

**THE MEDIATING EFFECT OF INNOVATION ON THE RELATIONSHIP
BETWEEN KNOWLEDGE MANAGEMENT AND RESILIENCE IN
UGANDA'S PUBLIC HOSPITALS**

**A CASE OF NATIONAL REFERRAL HOSPITALS (MULAGO,
KAWEMPE, AND KIRUDDU)**

BY

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DECLARATION

I, Kiyingi Lyazi Samuel, do hereby declare that what is contained in this dissertation is my original work and has not been presented to any institution for the purpose of an academic award.

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APPROVAL

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LIST OF ABBREVIATIONS AND ACRONYMS

CVI:	Content Validity Index
MoH	Ministry of Health
SPSS:	Statistical Package for Social sciences
SSA:	Sub-Saharan African
WHO:	World Health Organization

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ABSTRACT

The purpose of the study was to examine the mediating role of innovation in the relationship between knowledge management and the resilience of public hospitals in Uganda. The specific objectives included examining the relationship between knowledge management and resilience of national referral hospitals in Uganda, establishing the relationship between innovation and resilience of national referral hospitals in Uganda, and examining the mediating role of innovation in the relationship between knowledge management and resilience of national referral hospitals in Uganda. The research adopted a cross-sectional design exclusively employing quantitative research methods. The study population consists Mulago, Kiruddu, and Kawempe National referral hospitals. The study used a sample size of 85 respondents, selected using stratified and simple random sampling. The study employed a questionnaire to collect quantitative data from the selected respondents. Correlational analysis was used to measure the strength and direction of the relationship between variables. The study tested for the mediation effect using the hierarchical regression model following the steps proposed by Baron and Kenny (1986).

The model findings revealed a positive and statistically significant relationship between knowledge management and the resilience of national referral hospitals in Uganda (Estimate=0.801, P-value=0.000<0.05). The model findings also revealed a statistically significant positive association between innovation and the resilience of national referral hospitals in Uganda (Estimate=0.711, P-value=0.001<0.05). The study further found a partial mediating role of innovation in the relationship between knowledge management and the resilience of national referral hospitals in Uganda.

The study concludes that innovation plays a crucial role in mediating the relationship between knowledge management and the resilience of national referral hospitals in Uganda. This highlights the significance of fostering innovative practices within healthcare institutions, as it serves as a pivotal factor in enhancing their ability to effectively navigate challenges and maintain resilience. As for recommendations, national referral hospitals should focus on improving their knowledge management practices by implementing structured systems for collecting, sharing, and utilizing knowledge. National referral hospitals should also actively cultivate an organizational culture that values and encourages innovation. This includes promoting openness to new ideas, supporting creative problem-solving, and allowing employees to experiment with innovative practices without fear of failure. National referral hospitals should further prioritize the implementation of robust knowledge management systems to ensure that relevant information is effectively collected, stored, and disseminated. This foundation will support innovative practices that can enhance resilience.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

1.1.1 Historical Background

Healthcare systems worldwide have faced significant crises and disruptive upheavals in the past decade, encompassing events such as the 2008 global economic downturn, the 2014-2016 Ebola outbreak, and the 2020 Covid-19 pandemic. These and preceding shocks have prompted a growing focus on the idea of resilience in global health systems. Advocates argue that enhancing the resilience of health facilities can mitigate their susceptibility to crises, ensuring improved preparedness and effective response, ultimately maintaining or minimizing disruption to the provision of essential healthcare services (Ibrahim Ismael et al., 2021). The resilience of healthcare systems worldwide was put to the test by the COVID-19 pandemic. Previously successful hospitals grappled with a multitude of issues, including but not limited to hospital capacity, infection control measures, healthcare worker burnout, levels of community trust, international research cooperation, and challenges related to vaccine tribalism and hesitancy (Tan et al., 2023).

The visibility of resilience in health facilities' ability to provide essential health services during a public health crisis has increased, with over 90% of countries acknowledging varying degrees of disruption. Typically, these situations have had the greatest impact on low- and middle-income countries (LMICs). Referral hospitals have been particularly affected by the crisis, and those with specialty services in infectious diseases were often the first to begin caring for cases of COVID19 (Binagwaho et al., 2022).

In Africa, healthcare facilities are gaining increased attention due to the historical struggles of these fragile systems in effectively addressing the impacts of health emergencies and pandemics.

Following the 2014 Ebola outbreak in certain African regions, the WHO encouraged governments to enhance the resilience of their healthcare systems. While some healthcare systems in Africa have demonstrated adaptiveness in responding to new challenges, this adaptiveness has its limitations in the context of weak, fragile, and non-robust health systems. Managing the adequate supply of protective equipment, laboratory testing, therapeutics, mechanical ventilators, isolation of confirmed or suspected cases, contact tracing, and treatment for severe illness, along with coping with the overwhelming number of COVID-19 cases, has proven to be a daunting task in Africa, and even in areas with more robust infrastructure (Gebremeskel et al., 2021).

Due to inadequate detection and response systems, numerous Sub-Saharan African (SSA) countries face substantial public health events annually, posing a significant risk of rapid transmission. A notable instance is the Ebola virus epidemic that affected certain West African nations in 2014. This public health incident underscored the susceptibility of the population, the economy, and the limited capacities of the affected countries to foresee and manage health disasters. Many health facilities in SSA countries lack preparedness plans, surveillance systems, robust preparations, and established emergency coordination structures. Resilience of health facilities play a crucial role in preserving lives and alleviating the suffering of individuals during and after catastrophic periods. Resilient and secure hospitals possess robust structures, efficient organization, provide effective services with contingency plans, and maintain operational capacity at the highest level during disasters. Nevertheless, a significant number of deaths in Sub-Saharan Africa (SSA) occur in hospital emergency departments due to the inadequate level of resilience (Abbasabadi Arab et al., 2019; Farah et al., 2023; Sharma & Sharma, 2020).

In Uganda, the health sector performance report for 2019/2020 highlighted a 30% decline in the refill of Antiretroviral Therapy (ART) for individuals living with HIV between April and June

2020, as compared to the period from January to March 2020 (Ministry of Health, 2020). Consequently, hospitals demonstrated a lack of resilience, struggling to manage the epidemic while simultaneously providing essential healthcare services. When the COVID-19 pandemic emerged, the WHO issued general operational guidance to its member countries regarding the maintenance of service delivery, encompassing adjustments to the prevention, diagnosis, management, and treatment of diseases. However, the degree of adaptation and fidelity in implementing the WHO guidance varied among countries, contingent on health system capacity, structure, and local contexts (Kabwama et al., 2022). There is limited knowledge in Uganda about the mediating role of innovation on the relationship between knowledge management and resilience of hospitals. Therefore, there is a crucial need for this study to fill the existing knowledge gap.

1.1.3 Theoretical Background

The study used the dynamic capabilities theory to study the mediating role of innovation on the relationship between knowledge management and resilience of public hospitals in Uganda. The Dynamic Capabilities Theory was developed by David J. Teece, who is a professor and researcher in the field of business and technology management. The theory was first introduced in a paper titled "Towards an Economic Theory of the Multiproduct Firm" published in 1986 (Teece, 2023).

Dynamic Capabilities Theory focuses on an organization's ability to integrate, build, and reconfigure its internal and external competencies to adapt to a rapidly changing environment. The theory emphasizes the dynamic nature of business environments and the need for organizations to develop capabilities that enable them to sense, seize, and transform opportunities (Teece, 2010).

The theory posits that the organization's overall resilience hinge on its ability to refresh, reorganize, and reposition itself. Dynamic Capabilities Theory has been applied to explain various aspects of

organizational change, encompassing dimensions such as hospital resilience, innovation, entrepreneurial behavior, organizational transformation, and the ability to navigate crises (Akpan et al., 2022). Dynamic Capabilities Theory recognizes innovation as a crucial aspect of a firm's capabilities. In the healthcare sector, innovation is vital for improving patient care, optimizing processes, and responding effectively to crises (Wu et al., 2022).

The Dynamic Capabilities Theory provides a robust framework for understanding how knowledge management, innovation, and the ability to adapt dynamically contribute to the resilience of hospitals in Uganda. The theory emphasizes the importance of adaptability and learning. In the context of public hospitals in Uganda, the ability to adapt to changing healthcare landscapes, emerging diseases, and resource constraints is crucial. Knowledge management can facilitate the acquisition and sharing of information, and dynamic capabilities allow hospitals to learn from experiences and adapt their strategies accordingly.

1.1.4 Conceptual Background

The key concepts that guided the study are knowledge management, innovation, and hospital resilience.

Knowledge management is the organized method of generating, structuring, capturing, and disseminating information within an organization to boost its efficiency and attain its goals. It entails recognizing, obtaining, and applying both explicit and tacit knowledge to enhance capabilities in problem-solving, innovation, and decision-making. Knowledge management encompasses a range of approaches, activities, and technologies designed to harness an organization's intellectual resources (Girard, 2015).

Organizational innovation involves implementing new concepts to generate value for the organization. Additionally, Organizational innovation encompasses the development of fresh services, methods, processes, and systems. It is essentially the implementation of a new approach, product, or service (Rasool et al., 2019).

Hospital resilience refers to the capacity of a healthcare facility, particularly a hospital, to effectively prepare for, respond to, adapt to, and recover from various challenges, disruptions, or crises while maintaining its essential functions and ensuring the continued delivery of quality healthcare services (Khalil et al., 2022). Resilience in a hospital context involves the ability to withstand and recover from adverse events, ranging from natural disasters and public health emergencies to organizational challenges and resource constraints (Khalil et al., 2022).

1.1.5 Contextual Background

Mulago, Kawempe, and Kiruddu National Referral Hospitals bear the responsibility of providing specialized healthcare services to a large population often under challenging conditions, including resource constraints, high patient loads, and frequent public health crises. Resilience in these hospitals is essential to ensure continuity of care, adaptability to changing healthcare demands, and the ability to recover from disruptions, such as the COVID-19 pandemic or other systemic challenges. Mulago, Kawempe, and Kiruddu hospitals were selected because they represent the primary public healthcare institutions in Uganda, and their ability to manage knowledge and foster innovation directly impacts their resilience (Bongomin et al., 2021; Mboowa et al., 2021). Studying these hospitals provides valuable insights into how innovation and knowledge management practices can enhance the overall capacity of public hospitals to withstand and adapt to crises, thus contributing to the broader goal of improving Uganda's healthcare system.

Hospitals play a crucial role in preserving lives and alleviating the distress of individuals in the aftermath of catastrophes. The resilience of hospitals in these situations hinges on their structural robustness, organizational efficiency, provision of essential services with a contingency strategy, and their ability to operate at full capacity during crises. Unfortunately, a significant number of fatalities in Uganda occur within hospital emergency departments due to lack of resilience and inadequate preparedness. Key challenges within Uganda's healthcare system involve insufficiently trained healthcare professionals, inadequate funding, a lack of knowledge and training in the proper use of personal protective equipment (PPE), deficient governance and leadership, a lack of transparency and bureaucratic hurdles, limited capacity, scarce laboratory services, and a lack of coordination between emergency care and the broader health systems (Farah et al., 2023).

The peak of the COVID-19 outbreak in Uganda occurred in late 2020, revealing significant challenges in the resilience of healthcare facilities to handle cases. Among 17 referral facilities, only two were classified as 'ready,' while the remaining 15 fell into the "work to do" category. Fourteen of these facilities faced shortages in medicines, 12 lacked a sufficient supply of oxygen, and 11 had insufficient space to expand their COVID-19 Treatment Units (CTU). At the lower level, 55 health facilities were deemed "not ready," with 16 falling into the "work to do" category. Among these, 70 facilities lacked essential medicines, 65 faced shortages in personal protective equipment (PPE), and 53 did not have an emergency plan in place for managing COVID-19 cases. The fact that only a small proportion of referral facilities were classified as 'ready' indicates a significant gap in the resilience of these hospitals to handle the pandemic. This lack of resilience could contribute to difficulties in providing timely and effective care during health emergencies (Mwine et al., 2023).

Enhancing knowledge management and fostering innovation are pivotal factors in bolstering the resilience of hospitals (Ali et al., 2024; Khalil et al., 2022). Despite their significance, Ugandans now don't know enough about how innovation functions as a mediator in the interaction between hospital resilience and knowledge management. Therefore, this study is imperative in addressing and bridging the existing gap in knowledge, aiming to shed light on the intricate dynamics between knowledge management, innovation, and the resilience of national referral hospitals.

1.2 Statement of the Problem

Effective knowledge management and innovation play a pivotal role in shaping and influencing the resilience of hospitals globally (Sanjeev, 2019). Uganda has undertaken initiatives to enhance the resilience of hospitals, particularly in times of crises and emergencies. The Ministry of Health (MoH) in Uganda has furnished national and regional referral hospitals with skilled healthcare professionals and supplied additional quantities of medicines and personal protective equipment (Mwine et al., 2023).

Despite the heavy investments to integrate emergency preparedness and response actions of public health institutions in Uganda, the country's national referral hospitals have failed to be resilient enough to a broad range of shocks. According to the annual health sector performance reports from Uganda's Ministry of Health, resilience in these hospitals showed a declining trend: 85% in 2021, 80% in 2022, and 75% in 2023. These percentages were derived from indicators such as patient throughput during crises, recovery rates from systemic disruptions, and staff retention during emergencies (Ministry of Health, 2020; Ononge et al., 2023). In addition, in Covid-19 times, the national referral hospitals faced inadequate supply of medicines, lacked adequate supply of oxygen, and lacked space to expand their CTU (Mwine et al., 2023). These limitations not only

hampered the day-to-day operations of national referral hospitals but also posed substantial challenges during crisis and emergency situations.

Many factors are crucial in determining the relationship between knowledge management and resilience of national referral hospitals in Uganda among others which is innovation. Despite the importance of innovation, no clear study has been conducted to examine the mediating role of innovation on the relationship between knowledge management and resilience of national referral hospitals in Uganda. Therefore, this study is important in addressing and bridging the existing knowledge gap.

1.3 Objectives of the Study

The study was guided by both the general and specific objectives.

1.3.1 General Objective of the Study

To examine the mediating role of innovation on the relationship between knowledge management and resilience of public hospitals in Uganda.

1.3.2 Specific Objectives of the Study

- i. To examine the relationship between knowledge management and resilience of national referral hospitals in Uganda
- ii. To establish the relationship between innovation and resilience of national referral hospitals in Uganda
- iii. To examine the mediating role of innovation on the relationship between knowledge management and resilience of national referral hospitals in Uganda

1.4 Research Hypotheses

The study was guided by the alternative hypotheses below;

- i. Knowledge management has a significant relationship with resilience of national referral hospitals in Uganda.
- ii. Innovation has a significant relationship with resilience of national referral hospitals in Uganda
- iii. Innovation significantly mediates the relationship between knowledge management and resilience of national referral hospitals in Uganda

1.5 Significance of the Study

The study was useful in the following ways;

The findings of the study may be helpful to policy developers like the Ministry of Health to help develop policies that boost resilience capabilities of the public hospitals.

Findings from the study may contribute to the development of evidence-based healthcare policies in Uganda. Policymakers may use this information to create frameworks that encourage knowledge management practices and foster a culture of innovation within hospitals, ultimately improving the overall resilience of the healthcare system.

The study sets the stage for future research in the field of healthcare management and innovation. It can guide researchers in exploring specific aspects of knowledge management and innovation that are particularly relevant to hospital resilience, paving the way for targeted interventions and further advancements in healthcare practices.

Insights gained from the study may have the potential to contribute to the global understanding of effective healthcare management strategies. As healthcare systems worldwide face common challenges, lessons learned from Uganda can be valuable for shaping resilient healthcare practices on a broader scale.

Lastly, the study findings may be of use to academia as a source for further research on knowledge management, innovation, and resilience of organizations.

1.6 Scope of the Study

The scope presents the content, geographical, and time scope

1.6.1 Content Scope

The study focused on examining the mediating role of innovation on the relationship between knowledge management and resilience of national referral hospitals in Uganda. The study also examined the relationship between knowledge management, innovation, and resilience of national referral hospitals in Uganda.

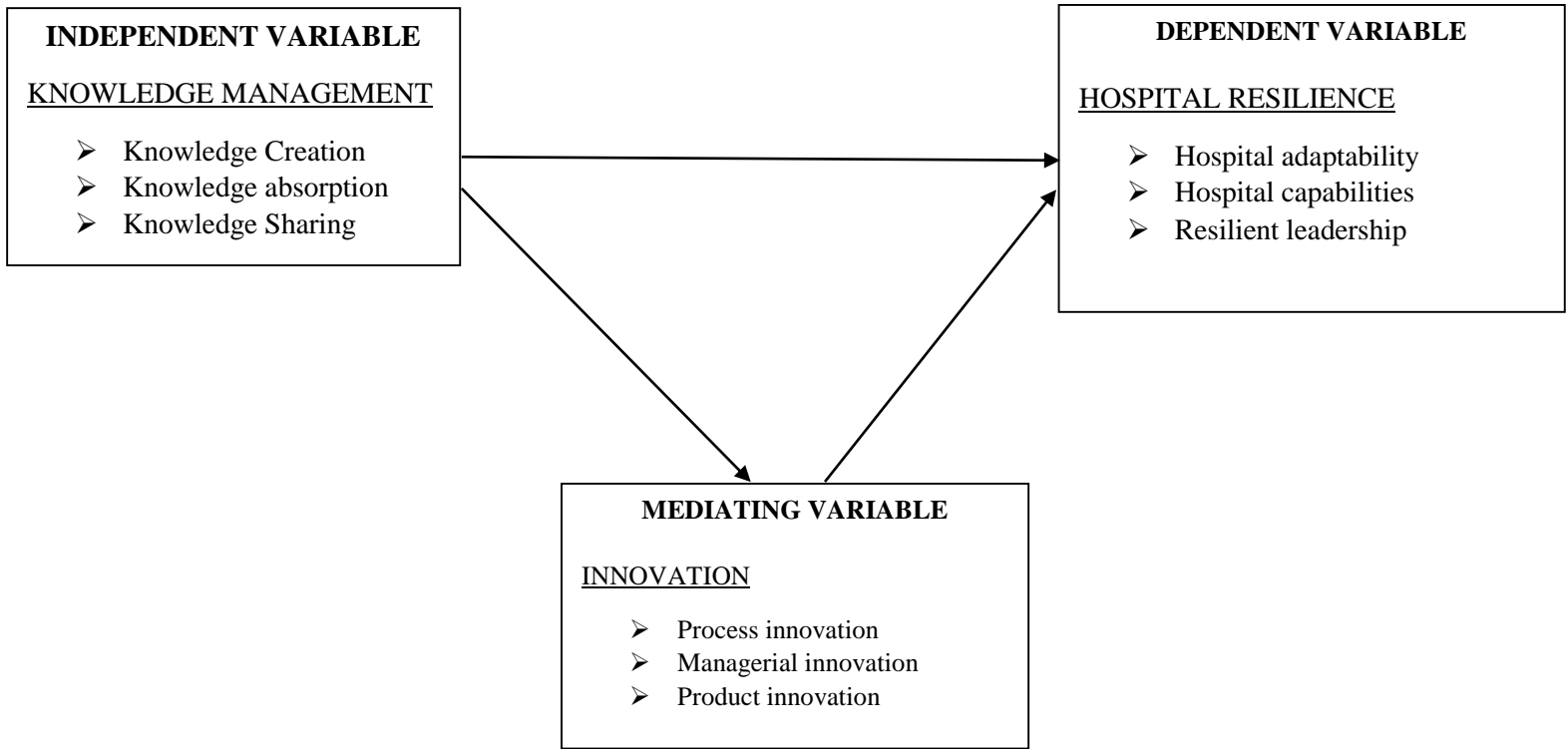
1.6.2 Geographical Scope

The Study was carried out at the three (3) National Referral hospitals ie. Mulago, Kiruddu, and Kawempe hospitals. These hospitals were selected because they bear the responsibility of providing specialized healthcare services to a large population often under challenging conditions, including resource constraints, high patient loads, and frequent public health crises (Bongomin et al., 2021; Mboowa et al., 2021).

1.7 Conceptual Framework

This conceptual framework represents the theoretical structure or model that guided the understanding and analysis of the mediating role of innovation on the relationship between knowledge management and resilience of public hospitals.

Figure 1: Conceptual Framework



Source: Adopted from Ibrahim Ismael et al. (2021) and modified by the researcher

Conceptual Framework Narration

The conceptual framework illustrates the association between knowledge management and hospital resilience, innovation and hospital resilience, as well as the mediating role of innovation in the relationship between knowledge management and the resilience of hospitals in Uganda. The conceptual framework indicates that knowledge management has a direct association with hospital resilience. When there is knowledge creation, knowledge absorption, and knowledge sharing, there is an increased likelihood of hospital adaptability, enhanced hospital capabilities, and so forth.

The framework also posits that innovation has a direct association with hospital resilience. For instance, process innovation, managerial innovation, and product innovation increase resilience in

hospitals. Additionally, the conceptual framework indicates that innovation is presumed to mediate the relationship between knowledge management and hospital resilience. The hospital's ability to innovate, whether in processes, management strategies, or products, plays a crucial role in translating knowledge into tangible resilience of hospitals.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a comprehensive examination of the literature, encompassing theoretical perspectives, study concepts, and empirical studies aligned with the objectives of the research.

2.2 Theoretical Review

This section reviews the strength of the dynamic capabilities theory and analyzes how it is related to the current study.

2.2.1 Dynamic Capabilities Theory

The study used the dynamic capabilities theory to study the mediating role of innovation on the relationship between knowledge management and resilience of hospitals in Uganda. The Dynamic Capabilities Theory was developed by David J. Teece, who is a professor and researcher in the field of business and technology management. The theory was first introduced in a paper titled "Towards an Economic Theory of the Multiproduct Firm" published in 1986 (Teece, 2023).

This theory has been employed in many studies related to organizational resilience, for instance it was used by Akpan et al. (2022) and Cebon (2016) to study the association between dynamic capabilities and organizational resilience. The theory was also used by Betto and Garengo (2023) in exploring a circular pathway for developing resilience in healthcare during pandemics.

The Dynamic Capabilities Theory provides a robust framework for understanding how knowledge management, innovation, and the ability to adapt dynamically contribute to the resilience of hospitals in Uganda. The theory emphasizes the importance of adaptability and learning. In the context of public hospitals in Uganda, the ability to adapt to changing healthcare landscapes,

emerging diseases, and resource constraints is crucial. Knowledge management can facilitate the acquisition and sharing of information, and dynamic capabilities allow hospitals to learn from experiences and adapt their strategies accordingly.

2.3 Conceptual Review

The key concepts reviewed in this section encompass knowledge management, innovation, and resilience, each playing a pivotal role in shaping the dynamics and success of organizations.

2.3.1 Knowledge Management

Knowledge management is the organized method of generating, structuring, capturing, and disseminating information within an organization to boost its efficiency and attain its goals. It entails recognizing, obtaining, and applying both explicit and tacit knowledge to enhance capabilities in problem-solving, innovation, and decision-making. Knowledge management encompasses a range of approaches, activities, and technologies designed to harness an organization's intellectual resources (Girard, 2015).

Knowledge management is conceptualized as a procedural approach, encompassing various interconnected activities designed to execute essential components of knowledge management strategy and operational functions. Over the last twenty years, researchers from diverse viewpoints have introduced a multitude of knowledge management processes (Gao et al., 2018). It involves actions and processes aimed at generating and applying knowledge within an organization. This definition tends to overlook the significance of the human element in Knowledge Management, considering knowledge as an outcome of previous activities and reflections, offering subjective interpretations of such actions (Edwards, 2014).

Knowledge Management is an extensive procedure involving the identification, organization, transfer, and utilization of information and skills. Knowledge Management system can impact both employee learning and organizational advancement, with 66.2% asserting that it facilitates collaborative teamwork (Ferreira et al., 2018; Schwartz et al., 2023). Knowledge Management plays a crucial role in enhancing an organization's efficiency, effectiveness, and innovation. The results of projects, individual endeavors, and overall organizational outcomes in New Product Development (NPD) are interconnected with the management of knowledge (Asrar-ul-Haq & Anwar, 2016).

2.3.2 Innovation

Organizational innovation involves implementing new concepts to generate value for the organization. Additionally, Organizational innovation encompasses the development of fresh services, methods, processes, and systems. It is essentially the implementation of a new approach, product, or service (Rasool et al., 2019). Innovation involves the creation of a new idea and its incorporation into a fresh product, process, or service. Innovation is not a singular event but rather a protracted and cumulative series of numerous organizational decision-making processes, spanning from the generation phase of a new idea to its implementation (Kogabayev & Maziliauskas, 2017).

The term "new idea" pertains to the recognition of a fresh customer need or a novel approach to production, emerging through an accumulative process of information gathering coupled with a continually challenging entrepreneurial vision. During the implementation process, the new idea undergoes development and commercialization, resulting in a new marketable product or an innovative process that brings about cost reduction and heightened productivity (Kogabayev & Maziliauskas, 2017).

In the realm of organizations, innovation is acknowledged as a crucial element for achieving success and ensuring long-term viability. Organizations understand that innovation plays a pivotal role in establishing competitive advantages. The innovation process involves the creation and application of novel ideas, processes, and methodologies to optimize task performance and provide superior products and services. This process encompasses both technological and psychological innovation (Palazzeschi et al., 2018).

2.3.3 Hospital Resilience

Hospital resilience refers to the capacity of a healthcare facility, particularly a hospital, to effectively prepare for, respond to, adapt to, and recover from various challenges, disruptions, or crises while maintaining its essential functions and ensuring the continued delivery of quality healthcare services. Resilience in a hospital context involves the ability to withstand and recover from adverse events, ranging from natural disasters and public health emergencies to organizational challenges and resource constraints (Khalil et al., 2022). The indicators of hospital resilience encompass preparedness for digital transformation, adept leadership, and adaptability in resource management, among other factors. Additionally, factors such as situational awareness, resilience ethos, the implementation of marketing management, networking, and disaster anticipation are equally significant. These domains underscore the hospital's capacity to effectively address various shocks stemming from disruptions within the dynamic organizational business environment (Sari et al., 2023).

Resilient hospitals need to assimilate, adjust, undergo transformation, and learn, employing these capabilities, sometimes concurrently, across prevention, preparedness, response, and recovery stages within a risk-informed and all-hazard framework. These capabilities are dynamic and should not remain static; instead, they should continually enhance over time. Reinforcing hospital

resilience necessitates the development of both hard and soft resilience. Hard resilience encompasses both structural (or constructive) and non-structural (infrastructural) elements, coupled with the flexibility to reorganize physical spaces. On the other hand, the soft resilience of a hospital involves the resilience of its staff, financial aspects, logistics, and supply chains, as well as strategies and systems such as leadership and coordination, community engagement, and communication, information, and learning systems (Khalil et al., 2022).

The concept of hospital resilience has become increasingly prominent in light of numerous health crises stemming from both natural and non-natural disasters over the past decade. Hospital resilience denotes an organization's ability to navigate abrupt changes or shocks by absorbing, adapting, or transforming its systems to ensure continued functionality. Originally, the concept of hospital resilience evolved from conventional safety management principles and resilience engineering. The discourse on this idea took place in Hyogo, Japan, during the World Conference on Disaster Reduction in 2005. The focus was on the role of health services in reducing disaster risk and enhancing capacity in disaster management (Cristian, 2018).

2.4 Empirical Literature

This section systematically reviews the empirical literature aligned with the specific objectives in chapter two.

2.4.1 The relationship Between Knowledge Management and Organizational Resilience

Knowledge management is a foundational element for organizational resilience, providing the tools and capabilities necessary for organizations to adapt, innovate, and thrive in the face of challenges and uncertainties. In the context of hospitals, knowledge management is indispensable in the healthcare sector, and its effective implementation is vital for hospitals to navigate

challenges, maintain operational continuity, and enhance overall resilience in providing quality patient care (Godwin & Amah, 2013).

Ibrahim Ismael et al. (2021) studied knowledge management as a predictor of organizational resilience in Egypt. The study found a positive and statistically significant association between knowledge management and organizational resilience among nursing staff. The study found that there were increased knowledge acquisition, knowledge creation, knowledge sharing, and knowledge storage. These increases corresponded to enhanced hospital adaptation capacity, capacity management, organizational culture, and resilient leadership. They found that the organization fosters a culture that encourages research and open communication among nursing staff. They also established that digital platforms play a pivotal role in connecting workforce, facilitating efficient knowledge sharing across different teams and locations (Ibrahim Ismael et al., 2021).

Sanjeev (2019) examined the relationship between knowledge management and organizational resilience in Northern Healthcare Sector. The study revealed that the four dimensions of knowledge management had a positive relationship with organizational resilience. Specifically, the research revealed that knowledge storage, knowledge sharing, knowledge acquisition, and knowledge utilization were instrumental in enhancing organizational adaptability, fostering organizational learning, and promoting organizational resourcefulness within the Northern Healthcare Sector. The study established that there were formal and informal learning opportunities provided to employees to enhance their skills and knowledge. Similarly, he revealed that there was employee participation in the process of knowledge creation (Sanjeev, 2019).

Fani et al. (2017) explored the relationship between knowledge management and organizational resilience within Iranian Public Organizations. The study revealed a positive relationship of

knowledge management and organizational resilience, indicating a meaningful relationship between the two. The dimensions of knowledge management: comprising knowledge acquisition, knowledge storage, knowledge sharing, and knowledge utilization were examined alongside organizational resilience, which encompassed organizational adaptability, organizational resourcefulness, and organizational learning. The results demonstrated there were mechanisms in place to encourage information exchange and idea generation among team members. The results also demonstrated that employees were engaged in conferences and seminars to tap into external information (Fani et al., 2017).

Zayed et al. (2022) examined how knowledge management influences the resilience of microentrepreneurs in the Post-COVID-19 Economy. The research findings indicated that the various facets of knowledge management, including knowledge acquisition, knowledge storage, knowledge sharing, and knowledge utilization, significantly influenced the business resilience of microentrepreneurs. This implies that microbusiness owners who effectively manage and leverage knowledge are better positioned to enhance their resilience in the challenging economic landscape following the COVID-19 pandemic. They emphasized that continuous learning was embedded in training and development initiatives, ensuring employees are skillful at leveraging external expertise. They also established that there was open communication through forums, ensuring that information flows freely across teams (Zayed et al., 2022).

In conclusion, the literature reviewed in this section highlights a scarcity of studies investigating the correlation between knowledge management and hospital resilience on both a national and global perspective. Thus, this study sought to fill this gap by examining the relationship between knowledge management and resilience of national referral hospitals in Uganda.

2.4.2 The relationship Between Innovation and Organizational Resilience

Innovation is integral to organizational resilience, providing the means to adapt to change, diversify strategies, optimize resources, mitigate risks, and foster a culture of continuous improvement. Resilient organizations embrace innovation as a strategic imperative, enabling them to thrive in an ever-evolving business landscape. In the context of health facilities, innovation in hospitals is vital for building and sustaining organizational resilience. It enables hospitals to stay ahead of healthcare trends, respond effectively to crises, optimize operations, and continuously improve patient care. Resilient hospitals actively embrace innovation as a strategic imperative, recognizing its transformative impact on the delivery of healthcare services and organizational adaptability (Lyng et al., 2021). This section presents the empirical literature on the relationship between innovation and organizational resilience in the context of hospitals.

Ahiauзу and Jaja (2015) examined the correlation between process innovation and organizational resilience in Nigeria. The findings indicated a significant association between process innovation and various indicators of organizational resilience, including situation awareness, keystone vulnerability, and adaptive capacity. The findings indicate that implementing process innovation within organizations is positively correlated with heightened situation awareness, reduced keystone vulnerability, and increased adaptive capacity. They established that there was a reward process creativity and innovation in organizations in Nigeria. They also demonstrated that organizations create a vision/strategic intent for process innovation (Ahiauзу & Jaja, 2015).

Scott (2022) conducted research examining how innovation correlates with the organizational resilience of oil servicing firms in Port Harcourt. The outcomes demonstrated a significant and positive association between various dimensions of innovation and resilience indicators. The study concluded that process innovation had a significant relationship with resilience, with organizations

embracing innovation exhibiting greater signs of resilience compared to less innovative counterparts. This indicates that organizations that actively engage in innovation demonstrate a higher capacity to navigate challenges and uncertainties, positioning them as more resilient entities within the industry. He observed that the oil servicing firms in Port Harcourt treat employees as a vital resource for building competitive advantage in processes. Similarly, he emphasized that the oil servicing firms in Port Harcourt hold creative process employees and their contributions in high esteem (Scott, 2022).

Williams and Anyanwu (2017) conducted a study examining how innovation influences organizational resilience in the food and beverage industry. The results indicated a significant relationship between product innovation and the dimensions of adaptability and vulnerability. Specifically, the findings suggest that product innovation plays a crucial role in fostering adaptability while concurrently reducing an organization's vulnerability. Product innovation enhances adaptability by providing organizational agility, responsiveness to market changes, and diversified revenue streams. Simultaneously, it reduces vulnerability by mitigating risks, establishing a competitive advantage, and maintaining a positive brand image. In the food and beverage industry, where consumer preferences are dynamic, product innovation becomes a key driver of organizational resilience. The scholars highlighted that the food and beverage industry celebrated new processes and successes. They also established that food and beverage industry proactively created new management opportunities and respond to change relative to management innovations (Williams & Anyanwu, 2017).

De Carvalho et al. (2016) examined the correlation between innovation and resilience by analyzing financial performance. The findings suggested that companies embracing innovation consistently achieved superior financial results compared to their non-innovative counterparts. The consistent

achievement of superior financial results by companies embracing innovation is attributed to their ability to differentiate themselves in the market, adapt to changing conditions, enhance operational efficiency, manage risks effectively, and build a positive brand image. The dynamic and forward-thinking nature of innovation positions these companies for long-term success and financial resilience. The study demonstrated that the companies required managers to have objectives for management innovation and evaluate their performance relative to these objectives. Similarly, they found that companies put each and every process on trial for its life (De Carvalho et al., 2016).

Rabah-Rabbou et al. (2022) investigated the relationship between managerial innovations and organizational resilience in public hospitals amid the COVID-19 crisis. The study revealed a positive and significant association between managerial innovations and organizational resilience in public hospitals during the COVID-19 crisis. Managerial innovations play a pivotal role in enhancing organizational resilience in public hospitals during the COVID-19 crisis by enabling strategic decision-making, flexible resource allocation, agile responses, effective communication, team empowerment, continuous monitoring, strategic partnerships, technological adoption, and prioritizing staff well-being. They established that public hospitals held creative managers and their contributions in high esteem (Rabah-Rabbou et al., 2022).

In summary, the literature surveyed in this section underscores the limited exploration of the relationship between innovation and hospital resilience at both national and global levels. Consequently, this study sought to address this gap by investigating the relationship between innovation and the resilience of national referral hospitals in Uganda.

2.4.3 The Mediating role of Innovation on the Relationship between Knowledge Management and Organizational Resilience

In essence, innovation plays a remarkable role in mediating the relationship between knowledge management and organizational resilience by serving as a dynamic and responsive mechanism that transforms acquired knowledge into practical solutions, adaptive strategies, and continuous improvement. As organizations innovate based on their knowledge foundation, they enhance their resilience to navigate uncertainties, challenges, and changes in their operating environments. In the hospital context, the mediation of innovation between knowledge management and organizational resilience is evident through improved patient care, efficient resource utilization, public health preparedness, staff development, and community engagement. The seamless integration of knowledge and innovation strengthens the hospital's ability to adapt, respond to challenges, and provide high-quality healthcare services, even in the face of uncertainties and disruptions (Mafabi et al., 2012).

Mafabi et al. (2012) investigated the mediating role of innovation in the association between knowledge management and organizational resilience. The findings indicated a complete mediation effect of innovation in the relationship between knowledge management and organizational resilience. Innovation serves as a mediator by actively transforming knowledge into creative solutions, adaptive strategies, and continuous improvement. The synergy between knowledge management and innovation is instrumental in building a resilient organizational culture capable of effectively navigating challenges and uncertainties (Mafabi et al., 2012).

In summary, the literature examined in this section highlights the limited exploration of the mediating role of innovation in the relationship between knowledge management and hospital

resilience, both within the national context of Uganda and on a global scale. This study endeavors to bridge this gap by delving into the mediating role of innovation on the relationship between knowledge management and the resilience of national referral hospitals in Uganda.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section outlines the research design, study population, sample size, sampling methods, data collection procedures and tools, validation and reliability measures for the instruments, the process of data collection, a description of data analysis techniques, and ethical considerations.

3.1 Research Design

The research adopted a cross-sectional design exclusively employing quantitative research methods. The selection of a cross-sectional design for this study was driven by its effectiveness in capturing a snapshot of the study variables at a specific point in time. This design allows for the collection of quantitative data from a diverse sample, enabling an efficient analysis of relationships and patterns within the study variables (Kogevinas et al., 2015).

3.2 Study Population

The study population consisted of the three national referral hospitals in Uganda: Mulago National Referral Hospital, Kiruddu National Referral Hospital, and Kawempe National Referral Hospital. Each hospital includes 36 staff members, comprising Directors, Human Resource personnel, and senior medical staff (Ministry of Health, 2023).

3.3 Sample Size

The sample size of the study has been determined by Yamane (1967). Yamane's sample size formula is valuable for its simplicity, applicability to finite populations, and resource efficiency (Glenn, 1992). The formula is given as follows;

$$n = \frac{N}{1 + N(e)^2}$$

Where; n is the sample size, N is the population size, and e is the sampling error. Considering the target population of 108 individuals at 95% confidence level, the margin of error will be 5% or 0.05.

$$n = \frac{108}{(1 + 108(0.05)^2)}$$

$$n = 85$$

The study used a sample size of 85 respondents.

3.4 Sampling Procedure

The sampling procedure is crucial for the overall success and reliability of research. It ensures that the data collected are representative of the population of interest, allowing researchers to draw meaningful conclusions and make generalizations based on their findings (Bodnar et al., 2013).

The national referral hospitals were stratified into Mulago, Kiruddu, and Kawempe. The Study employed simple random sampling to select respondents to represent each hospital. Table 3.1 provides a concise overview of the sampling methods employed, the specified target population, and the selected sample size.

Table 3.1: Summary of Research Population, Sample Size, and Sampling Methods

Category of National Referral Hospital	Population	Sample size	Sampling technique
Mulago	36	29	Stratified and simple random sampling
Kiruddu	36	28	Stratified and simple random sampling

Kawempe	36	28	Stratified and simple random sampling
Total	108	85	

Source: Ministry of Health (2023); Glenn (1992)

3.5 Data Collection Methods

The selection and implementation of appropriate data collection methods are critical aspects of the research process. These methods directly impact the quality, validity, and reliability of the data collected, ultimately influencing the robustness and credibility of the research findings (Paradis et al., 2016). The study made use of the questionnaire survey for collecting quantitative data. Questionnaire surveys are often a cost-effective and efficient way to collect data from a large number of respondents simultaneously. This method allows researchers to gather information from a diverse sample without the need for extensive resources (Roopa & Rani, 2012).

3.6 Data Collection Instruments

Data collection tools are crucial components of the research process, facilitating the gathering of information that forms the basis of analysis, interpretation, and decision-making (Kairuz et al., 2007). The study used a structured questionnaire to collect data from respondents. Structured questionnaire provides a standardized set of questions and response options for all respondents. This consistency ensures that each participant receives the same information, reducing variability in data collection (Cheung, 2021). The structured questionnaire will encompass distinct sections addressing participant demographics and key study variables.

Likert's scale statement with five category response levels of 5-1 was used, strongly agree (5), Agree (4), Not sure (3), Disagree (2), and (1) Strongly disagree, with assertion. The respondent

chose a response most suitable to him/her in relation to each statement and the response category was weighed from 1-5 and the mean for all items will be considered.

3.7 Validity and Reliability Test

The tools were tested for validity and reliability.

3.7.1 Validity

Validity is the degree to which the instrument is relevant in measuring what it is intended to measure (Kimberlin & Winterstein, 2008). Validity shows the truthfulness of the Study findings. The questionnaire will be presented to the supervisor, who will assess its correctness. The supervisor's comments were utilized to minimize errors, ensuring both content and face validity (Heale & Twycross, 2015). The Content Validity Index (CVI) was calculated to evaluate the validity of the instruments. The instrument was valid since the computed CVI was 0.836 (83.6%) which was above the threshold of 0.7. The CVI was computed as follows;

$$CVI = \frac{\text{Questions in the questionnaire declared valid}}{\text{Total Number of Questions in the Questionnaire}} = \frac{46}{55} \times 100 = 83.6\%$$

3.7.2 Reliability

Reliability looks at the degree of consistency of measure that the instrument demonstrates. An instrument must demonstrate the three attributes to be reliable: internal consistency (Homogeneity), stability and equivalence (Heale & Twycross, 2015). Internal consistency will be assessed through the utilization of the Cronbach's alpha coefficient. The questionnaire was deemed reliable if the Cronbach's alpha coefficient was 0.7 or higher. Table 3.2 shows that the tool was reliable since the items for all the variables had a Cronbach's alpha coefficient above 0.7

Table 3.2: Test for Reliability

Variable	Number of Items	Cronbach's coefficient	alpha
Knowledge management	13	0.906	
Innovation	13	0.728	
Public hospital resilience	12	0.933	

3.8 Data Collection Procedures

The Researcher obtained an introductory letter from the Directorate of Research and Graduate Training that he used to introduce himself to the management of the referral hospitals. The researcher orally explained the purpose of the study to each of the respondents and sought for their consent to participate in the study. The researcher then administered the questionnaire. To ensure confidentiality, the names of the respondents were not indicated on the questionnaire. Once the questionnaires were filled in, they were checked for completeness before being collected for analysis.

3.9 Data Analysis

Data analysis involved the use of both descriptive and inferential statistics in the Statistical Package for Social sciences (SPSS). The data collected was prepared by cleaning and organizing it. Data cleaning included checking for outliers, missing values, and errors. Correlational analysis was used to measure the strength and direction of the relationship between variables (Shi & Conrad, 2009).

The study tested the mediation effect using the hierarchical regression model (Baron & Kenny, 1986). The hierarchical regression model was employed, which involved conducting linear

regression analyses in different stages. Following the four-step approach outlined by Baron and Kenny (1986), a mediation analysis was conducted. In the first step, the independent variable (knowledge management) should demonstrate a significant relationship with the dependent variable (hospital resilience). In the second step, the independent variable should be significantly associated with the mediator variable (innovation). In the third step, the mediator variable should exhibit a significant relationship with the dependent variable. Finally, in the last step, when both the mediator and independent variable are included in the model, full mediation occurs if the mediator is significant and the independent variable is not significant, whereas partial mediation occurs if both the mediator and independent variable are significant predictors of the dependent variable.

3.10 Ethical Consideration

The principles of research ethics such as privacy and confidentiality, informed consent, and accuracy were adhered to during the study. Respondents received full disclosure of the nature of the study with an extended opportunity to ask questions regarding the research. The information provided was treated with the utmost confidentiality. Honesty was maintained throughout the research process, including the reporting of data, results, methods, and procedures, to avoid misrepresentation, falsification, or fabrication of data. All resources consulted were acknowledged through proper references. A letter of authorization was obtained from the Directorate of Research and Graduate Training.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter centers on the data presentation, analysis, and interpretation of findings. It presents the response rate, demographic characteristics, descriptive statistics, and the findings from the inferential statistics.

4.1 Response Rate

The response rate is crucial as it directly influences the quality and credibility of research. Most studies strive for higher response rates to maximize the reliability, validity, and generalizability of their findings, ultimately contributing to the overall impact and significance of the research (Pickett et al., 2018). The study targeted 85 respondents, and 79 were able to fully respond to the questionnaire, contributing to a response rate of approximately 92.9%. This response rate is generally considered excellent, and it suggests that the study was well-received by the participants (Fosnacht et al., 2017).

4.2 Respondents' Demographic Characteristics

Studying respondents' demographic characteristics is crucial for achieving a comprehensive understanding of the population under investigation. It was important for understanding how the population was distributed by gender, marital status, age group, and education level. The findings are presented in Table 4.1.

Table 4.1: Findings of Demographic Characteristics of Respondents

Demographic Variable	Frequency Count	Percentage
National Referral Hospital		
Mulago	28	35.4
Kiruddu	26	32.9
Kawempe	25	31.6
Gender		
Male	26	32.9
Female	53	67.1
Marital Status		
Single	36	45.6
Married	41	51.9
Divorced	2	2.5
Age Group		
Below 20 years	8	10.1
20-30 years	27	34.2
31-40 years	23	29.1
Over 40 years	21	26.6
Highest Education Level		
Certificate	28	35.4
Diploma	43	54.4
1st Degree	6	7.6
Masters	2	2.5
Job Tenure		
Less than 3 years	26	32.9
3-6years	20	25.3
7-10 years	10	12.7
more than 10 years	23	29.1
Religion		
Protestant	39	49.4
Catholic	23	29.1
Moslem	4	5.1
Other (specify	13	16.5
Category of Employee		
Medical staff	70	88.6
Administrative staff	7	8.9
Support staff	2	2.5

Source: Primary Data (2024)

Table 4.1 presents the distribution of respondents' demographic characteristics in the study. The study involved 28 (35.4%) staff members from Mulago, 26 (32.9%) staff members from Kiruddu, and 25 (31.6%) staff members from Kawempe National Referral Hospital. The findings indicate that the majority of respondents were females (67.1%), while 32.9% were males. The predominance of female respondents may suggest that there are more women employed in the

healthcare workforce within Mulago, Kawempe and Kiruddu national referral hospitals. Nearly 51.9% of the respondents were married, while only 2.5% were divorced. The marital status of respondents could have implications for employee retention and satisfaction. Organizations that recognize and support the needs of married employees may be more successful in retaining skilled professionals in the long term.

The majority of respondents were in the age range of 20 to 30 years (34.2%), while the minority were below 20 years old (10.1%). A predominantly younger workforce (within the age range of 20 to 30 years) may suggest a higher level of innovation readiness and adaptability. Younger professionals often bring fresh perspectives and may be more open to adopting new technologies and practices. The study found that the majority of respondents held a diploma (54.4%), followed by a certificate (35.4%), and the smallest proportion held a master's degree (2.5%). The educational diversity within the workforce suggests the potential for interdisciplinary collaboration. Professionals with different educational backgrounds may collaborate to bring diverse perspectives to problem-solving and innovation initiatives which may improve resilience in the health facilities.

The larger percentage of respondents had worked for less than 3 years (32.9%), while a smaller percentage had worked for 7 to 10 years (12.7%). The distribution may reflect the demographics of the early-career workforce within the three national referral hospitals. The majority of respondents were Protestants (49.4%), while the minority identified as Muslims (5.1%). The distribution of religious affiliations among respondents suggests a degree of religious diversity within the healthcare workforce. Recognizing and respecting this diversity is important for promoting an inclusive and culturally sensitive work environment.

Table 4.1 also indicates that a larger proportion of respondents were medical staff (88.6%), while a smaller percentage were support staff (2.5%). The higher percentage of medical staff may indicate a strong emphasis on clinical expertise within the national referral hospital. This suggests that the majority of respondents are likely involved in direct patient care, medical treatments, and related clinical responsibilities.

4.3 Descriptive Statistics of Knowledge Management at the National Referral Hospitals in Uganda

The study examined the extent of agreement and disagreement regarding knowledge management in the national referral hospitals of Uganda. Respondents were evaluated based on 13 constructs to gauge the degree of knowledge management within the three national referral hospitals. A mean score of 3 and below signifies disagreement with the constructs, whereas a mean score above 3 indicates agreement with the constructs. The detailed findings are outlined in Table 4.2.

Table 4.2: Descriptive Statistics of Knowledge Management at the National Referral Hospitals in Uganda

Constructs	Mean	Std. Deviation
The organization fosters a culture that encourages research and open communication	3.42	1.161
There are mechanisms in place to encourage information exchange and idea generation among team members	3.86	0.888
There are formal and informal learning opportunities provided to employees to enhance their skills and knowledge	3.81	1.026
There is Employee Participation in the process of Knowledge creation	3.27	1.094
There is a systematic approach for documenting and storing information for future reference	3.51	1.024
The employees are engaged in conferences and seminars to tap into external information	3.97	0.891
There is free flow of relevant information in the organization.	3.9	0.955
The organization actively seeks collaborations and partnerships that provide access to external expertise and diverse perspectives	3.78	1.009
Continuous learning is embedded in our training and development initiatives, ensuring employees are skillful at leveraging external expertise.	3.52	1.186
Our organization encourages open communication through forums, ensuring that information flows freely across teams and departments.	3.77	0.891

A culture of openness and collaboration is deeply embedded in our organization, fostering an environment where employees feel empowered to share their knowledge.	3.56	1.118
Digital platforms play a pivotal role in connecting our workforce, facilitating efficient knowledge sharing across different teams and locations.	3.49	1.164
Employees exchange information for solving problems in the organization.	3.68	0.981
Overall Average	3.66	

Source: Primary Data (2024)

Table 4.2 provides a summary of the respondents' perspectives on knowledge management within the three national referral hospitals in Uganda. The results indicate that these hospitals cultivate a culture that promotes both research and open communication, with a mean score of 3.42 and a standard deviation of 1.161. This could imply a commitment to advancing knowledge, staying current with medical advancements, and promoting evidence-based practices. Similarly, the findings indicate that the hospitals prioritize open communication. This emphasis on communication can contribute to the exchange of ideas, collaboration among healthcare professionals, and a transparent flow of information within the healthcare system.

The predominant response from participants suggests that there are established mechanisms to foster information exchange and stimulate idea generation among team members within the three national referral hospitals in Kampala (Mean=3.86, Standard Deviation=0.888). Effective information exchange suggests a culture that promotes knowledge sharing and transfer. Healthcare professionals can share expertise, experiences, and insights, contributing to a collective knowledge pool that benefits the entire healthcare team. The results reveal that both formal and informal learning opportunities are available to employees for skill and knowledge enhancement (Mean=3.81, Standard Deviation=1.026). The provision of formal and informal learning opportunities suggests a commitment to enhancing workforce competence. Continuous learning enables employees to acquire new skills, stay current with industry trends, and adapt to evolving job requirements, ultimately contributing to a more skilled and capable workforce.

The findings indicate that employees actively participate in the process of knowledge creation within the three national referral hospitals (Mean=3.27, Standard Deviation=1.094). Actively involving employees in knowledge creation fosters a culture of innovation and problem-solving. Employees on the front lines of healthcare delivery can contribute unique insights that may lead to improvements in patient care, operational efficiency, and overall organizational effectiveness.

The major response from respondents indicates that there is a systematic approach in place for documenting and storing information for future reference within the three national referral hospitals in Kampala (Mean=3.51, Standard Deviation=1.024). A systematic approach to documentation suggests that information is likely organized in a manner that facilitates easy access and retrieval. This can enhance efficiency in decision-making, patient care, and other operational aspects as professionals can quickly retrieve relevant information when needed. The study outcomes reveal that employees in the national referral hospitals actively participate in conferences and seminars to access external information (Mean=3.97, Standard Deviation=0.891). This implies that employees actively engaging in conferences and seminars are likely to experience knowledge enrichment and skill development. Attendance at external events provides exposure to new information, best practices, and advancements in the healthcare field.

The majority of respondents concurred that there is a free flow of relevant information within the three national referral hospitals (Mean=3.9, Standard Deviation=0.955). A culture of open communication is conducive to innovation and continuous improvement. Healthcare professionals can share ideas, best practices, and lessons learned, fostering a culture of learning and innovation within the hospitals. The study's investigations reveal that the national referral hospitals actively seek collaborations and partnerships to access external expertise and diverse perspectives (Mean=3.78, Standard Deviation=1.009). Actively seeking collaborations implies a commitment

to knowledge exchange. Partnerships with external entities facilitate the transfer of expertise, best practices, and innovative ideas, enriching the hospitals' knowledge base.

A significant majority of respondents emphasized that continuous learning is ingrained in their training and development initiatives, ensuring that employees adeptly leverage external expertise (Mean=3.52, Standard Deviation=1.186). Continuous learning ensures that the workforce remains adaptive. Employees, through ongoing training, can stay abreast of industry advancements, emerging trends, and external expertise, enabling them to adapt to changes in healthcare practices. Similarly, by emphasizing continuous learning, the organization is likely to equip employees with the skills needed to effectively leverage external expertise. This can result in a more efficient and effective utilization of external resources and knowledge within the hospitals.

The study revealed that national referral hospitals actively foster open communication through various forums, ensuring that information flows freely across teams and departments (Mean=3.77, Standard Deviation=0.891). An environment that encourages open communication is conducive to innovation and idea sharing. Employees are more likely to share creative insights, propose solutions to challenges, and contribute to the development of innovative practices that enhance the quality of healthcare services. The majority of surveyed respondents conveyed that digital platforms play a pivotal role in connecting the workforce, facilitating efficient knowledge sharing across different teams and locations (Mean=3.49, Standard Deviation=1.164). Digital platforms are recognized as efficient tools for knowledge sharing. This suggests that national referral hospitals leveraging technology are likely to have streamlined processes for sharing information, best practices, and expertise among team members, contributing to a more informed workforce.

The study investigations further unveiled that employees at national referral hospitals actively exchange information as a means of problem-solving within the organization (Mean=3.68, Standard Deviation=0.981). The finding implies a collaborative problem-solving culture within the national referral hospitals. Employees engaging in information exchange for problem-solving indicates a willingness to work together, leveraging collective knowledge and insights to address challenges. Overall, the findings indicate that there is effective knowledge management in the three national referral hospitals in Kampala (mean=3.66).

4.4 Descriptive Statistics of Innovation at the National Referral Hospitals in Uganda

The study aimed to evaluate the agreement and disagreement levels regarding organizational innovation in the three national referral hospitals of Uganda. Respondents were assessed using 17 constructs to gauge the extent of innovation within these hospitals. A mean score below 3 indicated disagreement with the constructs, while a mean score above 3 signified agreement. The detailed findings are comprehensively outlined in Table 4.3.

Table 4.3: Descriptive Statistics of Innovation at the National Referral Hospitals in Uganda

Constructs	Mean	Std. Deviation
The organization has a reward process creativity and innovation	3.95	0.959
The organization creates a vision/strategic intent for process innovation	4.16	0.791
The organization treats employees as a vital resource for building competitive advantage in processes	3.76	0.99
The organization holds creative process employees and their contributions in high esteem	3.91	0.977
The organization proactively creates new opportunities and responds to change relative to new processes	3.97	1.037
The organization celebrates new processes and successes	4.23	0.576
The organization holds creative managers and their contributions in high esteem	4.24	0.56
The organization proactively create new management opportunities and respond to change relative to management innovations	4.05	0.932
The organization celebrates creative/innovative management successes	4.09	0.894
The organization requires managers to have objectives for management innovation and evaluate their performance relative to these objectives	3.51	1.085
The organization has management innovation programs/centers	3.82	1.141
The organization has process idea/innovation champions	3.65	1.166

The organization puts each and every process on trial for its life	3.46	1.269
Overall average	3.96	

Source: Primary Data (2024)

Table 4.3 presents descriptive statistics expounding organizational innovation within the three national referral hospitals in Uganda. The majority of respondents indicated that the national referral hospitals have a well-established process for rewarding creativity and innovation, as reflected in the mean score of 3.95 with a standard deviation of 0.959. The presence of a reward process for creativity and innovation suggests that the hospitals are actively cultivating a culture that values and promotes innovative thinking. Employees are more likely to engage in creative problem-solving when their efforts are acknowledged and rewarded.

The study's findings indicate that the national referral hospitals actively establish a vision or strategic intent for process innovation, as shown by a mean score of 4.16 with a standard deviation of 0.791. This indicates that the national referral hospitals have a clear strategic direction for process innovation. This implies a deliberate and purposeful approach to identifying, implementing, and sustaining innovative processes within the organization. A defined vision for process innovation provides guidance for decision-making at all levels of the organization. It helps in prioritizing initiatives, allocating resources, and ensuring that innovation efforts are consistent with the long-term vision of the hospitals. The majority of respondents disclosed that the national referral hospitals regard employees as a crucial resource for building a competitive advantage in processes, with a mean score of 3.76 and a standard deviation of 0.99. Valuing employees as a vital resource aligns with fostering innovation and efficiency. Employees who are recognized for their contributions are more likely to be proactive in suggesting and implementing innovative processes that lead to operational excellence.

The majority of respondents expressed agreement that hospitals highly value creative process employees and their contributions, as evidenced by a mean score of 3.91 with a standard deviation of 0.977. Valuing creative process employees suggests an organizational encouragement of innovation and creativity. When employees feel that their innovative ideas are highly regarded, they are more likely to actively engage in proposing and implementing creative solutions. The majority of respondents agreed that the organization proactively creates new opportunities and responds to change, particularly in relation to new processes, as indicated by a mean score of 3.97 with a standard deviation of 1.037. The agreement suggests that innovation is a core value within the organization. Proactively creating new opportunities reflects a commitment to seeking novel and effective approaches, positioning the organization as forward-thinking and innovative.

The majority of respondents indicated that the national referral hospitals celebrate new processes and successes, with a mean score of 4.23 and a standard deviation of 0.576. Celebrating new processes and successes indicates a culture of recognition and positive reinforcement within the organization. This can enhance employee morale, motivation, and job satisfaction. The bigger proportion of respondents concurred that the organization holds creative managers and their contributions in high esteem, with a mean score of 4.24 and a standard deviation of 0.56. Holding creative managers in high esteem implies a level of empowerment and trust in leadership. When organizations value and trust the creativity of their managers, it encourages a climate where innovative ideas are welcomed and supported.

A larger number of respondents concurred that the hospitals proactively create new management opportunities and respond to change, particularly in the realm of management innovations (mean=4.05, standard deviation=0.932). Hospitals that proactively create new management opportunities are likely to foster innovation in leadership. This implies a leadership culture that

encourages managers to explore novel approaches and contribute to the development of innovative management practices. The study uncovered that the national referral hospitals actively celebrate successes in creative and innovative management, with a mean score of 4.09 and a standard deviation of 0.894. Actively celebrating creative and innovative management successes indicates a recognition of the value of managerial innovations. This recognition can motivate managers to continue introducing creative solutions and contributing to the organization's success.

A larger number of respondents indicated support for the notion that national referral hospitals require managers to establish objectives for management innovation and evaluate their performance based on these objectives (mean=3.51, standard deviation=1.085). The support for requiring managers to set objectives for management innovation indicates a strategic alignment between organizational goals and managerial responsibilities. This alignment is essential for ensuring that managerial efforts contribute to overall innovation and organizational success. The findings suggest that the organization has management innovation programs or centers, with a mean score of 3.82 and a standard deviation of 1.141. The existence of management innovation programs or centers implies that the national referral hospitals are actively supporting and promoting innovation at the managerial level. This institutional support is crucial for fostering a culture that values creative approaches to management.

The study findings reveal that the national referral hospitals have champions for process ideas and innovation, as indicated with a mean score of 3.65 and a standard deviation of 1.166. The presence of process idea/innovation champions suggests a culture that advocates for continuous process improvement. These champions play a crucial role in promoting and supporting initiatives aimed at enhancing the efficiency and effectiveness of processes in national referral hospitals. The study investigations further revealed that the national referral hospitals subject each and every process

to trial, as indicated by a mean score of 3.46 and a standard deviation of 1.269. A practice of putting each process on trial suggests adaptability to changing requirements. The hospital is responsive to evolving healthcare standards, regulations, and patient needs, ensuring that processes remain aligned with current best practices.

In conclusion, the findings suggest an overall effectiveness of innovation at Mulago, Kawempe, and Kiruddu national referral hospitals in Uganda, with an overall mean score of 3.96. The overall effectiveness of innovation implies a high-level innovation culture within the national referral hospitals.

4.5 Descriptive Statistics of Resilience of the National Referral Hospitals in Uganda

The study studied descriptive statistics to evaluate the extent of agreement and disagreement regarding the resilience of Mulago, Kawempe, and Kiruddu national referral hospitals. Respondents underwent assessment using 12 constructs to determine the degree of resilience within these healthcare facilities. A mean score below 3 indicated disagreement with the constructs, whereas a mean score above 3 signified agreement. The detailed findings are comprehensively outlined in Table 4.4.

Table 4.4: Descriptive Statistics of Resilience of the National Referral Hospitals in Uganda

Constructs	Mean	Std. Deviation
The organization anticipates potential risks, threats, and vulnerabilities	3.34	1.413
The organization proactively integrates with other management and emergency disciplines	3.19	1.406
The organization has resilience policies and procedures developed, documented, reviewed, and validated by multiple subject matter experts, and approved by senior management.	3.43	1.173
Supply chains are factored into the organization’s resilience framework	3.44	1.129
The organization considers financial and operational aspects when developing organizational resilience activities	3.33	1.258
The organization develops and initiates awareness and training activities on emergency response.	3.37	1.232
The organization’s resilience plans and related activities are regularly exercised at the organization	3.27	1.206

Senior management understands and supports the organization's resilience program	3.23	1.198
The organization continuously refine and adapt operational processes to maintain efficiency, even in the face of evolving circumstances.	3.72	0.999
Our hospital staff possesses the necessary technical skills and expertise, ensuring a high level of competence in delivering healthcare services.	3.53	1.175
The organizational leadership communicates transparently during crises, ensuring that all staff members are well-informed and on the same page.	3.62	1.078
Our leadership adapts styles based on the nature of challenges, providing guidance that fosters resilience and agility within the hospital.	3.52	1.197

Source: Primary Data (2024)

Table 4.4 depicts the opinions of respondents concerning the resilience of national referral hospitals in Uganda. A significant majority of respondents expressed that these hospitals effectively anticipate potential risks, threats, and vulnerabilities (mean=3.34, standard deviation=1.413). This suggests a positive outlook on the hospitals' ability to navigate challenges and underscores the importance of resilience in national referral hospitals in Uganda. The acknowledgment of this proactive stance implies a level of confidence among staff in the hospitals' preparedness and strategic approach to managing potential risks within the healthcare landscape.

A substantial majority of respondents concurred that national referral hospitals actively collaborate with other management and emergency disciplines, as evidenced by a mean score of 3.19 and a standard deviation of 1.406. The findings imply that there is a recognized and appreciated level of inter-disciplinary collaboration within these hospitals. This positive perception may have implications for the hospitals' overall effectiveness in managing various aspects of healthcare, particularly in emergency situations, where a coordinated approach is crucial. The majority of respondents disclosed that the national referral hospitals have resilience policies and procedures developed, documented, reviewed, and validated by multiple subject matter experts, and approved by senior management (mean=3.43, standard deviation=1.173). Effective policies and procedures, coupled with expert validation and senior management approval, suggest a comprehensive

approach to handling challenges. This could enhance the hospital's preparedness, responsiveness, and adaptability in the face of various scenarios, contributing to an overall resilient healthcare system.

The majority of surveyed respondents indicated that supply chains are integrated into the organization's resilience framework, as evidenced by a higher mean score of 3.44 and a standard deviation of 1.129. The integration of supply chains into the resilience framework indicates a strategic approach to risk management, emphasizing the importance of ensuring the robustness and adaptability of supply chains in the face of challenges in the national referral hospitals. This recognition may lead to enhanced preparedness and a more resilient organizational structure. The majority of respondents agreed that national referral hospitals take into account financial and operational aspects when developing organizational resilience activities, as indicated by a mean score of 3.33 and a standard deviation of 1.258. This alignment in perception implies a strategic approach to resilience planning that incorporates not only the clinical and operational dimensions but also factors in the financial stability of the hospitals. This recognition may have implications for decision-making processes, resource allocation, and overall hospital preparedness, contributing to a more comprehensive and resilient healthcare system.

The study unveiled that the hospitals engage in the development and initiation of awareness and training activities on emergency response, as evidenced by a mean score of 3.37 and a standard deviation of 1.232. This suggests that the hospitals prioritize preparedness through proactive measures like awareness campaigns and training initiatives. The implication is that these activities contribute to enhancing the overall emergency response capabilities of the hospitals. Such efforts are likely to improve the readiness of healthcare personnel, promote public awareness, and ensure a more resilient response to emergencies and critical situations within the healthcare setting. A

significant majority of respondents agreed that the organization's resilience plans and related activities are routinely practiced in the national referral hospitals, as indicated by a mean score of 3.27 and a standard deviation of 1.206. The implication is that these hospitals are actively committed to testing and refining their resilience strategies. Regular exercises can enhance preparedness, identify potential weaknesses, and ensure that staff are well-versed in implementing response protocols.

A substantial majority of surveyed respondents expressed support for the notion that senior management comprehends and endorses the organization's resilience program, as reflected by a mean score of 3.23 and a standard deviation of 1.198. It implies a positive organizational culture where senior management is perceived to be not only aware but also supportive of resilience initiatives. Such support from senior leaders is crucial for the effective implementation of resilience programs, as it trickles down through the organization, fostering a culture of preparedness and adaptability. The study findings reveal that national referral hospitals consistently refine and adapt operational processes to sustain efficiency, even in the face of evolving circumstances, as evidenced by a mean score of 3.72 and a standard deviation of 0.999. The study suggests that national referral hospitals place a strong emphasis on continuously refining and adapting operational processes to ensure efficiency, particularly in the face of evolving circumstances.

The majority of respondents indicated that hospital staff possess the necessary technical skills and expertise, ensuring a high level of competence in delivering healthcare services, as reflected by a mean score of 3.53 and a standard deviation of 1.175. It suggests that the hospital workforce is perceived as well-equipped and skilled, which is crucial for providing quality healthcare. Such competence can lead to increased patient satisfaction, improved outcomes, and a positive

reputation for the hospital. Additionally, it implies that the hospital is likely to be better positioned to handle diverse medical challenges, contributing to its overall resilience in the dynamic healthcare landscape.

The majority of respondents disclosed that the hospital leadership communicates transparently during crises, ensuring that all staff members are well-informed and on the same page, as reflected by a mean score of 3.62 and a standard deviation of 1.078. Transparent communication during crises is crucial for coordinating efforts, managing uncertainties, and instilling confidence among staff members. This implies that the hospitals are likely to have a well-established communication strategy in place, contributing to a more resilient and cohesive response to crises. This can enhance staff readiness, foster a sense of trust, and ultimately contribute to the hospital's ability to effectively navigate and recover from challenging situations.

The study additionally revealed that the hospital leadership adapts their leadership styles based on the nature of challenges, offering guidance that cultivates resilience and agility within the hospital, as indicated by a mean score of 3.52 and a standard deviation of 1.197. This adaptation in leadership styles implies a proactive and flexible approach by the hospital leadership. It suggests that leaders are responsive to the dynamic nature of challenges, tailoring their guidance to promote resilience and agility. The implication is that such leadership practices contribute to an organizational culture capable of effectively navigating various challenges, fostering adaptability, and ensuring a more resilient response to changing circumstances within the healthcare environment.

4.6 Correlation Analysis between Study Variables

The study investigated the correlation between knowledge management, innovation, and the resilience of national referral hospitals in Uganda. The findings are presented in Table 4.5 using Pearson’s correlation coefficient.

Table 4.5: Pearson’s Correlation between Study Variables

		Knowledge Management	Innovation	Resilience
Knowledge Management	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	79		
Innovation	Pearson Correlation	.272*	1	
	Sig. (2-tailed)	.015		
	N	79	79	
Resilience	Pearson Correlation	.618**	.365**	1
	Sig. (2-tailed)	.000	.001	
	N	79	79	79

*. Correlation is significant at the 0.05 level (2-tailed).

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

Source: Primary Data (2024)

The findings presented in Table 4.5 unveil a moderately positive and statistically significant relationship between knowledge management and the resilience of national referral hospitals in Uganda ($r=0.618$, $P\text{-value}=0.000<0.01$). The positive correlation implies that effective knowledge management practices within hospitals are associated with higher levels of resilience. Hospitals that prioritize knowledge creation, absorption, and sharing may be better equipped to respond to and recover from challenges.

The Pearson's correlation findings in Table 4.5 unveil a weak yet statistically significant positive association between innovation and the resilience of national referral hospitals in Uganda ($r=0.365$, $P=0.001<0.01$). The findings indicate that as innovation increases, there is a corresponding increase in the resilience of national referral hospitals. Similarly, the findings suggest that

innovative approaches may be particularly beneficial in planning for and addressing healthcare challenges. Hospitals can use innovation as a proactive tool for managing and overcoming various obstacles.

4.7 The Mediating Role of Innovation on The Relationship Between Knowledge Management and Resilience of National Referral Hospitals in Uganda

The study explored the mediating role of innovation in the relationship between knowledge management and the resilience of national referral hospitals in Uganda. The study tested for mediation based on the approach of Barron and Kenny (1986). To establish mediation in the results, the following criteria should be fulfilled: Firstly, the independent variable must exert a significant influence on the dependent variable in the initial regression equation. Secondly, the independent variable should significantly affect the mediator in the second regression equation. Thirdly, the mediator must have a significant effect on the dependent variable in the third equation. In these equations, both the independent variable and the mediator are included as predictors. Complete mediation is evidenced when the influence of the independent variable on the dependent variable is not significant after controlling for the mediator, and all the aforementioned conditions are satisfied. On the other hand, partial mediation occurs when the influence of the independent variable on the dependent variable decreases after controlling for the mediator. The findings are presented in Table 4.6.

Table 4.6: Test for the Mediating Role of Innovation on The Relationship Between Knowledge Management and Resilience of National Referral Hospitals in Uganda

Model	Exogenous Variables	Endogenous Variable	Path	Estimate	P-values
1	Knowledge Management	Resilience of National Referral Hospitals	A	.801	0.000
2	Knowledge Management	Innovation	B	.181	0.015
3	Innovation	Resilience of National Referral Hospitals	C	.711	.001
4	Knowledge Management	Resilience of National Referral Hospitals		.726	.000
	Innovation			.415	.021

Source: Primary Data (2024)

Table 4.6 shows the hierarchical regression conducted to investigate mediation, following the steps proposed by Barron and Kenny (1986). The results from model 1 (Path A) indicate that knowledge management (IV) significantly influences the resilience of national referral hospitals (DV) (Estimate=0.801, P-value=0.000<0.05). Moving to model 2 (Path B), it is evident that knowledge management (IV) significantly affects the innovation (mediator) of national referral hospitals (Estimate=0.181, P-value=0.015<0.05). In model 3 (Path C), the analysis reveals that innovation (mediator) significantly affects the resilience of national referral hospitals (DV) (Estimate=0.711, P-value=0.001<0.05).

In model 4, when both knowledge management (IV) and innovation (mediator) are simultaneously included, the findings show that innovation has a positive and significant effect on the resilience of national referral hospitals, controlling for the influence of knowledge management (Estimate=0.415, P-value=0.021<0.05). Similarly, it is noted that knowledge management maintains a positive and significant effect on the resilience of national referral hospitals, even when accounting for the effect of innovation (Estimate=0.726, P-value=0.000<0.05).

Since both the independent variable and the mediator are significant in model 4, this affirms a partial mediating role of innovation in the relationship between knowledge management and the

resilience of national referral hospitals in Uganda. The results imply that promoting innovation together with knowledge management can contribute significantly to enhancing the overall resilience of the national referral hospitals in Uganda.

4.8 Contribution of the Dynamic Capabilities Theory

The dynamic capabilities theory significantly contributed to this study by providing a theoretical framework to understand how public hospitals in Uganda can adapt and respond to changes in their environment. According to the theory, organizations must continually renew and reconfigure their internal and external competencies to address rapidly changing environments. This study leveraged this concept to explore how knowledge management, as a core organizational capability, influences the resilience of hospitals, particularly in the face of evolving healthcare challenges.

By introducing innovation as a mediating factor, the study extended the application of the dynamic capabilities theory, showing how hospitals can harness both knowledge management and innovation to strengthen their adaptive capacities. The theory provided a lens through which the interaction between these elements was examined, ultimately offering insights into how public hospitals can achieve sustained resilience by developing and deploying innovative solutions alongside effective knowledge management practices. This aligns with the theory's emphasis on dynamic capabilities as drivers of long-term organizational survival and competitiveness in complex environments.

CHAPTER FIVE

SUMMARY FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This section presents the summary of the key findings, comprehensive discussion, conclusions, and actionable recommendations.

5.1 Summary of Findings

This section presents a concise summary of the key findings derived from the study highlighting a comprehensive overview of the research outcomes.

5.1.1 The Relationship between Knowledge Management and Resilience of National Referral Hospitals in Uganda

The model findings unveiled a positive and statistically significant association between knowledge management and the resilience of national referral hospitals in Uganda. This positive association indicates that effective knowledge management practices within these hospitals are linked to elevated levels of resilience. Hospitals prioritizing knowledge creation, absorption, and sharing appear to be better prepared to respond to and recover from challenges. These results align with the rejection of the null hypothesis, providing support for the alternative hypothesis that posits a significant relationship between knowledge management and the resilience of national referral hospitals in Uganda.

5.1.2 The Relationship between Innovation and Resilience of National Referral Hospitals in Uganda

The model findings showed a significantly positive association between innovation and the resilience of national referral hospitals in Uganda. These results imply that as innovation increases, there is a corresponding rise in the resilience of national referral hospitals in Uganda. Similarly, the findings suggest that innovative approaches may be particularly beneficial in planning for and addressing healthcare challenges. These outcomes align with the rejection of the null hypothesis, supporting the alternative hypothesis that innovation has a significant relationship with the resilience of national referral hospitals in Uganda.

5.1.3 The Mediating role of Innovation on the Relationship between Knowledge Management and Resilience of National Referral Hospitals in Uganda

The results from the hierarchical regression revealed a positive mediating role of innovation in the relationship between knowledge management and the resilience of national referral hospitals in Uganda. This suggests that promoting innovation alongside knowledge management can significantly contribute to enhancing the overall resilience of national referral hospitals in Uganda. The findings align with the rejection of the null hypothesis, supporting the alternative hypothesis that innovation significantly mediates the relationship between knowledge management and the resilience of national referral hospitals in Uganda.

5.2 Discussion of Findings

This section presents a comprehensive discussion of the study's findings, aiming to provide a deeper understanding of the implications and to compare the research outcomes with previous studies.

5.2.1 Knowledge Management and Resilience of National Referral Hospitals in Uganda

The study found a positive and statistically significant association between knowledge management and the resilience of national referral hospitals in Uganda. This positive correlation indicates that effective knowledge management practices within these hospitals are linked to elevated levels of resilience. Hospitals prioritizing knowledge creation, absorption, and sharing appear to be better prepared to respond to and recover from challenges. The findings agree with the findings of the previous studies which found a significant association between knowledge management and resilience in health sector (Ibrahim Ismael et al., 2021; Sanjeev 2019).

The results indicated that national referral hospitals cultivate a culture that promotes both research and open communication. This could imply a commitment to advancing knowledge, staying current with medical advancements, and promoting evidence-based practices. Similarly, the findings indicate that the hospitals prioritize open communication. This emphasis on communication can contribute to the exchange of ideas, collaboration among healthcare professionals, and a transparent flow of information within the healthcare system. The findings concur with the findings of Ibrahim Ismael et al. (2021) who in Egypt that organization fosters a culture that encourages research and open communication among nursing staff.

The predominant response from participants suggested that there are established mechanisms to foster information exchange and stimulate idea generation among team members within the three national referral hospitals in Kampala. Effective information exchange suggests a culture that promotes knowledge sharing and transfer. Healthcare professionals can share expertise, experiences, and insights, contributing to a collective knowledge pool that benefits the entire healthcare team. The findings align with the findings of Fani et al. (2017) who demonstrated that

there were mechanisms in place to encourage information exchange and idea generation among team members in Iranian public organizations.

The results revealed that both formal and informal learning opportunities are available to employees for skill and knowledge enhancement. The provision of formal and informal learning opportunities suggests a commitment to enhancing workforce competence. Continuous learning enables employees to acquire new skills, stay current with industry trends, and adapt to evolving job requirements, ultimately contributing to a more skilled and capable workforce. The findings are in agreement with the findings of Sanjeev (2019) who established that there were formal and informal learning opportunities provided to employees to enhance their skills and knowledge in Northern Healthcare Sector.

The findings indicated that employees of national referral hospitals actively participate in the process of knowledge creation within the three national referral hospitals. Actively involving employees in knowledge creation fosters a culture of innovation and problem-solving. Employees on the front lines of healthcare delivery can contribute unique insights that may lead to improvements in patient care, operational efficiency, and overall organizational effectiveness. The results are also consistent with the previous findings of Sanjeev (2019) who indicated that there was employee participation in the process of knowledge creation in Northern Healthcare Sector.

The study outcomes revealed that employees in the national referral hospitals actively participate in conferences and seminars to access external information. This implies that employees actively engaging in conferences and seminars are likely to experience knowledge enrichment and skill development. Attendance at external events provides exposure to new information, best practices, and advancements in the healthcare field. The results are also in agreement with the findings of

Fani et al. (2017) who demonstrated that employees were engaged in conferences and seminars to tap into external information in Iranian Public Organizations.

A significant majority of respondents emphasized that continuous learning is ingrained in their training and development initiatives, ensuring that employees adeptly leverage external expertise. Continuous learning ensures that the workforce remains adaptive. Employees, through ongoing training, can stay abreast of industry advancements, emerging trends, and external expertise, enabling them to adapt to changes in healthcare practices. Similarly, by emphasizing continuous learning, the organization is likely to equip employees with the skills needed to effectively leverage external expertise. This can result in a more efficient and effective utilization of external resources and knowledge within the hospitals. The findings align with the findings of Zayed et al. (2022) who emphasized that continuous learning was embedded in training and development initiatives, ensuring employees are skillful at leveraging external expertise in the microentrepreneurs.

The majority of surveyed respondents conveyed that digital platforms play a pivotal role in connecting the workforce, facilitating efficient knowledge sharing across different teams and locations. Digital platforms are recognized as efficient tools for knowledge sharing. This suggests that national referral hospitals leveraging technology are likely to have streamlined processes for sharing information, best practices, and expertise among team members, contributing to a more informed workforce. The findings are in agreement with the findings of Ibrahim Ismael et al. (2021) who indicated that digital platforms play a pivotal role in connecting workforce, facilitating efficient knowledge sharing across different teams and locations in Egypt.

5.2.2 Innovation and Resilience of National Referral Hospitals in Uganda

The findings showed a statistically significant positive association between innovation and the resilience of national referral hospitals in Uganda. These results imply that as innovation increases, there is a corresponding rise in the resilience of national referral hospitals in Uganda. Similarly, the findings suggest that innovative approaches may be particularly beneficial in planning for and addressing healthcare challenges. The findings are in agreement with the previous studies which found positive and significant association between innovation and resilience (Ahiauzu & Jaja, 2015; Scott, 2022).

The majority of respondents indicated that the national referral hospitals have a well-established process for rewarding creativity and innovation. The presence of a reward process for creativity and innovation suggests that the hospitals are actively cultivating a culture that values and promotes innovative thinking. Employees are more likely to engage in creative problem-solving when their efforts are acknowledged and rewarded. The findings align with the findings of Ahiauzu and Jaja (2015) who established that there was a reward process creativity and innovation in organizations in Nigeria.

The study's findings indicate that the national referral hospitals actively establish a vision or strategic intent for process innovation. This indicates that the national referral hospitals have a clear strategic direction for process innovation. This implies a deliberate and purposeful approach to identifying, implementing, and sustaining innovative processes within the organization. A defined vision for process innovation provides guidance for decision-making at all levels of the organization. It helps in prioritizing initiatives, allocating resources, and ensuring that innovation efforts are consistent with the long-term vision of the hospitals. The findings are in agreement with the findings of Ahiauzu and Jaja (2015) who demonstrated that organizations in Nigeria create a vision/strategic intent for process innovation.

The majority of respondents expressed agreement that hospitals highly value creative process employees and their contributions. Valuing creative process employees suggests an organizational encouragement of innovation and creativity. When employees feel that their innovative ideas are highly regarded, they are more likely to actively engage in proposing and implementing creative solutions. The findings align with the findings of Scott (2022) who emphasized that the oil servicing firms in Port Harcourt hold creative process employees and their contributions in high esteem.

The majority of respondents disclosed that the national referral hospitals regard employees as a crucial resource for building a competitive advantage in processes. Valuing employees as a vital resource aligns with fostering innovation and efficiency. Employees who are recognized for their contributions are more likely to be proactive in suggesting and implementing innovative processes that lead to operational excellence. The findings are in line with the findings of Scott (2022) who observed that the oil servicing firms in Port Harcourt treat employees as a vital resource for building competitive advantage in processes.

The majority of respondents indicated that the national referral hospitals celebrate new processes and successes. Celebrating new processes and successes indicates a culture of recognition and positive reinforcement within the organization. This can enhance employee morale, motivation, and job satisfaction. The findings align with the findings of Williams and Anyanwu (2017) who highlighted that the food and beverage industry celebrated new processes and successes

The bigger proportion of respondents concurred that the organization holds creative managers and their contributions in high esteem. Holding creative managers in high esteem implies a level of empowerment and trust in leadership. When organizations value and trust the creativity of their

managers, it encourages a climate where innovative ideas are welcomed and supported. The findings concur with the findings of Rabah-Rabbou et al. (2022) who established that public hospitals held creative managers and their contributions in high esteem.

A larger number of respondents concurred that the hospitals proactively create new management opportunities and respond to change, particularly in the realm of management innovations. Hospitals that proactively create new management opportunities are likely to foster innovation in leadership. This implies a leadership culture that encourages managers to explore novel approaches and contribute to the development of innovative management practices. The findings are in line with the findings of Williams and Anyanwu (2017) who established that food and beverage industry proactively created new management opportunities and respond to change relative to management innovations.

A larger number of respondents indicated support for the notion that national referral hospitals require managers to establish objectives for management innovation and evaluate their performance based on these objectives. The support for requiring managers to set objectives for management innovation indicates a strategic alignment between organizational goals and managerial responsibilities. This alignment is essential for ensuring that managerial efforts contribute to overall innovation and organizational success. The findings are consistent with the findings of De Carvalho et al. (2016) who demonstrated that the companies required managers to have objectives for management innovation and evaluate their performance relative to these objectives.

The study investigations further revealed that the national referral hospitals subject each and every process to trial. A practice of putting each process on trial suggests adaptability to changing

requirements. The hospital is responsive to evolving healthcare standards, regulations, and patient needs, ensuring that processes remain aligned with current best practices. The findings are in agreement with De Carvalho et al. (2016) found that companies put each and every process on trial for its life.

5.2.3 The Mediating role of Innovation on the Relationship between Knowledge Management and Resilience of National Referral Hospitals in Uganda

The findings revealed a positive mediating role of innovation in the relationship between knowledge management and the resilience of national referral hospitals in Uganda. This suggests that promoting innovation alongside knowledge management can significantly contribute to enhancing the overall resilience of national referral hospitals in Uganda. The findings are consistent with previous study by Mafabi et al. 2012) who found a significant mediating role of innovation in the relationship between knowledge management and organizational resilience.

5.3 Conclusions

The conclusions drawn from the findings are presented in accordance with the specific objectives of the study, as outlined in the sub-sections below.

5.3.1 The Relationship between Knowledge Management and Resilience of National Referral Hospitals in Uganda

The study concludes that knowledge management is a key factor in strengthening the resilience of national referral hospitals in Uganda. Effectively managing knowledge such as fostering a culture that encourages research and open communication, implementing mechanisms to promote information exchange and idea generation, and providing both formal and informal learning opportunities for employees enhances resilience. Thus, cultivating robust knowledge management

systems can significantly contribute to the overall resilience of hospitals, enabling them to navigate both internal and external pressures while maintaining high standards of healthcare delivery.

5.3.2 The Relationship between Innovation and Resilience of National Referral Hospitals in Uganda

The study concludes that innovation is crucial for enhancing the resilience of national referral hospitals in Uganda. For instance, hospitals that value the creative contributions of their employees and actively recognize and reward creativity and innovation are better positioned to adapt to challenges. By establishing a clear vision and strategic intent for process innovation, these hospitals foster an environment where creative managers are respected and encouraged to share their insights. Such practices not only promote a culture of innovation but also play a vital role in strengthening the overall resilience of the hospitals, enabling them to effectively respond to evolving healthcare demands.

5.3.3 The Mediating role of Innovation on the Relationship between Knowledge Management and Resilience of National Referral Hospitals in Uganda

The study concludes that innovation plays a crucial role in mediating the relationship between knowledge management and the resilience of national referral hospitals in Uganda. This highlights the significance of fostering innovative practices within healthcare institutions, as it serves as a pivotal factor in enhancing their ability to effectively navigate challenges and maintain resilience.

5.4 Recommendations

The recommendations are aligned with the specific objectives of the study and are presented below.

5.4.1 The Relationship between Knowledge Management and Resilience of National Referral Hospitals in Uganda

National referral hospitals should focus on improving their knowledge management practices by implementing structured systems for collecting, sharing, and utilizing knowledge. This can include creating centralized databases for best practices, clinical guidelines, and research findings.

Hospitals should cultivate a culture that encourages knowledge sharing among staff. This can be achieved through regular workshops, team meetings, and collaborative projects that emphasize the importance of collective knowledge in enhancing resilience.

Continuous professional development is vital. Hospitals should provide ongoing training programs focused on knowledge management skills, innovative practices, and effective communication strategies to empower employees.

Utilize technology to facilitate knowledge management. Implementing digital platforms or intranet systems can enhance communication and information exchange, making it easier for staff to access and contribute to shared knowledge.

5.4.2 The Relationship between Innovation and Resilience of National Referral Hospitals in Uganda

National referral hospitals should actively cultivate an organizational culture that values and encourages innovation. This includes promoting openness to new ideas, supporting creative problem-solving, and allowing employees to experiment with innovative practices without fear of failure.

National referral hospitals should create dedicated spaces within hospitals where staff can brainstorm, prototype, and test new ideas. These innovation labs can serve as platforms for developing and implementing innovative solutions to enhance healthcare delivery and resilience.

National referral hospitals should ensure that innovation is a core component of the hospital's strategic planning processes. By prioritizing innovation in decision-making, hospitals can align resources and initiatives to foster a resilient healthcare environment.

5.4.3 The Mediating role of Innovation on the Relationship between Knowledge Management and Resilience of National Referral Hospitals in Uganda

National referral hospitals should prioritize the implementation of robust knowledge management systems to ensure that relevant information is effectively collected, stored, and disseminated. This foundation will support innovative practices that can enhance resilience.

Hospitals should foster an organizational culture that encourages innovation as a critical component of knowledge management. This can be achieved by encouraging open communication, collaboration, and creative thinking among staff.

National referral hospitals should develop strategies that explicitly link knowledge management with innovation initiatives. This integration can involve creating processes for converting valuable knowledge into innovative solutions that address specific challenges in healthcare delivery.

National referral hospitals should actively foster a culture that encourages and rewards innovative thinking among staff. Establishing mechanisms for idea generation, collaboration, and experimentation can contribute to a more innovative healthcare environment.

Recognizing the mediating role of innovation, hospitals should integrate knowledge management and innovation strategies into their organizational framework. This holistic approach ensures that knowledge is effectively translated into innovative practices, enhancing overall resilience.

National referral hospitals may invest in training programs aimed at developing the necessary skills for innovative thinking among healthcare professionals. These programs can include workshops, seminars, and initiatives that promote a continuous learning culture.

Hospital leadership plays a crucial role in driving innovation. Leaders should actively support and champion innovative initiatives, allocate resources, and create an environment that encourages experimentation and creativity.

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APPENDICES

APPENDIX I: QUESTIONNAIRE FOR THE HOSPITAL STAFF

Dear respondent,

I am Kiyingi Lyazi Samuel conducting a study titled “**The Mediating role of Innovation on the relationship between knowledge management and Resilience of Public Hospitals in Uganda**”

You have been selected to participate in this study. I kindly request you to candidly complete this questionnaire. The information you give will be treated with utmost confidentiality and it will be used for the purpose for which it was collected.

Thank you.

Section A: Demographic Data of Respondents

Please tick what is most appropriate to you:

1. Gender

1=Male

2=Female

2. Marital Status

1=Single

2=Married

3=Divorced/separated

4=Widowed

3. Age group

1=Below 20 years

2=20-30 years

3= 31-40 years

4= Over 40 years

4. Highest level of Education attained

1=Certificate

2=Diploma

3=First degree

4=Masters

5. How long have you been involved in the hospital service?

- 1= Less than 3 years
- 2=3-6 years
- 3=7-10 years
- 4= More than 10 years

6. What is your Religion?

- 1=Protestant
- 2=Catholic
- 3=Moslem
- 4=Other(specify)

7. Which category of employees do you mainly belong to in this hospital?

- 1=Medical Staff
- 2=Administrative Staff
- 3=Support Staff

Section B:

Please circle/tick/shade/select the number on the scale that best indicates the practice in the hospital

1 = Strongly Disagree

4 = Agree

2 = Disagree

5 = Strongly Agree

3 = Not Sure

KNOWLEDGE MANAGEMENT					
The organization fosters a culture that encourages research and open communication	1	2	3	4	5
There are mechanisms in place to encourage information exchange and idea generation among team members	1	2	3	4	5
There are formal and informal learning opportunities provided to employees to enhance their skills and knowledge	1	2	3	4	5
There is Employee Participation in the process of Knowledge creation					

There is a systematic approach for documenting and storing information for future reference	1	2	3	4	5
There is free flow of relevant information in the organization.	1	2	3	4	5
The employees are engaged in conferences and seminars to tap into external information	1	2	3	4	5
The organization actively seeks collaborations and partnerships that provide access to external expertise and diverse perspectives	1	2	3	4	5
Continuous learning is embedded in our training and development initiatives, ensuring employees are skillful at leveraging external expertise.	1	2	3	4	5
Our organization encourages open communication through forums, ensuring that information flows freely across teams and departments.	1	2	3	4	5
A culture of openness and collaboration is deeply embedded in our organization, fostering an environment where employees feel empowered to share their knowledge.	1	2	3	4	5
Digital platforms play a pivotal role in connecting our workforce, facilitating efficient knowledge sharing across different teams and locations.	1	2	3	4	5
Employees exchange information for solving problems in the organization	1	2	3	4	5
ORGANISATIONAL RESILIENCE					
The organization anticipates potential risks, threats, and vulnerabilities	1	2	3	4	5
The organization proactively integrates with other management and emergency disciplines	1	2	3	4	5
The organization has resilience policies and procedures developed, documented, reviewed, and validated by multiple subject matter experts, and approved by senior management.	1	2	3	4	5
Supply chains are factored into the organization's resilience framework	1	2	3	4	5
The organization considers financial and operational aspects when developing organizational resilience activities	1	2	3	4	5
The organization develops and initiates awareness and training activities.	1	2	3	4	5
The organization's resilience plans and related activities are regularly exercised at the organization	1	2	3	4	5

Senior management understands and supports the organization's resilience program	1	2	3	4	5
The organization continuously refine and adapt operational processes to maintain efficiency, even in the face of evolving circumstances.	1	2	3	4	5
Our hospital staff possesses the necessary technical skills and expertise, ensuring a high level of competence in delivering healthcare services.	1	2	3	4	5
The organizational leadership communicates transparently during crises, ensuring that all staff members are well-informed and on the same page.	1	2	3	4	5
Our leadership adapts styles based on the nature of challenges, providing guidance that fosters resilience and agility within the hospital.	1	2	3	4	5
ORGANISATIONAL INNOVATION					
The organization has a reward process creativity and innovation	1	2	3	4	5
The organization creates a vision/strategic intent for process innovation	1	2	3	4	5
The organization treats employees as a vital resource for building competitive advantage in processes	1	2	3	4	5
The organization holds creative process employees and their contributions in high esteem	1	2	3	4	5
The organization proactively creates new opportunities and responds to change relative to new processes	1	2	3	4	5
The organization celebrates new processes and successes	1	2	3	4	5
The organization holds creative managers and their contributions in high esteem	1	2	3	4	5
Proactively create new management opportunities and respond to change relative to management innovations	1	2	3	4	5
The organization celebrates creative/innovative management successes	1	2	3	4	5
The organization requires managers to have objectives for management innovation and evaluate their performance relative to these objectives	1	2	3	4	5
The organization has management innovation programs/centers	1	2	3	4	5
The organization has process idea/innovation champions	1	2	3	4	5
The organization puts each and every process on trial for its life every 18 months to two years	1	2	3	4	5