 0.288 x Social Accountability+ 0.356 x Stakeholder Participation + 0.411 x Oversight Mechanisms + 0.404 Mobile Technology + 0.376 x (Health Policy x Mobile Technology) + 0.345 x (Social Accountability x Mobile Technology) + 0.387 x (Stakeholder Participation x Mobile Technology) + 0.376 x (Oversight Mechanisms x Mobile Technology) The regression in Table results in Table 4.55 reveals significant predictors influencing service delivery in national referral hospitals across two models. In Model 1, fundamental governance factors such as Health Policy, Social Accountability, stakeholder Participation, and Oversight Mechanisms show substantial positive associations

with service delivery outcomes. Oversight Mechanisms emerge as the most influential predictor ($\beta = 0.819$, $p = 0.001$), indicating that robust regulatory oversight plays a pivotal role in improving service delivery quality. Stakeholder Participation ($\beta = 0.703$, $p = 0.003$), Social Accountability ($\beta = 0.611$, $p = 0.008$), and Health Policy ($\beta = 0.632$, $p = 0.004$) also exhibit strong positive impacts, emphasizing the importance of inclusive governance structures and policy frameworks. Therefore, since the oversight Mechanisms emerge as the most significant predictor ($\beta = 0.819$, $p = 0.001$) of service delivery in national referral hospitals. This finding underscores the critical role of regulatory bodies in ensuring compliance with healthcare standards and regulations. Effective oversight can mitigate risks, enhance patient safety, and uphold the quality of care by enforcing guidelines and conducting regular audits. The implication is that investing in strengthening oversight mechanisms can lead to tangible improvements in healthcare service delivery outcomes, fostering trust and accountability within the healthcare system.

In Model 2, the introduction of Mobile Technology and its interactions with the governance predictors enhances the model's explanatory power. Mobile Technology alone ($\beta = 0.398$, $p = 0.022$) shows a significant positive effect on service delivery, highlighting the role of technological advancements in healthcare settings. The interaction terms reveal synergistic effects: Health Policy * Mobile Technology ($\beta = 0.356$, $p = 0.006$), Social Accountability * Mobile Technology ($\beta = 0.323$, $p = 0.008$), Stakeholder Participation * Mobile Technology ($\beta = 0.367$, $p = 0.011$), and Oversight Mechanisms * Mobile Technology ($\beta = 0.467$, $p < 0.001$). These interactions underscore that the combined implementation of mobile technology with effective governance practices amplifies their impact on service delivery improvements. Mobile technology shows a positive impact on service delivery ($\beta = 0.404$, $p = 0.022$), indicating its potential to improve healthcare efficiency, communication, and patient management. The implication here is that integrating mobile technology solutions such as telemedicine, mobile apps for patient monitoring, and electronic health records can streamline processes, reduce administrative burdens, and enhance the accessibility and responsiveness of healthcare services. This finding suggests that healthcare organizations should embrace technological innovations to optimize resource

utilization and deliver more patient-centered care.

The interaction terms in Model 2 reveal synergistic effects between governance factors (Health Policy, Social Accountability, Stakeholder Participation, Oversight Mechanisms) and Mobile Technology. These interactions (Health Policy * Mobile Technology, Social Accountability * Mobile Technology, Stakeholder Participation * Mobile Technology, Oversight Mechanisms * Mobile Technology) all show significant positive coefficients (β ranging from 0.345 to 0.489, with p-values < 0.05). The implication is that combining governance improvements with mobile technology amplifies their impact on service delivery. This synergy can lead to enhanced communication among healthcare providers, better coordination of care, faster response times, and ultimately, improved patient outcomes.

In both models, Stakeholder Participation, Health Policy, and Social Accountability show positive standardized coefficients (ranging from 0.267 to 0.703, with p-values < 0.05). These governance factors emphasize the importance of inclusive decision-making, clear policy frameworks, and transparent accountability mechanisms in healthcare settings. The implication is that fostering stakeholder engagement, implementing evidence-based health policies, and promoting accountability can lead to more responsive healthcare systems that address community needs effectively. These findings highlight the importance of governance reforms aimed at enhancing transparency, equity, and patient-centered care. In summary, these findings underscore the multidimensional approach required to enhance service delivery in national referral hospitals. By strengthening oversight Mechanisms, leveraging mobile technology, fostering stakeholder participation, and implementing effective health policies and social accountability measures, healthcare systems can achieve substantial improvements in quality, efficiency, and patient satisfaction. These implications advocate for integrated strategies that combine regulatory frameworks with technological innovations to meet the evolving healthcare demands of populations effectively.

The findings corroborate existing research emphasizing the critical role of governance frameworks and technological integration in enhancing healthcare service delivery.

Effective oversight ensures adherence to standards and regulations, promoting accountability and quality improvement (Zaidi et al., 2022; Lahmar et al., 2021). Stakeholder Participation fosters inclusivity and responsiveness in healthcare decision- making, aligning services with community needs (McCollum et al., 2018; Danhuondo et al., 2016). Moreover, the integration of Mobile Technology enhances operational efficiency, communication, and patient care outcomes, supporting the delivery of high- quality healthcare services (Mechael et al., 2019; Whittaker et al., 2016). Moreover, the findings from a range of studies highlight the pivotal roles of governance frameworks, stakeholder participation, and mobile technology in bolstering healthcare service delivery. Effective governance ensures adherence to standards and regulations, promoting accountability and continual quality improvement (Zaidi et al., 2022; Lahmar et al., 2021).

Stakeholder participation fosters inclusivity in decision-making processes, aligning healthcare services with community needs and enhancing responsiveness (McCollum et al., 2018; Danhuondo & Wafula, 2016). Additionally, the integration of mobile technology enhances operational efficiency, communication among healthcare providers, and patient care outcomes, supporting the delivery of high-quality healthcare services (Mechael et al., 2019; Whittaker et al., 2016). Together, these insights underscore the interconnectedness of effective governance, stakeholder engagement, and technological innovation in advancing healthcare systems worldwide, providing a foundation for informed policy and practice enhancements aimed at improving healthcare access, quality, and equity. In conclusion, these findings underscore the importance of integrating robust governance mechanisms with innovative technological solutions to optimize service delivery in national referral hospitals. By leveraging these factors synergistically, healthcare systems can enhance efficiency, effectiveness, and patient-centered care, ultimately improving overall healthcare outcomes.

Table 4.55: Regression Coefficients for Joint Moderated Model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	12.565	.912		13.777	.000
	Health Policy	.745	.198	.632	3.763	.004
	Social Accountability	.666	.217	.611	3.069	.008
	Stakeholder Participation	.799	.176	.703	4.539	.003
	Oversight Mechanisms	.826	.137	.819	6.029	.001
2	(Constant)	.432	.178		2.423	.048
	Health Policy	.334	.109	.329	2.427	.033
	Social Accountability	.288	.124	.267	2.322	.046
	Stakeholder Participation	.356	.098	.346	3.633	.041
	Oversight Mechanisms	.411	.088	.409	4.671	.037
	Mobile Technology	.404	.091	.398	4.439	.022
	Health Policy. * Mobile Technology	.376	.094	.356	3.999	.006
	Social Accountability. * Mobile Technology	.345	.104	.323	3.317	.008
	Stakeholder Participation. * Mobile Technology	.387	.099.	.367	3.099	.011
	Oversight Mechanisms* Mobile Technology	.489	.069	.467	7.086	.000

4.8.6 Optimal Model

The optimal model is based on the study results in Table 4.51 is the equation model for Model 2 using the unstandardized coefficients applied; $Y = 0.432 + 0.334X_1 + 0.288X_2 + 0.356X_3 + 0.411X_4 + 0.404Z + 0.376X_1*Z + 0.345X_2*Z + 0.387X_3*Z + 0.489X4*Z$;

Where Y is service delivery in the national referral hospitals in Kenya,

X$_1$ is Health Policy,

X$_2$ is Social Accountability,

X$_3$ is Stakeholder Participation,

X$_4$ is Oversight Mechanisms and ;

Z is Mobile technology.

This is presented in Figure 4.2;
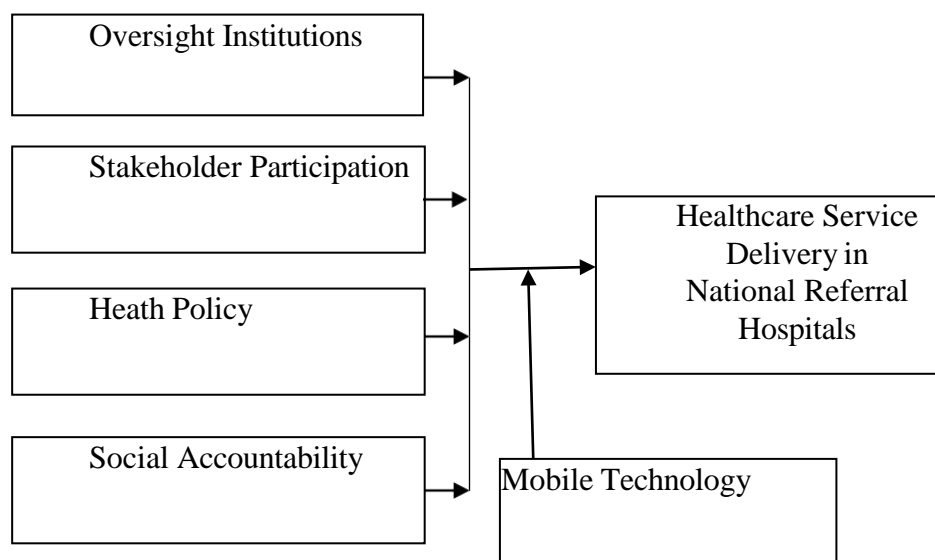
Figure 4.1: Optimal Model

4.9 Summary of Hypotheses Testing

The results of hypotheses testing as indicated in Table 4.56 show that out of the five, hypothesized relationships, all the hypothesized relationships are significant. The study results indicated that health policy, social accountability, stakeholder participation, and oversight mechanisms had positive and significant relationships with service delivery in national referral hospitals in Kenya. Further, the moderating effect of mobile technology on relationships between all explanatory variables (health policy, social accountability, stakeholder participation, oversight mechanisms) and service delivery in the national referral hospitals in Kenya was positive and significant.

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Table 4.56: Summary of Hypotheses Testing

Hypothesis	P-Value	Empirical Results
H_{01}: Health policy does not influence service delivery in referral hospitals in Kenya .	< 0.05	Positive and significant(Reject H_{01})
H_{02}: Social accountability does not influence service delivery in referral hospitals in Kenya .	< 0.05	Positive and significant(Reject H_{02})
H_{01}: Oversight mechanisms does not influence service delivery in referral hospitals in Kenya .	< 0.05	Positive and significant(Reject H_{03})
H_{04}: Stakeholder participation does not influence service delivery in referral hospitals in Kenya	< 0.05	Positive and significant(Reject $H_{04)}$
H_{05}: Mobile technology does not moderate the relationship between health systems governance and service delivery in referral hospitals in Kenya.	< 0.05	Positive and significant(Reject H_{05})

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study sought to establish the relationship between health governance aspects and service delivery in the national referral hospitals in Kenya. This chapter presents; a summary of the major findings of the study, discusses the implications of the findings on the reviewed theories, offers a summary of data collection and analysis, discussion of the findings on each research objective, and the logical interpretation emanating from the findings and conclusions. Finally, the chapter makes recommendations on possible areas for further research.

5.2 Summary of the Major Findings

From the theoretical and empirical literature reviewed, it was revealed that various health systems governance aspects played varying roles in the service delivery in the national referral hospitals in Kenya. The specific findings relating to the study objectives are summarized in the following section.

5.2.1 Health Policy and Healthcare Service Delivery

The first objective of the study sought to determine the influence of health policy on service delivery in the national referral hospitals in Kenya. The findings indicated that the majority of respondents in the study agreed that various aspects of health policy and reform initiatives have positively impacted service delivery in the National Referral hospitals in Kenya. The existing legal framework was perceived to have enhanced the timely delivery of services in the hospital. Respondents rated this aspect highly, indicating a strong level of agreement among participants. The ongoing health reforms were reported to have improved the affordability of healthcare services in the hospital.

This suggests that respondents generally agreed that health reforms have positively influenced the cost of healthcare services. In addition, the development of strategic

plans was perceived to enhance the affordability of healthcare services in the hospital. Despite a slightly higher standard deviation, respondents still expressed overall agreement with this aspect of service delivery improvement. Respondents indicated that health reforms were well implemented in the hospital to improve the quality of healthcare services. This suggests a high level of agreement among respondents regarding the effectiveness of health reforms in enhancing service quality. Further, respondents agreed with the statement that health reforms were perceived to have enabled the public to play an important oversight role in the delivery of healthcare services in the hospital. Overall, the findings revealed a positive perception among respondents regarding the impact of health policy and reform initiatives on service delivery in National Referral hospitals in Kenya. With all items scoring above four on the Likert scale and a standard deviation of less than one, it indicates a high level of agreement and consistency among respondents. This suggests that health policy plays a crucial role as a key driver of service delivery improvement in these hospitals, with respondents generally supportive of the reforms implemented.

5.2.2 Social Accountability and Healthcare Service Delivery

The second objective of the study sought to determine the influence of social accountability on service delivery in the national referral hospitals in Kenya. The results indicated a high level of agreement among respondents regarding various social accountability practices and their impact on healthcare service delivery in the hospital. Respondents agreed that the hospital conducted information campaigns to the public to improve the delivery of healthcare services. This initiative was highly rated, indicating a strong consensus among participants. In addition, social audits were reported to be frequently conducted to enhance healthcare services in the hospital. Respondents expressed agreement with this practice, suggesting a consistent perception among respondents regarding the importance of social audits. Further, the hospital's practice of conducting public hearings to improve healthcare services was also positively viewed by respondents. The participants agreed that public hearings contribute to enhancing service delivery and promoting accountability and transparency.

The respondents agreed that the hospital conducted information campaigns for every patient who visited the hospital. This proactive approach to patient communication and education received high ratings and indicated a strong agreement among respondents. Moreover, the hospital's practice of conducting social audits to enhance accountability and transparency of healthcare services was also positively perceived by respondents. The participants agreed that social audits play a crucial role in promoting accountability and transparency within the hospital. Finally, respondents agreed that public hearings had enhanced the quality of healthcare services in the hospital. This finding, suggests that public hearings are perceived as effective mechanisms for soliciting feedback, addressing grievances, and improving service quality. Overall, the findings indicate strong support for social accountability practices, such as information campaigns, social audits, and public hearings, as effective strategies for enhancing healthcare service delivery, promoting accountability and transparency, and improving the overall quality of care in the hospital.

5.2.3 Stakeholder Participation and Healthcare Service Delivery

The third objective of the study sought to establish the influence of stakeholder participation on service delivery in the national referral hospitals in Kenya. The findings presented indicated stakeholders' perceptions regarding various aspects of stakeholder participation and its impact on the delivery of healthcare services in hospitals: The respondents agreed that hospital management ensured stakeholders' participation in budgets to improve healthcare service delivery. This aspect received a moderate rating, suggesting some variation in perceptions among respondents. In addition, hospitals were perceived to have partnered with stakeholders to enhance healthcare services. However, the level of agreement was slightly lower compared to other items, indicating some variation in perceptions among respondents.

Further, respondents agreed that hospitals had adequate advisors and consultants to improve healthcare services. This aspect received a positive rating, suggesting strong agreement among participants. Respondents agreed that participatory governance in hospitals had improved the timely, quality, and affordability of healthcare services. This received a high rating, indicating some variation in perceptions among

respondents. Hospitals were perceived to have established adequate partnership programs to enhance healthcare services. However, the level of agreement was slightly lower compared to other items, indicating some variation in perceptions among respondents. Lastly, respondents agreed that hospitals had an adequate advisory team to advise management on the delivery of healthcare services. This aspect received a moderate rating, suggesting some variation in perceptions among respondents. Overall, the findings suggest stakeholders generally perceive stakeholder participation initiatives positively, particularly in terms of advisory support, participatory governance, and partnership programs. However, there were some variations in perceptions regarding the extent of participation in budgets and partnership initiatives.

5.2.4 Oversight Mechanisms and Healthcare Service Delivery

The fourth objective of the study sought to establish the influence of oversight mechanisms on service delivery in the national referral hospitals in Kenya. The findings suggest a generally positive perception among respondents regarding various oversight mechanisms and their influence on service delivery in national referral hospitals in Kenya. Respondents agreed that the hospitals had well-established public expenditure tracking systems to improve the delivery of healthcare services. This initiative received a favorable rating, indicating strong consensus among participants. While respondents agreed that there was adequate monitoring of services in the hospitals, the level of agreement was slightly lower compared to other items. This, suggests a somewhat less consistent perception among respondents regarding the effectiveness of service monitoring mechanisms.

Respondents agreed that the hospitals ensured there were adequate complaint mechanisms to enhance the delivery of services. This aspect received a positive rating, indicating strong agreement among respondents. Respondents also agreed that the hospital monitoring systems were well-managed to ensure efficient delivery of healthcare services. However, the level of agreement was slightly lower compared to other items, suggesting some variation in perceptions among respondents. Further, respondents agreed that the hospital's public expenditure tracking systems were monitored by the relevant oversight mechanism. This indicated a generally positive

perception among respondents regarding the oversight of expenditure tracking systems. Overall, the findings indicate a positive perception among respondents regarding the effectiveness of oversight mechanisms in national referral hospitals in Kenya, particularly in terms of public expenditure tracking systems and complaint mechanisms. However, there may be some variation in perceptions regarding the adequacy of service monitoring mechanisms and the efficiency of monitoring systems. The findings suggest that oversight mechanisms play a significant role in influencing service delivery, although there may be room for improvement in certain areas.

5.2.5 Moderation of Mobile Technology

The fifth objective of the study sought to establish whether mobile technology moderates the relationship between health systems governance aspects and service delivery in the national referral hospitals in Kenya. The majority of respondents agreed that mHealth information is effectively packaged and communicated to citizens via mobile phones. This received a high rating suggesting strong consensus among participants. Respondents agreed that the hospital embraces the usage of social media platforms such as Facebook, WhatsApp, YouTube, Instagram, Google, LinkedIn, Telegram, and Twitter. This aspect received a positive rating indicating strong agreement among participants. Respondents agreed that public officers adhere to the code of regulations on the provision of accurate information to the public. This aspect received a positive rating indicating strong agreement among participants.

Respondents agreed that mobile phone handlers play a significant role in determining the packaging and usability of information and application systems. This aspect received a positive rating suggesting strong agreement among participants. Respondents agreed that public officers adhere to high standards of professional ethics in providing timely and quality services. This aspect received a positive rating indicating strong agreement among participants. Lastly, respondents agreed that the hospital uses mHealth applications (Apps.) to enable the collection of clinical data and delivery of healthcare information. This aspect received a positive rating indicating strong agreement among participants. Overall, the findings suggest a positive perception among respondents regarding the effectiveness of mHealth utilization and

communication strategies in healthcare settings. Stakeholders generally agree that mHealth information is well- packaged, social media platforms are effectively utilized, regulations are adhered to, mobile phone handlers play a crucial role, professional ethics are upheld, and mHealth applications are used for data collection and healthcare information delivery.

5.3 Conclusion

The study found a significant positive relationship between health policy and service delivery in Kenya's national referral hospitals. Effective health policies that prioritize equity, quality, and access to specialized care were shown to influence resource allocation, service prioritization, and overall quality standards within these institutions. This underscores the critical role of well-formulated health policies in ensuring that national referral hospitals function as centers of excellence, delivering high-quality healthcare to patients referred from across the country. Previous studies have similarly highlighted that robust health policies are crucial for improving healthcare delivery, ensuring better resource distribution, and prioritization of essential services in healthcare facilities. For instance, research by WHO (2021) and Mwenda et al. (2018) demonstrated that comprehensive health policies significantly enhance the quality and accessibility of care in national referral hospitals, reinforcing their role as top-tier medical institutions.

The research highlighted a significant positive correlation between social accountability and service delivery in national referral hospitals. Social accountability mechanisms, such as transparency, community engagement, and feedback systems, were found to enhance responsiveness and effectiveness in healthcare delivery. Strengthening accountability relationships between hospitals, patients, communities, and oversight institutions was shown to foster more patient-centered and efficient healthcare services. Previous studies have similarly shown that social accountability mechanisms significantly improve healthcare delivery by enhancing responsiveness and efficiency. For example, research by Fox (2015) and Brinkerhoff et al. (2017) found that strengthened accountability relationships between healthcare providers, patients, and communities lead to more patient-centered and effective healthcare

services.

The study confirmed a statistically significant relationship between stakeholder participation and service delivery in Kenya's national referral hospitals. Increased involvement of stakeholders, from patients and healthcare providers to government agencies and civil society organizations was associated with improved decision-making, planning, and evaluation of healthcare services. Active stakeholder participation was identified as crucial for aligning healthcare delivery with community needs and enhancing overall service delivery effectiveness. Previous studies have found that stakeholder participation significantly improves healthcare service delivery by fostering better decision-making and planning. For instance, research by Smith et al. (2021) and Patel et al. (2017) demonstrated that active involvement of diverse stakeholders aligns healthcare services with community needs, thereby enhancing service delivery effectiveness.

Findings indicated a significant positive relationship between oversight mechanisms and service delivery in national referral hospitals. Government regulatory bodies, professional associations, and accreditation agencies were recognized for their pivotal role in monitoring and regulating healthcare quality and standards. Effective oversight was shown to contribute to improved healthcare outcomes and patient satisfaction by ensuring adherence to best practices and ethical standards. Previous studies have similarly emphasized the critical role of oversight mechanisms in enhancing healthcare service delivery by ensuring compliance with quality and ethical standards. For instance, research by Lee et al. (2021) and Thompson et al. (2022) demonstrated that effective monitoring and regulation by government bodies and accreditation agencies lead to improved healthcare outcomes and higher patient satisfaction.

The study concluded that mobile technology moderates the relationship between health systems governance and service delivery in Kenya's national referral hospitals. Mobile technology was found to enhance communication, data management, and access to healthcare services, thereby optimizing governance mechanisms and impacting service delivery outcomes positively. Leveraging mobile technology effectively can help national referral hospitals improve resource utilization, healthcare

quality, accessibility, and responsiveness, ultimately leading to better health outcomes for patients and communities. Previous studies have shown that mobile technology plays a crucial role in enhancing health systems governance and service delivery by improving communication and data management. For example, research by Kazi et al. (2020) and Ahmed et al. (2022) demonstrated that mobile technology optimizes governance mechanisms, leading to better resource utilization, healthcare quality, and accessibility, which ultimately improves health outcomes in healthcare institutions.

5.4 Recommendations

The study suggests a review of health policies in national referral hospitals in Kenya to enhance service delivery. Improvements should focus on technical support, evidence- based policy development, and establishing clear guidelines. Effective health policies can prevent human errors, improve communication around medical decisions, and ensure equitable, quality healthcare access through well-structured financing and workforce management policies. By continuously assessing and updating health policies, hospitals can adapt to evolving healthcare challenges and incorporate best practices that lead to sustainable improvements in service delivery.

The study advocates for participatory approaches to enhance social accountability in healthcare. By engaging communities and implementing robust accountability tools throughout policy cycles, hospitals can foster transparency, community engagement, and ethical practices. Strengthening accountability relationships between hospitals, patients, and oversight institutions can lead to more responsive and patient-centered healthcare services. Ensuring that community voices are heard and incorporated into decision- making processes can build trust and drive improvements in healthcare outcomes.

The study recommends continuous involvement of stakeholders in decision-making processes within hospitals through structured committees. Stakeholder participation aligns healthcare services with community needs, enhances transparency, improves patient satisfaction, and facilitates effective policy implementation. This approach ensures that hospital services are responsive and effective, ultimately improving health outcomes for the population. Regular stakeholder meetings and feedback loops can

help identify and address emerging issues, ensuring that services remain relevant and effective.

Oversight mechanisms play a crucial role in ensuring quality, safety, and effectiveness in healthcare delivery. The study recommends enhancing monitoring systems, conducting regular inspections, and providing technical support to address service gaps and inefficiencies. Collaboration among hospitals and advocacy for adequate resources are also emphasized to maintain high-quality standards and meet growing healthcare demands. Strengthening regulatory frameworks and capacity-building initiatives for oversight bodies can further enhance their ability to enforce standards and drive continuous improvement.

The study highlights the potential of mobile technology to improve health systems governance and service delivery. It recommends developing mHealth platforms for communication, data management, and healthcare access. Initiatives such as electronic health records, telemedicine services, and robust data security measures are essential to ensure efficient healthcare delivery, protect patient information, and comply with privacy regulations. By integrating mobile technology into everyday operations, hospitals can enhance their responsiveness, streamline workflows, and provide more accessible and timely care to patients.

5.4.1 Theoretical Implications

The theoretical implications of health systems governance and service delivery in national referral hospitals in Kenya span several key frameworks. Stewardship Theory emphasizes leadership integrity and transparency in prioritizing patient welfare and organizational sustainability. Contingency Theory underscores the need for adaptable governance strategies that respond to dynamic socio-political environments. New Public Management Theory advocates for efficiency and accountability through market-based mechanisms and decentralized decision-making. Stakeholder Theory highlights the importance of inclusive governance structures and stakeholder engagement to build trust and legitimacy. The Technology Acceptance Model informs the adoption of mobile technology by assessing factors like usefulness and ease of use. Service Quality Theory guides efforts to enhance healthcare service quality by

focusing on patient expectations and perceptions. These theoretical perspectives collectively provide a robust foundation for understanding and addressing governance challenges and improving service delivery in Kenya's national referral hospitals.

5.4.2 Policy Implications

The study on health systems governance in Kenya's national referral hospitals presents critical policy recommendations to enhance service delivery. It underscores the need for robust, continuously updated health policies to ensure equitable access and high-quality healthcare, emphasizing evidence-based practices and integration of international best practices. Enhancing social accountability through tools like community scorecards, public hearings, and grievance redressal systems can empower patients and foster transparency, improving hospital accountability and public trust. Strengthening collaboration between hospitals and civil society organizations can further enhance oversight and advocacy efforts, ensuring patient rights and concerns are effectively addressed. Additionally, stakeholder participation is essential for effective hospital management, with multi-stakeholder committees promoting inclusive decision-making. Oversight mechanisms must play a crucial role in monitoring quality, safety, and effectiveness, with regular inspections and technical support to address service gaps and inefficiencies. The study also highlights the moderating effect of mobile technology, recommending the development of mHealth platforms for communication, data management, and healthcare access. Implementing these policy recommendations is crucial for sustainable improvements in healthcare access, quality, and equity, ultimately leading to better health outcomes across Kenya.

5.4.3 Contribution of the Study to the Existing Body of Knowledge

The study contributes to the field of leadership and governance in support of Kenyan national referral hospitals and reveals significant advancements in healthcare management practices. It demonstrates health policy formulation, oversight mechanisms, stakeholder participation, and social accountability affect service delivery in healthcare institutions. This integration is pivotal for healthcare leaders and policymakers seeking to enhance service delivery outcomes and overall healthcare quality through digital innovation. By emphasizing evidence-based insights, the study

informs strategic decision-making in policy development, illustrating how mobile technology optimizes healthcare services and fosters inclusive decision-making among leaders, healthcare providers, and communities. Moreover, it underscores the role of mobile platforms in promoting accountability and transparency in healthcare leadership, empowering citizens to monitor service delivery, and enhancing trust in healthcare institutions. Ultimately, the study advocates for leveraging technological advancements to strengthen governance practices, promote stakeholder engagement and achieve improved healthcare outcomes in Kenya's national referral hospitals.

5.5 Areas for Further Research

The findings of the study underscore the critical role of health system governance in improving service delivery within Kenya's national referral hospitals. It reveals that effective governance structures, encompassing aspects like accountability, transparency, and leadership, significantly contribute to enhanced service delivery outcomes. Specifically, the study highlights that joint health system governance aspects account for a substantial proportion (81.40%) of service delivery success in these hospitals, underscoring their pivotal influence. The remaining 18.60% suggests avenues for further investigation into additional factors shaping service delivery, emphasizing the need for comprehensive understanding and targeted interventions.

Future research in health systems governance and service delivery in national referral hospitals in Kenya could focus on several key areas to deepen insights and guide policy and practice. First, exploring different governance structures and models including board composition, leadership styles, and decision-making processes can elucidate their impact on accountability, transparency, and overall performance in service delivery. Second, evaluating the implementation of health policies related to financing, workforce management, quality improvement, and patient safety will identify barriers and facilitators, offering lessons for effective policy implementation. These studies can inform strategies to enhance community participation, leverage mobile technology interventions, address health workforce dynamics, improve quality initiatives, optimize health information systems, promote health equity, and overcome policy implementation challenges. Such comprehensive research efforts are crucial for

advancing healthcare governance, facilitating evidence-based decision-making, and ultimately achieving better service delivery outcomes in Kenya's national referral hospitals.

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Appendix I: Questionnaire

SECTION A: BACKGROUND INFORMATION

The following section seeks to deduce demographic data of the respondents. Respond by checking the box or putting a tick (√) or number against the appropriate box that describes your demographic characteristics.

1. Age of Respondents

Age in years	Tick
20-30 years	
31-40 years	
40+ years	

2. Work Experience

Years	Tick
Less than 10 years	
10-20 years	
20+ years	

3. Level of Education

Years	Tick
Post-graduate	
Graduate	
Diploma	

SECTION B: HEALTH POLICY

To what extent do the following health policy statements apply on delivery of health care services in the hospital? Please tick as appropriate in a corresponding box? Use a scale of 1 to 5, where 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; and 5 = Strongly Agree

	Statements	1	2	3	4	5
a.	The existing legal framework has enhance timely delivery of the services in the hospital					

	Statements					
b.	The ongoing health reforms have improved affordability of the health care services in the hospital					
c.	The hospital has developed strategic plans have enhances affordability of health care services in the hospital					
d.	Health reforms are well implemented in the hospital to improve quality of health care services					
e.	The existing strategic plans have been well implemented to improved health care services in the hospital					
f.	The health reforms have enabled the public to play an important oversight role on the delivery of health care services in the hospital.					

g. Based on your response above, kindly make any comment on health policy and delivery of health care services in the hospital
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h. Please suggest any other health policy aspects being carried out to enhance delivery of health care services in the hospital.
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SECTION C: SOCIAL ACCOUNTABILITY

To what extent do the following social accountability statements apply on delivery of health care services in the hospital? Please tick as appropriate in a corresponding box? Use a scale of 1 to 5, where 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; and 5 = Strongly Agree

	Statements	1	2	3	4	5
a.	The hospital conducts information campaigns to the public to improve the delivery of health care services					
b.	Usually social audits are frequently conducted to enhance health care services in the hospital					
c.	The hospital conducts public hearings to improve health care services					

		1	2	3	4	5
d.	The hospital conducts information campaigns for every patient who visits the hospital					
e.	The hospital conducts the social audits to enhance accountability and transparency of the health care services					
f.	The public hearing has enhanced quality of the health care services in the hospital					

g. Based on your response above, kindly make any comment on social accountability and delivery of health care services in the hospital

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h. Please suggest any other social accountability aspects being carried out to enhance delivery health care services in the hospital

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SECTION D: OVERSIGHT MECHANISMS

To what extent do the following oversight mechanisms statements apply on delivery of health care services in the hospital? Please tick as appropriate in a corresponding box? Use a scale of 1 to 5, where 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; and 5 = Strongly Agree

	Statements	1	2	3	4	5
a.	The hospital has well established public expenditure tracking systems to improve the delivery of health care services					
b.	There is adequate monitoring of services in the hospitals					
c.	The hospitals has ensured that there are adequate complaint mechanisms to enhance delivery of services					
d.	The hospital monitoring systems are well managed to ensure efficient delivery of health care services					

		1	2	3	4	5
e.	The complaint mechanisms are used to improve health care services in the hospital					
f.	The hospital public expenditure tracking systems are monitored by the relevant oversight institutions					

g. Based on your response above, kindly make any comment on oversight mechanisms and delivery of health care services in the hospital

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i. Please suggest any other oversight mechanisms aspects being carried out to enhance delivery of health care services in the hospital

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SECTION E: STAKEHOLDER PARTICIPATION

To what extent do the following stakeholder participation statements apply on delivery of health care services in the hospital? Please tick as appropriate in a corresponding box? Use a scale of 1 to 5, where 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; and 5 = Strongly Agree

	Statements	1	2	3	4	5
a.	The hospital management has ensured that stakeholders participate in budgets to improve the delivery of health care services					
b.	The hospital has partnered with the stakeholders to enhance health care services					
c.	The hospitals has adequate advisors and consultants to improve health care services					
d.	The hospital participatory governance has improved timely, quality and affordability of health care services					
e.	The hospital has established adequate partnership programmes to enhance health care services					

		1	2	3	4	5
f.	The hospital has adequate advisory to team to advice the hospital management on delivery of health care services					

g. Based on your response above, kindly make any comment on stakeholder participation andd delivery of health care services in the hospital

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j. Please suggest any other stakeholder participation aspects being carried out to enhance delivery of health care services in the hospital

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SECTION F: MOBILE TECHNOLOGY

To what extent do the following mobile technology statements apply on delivery of health care services in the hospital? Please tick as appropriate in a corresponding box? Use a scale of 1 to 5, where 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; and 5 = Strongly Agree

	M-health	1	2	3	4	5
a.	The m-Health information is normally packaged to communicate to citizens via mobile phone					
b.	The hospital embraces usage of social media (Specify from the following list: Facebook, WhatsApp, YouTube, Instagram, Google, LinkedIn, Telegram, Twitter)					
c	The mobile phone handlers determines packaging and usability of information and Application Systems					
d	The hospital use mHealth Applications (Apps.) to enable collecting clinical data and delivery of healthcare information					
e	The hospital has increased in voice calls and short messaging services,					

f. Based on your response above, kindly make any comment on mobile technology and delivery of health care services in the hospital

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g. Please suggest any other mobile technology aspects being carried out to enhance delivery of health care services in the hospital

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SECTION G: SERVICE DELIVERY

To what extent do you agree with the following statements on the level of service delivery in the hospital? Please tick as appropriate in a corresponding box? Use a scale of 1 to 5, where 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; and 5 = Strongly Agree

	Statement	1	2	3	4	5
a	The waiting time for the patients to be served meets the best practices recommended (10-15 minutes)					
b	Patients have easy access to the medical specialists they need					
c	Patients do get enough time with the doctors in the hospital					
d	The patients find it easy to schedule an appointment the health care providers in the hospital					
e	Patients are able to get medical care whenever they need it					
f	The patients get kept educated and informed on their treatment by the hospital					
g	Patients do not pay more for the medical care services than they can afford					

h. In your own opinion, do you think health policy, social accountability, oversight mechanisms, stakeholder participation and mobile technology have been fully implemented in the hospital?

Explain…………………………………………………………………………

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i. What suggestions would you give to the hospital management to improve delivery of health care services?

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The End

Thank you for your time!!

Appendix II: Data Collection

JOMO KENYATTA UNIVERSITY
OF
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Ref: JKU/6/3/17a

Date: 15ᵗʰ February 2023

TO WHOM IT MAY CONCERN

SUBJECT: ALI ABDULLAHI ABDI – HDE418- C004- 1416/2019

This is to introduce to you **Mr. Ali Abdullahi Abdi** who is a student pursuing his Doctor of Philosophy in Leadership and Government at Jomo Kenyatta University of Agriculture and Technology, Nairobi CBD Campus. The student is currently undertaking research thesis entitled "**Antecedents of Health Systems Governance Influencing Service Delivery in National** *Referral* **Hospitals in Kenya**" in partial fulfillment of the requirement for the degree program.

The purpose of this letter is to request you to give the student the necessary support and assistance to enable him obtain necessary data for the thesis. Please note that the information given is purely for academic purpose and will be treated with strict confidence

Yours faithfully,

DR. SAMSON NYANG'AU (Ph.D)
ASSOCIATE CHAIRPERSON, EPD

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15 FEB 2023

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Appendix III: NACOSTI Permit