INFLUENCE OF TELEMEDICINE PRACTICES ON POST-PARTUM DEPRESSION MANAGEMENT IN ACCESS AFYA.

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by any other person except where due reference is made in the thesis itself.

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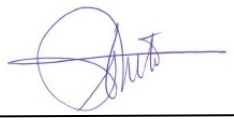

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ABSTRACT

The treatment of postpartum depression (PPD) faces significant challenges in accessibility to professional healthcare services, exacerbated by stigma and discontinuity of care. This study explores the influence of telemedicine in postpartum depression at Access Afya Kenya, addressing barriers faced by women in Low- and Medium-Income Countries (LMICs) due to limited infrastructure and cultural stigma. These barriers deter women from seeking help and contribute to untreated symptoms, impacting both maternal and child health outcomes. Primary data was collected through questionnaires distributed to healthcare workers (doctors) across all branches of Access Afya Kenya, with a target sample size of 136 doctors. The data was analyzed using descriptive and inferential statistics to understand the importance of telemedicine in postpartum depression healthcare. The findings revealed that healthcare providers at Access Afya, Kenya hold a positive sentiment towards telemedicine for treating women with postpartum depression. Descriptive analysis highlights the efficiency, assessment, and increased engagement of telemedicine as crucial for maximizing its utility in treating and supporting patients with PPD. Inferential analysis further confirmed a strong positive correlation between telemedicine use and sustained improvement in the treatment of PPD patients, aligning with findings from the literature review. The study underscored the imperative role of telemedicine in enhancing PPD treatment outcomes. It recommends longitudinal studies to assess the long-term effects of telemedicine implementation on postpartum depression treatment.

Keywords: postpartum depression, telemedicine, Access Afya Kenya, healthcare access, mental health, stigma

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ABREVIATIONS AND ACRONYMS

CARES Act:	Coronavirus Aid, Relief, and Economic Security Act
CAT Scan:	Computed Tomography Scan
CMS:	Content Management System
COVID-19:	Corona Virus- 2019
GBD:	Global Burden of Disease
LMICs:	Low- and Middle-Income Countries
SMI:	Serious Mental Illness
SUD:	Substance Use Disorders
PTSD:	Post- Traumatic Stress Disorders
WHO:	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In the current technological landscape, telemedicine has experienced significant advancements, revolutionizing healthcare management by leveraging digital platforms to facilitate remote medical consultations and monitoring. The integration of telemedicine technologies, encompassing video consultations, remote patient monitoring and digital health applications, has not only enhanced access to healthcare services but has also played a crucial role in improving efficiency and patient outcomes (Bashshur, Shannon & Krupinski, 2016). The use of telemedicine enables healthcare providers to extend their reach to geographically remote or underserved areas, ensuring that individuals have timely access to medical expertise and reducing barriers to care (Deldar, Bahaadinbeigy & Tara, 2018). Moreover, the adoption of telemedicine has become particularly pertinent in the context of global health crises, such as the COVID-19 pandemic, where it has proven instrumental in minimizing the risk of virus transmission while maintaining continuity in patient care (Ohannessian, Duong & Odone, 2017). This transformation in healthcare delivery not only signifies a paradigm shift in patient-provider interactions but also underscores the potential of telemedicine to contribute to more accessible, efficient, and resilient healthcare systems.

Telemedicine has become a transformative force in global healthcare delivery, overcoming geographical barriers and significantly enhancing accessibility to healthcare services (Bali, 2018). Its importance lies in enabling timely medical consultations, a particularly crucial aspect during the COVID-19 pandemic, where it played a pivotal role in maintaining healthcare services while minimizing physical interactions (Ohannessian, Duong & Odone, 2017). The ability to provide remote consultations, monitor patients, and facilitate virtual healthcare interactions has become integral to modern healthcare systems, contributing to enhanced patient outcomes and healthcare efficiency. In the United States, telemedicine adoption has surged to address the need for expanded healthcare access, yet challenges persist, including technology disparities, especially in rural areas, variations in state regulations, reimbursement policies, and concerns about data security and privacy (Bashshur, Shannon & Krupinski, 2016). Similarly, in Europe, Asia, and India, telemedicine has gained traction as a solution to improve healthcare accessibility and address

healthcare professional shortages, particularly in rural areas (Rai, Mukherjee & Singh, 2019). Although telemedicine is embraced for its potential to reach diverse populations, challenges such as varying regulations, interoperability issues, and the need for standardized practices must be overcome to ensure its continued success and expansion, guaranteeing equitable access to quality healthcare services in these regions (Scott, Mars & Hebert, 2017).

Telemedicine adoption in various African countries has gained momentum, offering transformative prospects for healthcare delivery. In Nigeria, telemedicine is increasingly being recognized for its potential to address healthcare access challenges, particularly in remote regions, and enhance healthcare delivery efficiency. Its significance lies in providing remote consultations, improving healthcare accessibility, and enabling timely interventions, thereby contributing to better patient outcomes. Despite its promise, challenges persist, including infrastructure limitations, unequal technology distribution, and regulatory uncertainties (Adenuga, Iahad & Miskon, 2020). In South Africa, telemedicine has been embraced as a solution to bridge healthcare gaps, especially in rural areas, and to enhance specialized care delivery. Its significance is evident in improving healthcare accessibility and addressing healthcare professional shortages. Challenges, however, encompass issues related to internet connectivity, data security, and the need for regulatory frameworks (Mars, 2019). In Ghana, telemedicine is gradually gaining traction to overcome geographical barriers and improve healthcare delivery. The significance lies in extending medical expertise to underserved areas. Challenges include infrastructural limitations, varying technological literacy, and the need for tailored regulatory frameworks (Asare et al., 2023).

Telemedicine adoption in Kenya has seen a notable upswing, representing a significant stride toward enhancing healthcare accessibility and delivery. The adoption is particularly significant in addressing challenges related to geographical barriers, where remote and underserved areas face limited access to healthcare services (Mbunya, Asirwa & Felker, 2018). The utilization of telemedicine in Kenya holds immense potential in providing timely medical consultations and facilitating virtual healthcare interactions, thereby contributing to improved patient outcomes and healthcare efficiency. The importance of telemedicine in Kenya has been underscored during the ongoing COVID-19 pandemic, where it played a crucial role in maintaining healthcare services while minimizing the risk of virus transmission (Kim et al., 2022). However, challenges persist, including disparities in technology access, varying levels of digital literacy, and infrastructural

limitations (Onsongo et al., 2023). Regulatory frameworks and policies related to telemedicine also require attention for comprehensive integration into the healthcare system. Addressing these challenges is imperative to fully realize the benefits of telemedicine in Kenya, ensuring equitable access to quality healthcare services for all people.

Postpartum depression (PPD) in Kenya is a mental health issue with significant implications for maternal well-being and child development. Mutua et al. (2020) highlighted that PPD prevalence in Kenya is notably high, with sociocultural factors, such as stigma surrounding mental health and limited access to mental health services, contributing to underreporting and under treatment. The postpartum period is a crucial time for mothers and the challenges in adjusting to new motherhood can be exacerbated by socioeconomic factors, as evidenced by research indicating that lower socioeconomic status is associated with a higher risk of PPD in Kenyan women (Ongeri et al., 2018). Additionally, cultural practices and expectations around motherhood in Kenya may impact the recognition and disclosure of PPD symptoms, further complicating the landscape of mental health support for new mothers (Madeghe et al., 2016). The need for targeted interventions and increased awareness within the Kenyan healthcare system is underscored by these findings, emphasizing the importance of addressing not only the biological but also the sociocultural determinants of PPD in the Kenyan context.

Kenya's health sector is undergoing transformative changes with the integration of telematics, particularly in the private healthcare domain. The private sector has played a pivotal role in leveraging technology to address healthcare challenges, and one notable organization at the forefront is Access Afya (Access Afya, 2021). Established as a pioneering telemedicine initiative in Kenya, Access Afya has been instrumental in providing innovative healthcare solutions. In the realm of mental health, telepsychiatry has emerged as a crucial component of Access Afya's services. Recent studies highlight the efficacy of telepsychiatry in addressing mental health issues, including postpartum depression, offering accessible and timely support to individuals (Oyeyemi et al., 2020). By combining technology, private sector initiatives, and a specialized focus on mental health, Access Afya exemplifies the evolving landscape of healthcare in Kenya, demonstrating the potential to make significant strides in addressing mental health challenges, particularly in the context of postpartum depression (Muthoni et al., 2022).

1.1.1 Role of Technology in Health

Technology's influence on healthcare is profound, reshaping the landscape with innovations that enhance various aspects of patient care and healthcare systems. Electronic health records (EHRs) are integral to this transformation, streamlining information management and enabling seamless data exchange among healthcare providers (Adler-Milstein et al., 2017). Telemedicine, facilitated by technological advancements, extends healthcare services beyond traditional settings, allowing for remote consultations, monitoring, and interventions (Bashshur et al., 2016). The advent of wearable devices and health apps empowers individuals to monitor their health in real-time, promoting preventive care and fostering greater patient engagement (Steinhubl et al., 2015). Artificial intelligence (AI) and machine learning contribute significantly to healthcare by enabling data analysis for personalized treatment plans, drug discovery, and predictive analytics, thereby enhancing medical decision-making (Topol, 2019).

However, the integration of technology in healthcare brings forth a set of challenges. Data security and privacy concerns are paramount as the digitization and sharing of vast health data raise issues of confidentiality and integrity (Kierkegaard, 2018). Achieving interoperability among various technological solutions remains an ongoing challenge, requiring seamless communication between different systems for comprehensive patient care (Agaku et al., 2020). Furthermore, there is a need to address the potential for technology to exacerbate healthcare disparities, as access to and proficiency with advanced healthcare technologies may vary across demographic groups (Kierkegaard, 2018). These challenges emphasize the importance of a multidisciplinary approach, considering ethical, legal, and social implications to ensure equitable and effective integration of technology in healthcare.

1.1.2 Telemedicine

Telemedicine, defined as the remote provision of healthcare services through information and communication technologies, encompasses diverse applications such as virtual consultations, remote monitoring, and the digital exchange of medical information (Bashshur et al., 2019). The primary objective of telemedicine is to surmount geographical barriers, enhance medical care accessibility, and improve patient outcomes by enabling healthcare professionals to diagnose, treat, and manage patients from a distance. During public health emergencies, particularly

underscored by the COVID-19 pandemic, telemedicine plays a pivotal role in delivering timely and efficient healthcare services while mitigating physical contact risks and preserving healthcare resources. Utilizing technologies like videoconferencing, remote monitoring devices, and mobile health apps, telemedicine connects healthcare providers with patients, ensuring the continuity of care (Ohannessian, 2020). Furthermore, telemedicine contributes to patient-centered care by enhancing accessibility and convenience, allowing patients to connect with healthcare professionals from their homes, thereby reducing travel time and costs. This approach fosters continuous communication between patients and healthcare providers, leading to increased engagement and adherence to treatment plans. Additionally, telemedicine facilitates the management of chronic conditions through remote monitoring, empowering patients to actively participate in their healthcare journey (Machado et al., 2021).

Telemedicine has gained momentum due to its potential to enhance access to medical care, particularly in underserved or rural areas. Proponents argue that telemedicine can overcome geographical barriers, improve healthcare efficiency, and reduce costs by enabling timely consultations and monitoring. Bashshur et al. (2016) highlights the positive impact of telemedicine on patient outcomes and satisfaction, emphasizing its role in chronic disease management. Whitten, Holtz and Laplante (2020) discuss how telemedicine can enhance healthcare delivery during public health emergencies, such as the COVID-19 pandemic, by minimizing the risk of viral transmission. The potential for increased patient engagement through telemedicine is also highlighted by Kruse et al. (2017), who emphasize its role in promoting self-management and adherence to treatment plans. However, critics argue that challenges such as data security, technological barriers, and concerns about the quality of care may impede the widespread adoption of telemedicine (Whitten, Holtz & Laplante, 2020).

1.1.3 Postpartum Depression and Telemedicine

Postpartum depression (PPD) in Kenya is a significant mental health concern characterized by persistent feelings of sadness, anxiety, and exhaustion experienced by mothers after childbirth (Osok et al., 2018). Sociocultural factors, such as mental health stigma and limited access to mental health services, contribute to underreporting and under treatment of PPD in the Kenyan context (Gureje et al., 2019). Lower socioeconomic status is associated with an increased risk of PPD among Kenyan women, reflecting the intersection of economic factors with mental health

outcomes during the postpartum period (Kuria et al., 2019). Cultural practices and societal expectations surrounding motherhood in Kenya may influence the recognition and disclosure of PPD symptoms, presenting unique challenges for mental health support (Gitonga, Kumar & Guijarro, 2019). Addressing postpartum depression in Kenya necessitates a comprehensive understanding of these contextual factors, emphasizing the importance of targeted interventions, increased awareness, and accessible mental health services.

Postpartum depression (PPD) in Kenya poses significant challenges to maternal mental health, with a notable prevalence (Gelaye et al., 2017). In response to this mental health concern, telemedicine has emerged as a promising approach for addressing PPD by providing remote mental health support. Telemedicine interventions, including virtual consultations and telepsychiatry services, have been increasingly employed to overcome barriers to mental healthcare access, especially in remote or underserved areas (Kenya National Bureau of Statistics, 2014). Oyeyemi et al. (2020) highlighted the effectiveness of telemedicine platforms in improving mental health outcomes and reducing the burden of postpartum depression by offering accessible and timely support to mothers. This approach leverages technology to connect healthcare professionals with postpartum individuals, facilitating mental health assessments, counseling, and treatment, thereby addressing the unique challenges faced by Kenyan mothers in the postpartum period.

Mental health in Kenya is a critical but often overlooked aspect of the country's healthcare system, facing various challenges in terms of operation. Kenya, like many other low- and middle-income countries, grapples with limited resources and infrastructure for mental health services, leading to a significant treatment gap. Jenkins et al. (2019) highlights the scarcity of mental health professionals and the unequal distribution of services, predominantly concentrated in urban areas. Stigma and cultural misconceptions surrounding mental health further hinder access to care, with many individuals preferring traditional healing methods over formal psychiatric interventions (Ndetei, Mutiso & Musyimi, 2020). According to Mutiso et al. (2021) the economic burden of mental health disorders underscores the need for increased investment in mental health services to mitigate the societal and individual costs associated with untreated mental illnesses. Efforts to integrate mental health into primary care and community settings are essential to address these operational challenges and enhance mental health services' accessibility and effectiveness in Kenya.

The innovation of mental health services in Kenya has witnessed significant strides, yet it remains a dynamic and challenging landscape. Advancements in telepsychiatry, as explored by Mutiso et al. (2020), have emerged as a noteworthy innovation, enhancing access to mental health care in remote areas by leveraging digital platforms. The integration of mobile health (mHealth) applications and telecommunication technologies has allowed for real-time consultations and monitoring, potentially overcoming geographical barriers. However, operational challenges persist, including limited technological infrastructure, disparities in internet access, and the need for ongoing training of healthcare professionals in digital mental health interventions (Muthoni et al., 2021). Additionally, stigma and cultural factors continue to pose barriers to the widespread adoption of innovative mental health approaches. To further advance mental health innovation in Kenya, a comprehensive approach that addresses infrastructure gaps, promotes awareness, and ensures cultural sensitivity is crucial.

1.1.4 Adoption of Telemedicine by Access Afya

The health sector in Kenya is divided into two broad categories (Public health sector and private health sector). The public health sector is funded by county governments, in collaboration with donors and well-wishers, while private health sector is funded by private individuals and corporations (mostly for profit) (Kimathi, 2017). The sector faces numerous challenges, including limited access to healthcare services, especially in rural areas, and a shortage of healthcare professionals. Telematics, the integration of telecommunications and informatics in healthcare, offers promising solutions to bridge these gaps. Through telemedicine initiatives, Kenyan healthcare providers can remotely diagnose, treat, and monitor patients, expanding access to care beyond traditional healthcare facilities. Additionally, telematics can facilitate health education and training programs for healthcare workers, improving overall healthcare quality and capacity in the country (Flessa et al., 2011).

The private health sector in Kenya plays a significant role in complementing public healthcare services, offering a range of medical services to the population (Barnes et al., 2010). Telematics is increasingly being adopted by private healthcare providers to enhance patient care delivery and operational efficiency. Teleconsultations enable patients to access specialized care remotely, reducing the need for physical visits and wait times. Remote monitoring technologies allow for continuous patient monitoring, improving disease management and preventive care. Furthermore,

telemedicine platforms streamline administrative processes and enable better communication between healthcare providers and patients, ultimately enhancing the overall patient experience in the private health sector in Kenya (Waiyaki & Brits, 2015).

Access Afya, founded in 2012 in Nairobi, Kenya, has evolved as a pioneering healthcare organization, contributing significantly to the transformation of primary healthcare delivery in underserved urban communities. Initially established as a micro clinic, Access Afya's roots trace back to its commitment to addressing healthcare gaps by providing accessible and affordable services. The organization's early efforts involved establishing health kiosks that served as community hubs, offering a range of services from basic consultations to health education (Ngugi et al., 2018). Over time, Access Afya has expanded its operations and adopted innovative models, incorporating technology to enhance service delivery. The organization's history reflects its adaptability and responsiveness to the evolving healthcare landscape in Kenya.

Access Afya's operations are characterized by a multi-faceted approach, incorporating technology and community engagement to improve healthcare accessibility. The organization employs telemedicine platforms to facilitate remote consultations, providing a bridge to healthcare for individuals in remote or underserved areas (Access Afya, 2023). By leveraging digital solutions, Access Afya aims to enhance efficiency and reach a broader patient base. Additionally, the organization employs a community-based model, involving community health workers and establishing health posts to bring healthcare closer to the residents (Juma et al., 2018). This operational strategy aligns with the organization's commitment to fostering community participation and empowerment in healthcare decision-making.

The significance of Access Afya lies in its commitment to addressing healthcare disparities and improving health outcomes in resource-limited settings. Through its operations, the organization has played a pivotal role in expanding access to essential healthcare services, particularly in low-income urban areas where healthcare accessibility can be challenging. Access Afya's emphasis on community engagement and the use of technology reflects a holistic approach to healthcare, acknowledging the interconnectedness of social, economic and technological factors in influencing health outcomes (Etyang et al., 2018). Despite challenges, such as financial sustainability and the need for continuous adaptation to evolving healthcare needs, Access Afya remains an impactful player in advancing primary healthcare in Kenya.

1.2 Problem Statement

Accessing healthcare for postpartum depression (PPD) patients in Kenya presents multifaceted challenges. There is a notable shortage of mental healthcare providers and facilities, particularly in rural areas, limiting access to specialized care (Wind et al., 2020). Early detection of PPD faces hurdles due to inadequate screening practices during antenatal and postnatal visits, coupled with limited awareness and stigma surrounding mental health (Garapati et al., 2023). Even when diagnosed, treatment adherence is hindered by factors such as medication costs, lack of social support, and misconceptions about mental illness (Juma et al., 2018). Additionally, the fragmented healthcare system often results in discontinuity of care, impacting the effectiveness of interventions. Patient satisfaction is further compromised by long wait times, perceived judgment from healthcare providers, and insufficient follow-up support. Over 75 percent of individuals with mental health issues, including PPD, go untreated in low- and middle-income countries (LMICs) (Omnia Health, 2023). These barriers collectively underscore the urgent need for comprehensive strategies to improve access, early detection, treatment adherence, and patient satisfaction in PPD care delivery in Kenya.

The adoption of telemedicine offers a significant opportunity to enhance accessibility and overcome barriers to traditional in-person care for PPD patients. Telemedicine can potentially improve postpartum depression healthcare, especially in remote areas, by leveraging technology (Wind et al., 2020). However, challenges such as technological barriers, concerns about the quality of virtual interactions, and the digital divide affecting marginalized populations must be addressed to ensure equitable access and effectiveness. Research and policy efforts are essential to optimize telemedicine's benefits while mitigating associated challenges, ensuring its successful integration into the Kenyan healthcare landscape (Garapati et al., 2023). Telemedicine holds the potential to revolutionize postpartum depression healthcare, but its implementation requires careful consideration and ongoing study to address specific needs and barriers.

1.3 Objectives

1.3.1 General Objective

The general objective of the study is to examine the influence of telemedicine practices on postpartum depression management at Access Afya in Kenya.

1.3.2 Specific Objectives

The specific objectives of the study seek to:

i. Assess the importance of increased telemedicine engagement for postpartum depression screening and support at Access Afya in Kenya.
ii. Determine the importance of telemedicine assessments in enhancing early detection of postpartum depression at Access Afya in Kenya.
iii. Evaluate the significance of telemedicine in improving treatment adherence among postpartum depression patients at Access Afya in Kenya.
iv. Assess the role of telemedicine platforms in enhancing patient satisfaction for women with postpartum depression at Access Afya in Kenya.

1.4 Research Questions

i. What is the importance of increased telemedicine engagement for postpartum depression screening and support at Access Afya in Kenya?
ii. What is the importance of telemedicine assessments in enhancing early detection of postpartum depression at Access Afya in Kenya?
iii. What is the significance of telemedicine in improving treatment adherence among postpartum depression patients at Access Afya in Kenya?
iv. What are the roles of telemedicine platforms in enhancing patient satisfaction for women with postpartum patients at Access Kenya in Kenya?

1.5 Justification of the Study

Once completed, the study on the influence of telemedicine for mental health in Kenya holds significant value for researchers and theorists in the field. The findings will contribute empirical evidence to the growing body of knowledge on telemedicine, offering insights into utilization

patterns and effectiveness in a specific cultural context. Researchers can use this information to refine existing theories and develop new frameworks that better capture the nuances of implementing telemedicine in diverse global settings. Furthermore, the study can pave the way for future research endeavors, helping to identify areas for improvement and exploration in the intersection of mental health, technology and accessibility.

Policy makers can derive significant advantages from the study's findings. A comprehensive understanding of the impact of telemedicine on mental health outcomes, particularly concerning postpartum depression, accessibility, and patient engagement, equips policymakers with valuable insights to inform healthcare policies in Kenya. The study's revelations can serve as a guiding force in the formulation of regulations and guidelines for the seamless integration of telemedicine into mental health services. This tailored approach ensures that policies effectively address the unique challenges and opportunities present in the Kenyan healthcare landscape. Adopting an evidence-based strategy through these insights has the potential to elevate the efficiency of mental health services, foster equitable access, and ultimately contribute to the enhancement of mental health policy frameworks.

Stakeholders, including healthcare providers, technology developers, and advocacy groups, stand to enhance their roles in the postpartum depression healthcare landscape by leveraging the study's findings. Healthcare providers have the opportunity to adapt their practices based on the identified benefits and challenges of telepsychiatry, effectively incorporating it into their service delivery for postpartum depression. Technology developers can utilize the insights to refine telemedicine platforms, ensuring they are more user-friendly and culturally sensitive specifically in the context of postpartum depression healthcare. Advocacy groups, armed with the evidence generated by the study, can champion awareness regarding telepsychiatry initiatives, fostering a more inclusive and responsive postpartum depression healthcare ecosystem in Kenya.

1.6 Scope of the Study

The scope of this study is to comprehensively examine the influence of telemedicine on postpartum depression healthcare at Access Afya in Kenya. The primary focus is to assess the extent to which telemedicine enhances accessibility, efficiency, continuity of care, and patient engagement in the context of postpartum depression. Specifically, the study aims to understand how telemedicine

services contribute to improved accessibility to postpartum depression healthcare services at Access Afya. Additionally, the research seeks to measure the efficiency gains and cost-effectiveness achieved through the implementation of telemedicine in the delivery of postpartum depression healthcare at Access Afya. The investigation will also explore telemedicine's role in promoting continuity of care, emphasizing follow-up care and remote patient monitoring for individuals experiencing postpartum depression. Furthermore, the study aims to evaluate the flexibility provided by telemedicine in scheduling postpartum depression healthcare appointments and its overall impact on enhancing patient engagement within the Access Afya healthcare setting.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter describes the general review of the literature which entails previous research carried out on the topic of discussion, the theoretical review which looks at different theories that support the study and the empirical review which entails previous research carried out in relation to the study variables, identifying the existing gaps in variables.

2.2 Theoretical Foundation

The study integrates two key theories: the diffusion of innovation theory and psychoanalytic theory. The diffusion of innovation theory serves as the dominant framework, guiding the examination of how telemedicine technologies are adopted to address healthcare challenges, particularly in the context of postpartum depression care at Access Afya in Kenya. It helps to understand the factors influencing the adoption and utilization of telemedicine platforms, including the role of perceived benefits, barriers, and communication channels in facilitating its implementation. In contrast, psychoanalytic theory offers complementary insights by exploring the psychological aspects of patient-provider interactions and the therapeutic processes involved in remote mental health care.

2.2.1 Diffusion of Innovation Theory

The diffusion of innovation theory, pioneered by Everett Rogers in 1962, constitutes a seminal framework that explicates the process through which new ideas, technologies, or innovations spread within a society or organization. According to this theory, the adoption of innovations follows a bell-shaped curve, with innovators and early adopters at the forefront, followed by the early and late majority, and finally, laggards (Rogers, 1962). Rogers identified key factors influencing the adoption process, such as perceived attributes of the innovation, communication channels, social systems, time, and the characteristics of individuals within the adopting system. The theory posits that successful adoption is contingent upon the effective communication of an innovation's advantages, compatibility with existing values and practices, and its trialability and observability. Rogers' groundbreaking work has had a profound impact on various fields,

providing a theoretical foundation for understanding how innovations diffuse through populations, and it remains a cornerstone in innovation and communication research (Rogers, 2003).

This theory holds significance to this study as it provides a comprehensive framework for understanding how innovations, in this case, telemedicine for mental health services, are adopted and spread within the country. In the Kenyan healthcare landscape, where the integration of telemedicine is an emerging and potentially transformative innovation, the diffusion of innovation theory can shed light on the factors influencing the acceptance and utilization of telepsychiatry (Rogers, 1962). By examining the perceived attributes of telemedicine, its compatibility with existing healthcare practices and the communication channels through which information is disseminated. The study can gain insights into the dynamics of telemedicine adoption among healthcare providers and the wider population. This theoretical lens not only enriches the analysis of the study but also provides a valuable framework for anticipating potential challenges and facilitating the effective integration of telemedicine into mental health services in Kenya.

Diffusion of innovation theory has received several criticisms over time. Scholars argue that the model oversimplifies the adoption process by presenting it as a linear progression, neglecting the dynamic and iterative nature of innovation adoption (Mouakket, 2019). Some critics contend that the theory places excessive emphasis on individual attributes and characteristics, overlooking the complex interplay of social, cultural and institutional factors influencing innovation adoption (Valente, 2010). Recent studies suggested that the theory tends to neglect the role of power dynamics and inequalities in shaping the diffusion process, especially in diverse cultural contexts such as Kenya (Kwon & Kim, 2016).

2.2.2 Psychoanalytic Theory

Psychoanalytic theory, introduced by Sigmund Freud in the late 19th and early 20th centuries, constitutes a fundamental paradigm in psychology (Freud, 1914). The theory proposes a comprehensive understanding of human behavior by emphasizing the pivotal role of unconscious processes and early childhood experiences. Freud's tripartite model of the mind, comprising the id, ego, and superego, delineates the intricate interplay of unconscious drives, reality constraints, and moral considerations in shaping personality (Freud, 1914). Psychoanalytic theory introduces concepts such as defense mechanisms, transference, and the Oedipus complex, providing a

foundational framework for exploring the complexities of human cognition, emotion, and interpersonal relationships (Freud, 1923).

The psychoanalytic theory offers a relevant lens for understanding the dynamics at play in this study. Freud's theory emphasizes the intricate interplay between conscious and unconscious mental processes, exploring the profound influence of early experiences and the significance of the unconscious mind in shaping behavior (Freud, 1925). In the context of telemedicine, understanding the underlying psychological factors that influence individuals' perceptions and attitudes toward virtual mental health care is crucial (Freud, 1925). Psychoanalytic insights may shed light on potential resistance or acceptance of telepsychiatry, considering factors such as fear, trust, and the subjective experience of therapeutic interaction. Additionally, the theory's emphasis on the significance of the therapeutic relationship aligns with the study's exploration of telemedicine's impact on patient engagement. By integrating Psychoanalytic Theory, the study can offer a nuanced understanding of the psychological dimensions influencing the reception and effectiveness of telemedicine interventions in the Kenyan mental health context.

Critiques of psychoanalytic theory have emerged, challenging various aspects of Freud's conceptualizations. One major criticism concerns the lack of empirical support for many key components of the theory (Cioffi, 2015). Critics argue that Freud's ideas often lack scientific rigor and fail to meet contemporary standards of empirical validation. Additionally, the theory has been criticized for its overemphasis on early childhood experiences and the unconscious, with some scholars suggesting that it neglects the influence of current environmental factors on human behavior (Greenberg, 2016). Moreover, the Freudian psychosexual stages have faced criticism for their heteronormative assumptions and limited applicability to diverse cultural contexts (Westen, 2017). Critics also contend that psychoanalytic therapy's long duration and emphasis on exploring past traumas may be impractical for certain individuals seeking more immediate and focused interventions (Leichsenring & Steinert, 2017).

2.3 Empirical Studies

In this section, the study will critically review empirical studies aligned with the research questions, aiming to identify existing research gaps and contribute to a comprehensive understanding of the research landscape.

2.3.1 Importance of Increased Telemedicine Engagement

Furlepa et al. (2022) explored the digitalization of the health system and the associated barriers, encompassing financial, legal, awareness-related, technological, and IT aspects. The objective was to provide recommendations for the development of telemedicine services in Poland based on an analysis of implementation barriers and effective solutions identified in the USA and selected European countries. The methodology involved a literature review conducted in accordance with PRISMA-ScR, utilizing databases such as PubMed, Google Scholar, Scopus, and the OECD iLibrary. The study incorporated 59 literature positions as references and highlighted successful telemedicine solutions implemented in other countries. The findings emphasized the necessity to address barriers comprehensively, emphasizing the interconnected nature of these challenges and advocating for solutions with multi-area coverage to facilitate the successful implementation of telemedicine services in Poland.

Bashshur et al. (2016) addressed the pressing need to evaluate the effectiveness of telemental health (TMH) in addressing the complex landscape of mental health issues in Kenya. Employing a rigorous methodology that involved an extensive review of relevant studies meeting strict eligibility criteria, the findings demonstrated robust evidence supporting the feasibility and acceptance of TMH interventions among users. The research also indicated consistent improvements in symptomology and quality of life across diverse demographic and diagnostic groups, highlighting the positive impact of telemedicine on mental health outcomes. Moreover, the study suggested favorable trends in terms of cost savings associated with telemedicine interventions. The conclusive inference drawn from the empirical evidence is that telemedicine interventions exhibit substantial merit in the treatment of mental disorders, providing valuable insights for policymakers, care providers, researchers, and the public at large.

Brooks, Turvey and Augusterfer (2013) focused on the implementation of telepsychiatry in Kenya and specifically addressed provider barriers to telemental health the researchers employed a comprehensive methodology to explore the challenges and advancements in the field. The study investigated three main domains of provider concerns: personal barriers, clinical workflow and technology barriers, and licensure, credentialing, and reimbursement barriers. The findings indicated that despite initial hesitancy among providers, advancements in telehealth technologies, a growing evidence base supporting positive telemental health outcomes and improvements in

training opportunities have rapidly reduced obstacles for its implementation. The study recommended further measures, such as disseminating data on the effectiveness of telemental health, integrating videoconferencing capabilities into electronic medical record platforms, expanding reimbursement options, and modifying licensure standards, to facilitate the continued progress and widespread adoption of telemental health technologies.

Myers (2019) investigated on the implementation of telepsychiatry in Kenya to remediate rural mental health and healthcare disparities. The research aimed to address the elevated rates of "deaths of despair" in rural communities, attributed to drugs, alcohol, and suicide, by leveraging telehealth as an effective means to manage care, enhance service accessibility, and integrate primary and mental healthcare services. The methodology employed involved addressing barriers such as coverage, reimbursement, licensure, broadband access, and privacy concerns, with a proposed need for policy changes. The study underscored the necessity of altering professional training and care delivery models for successful telehealth diffusion in the context of rural mental healthcare in Kenya.

2.3.2 Importance of Telemedicine Assessments in Enhancing Early Detection of PPD

Zhao et al. (2021) conducted a systematic review and meta-analysis to assess the effectiveness of telehealth interventions in alleviating depressive symptoms and anxiety in women experiencing postpartum depression (PPD). The study, which included 9 randomized controlled trials with a total of 1958 participants, revealed that the telehealth group exhibited significantly lower scores on the Edinburgh Postnatal Depression Scale (EPDS) (mean difference=–2.99, 95% CI –4.52 to –1.46; P<.001) and anxiety (standardized mean difference=–0.39, 95% CI –0.67 to –0.12; P=.005) compared to the control group. Notably, subgroup differences emerged concerning the severity of PPD, telehealth technology, specific therapy, and follow-up time (P<.001). Despite these positive findings, the study identifies a research gap, calling for better-designed and more rigorous large-scale randomized controlled trials focusing on specific therapies to further explore the potential of telehealth interventions for PPD in the context of Access Afya in Kenya.

Liu et al. (2022) conducted a systematic review and meta-analysis to assess the effectiveness of telemedicine interventions in treating postpartum depression (PPD) among women. The study, which spanned the period from 2003 to March 2021, reviewed 20 randomized controlled trials

involving 3252 patients. Utilizing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, the meta-analysis revealed that telemedicine emerged as an effective intervention for addressing PPD and anxiety, while also demonstrating positive outcomes in improving functional impairment during the postpartum period. The findings provide crucial evidence for guiding mental health management for postpartum women. However, a research gap exists regarding the specific extent to which telemedicine enhances the efficiency of postpartum depression healthcare services, suggesting the need for more high-quality studies to further validate and expand upon these results.

In a quality improvement project conducted by Loveless-Yates (2023), the study focused on addressing the rising prevalence of postpartum depression (PPD) among mothers in Alabama, particularly those facing barriers to accessing postpartum care. The methodology involved conducting telemedicine visits at three weeks postpartum, utilizing the Edinburgh Postnatal Depression Scale (EPDS) tool for screening and providing education on postpartum and infant care. The findings revealed a significant increase in PPD screening rates to 100%, with 75% of patients attending these telemedicine visits. This surpassed the national benchmark of a 60% show rate for face-to-face postpartum visits. The study highlighted the effectiveness of early telemedicine interventions in enhancing awareness, diagnosis, and treatment of PPD, emphasizing the importance of early screening. However, despite these positive outcomes, a research gap remains concerning the broader context, specifically the extent to which telemedicine enhances the efficiency of postpartum depression healthcare services in the specific setting of Access Afya in Kenya. Further exploration of this area could provide valuable insights for improving postpartum depression care in diverse healthcare environments.

In the study conducted by Nair et al. (2018), the focus was on assessing the effectiveness of telemedicine interventions in addressing maternal depression (MD), a significant public health concern affecting pregnant women and mothers up to 12 months postpartum. The systematic review and meta-analysis involved a thorough search of relevant randomized controlled trials published between 2000 and 2018, identifying 10 studies for inclusion. The therapeutic strategies employed included cognitive behavioral therapy (CBT), behavioral activation, and other psychoeducation. Results indicated that eight trials reported a significant improvement in depression scores post-intervention, with four studies showing sustained improvements in post-

intervention follow-ups. However, common issues such as high attrition rates and lack of blinding were identified. Despite the positive findings, the study highlighted a research gap, emphasizing the limited evidence supporting the use of telemedicine for MD intervention. Particularly, the extent to which telemedicine enhances the efficiency of postpartum depression healthcare services at Access Afya in Kenya remains an under-researched area, signaling a need for further exploration in this specific context.

2.3.3 Significance of Telemedicine on Improving Treatment Adherence Among PPD Patients

Healy et al. (2023) conducted a study to explore the increased frequency of telemedicine encounters in recent years. The study focused on assessing the safety and quality of telemedicine across various pregnancy-related services, encompassing prenatal and postpartum care, diabetes mellitus management, medication abortion, lactation support, hypertension management, genetic counseling, ultrasound examination, contraception, and mental health services. The findings indicated that telemedicine demonstrated potential or proven benefits, such as expanded patient access, improved satisfaction, reduced disparities in care delivery, and health outcomes comparable to traditional in-person encounters. Notably, the study emphasized the need for equitable reimbursement policies, suggesting that payers should reimburse telemedicine services at least as much as in-person services. Despite these positive outcomes, the research identified a crucial research gap, particularly in understanding the extent to which telemedicine enhances the continuity of postpartum depression healthcare services, warranting further investigation in this specific area.

Arias et al. (2022) conducted a retrospective cohort study to examine the impact of telehealth on postpartum care during the COVID-19 pandemic. The study compared a 14-week period in 2019 before telehealth implementation with the same months in 2020 after implementation. The primary outcome was postpartum visit attendance, with secondary outcomes including postpartum depression screening, contraception selection, breastfeeding status, completion of the 2-hour glucose tolerance test, and cardiology follow-up. Results showed a 90% increased odds of postpartum visit attendance in the postimplementation group, even when adjusting for confounders. Postimplementation patients were more likely to undergo postpartum depression screening but less likely to choose long-acting reversible contraception or permanent sterilization. The study highlights the positive association between telehealth availability and increased postpartum visit

attendance and depression screening. However, it identifies a research gap in understanding the decrease in the use of certain contraceptives, suggesting a need for further investigation into the nuanced impacts of telehealth on postpartum healthcare services, specifically in the context of contraception choices at Access Afya in Kenya.

In a study conducted by Wassef and Wassef (2022), the focus was on the utilization of telemedicine in perinatal mental health, specifically addressing the challenges and advantages amidst the increased prevalence of perinatal mood and anxiety disorders, particularly during the COVID-19 pandemic. The study discussed the benefits of telemedicine, such as enhanced accessibility to specialized care, direct observation of child-parent interactions in home environments, and improved collaboration between obstetrical providers and psychiatrists. However, it also highlighted potential drawbacks, including hindrances to recovery and an increase in social isolation. The study suggested a hybrid model, incorporating both in-person and telemedicine delivery of care, as a potential compromise solution for women and their families. Notably, the research gap identified in this study is the limited exploration of the extent to which telemedicine enhances the continuity of postpartum depression healthcare services specifically at Access Afya in Kenya, underscoring the need for further investigation in this context.

A study conducted by Dixon-Shambley and Gabbe (2021) explored the utilization of telehealth to address social determinants of health (SDOH) and enhance pregnancy and postpartum outcomes. The study focused on telehealth modalities and their application in mitigating the negative impact of SDOH on pregnant and postpartum women. The findings revealed widespread satisfaction among physicians and patients with telehealth, citing improvements in access to education, disease monitoring, specialty care, as well as prenatal and postpartum care. Specifically, the study highlighted the successful transition of the Moms2B program, developed a decade ago to address disparities in pregnancy outcomes for underserved women, from in-person to virtual formats. Despite the positive outcomes, a research gap was identified concerning the extent to which telemedicine enhances the continuity of postpartum depression healthcare services at Access Afya in Kenya, emphasizing the need for further exploration in this specific context.

2.3.4 Role of Telemedicine Platforms in Enhancing Patient Satisfaction

Basit, Mathews and Kunik (2020) focused on assessing the evidence for telemedicine interventions aimed at improving pharmacologic adherence in individuals with depression, bipolar disorder, or schizophrenia. The methodology involved a thorough search of PubMed and PsycINFO, as well as additional sources such as journal tables of contents and meeting abstracts. The inclusion criteria encompassed randomized controlled trials involving outpatient adults diagnosed with the specified mental illnesses and utilizing telemedicine interventions with medication adherence as an outcome. Out of 512 identified articles, 17 met the criteria and were categorized by the intensity of intervention, rated by the quality of evidence, and predominantly utilized phone-based technology. The findings indicated that 9 of the studies demonstrated efficacy in improving medication adherence, suggesting that telemedicine may be beneficial in this context. The study concluded by emphasizing the need for future research to tailor technology to different types of non-adherence.

Vicente et al. (2022) investigated the implementation of telepsychiatry in Kenya, specifically focusing on patient engagement through an m-Health solution during the COVID-19 pandemic. The methodology employed was a pragmatic clinical trial with pre–post measurements involving 70 patients aged 40 and above, all with one or more chronic conditions. Patients were provided with a customized mobile app and health data measuring devices, with remote monitoring by health professionals who could adjust objectives based on patient progress. The findings revealed an average fulfillment of objectives at 77%, with notably high adherence in medication (98%) and oxygen saturation (82%), and lower adherence in weight (48%), glucose (57%), and distance walked (57%). The developed telemedicine app received a positive rating of 8.72 out of 10, indicating its effectiveness. The pre–post analysis demonstrated significant improvements in physical activation and better control of blood pressure, diet, weight, glucose, and oxygen saturation compared to prior apps, affirming the usefulness of the telemedicine tool in enhancing patient engagement and treatment adherence.

The implementation of telepsychiatry in Kenya aimed to address challenges in delivering mental health care to young individuals experiencing first-episode psychosis, particularly in underserved areas was addressed by Alston, Bennett and Rochani (2019). The methodology involved a chart review, revealing that family support played a crucial role as a predictor for medication and

treatment adherence among this vulnerable group. Surprisingly, an unexpected disengagement rate of 47% was identified. Moreover, the findings indicated that receiving care through telehealth delivery significantly predicted a higher likelihood of being lost to follow-up or experiencing treatment non-adherence. Recommendations stemming from the study included implementing psychoeducation for families during the initial crisis, early initiation of long-acting injectable antipsychotics, a hybrid telehealth intervention with in-home medication delivery, and collaborative efforts with educational and vocational county agencies for employment support. The study underscored the necessity for a comprehensive system of care to support young individuals with severe mental illness for optimal outcomes and long-term cognitive functioning.

Talal et al. (2022) focused on implementing telepsychiatry in Kenya with a specific emphasis on patient-centered care for individuals undergoing medication for opioid use disorder as part of the Telemedicine for Evaluation, Adherence, and Medication for Hepatitis C (TEAM-C) initiative. Conducted as a multi-site, non-blinded, randomized pragmatic clinical trial across 12 opioid treatment programs in New York State, the study utilized a stepped-wedge design and a sample size of 624 participants. Telemedicine encounters were conducted on-site with the co-administration of direct-acting antivirals for Hepatitis C (HCV) alongside medications for opioid use disorder. The primary outcomes included treatment initiation, completion, sustained virological response, patient satisfaction with healthcare delivery, and HCV reinfection after successful cure. The study demonstrated the feasibility and effectiveness of virtual treatment for HCV integrated into behavioral treatment, offering valuable insights into the engagement principles and lessons learned from this pioneering prospective randomized trial of telemedicine targeted at a vulnerable population.

2.4 Summary of Knowledge Gaps

Table 2. 1: Knowledge Gaps Table

Title, Author, and Year	Methodology Used	Findings	Research Gap
"Digitalization of Health Systems: Barriers and Solutions for Telemedicine Services in Poland" - Furlepa et al. (2022)	Literature review (PRISMA-ScR)	Identified barriers (financial, legal, awareness, technological, IT) for telemedicine in Poland; recommended comprehensive solutions based on international experiences.	Research gap in the specific context of Access Afya in Kenya, emphasizing multi-area solutions for successful telemedicine implementation.
"Effectiveness of Telemental Health Interventions in Addressing Mental Health Issues in Kenya" - Bashshur et al. (2016)	Extensive review of relevant studies	Robust evidence supporting feasibility, acceptance, and positive outcomes of telemental health interventions in Kenya	Research gap concerning cost savings and need for better-designed, rigorous large-scale trials focusing on specific therapies for postpartum depression at Access Afya in Kenya.
"Telepsychiatry Implementation in Kenya: Addressing Provider Barriers" - Brooks, Turvey, Augusterfer (2013)	Comprehensive methodology	Reduction in provider barriers to telemental health, advancements in technology, and growing evidence supporting positive outcomes	Research gap in understanding provider concerns in the specific context of postpartum depression healthcare services at Access Afya in Kenya.
"Implementation of Telepsychiatry for Rural Mental Health in Kenya" - Myers (2019)	Comprehensive review	Emphasized the necessity of policy changes and altering professional training for successful telehealth diffusion in rural mental healthcare in Kenya	Research gap in understanding the specific barriers and facilitators in the context of postpartum depression healthcare services at Access Afya in Kenya.
"Effectiveness of Telehealth Interventions for Postpartum Depression: A Systematic Review and Meta-Analysis" - Zhao et al. (2021)	Systematic review and meta-analysis	Telehealth interventions significantly lower depressive symptoms and anxiety; calls for better-designed, rigorous trials on specific therapies for postpartum depression at Access Afya in Kenya.	Research gap in the specific context of Access Afya in Kenya, emphasizing large-scale trials on specific therapies.
"Telemedicine Interventions for Postpartum Depression: A Systematic Review and Meta-Analysis" - Liu et al. (2022)	Systematic review and meta-analysis	Telemedicine effective in treating postpartum depression and anxiety; need for more high-quality studies to validate and expand upon results	Research gap concerning the specific extent to which telemedicine enhances the efficiency of postpartum depression healthcare services.

"Telemedicine and Postpartum Depression: A Quality Improvement Project" - Loveless-Yates (2023)	Quality improvement project	Telemedicine interventions enhance awareness, diagnosis, and treatment of postpartum depression; research gap on the broader context and efficiency of postpartum depression healthcare services.	Research gap concerning the broader context, specifically the extent to which telemedicine enhances the efficiency of postpartum depression healthcare services.
"Effectiveness of Telemedicine Interventions for Maternal Depression: A Systematic Review and Meta-Analysis" - Nair et al. (2018)	Systematic review and meta-analysis	Telemedicine interventions show improvement in depression scores; limited evidence supporting telemedicine for MD intervention; research gap at Access Afya in Kenya.	Research gap in the specific context of Access Afya in Kenya, underscoring the limited evidence supporting the use of telemedicine for maternal depression intervention.
"Telemedicine Encounters in Pregnancy-Related Services: Safety, Quality, and Continuity" - Healy et al. (2023)	Exploration of increased telemedicine encounters	Telemedicine shows potential benefits; research gap in understanding the extent to which telemedicine enhances the continuity of postpartum depression healthcare services.	Research gap concerning the continuity of postpartum depression healthcare services, warranting further investigation.
"Impact of Telehealth on Postpartum Care during the COVID-19 Pandemic" - Arias et al. (2022)	Retrospective cohort study	Telehealth increases postpartum visit attendance; research gap in nuanced impacts on contraception choices at Access Afya in Kenya.	Research gap concerning the extent to which telehealth enhances the continuity of postpartum depression healthcare services, specifically in the context of contraception choices at Access Afya in Kenya.
"Telemedicine in Perinatal Mental Health: Challenges, Advantages, and a Hybrid Model" - Wassef and Wassef (2022)	Exploration of challenges and advantages	Telemedicine offers enhanced accessibility; research gap in understanding the extent to which telemedicine enhances the continuity of postpartum depression healthcare services.	Research gap in the specific context of Access Afya in Kenya, emphasizing continuity of postpartum depression healthcare services.
"Telehealth to Address Social Determinants of Health in Pregnancy and Postpartum" - Dixon-Shambley and Gabbe (2021)	Exploration of telehealth modalities	Telehealth improves access to education, disease monitoring, prenatal, and postpartum care; research gap in the continuity of postpartum depression healthcare services at Access Afya in Kenya.	Research gap concerning the extent to which telemedicine enhances the continuity of postpartum depression healthcare services at Access Afya in Kenya.
"Telemedicine Interventions to Improve Pharmacologic Adherence in Mental Disorders" - Basit, Mathews, Kunik (2020)	Thorough search of PubMed and PsycINFO	Telemedicine beneficial in improving medication adherence; need for future research to tailor technology to different types of non-adherence	Research gap in understanding the tailored technology needs for improving medication adherence in the context of postpartum depression healthcare services.

"Telepsychiatry Implementation in Kenya: Patient Engagement through m-Health" - Vicente et al. (2022)	Pragmatic clinical trial	Telepsychiatry enhances patient engagement and treatment adherence; successful telemedicine app; research gap in understanding the extent to which telemedicine enhances the continuity of postpartum depression healthcare services.	Research gap concerning the continuity of postpartum depression healthcare services, specifically at Access Afya in Kenya.
"Telepsychiatry for First-Episode Psychosis in Kenya" - Alston, Bennett, Rochani (2019)	Chart review	Family support crucial for medication and treatment adherence; disengagement rate identified; comprehensive system of care necessary; research gap in understanding the impact of telehealth delivery on engagement.	Research gap in understanding the impact of telehealth delivery on engagement, specifically in the context of first-episode psychosis in Kenya.
"Telepsychiatry for Medication for Opioid Use Disorder: The TEAM-C Initiative" - Talal et al. (2022)	Multi-site, non-blinded, randomized pragmatic clinical trial	Telepsychiatry is feasible and effective for treating opioid use disorder; valuable insights for engagement principles; research gap in understanding the impact on continuity of postpartum depression healthcare services.	Research gap concerning the continuity of postpartum depression healthcare services, specifically in the context of opioid use disorder treatment at Access Afya in Kenya.

2.5 Conceptual Framework

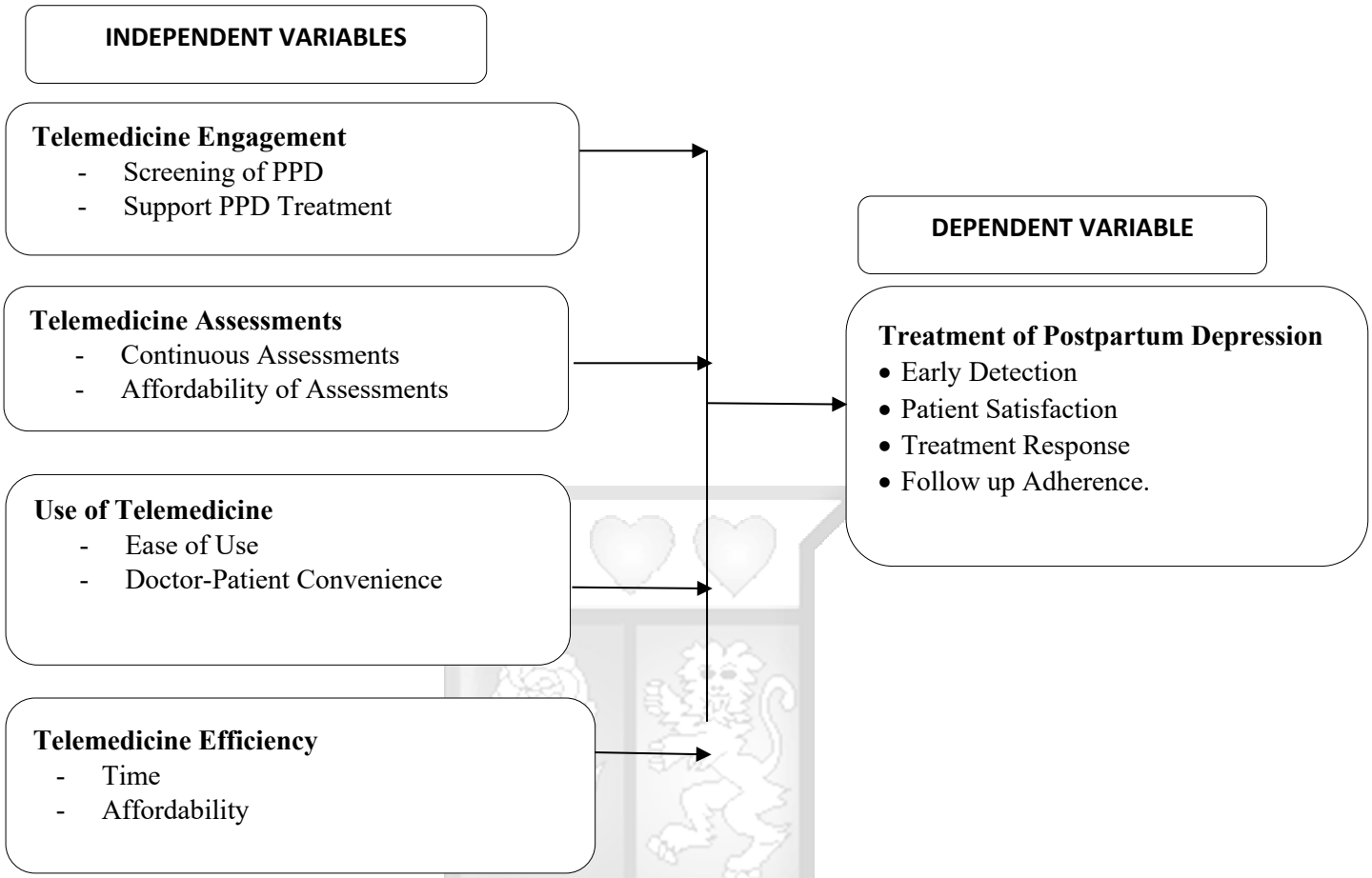

Figure 2. 1: Conceptual Framework

Table 2. 2: Operationalization Table

Variable	Type of Variable	Operationalization	Measurement	Sources
Treatment of Postpartum Depression	Dependent Variable	• Early Detection • Patient Satisfaction • Treatment Response • Follow up Adherence.	Likert Scale	Saksena, Hu & Evans, (2014)
Telemedicine Engagement	Independent Variable	- Screening of PPD - Support PPD Treatment	Likert Scale	Saksena, Hu & Evans, (2014)
Telemedicine Assessment	Independent Variable	- Continuous Assessments - Affordability of Assessments	Likert Scale	Saksena, Hu & Evans, (2014)
Use of Telemedicine	Independent Variable	- Ease of Use - Doctor-Patient Convenience	Likert Scale	Saksena, Hu & Evans, (2014)
Telemedicine enhances patient engagement	Independent Variable	- Time - Affordability	Likert Scale	Saksena, Hu & Evans, (2014)

2.6 Summary of the Chapter

The chapter provides a comprehensive review of the research landscape, encompassing a general literature review of theoretical foundation and empirical studies. The theoretical foundation incorporates key theories, diffusion of innovation theory and psychoanalytic theory, to provide a robust framework for understanding the adoption and acceptance of telemedicine for mental health services. While diffusion of innovation theory elucidates the process of innovation adoption and psychoanalytic theory delves into the psychological dimensions of perception. However, the chapter acknowledges criticisms of these theories, such as oversimplification, neglect of contextual factors, and lack of empirical support.

The empirical studies reviewed reveal several research gaps in the current understanding of telemedicine's impact on postpartum depression (PPD) healthcare at Access Afya in Kenya. Firstly, in the domain of enhancing accessibility, while Furlepa et al. (2022) emphasized the interconnected nature of barriers, there is a need for further exploration of specific barriers in the context of Access Afya. Similarly, Zhao et al. (2021) identified a research gap in the context of Access Afya regarding the efficiency of telemedicine in treating PPD, urging for better-designed studies. Regarding the continuity of care, despite positive outcomes, Healy et al. (2023) and Dixon-Shambley and Gabbe (2021) highlight a lack of understanding of telemedicine's impact on postpartum depression healthcare continuity. Lastly, in terms of patient engagement, while Vicente et al. (2022) showcased the effectiveness of a telemedicine app in Kenya, there is a research gap in understanding patient engagement specifically in the context of PPD at Access Afya. These conceptual and contextual gaps indicate the need for more targeted and context-specific investigations to inform and enhance telemedicine interventions for postpartum depression in the Kenyan setting.

The current study aims to address these gaps by focusing on a specific postpartum depression health organization in Kenya, exploring the adoption of telemedicine from both provider and user perspectives. Additionally, it aims to integrate diverse theoretical lenses to provide a holistic understanding of the factors influencing telemedicine adoption. Through an in-depth exploration of the Kenyan healthcare landscape, the study seeks to contribute nuanced insights that can inform future telemedicine implementations and policies in the mental health domain.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the methodology which was employed during the study. Therefore, the areas of the study and reasons which underpin the choice of area are explained. In this chapter, explanations of research philosophy and design, the population and sampling procedures, data collection methods and procedures, the research quality based on the reliability and validity of the data and methods are and finally how data was analyzed.

3.2 Research Philosophy

Research philosophy refers to the set of beliefs, assumptions, and principles that guide the design and conduct of research, influencing the researcher's worldview and shaping decisions about the nature of reality, knowledge, and the process of inquiry (Creswell & Creswell, 2017). It serves as the foundation for choosing research methods, data collection, and data analysis techniques, providing an overarching framework that underpins the entire research process (Saunders et al., 2018).

This study adopts an interpretivist research philosophy to explore the importance of telemedicine in postpartum depression healthcare at Access Afya in Kenya. Interpretivism, as highlighted by Jones (2022), enables a holistic examination of social phenomena, allowing for in-depth insights into respondents' experiences on impact of telemedicine on PPD patients. The choice of interpretivism aligns with the study's goal of understanding the subjective experiences, perceptions and interpretations.

3.3 Research Design

Research design is a structured plan or blueprint that outlines the systematic process to be followed in collecting, analyzing, and interpreting data in a research study. It serves as the overall strategy that guides researchers in addressing their research questions or objectives, determining the type of data needed, and selecting the appropriate methods for data collection and analysis. The chosen research design shapes the study's validity, reliability, and generalizability of findings, making it a crucial aspect of the research process (Creswell & Creswell, 2017).

In line with the research objectives, the study will adopt an exploratory research design. This is due to its investigative nature, aiming to explore and understand the potential impact of telemedicine interventions on postpartum depression care (Yin, 2018). Given the relatively limited existing literature on the use of telemedicine for postpartum depression in the Access Afya setting in Kenya, an exploratory approach allows for the exploration of new ideas, phenomena, and relationships. This design enables researchers to gather qualitative data, such as insights from healthcare providers and patients, to gain a deeper understanding of the complex factors influencing telemedicine engagement, impact on early detection, treatment adherence, and patient satisfaction. Additionally, an exploratory design can help identify gaps in current practices, inform the development of hypotheses for future studies, and guide the implementation of effective telemedicine interventions tailored to the needs of postpartum depression patients in the Access Afya Kenya setting.

3.4 Study Site

The study was undertaken at Access Afya Kenya facilities, which is a company with a total of 15 branches across the country. However, this study only required respondents from only 6 of the 15 branches. These six are the branches that majorly deal in teleconsultations, and they include; Access Afya Clinic Nairobi West, Access Afya Clinic Reuben, Access Afya Sinai Clinic, Access Afya Clinic Kisii, Access Afya Clinic Kwa Njenga, and Access Afya Kiambu Clinic.

The Nairobi West branch is comprised of IT managers, and IT teams, together with doctors who primarily consult with patients remotely. The IT staff provides technical support to ensure that the consultations are carried out successfully. The administration staff on the other hand ensures that the administrative functions of the branch are executed accordingly. The other 5 branches hold in-person consultations as well as teleconsultations.

3.5 Population and Sampling

A study population refers to the entire group of individuals or elements that share common characteristics and are the subject of investigation in a research study. In the context of this study. The population of this study will be 205 doctors, from the Access Afya branches that majorly deal with teleconsultations. The study deals with all doctors and not just psychiatrists, because of the possible nature of interactions of the PPD patients with other doctors.

The study targeted a sample size from the 205 eligible respondents, and therefore there was need to undertake sampling in the study. A census study was undertaken, targeting the doctors at all the six mentioned branches of Access Afya Kenya.

3.5.1 Sampling Technique

The study employed stratified random sampling techniques. In this technique, the population is divided into strata that are comprised of the Access Afya hospital branches in the country. Table 3.1 indicates the sampling distribution table that will be adopted by the study. The study aimed to ascertain the population distribution across the six telemedicine-offering Access Afya hospital branches in the country by utilizing demographic data. Through this analysis, the study sought to establish the proportion of doctors in each branch, expressed as a percentage of the total population of doctors in Access Afya. By understanding the population distribution across the hospitals, we can appropriately get the sample size for the study. Therefore, these percentages subsequently served as a crucial factor in determining the sample size taken up for this study.

Table 3. 1: Population Distribution Table

Branch	**Number of Doctors**	**Percentage**
Nairobi West	50	24.4
Reuben	20	9.8
Sinai	30	14.6
Kisii	15	7.3
Kwa Njenga	40	19.5
Kiambu	50	24.4
Total	**205**	**100%**

Source: Access Afya, (2023)

3.5.2 Sample Size

Yamane formula is a convenient method that could be used for sample size determination when there are finite populations. The formula is basically:

$n = N/(1+N * e^2)$

n is the sample size

N is the population size (205) and e is the margin of error (0.05).

This formula gives a sample size of 136 respondents who will be targeted by the study as indicated in Table 3.2

Table 3. 2: Sample Size Distribution

Branch	**Percentage**	**Number**
Nairobi West	24.4%	33
Reuben	9.8%	13
Sinai	14.6%	20
Kisii	7.3%	10
Kwa Njenga	19.5%	27
Kiambu	24.4%	33
Total	**100%**	**136**

Source: Access Afya, (2023)

3.6 Data Collection Methods

This research utilized a questionnaire as the method for data collection. The study aims to gather primary data through the distribution of surveys. These questionnaires will take the form of an online survey administered through provided links. Participants will be requested to complete all survey questions before submitting their responses. Upon submission, the collected data will be compiled and stored in a Google Sheet for subsequent analysis.

3.7 Research Quality

In this section, the quality of the research is taken into consideration. The validity, reliability and piloting of the research will be explained.

3.7.1 Reliability

Reliability refers to the consistency and stability of measurement, indicating the extent to which a research instrument or method produces consistent results when applied repeatedly under similar

conditions. In research, ensuring reliability is crucial as it enhances the trustworthiness and credibility of study findings. It is undertaken to establish the dependability of measurements and to minimize the impact of variability or error, thus allowing researchers to draw accurate and meaningful conclusions from their data. In this study, the Cochran test will be employed to assess the reliability of the research instrument. The Cochran test is particularly suitable for examining the consistency of categorical data, making it apt for evaluating the reliability of survey responses or other categorical measurements in the context of this research.
In this study, a cut-off threshold value of 0.7 will be employed. Indicators producing values below 0.7 will be deemed unreliable and subsequently revised. Variables exhibiting an alpha score of 0.7 and above will be incorporated into the main survey without further modifications to the research instrument. This rigorous assessment will contribute to the overall robustness and validity of the study's findings by ensuring that the data collected is consistently reliable throughout the research process.

3.7.2 Validity

Validity is described as the level to which results derived from the analysis of data correspond to the objective of the study (Mugenda &Mugenda, 2003). Ensuring validity in a study is paramount as it addresses the accuracy and appropriateness of the research instrument in measuring what it is intended to measure. Validity is crucial for maintaining the integrity of study results and the meaningfulness of the conclusions drawn from collected data. In the first instance, Access Afya Kenya has a good number of engagements of PDP patients that average around 500 cases per year in a single branch. The health facility has therefore adequate knowledge and experience in dealing with PDP patients through the use of Telemedicine and they would therefore provide adequate feedback in relation to use of Telemedicine on PDP patients. The Kaiser-Meyer-Olkin (KMO) test will be employed to assess the validity of the research instrument. A threshold value of 0.7 will be employed. Indicators having values below 0.7 will be deemed unreliable and subsequently revised. Variables exhibiting an alpha score of 0.7 and above will be incorporated into the main survey without further modifications to the research instrument. The KMO test is well-suited for this purpose as it will evaluate the sampling adequacy for factor analysis, providing insights into the suitability of the collected data for such analytical techniques. By employing the KMO test, this research aims to ensure that the measurements and variables selected are conceptually and

empirically aligned with the study's objectives, reinforcing the overall credibility and trustworthiness of the study's findings.

3.7.3 Piloting

Piloting is the first step of the entire research protocol and is often a smaller-sized study assisting in planning and modification of the main study. (Arnold DM., et.al. 2009). Piloting assists in testing the validity and reliability of the study, getting knowledge on whether a project is ready for implementation, gives insight into the true scope of the project, provides timing and provides data that may be used during the research.

The questionnaire was pretested on a selected sample, different from the actual sample. In this study, the questionnaire was shared with 15 healthcare providers from Nairobi West Hospital dealing with teleconsultation and mental health. The pretests assisted in knowing whether the respondents understand the questions, and therefore facilitate improving the questionnaire.

3.8 Data Analysis

Data analysis involves interpreting data collected through logical and analytical reasoning to determine patterns, trends, or relationships. Data collected from the online questionnaire or survey will be analyzed for completeness using SPSS version 25.

Descriptive analysis was employed in this study, wherein was presented in tables showcasing key statistical measures such as mean, median, mode, and standard deviation. This approach facilitated a comprehensive understanding of the central tendency within the data, offering a clear and organized representation for effective interpretation and analysis. Furthermore, the study incorporated inferential analysis, specifically employing correlation and regression analysis. These statistical techniques were utilized to explore and infer relationships and dependencies within the data, allowing for a deeper understanding of potential associations between variables and supporting the formulation of meaningful conclusions.

The regression model will be in form of:

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

Where:

Y – Treatment of PPD Patients

X_1 - Telemedicine Engagement

X_2 - Telemedicine Assessments

X_3 – Improved Use of Telemedicine

X4 – Telemedicine Efficiency

α – Y- intercept

β_1, β_2, β_3 and β_4 are respective constants of X_1, X_2, X_3 and X_4

ε - The error term

3.9 Ethical Considerations

Conducting the proposed study on the impact of telemedicine on postpartum depression healthcare at Access Afya in Kenya necessitated a stringent commitment to ethical considerations. Firstly, the research sought to adhere to the guidelines outlined in the Declaration of Helsinki, ensuring the protection of participants' rights, well-being, and confidentiality throughout the study. In compliance with Kenyan ethical standards, the study also sought approval from the Strathmore University Institutional Scientific Ethics Review Committee (SU-ISERC) before commencing any data collection activities. Informed consent was obtained from all participants, emphasizing voluntary participation, the purpose of the study, and the assurance of data confidentiality. The study prioritized the principle of justice, ensuring equitable representation and access to telemedicine services without any form of discrimination. Additionally, measures were put in place to address and mitigate any potential harm or distress experienced by participants during the study. Continuous ethical oversight was maintained, and any unforeseen ethical challenges were to be reported to the relevant authorities for prompt resolution, upholding the highest standards of research integrity and participant protection.

The study was disseminated through various channels to ensure widespread awareness and engagement. In the first instance, academic journals relevant to healthcare and telemedicine are targeted for publication, reaching professionals and researchers. The study was also published in the University repository to be accessible to future student researchers. Additionally, local community health centers and Access Afya clinics host seminars and workshops to share findings directly with healthcare providers (doctors) and community members.

CHAPTER FOUR:

ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

The contents of this chapter entail the findings that were preceded by the analysis of the data collected as outlined in the previous chapter. This encompassed the process of describing the data sample and participants as well as the findings of the reliability and validity tests. Descriptive and subsequently inferential statistics were undertaken where the latter took the form of correlation and regression analyses. The summarized findings and discussions were also conducted at the end of the chapter.

4.2 Research Participants

The general questions indicated that majority of the respondents were healthcare practitioners aged between 25-34 years, while the minority of the study participants were of the age 18-24 years as indicated in Figure 4.1.

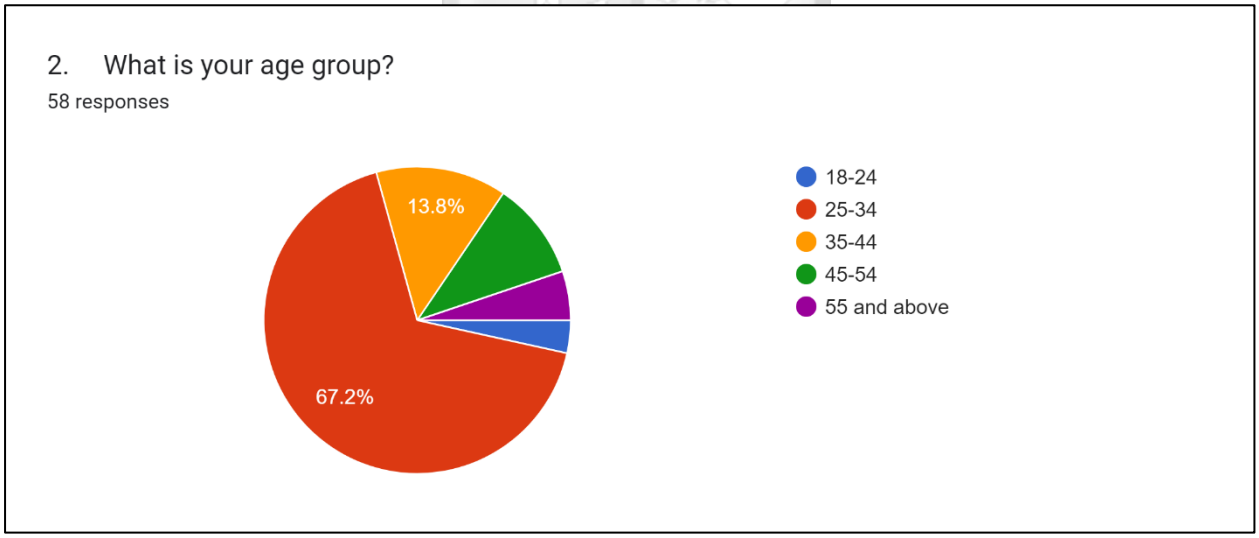

Figure 4. 1: Graph Showing Age Group

In terms of work experience it was noted that a good number of the population had been employed at the institution for more than five years at 31%. However overall, most of the respondents had spent less than 3 years at Access Afya, Kenya with 32.8% and 29.3 percent of the population having spent 1-3 years and less than a year respectively as depicted in figure 4.3 below.

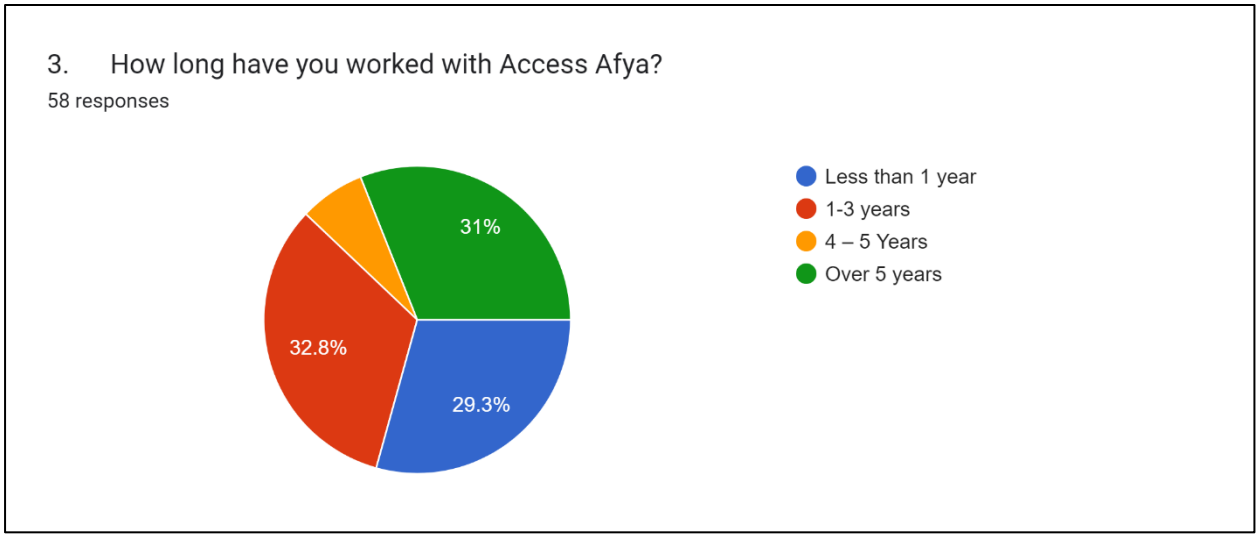

Figure 4. 2: Work Experience

4.3 Reliability and Validity Tests

Validity is used to assess the extent to which the research undertaking measures and what it intends to measure. Reliability on the other hand tests the consistency and stability of measurements under a period of time. Kaiser-Meyer-Olkin (KMO) test is a measure of sampling adequacy, indicating whether the variables in your study are suitable for factor analysis. Typically, a KMO value above 0.6 is considered acceptable, suggesting that your data is appropriate for factor analysis (Roberts & Priest, 2006).

Cronbach's alpha was used to assess reliability. It measures the internal consistency of the scale or questionnaire items, indicating how closely related a set of items are as a group. Generally, a Cronbach's alpha value above 0.7 is considered acceptable for research purposes, though some researchers may consider values as low as 0.6 acceptable. The decision rule for Cronbach's alpha is that higher values indicate greater reliability. However, if the alpha coefficient is too high (close to 1.0), it may suggest redundancy among the items, indicating that some items could be removed to improve the scale's efficiency (Hancock & Mueller, 2010).

Table 4. 1: Validity and Reliability Tests

Variable	N of Items	Cronbach's Alpha	KMO Statistics	Decision Rule
Treatment of PPD	11	.894	.848	Accept
Telemedicine Engagement	5	.873	.883	Accept
Telemedicine Assessment	5	.883	.889	Accept
Telemedicine Use	5	.893	.961	Accept
Telemedicine Efficiency	5	.945	.906	Accept

The test indicated that the data collected for the completion of the study was indeed reliable with each of the variables having a score above the 0.7 threshold. On a similar note, the KMO test was also indicative of the validity of the data under use since all the scores were also above the accepted 0.6 threshold for data validity. Piloting as well proved key to enriching the content of the Likert scale questionnaire thus enhancing the data that was collected

4.4 Descriptive Statistics

Each of the variables that were being tested were first analysed descriptively with the mean, mode, and standard deviation for the responses to the statements being divulged. It was indicative of the manner with which each of the study variables was regarded by the study population with the overall responses also indicated for each variable.

4.4.1 Telemedicine on Post Partum Depression Treatment

Respondents were tasked to assess the factors as they affect the operations of Access Afya, Kenya with regards to the implementation of telemedicine to their PPD efforts and concerns. The respondents were required to state their level of agreement with the following statements.

B1 The availability of telemedicine tools has improved the efficiency of diagnosing and managing PPD cases.

B2 Patients express satisfaction with the level of emotional support provided during their PPD treatment at Access Afya Kenya.
B3 The telemedicine platform used for PPD treatment facilitates effective communication between healthcare workers and patients.
B4 Healthcare workers at Access Afya Kenya demonstrate a good understanding of the treatment protocols for managing PPD.
B5 Patients report a high level of confidence in the effectiveness of the treatment received for PPD at Access Afya Kenya.
B6 The follow-up procedures implemented by Access Afya Kenya help ensure patients adhere to their treatment plans for PPD.
B7 IT systems at Access Afya Kenya adequately support the telemedicine services provided for PPD treatment.
B8 Healthcare workers receive sufficient training and support to effectively use telemedicine tools for PPD management.
B9 The approach to managing PPD at Access Afya Kenya is patient-centered and responsive to individual needs and preferences.
B10 The current screening procedures for postpartum depression (PPD) at Access Afya Kenya effectively identify high-risk patients early.
B11 Patients express satisfaction with the level of emotional support provided during their PPD treatment at Access Afya Kenya.

The respondents were in general agreement with the statements as indicated by the mode of five for most of the questions with a positive perception also being noted on the impact of telemedicine on treatment of PPD. The lowest means for the questions were indicative of lower agreement with a patient-centered approach and the overall satisfaction with emotional support with questions B9 and B11

Table 4. 2: Frequencies of attitudes towards PPD treatment

Statistics											
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
Valid	58	58	58	58	58	58	58	58	58	58	58
Missing	0	0	0	0	0	0	0	0	0	0	0
Mean	3.91	3.97	4.14	4.00	3.95	4.07	3.83	3.86	3.79	4.02	3.79
Mode	5	5	5	5	5	5	5	5	5	5	5
Std. Deviation	1.189	1.184	1.131	1.214	1.191	1.255	1.244	1.206	1.253	1.207	1.295

4.4.2 Telemedicine Engagement

The respondents were tasked with divulging the state of engagement with telemedicine by answering the queries as follows

C1 Telemedicine consultations have increased accessibility to depression screening and support for postpartum women who might otherwise have difficulty accessing in-person services.

C2 The availability of telemedicine options has encouraged more postpartum women to seek depression screening and support compared to traditional in-person consultations.

C3 Postpartum women are more likely to engage in telemedicine consultations for depression screening and support due to the convenience and flexibility it offers in accessing healthcare services.

C4 Telemedicine engagement has led to a noticeable increase in the number of postpartum women seeking timely assistance for depression symptoms, contributing to early intervention and improved outcomes.

C5 The utilization of telemedicine for depression screening and support has effectively reached underserved populations, including those in remote or rural areas, thereby increasing overall engagement among postpartum women.

The general consensus around the engagement of telemedicine was positive as seen by the mean scores which ranged from 3.69 to 3.97 as seen by table below. This indicates a general positive agreement from the respondent pertaining to the effect of telemedicine engagement in the treatment of women with postpartum depression.

Table 4. 3: Frequencies of the effect of telemedicine engagement

Statistics						
		C1	C2	C3	C4	C5
N	Valid	58	58	58	58	58
	Missing	0	0	0	0	0
Mean		3.91	3.97	3.93	3.93	3.69
Median		4.00	4.00	4.00	4.00	4.00
Std. Deviation		1.174	1.169	1.212	1.153	1.188

4.4.3 Telemedicine Assessments

The respondents were posited with questions that would test their degree of agreement with the following statements as they pertain to telemedicine assessment

D1 Telemedicine assessments have enabled earlier detection of postpartum depression symptoms compared to traditional in-person assessments.
D2 The use of telemedicine tools for depression assessments allows for more frequent monitoring of postpartum women's mental health, facilitating early detection of potential concerns.
D3 Healthcare providers are able to identify signs of postpartum depression sooner through telemedicine assessments, leading to prompt intervention and support.
D4 Telemedicine assessments have improved the efficiency of identifying postpartum depression symptoms, reducing the risk of undiagnosed cases and associated complications.

D5 Postpartum women express confidence in the accuracy and effectiveness of telemedicine assessments for detecting depression symptoms early, contributing to timely access to appropriate care and support.

The mean scores range from 3.78 to 4.03 suggested a positive perception of telemedicine assessment and its effect on treatment of PPD. This means that overall telemedicine aided in early detection and care. This also facilitates support and knowledge on the associated complications.

Table 4. 4: Frequencies of the effect of telemedicine assessment in treating PPD

Statistics						
		D1	D2	D3	D4	D5
N	Valid	58	58	58	58	58
	Missing	0	0	0	0	0
Mean		3.78	4.03	3.78	3.95	3.83
Median		4.00	4.00	4.00	4.00	4.00
Std. Deviation		1.125	1.092	1.155	1.050	1.062

4.4.4 Improved Use of Telemedicine

The implementation of telemedicine and its utility in use were assessed as per the questions posited in the questionnaire below

E1 Postpartum women report a higher level of adherence to their depression treatment plans since incorporating telemedicine-based follow-up sessions into their care.
E2 The convenience of telemedicine follow-up sessions has contributed to improved treatment adherence among postpartum women diagnosed with depression.
E3 Healthcare providers have observed a noticeable increase in treatment adherence among postpartum women receiving telemedicine-based support compared to those receiving only in-person care.

E4 Postpartum women express a stronger sense of accountability and commitment to their depression treatment regimen following telemedicine-based consultations and support sessions.
E5 The integration of telemedicine into postpartum depression care has resulted in more consistent and regular engagement with treatment protocols, leading to better overall treatment adherence and management outcomes.

The statements all ranged with a mode of 4 indicating a high positive perception of the use of telemedicine and the improvements it has undergone over time to treat the instances of PPD as they happen.

Table 4. 5: Frequencies of the effect increased use of telemedicine has had on the treatment of PPD

Statistics						
		E1	E2	E3	E4	E5
N	Valid	58	58	58	58	58
	Missing	0	0	0	0	0
Mean		3.83	4.05	3.98	4.00	4.02
Median		4.00	4.00	4.00	4.00	4.00
Std. Deviation		1.110	.981	1.000	1.009	1.051

4.4.5 Telemedicine Efficiency

The levels of telemedicine efficiency in treating patients with PPD among the population were assessed as per the questions below

F1 Postpartum women report high levels of satisfaction with the convenience and accessibility of receiving depression care through telemedicine platforms.

F2 The efficiency of telemedicine platforms in facilitating timely consultations and follow-up appointments has positively contributed to postpartum women's overall satisfaction with their depression care.

F3 Healthcare providers find that telemedicine platforms enhance their ability to deliver personalized and responsive care to postpartum women with depression, resulting in higher patient satisfaction ratings.

F4 Postpartum women appreciate the ease of communication and interaction with healthcare providers via telemedicine platforms, leading to increased satisfaction with the care received for depression.

F5 The streamlined administrative processes and reduced wait times associated with telemedicine consultations contribute to improved patient satisfaction levels among postpartum women accessing depression care through telemedicine platforms.

The highest mean of 4.09 for statement F2 indicates strong agreement that the efficiency of telemedicine platforms contributes to overall satisfaction with depression care. The mean scores for all statements ranged from 3.90 to 4.09, suggesting a positive perception of telemedicine's efficiency as shown by Table 4.6 below.

Table 4. 6: Frequencies of the efficiency of telemedicine use in treatment of PPD

Statistics						
		F1	F2	F3	F4	F5
N	Valid	58	58	58	58	58
	Missing	0	0	0	0	0
Mean		3.90	4.09	4.05	4.05	3.98
Median		4.00	4.00	4.00	4.00	4.00
Std. Deviation		1.071	.960	1.016	1.016	1.084

4.5 Correlation Analysis

Correlation analysis was undertaken to determine correlations between the use of telemedicine and the treatment of postpartum depression at Access Afya, Kenya.

Table 4. 7: Correlations

	Treatment of PPD	Telemedicine Engagement	Telemedicine Assessments	Telemedicine Use	Telemedicine Efficiency
Treatment of PPD	1.000				
Telemedicine Engagement	.681	1.000			
Telemedicine Assessments	.699	.709	1.000		
Telemedicine Use	.777	.813	.325	1.000	
Telemedicine Efficiency	.665	.761	.452	.882	1.000

Table 4.7 underscores the correlation between the variables with the treatment of PPD having a strong positive correlation to telemedicine use, assessment, engagement and efficiency. This means that the more these aspects of telemedicine increase the more the treatment of PPD within Access Afya, Kenya improves.

4.6 Regression Analysis

The regression model for testing the effect that telemedicine implementation has on the treatment of PPD was significant as it had a 62.2% predictive ability as indicated by Table 4.8 below. It thus holds true for this model that telemedicine contributes 62.2% towards the effectiveness of treatment offered to patients suffering from PPD.

Table 4. 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.789[a]	.622	.593	7.668

a. Predictors: (Constant), Telemedicine Assessment s, Telemedicine Engagement, Telemedicine Efficiency, Telemedicine Use

Table 4. 9: ANOVA Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5128.196	4	1282.049	21.802	.000[b]
	Residual	3116.580	53	58.803		
	Total	8244.776	57			

a. Dependent Variable: Treatment of PPD

b. Predictors: (Constant), Telemedicine Assessments, Telemedicine Engagement, Telemedicine Efficiency, Telemedicine Use

Table 4.9 indicates that the p value is less than 0.05 meaning that telemedicine has a significant effect on the treatment of patients suffering from postpartum depression. Table 4.10 below also indicated the significant and positive relationship between telemedicine and the improvement of PPD treatment to be strongly intertwined. The efficiency, engagement, and assessments of telemedicine, while positively associated with the treatment of PPD, do not show statistically significant effects. This suggest that while they are important components of telemedicine their impact on PPD treatment might encompass variables not included in this study.

Table 4. 10: Regression Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.352	4.639		.723	.473
	Telemedicine Efficiency	-.335	.468	-.130	-.716	.477
	Telemedicine Use	1.629	.590	.634	2.761	.008
	Telemedicine Engagement	.338	.335	.149	1.009	.318
	Telemedicine assessments s	.400	.374	.164	1.071	.289

a. Dependent Variable: Treatment of PPD

4.8 Chapter Summary

The analysis of findings established the effectiveness of telemedicine in the treatment of postpartum depression (PPD) which is in alignment with prior research in the field. Descriptive statistics established an overall positive sentiment with telemedicine and its utility in providing care and support for PPD patients. This ranged from robust communication channels to the support and care system that ensured early diagnosis is and subsequent treatment. Notably, the correlation and regression analysis showed a strong and positive correlation between telemedicine implementation and treatment of PPD patients. Despite telemedicine engagements, assessments, efficiency and increased use having a positive correlation they did not prove statistically significant in predicting the effectiveness of telemedicine in the treatment of PPD.

Existing literature stood underpin this as various studies were found to bear similar findings to the ones attained at Afya Access, Kenya highlighting the need for increased telemedicine in fields across the board in health. Some studies however were focused on external factors as they affect telemedicine as well as the lack of specificity that this study had on the treatment of postpartum depression.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter goes about summarizing the key findings of the study presenting conclusions that were drawn from the analysis of the data that was collected and offer recommendations based on the results. Additionally, it discusses the limitations that the research undertaking may have encountered and areas that could warrant further research in the future.

5.2 Discussion of Findings

The study aimed to investigate the influence of telemedicine practices on the treatment of postpartum depression (PPD) at Access Afya, Kenya. The findings were analyzed and discussed in relation to the existing literature.

5.2.1 Telemedicine on Post-Partum Depression Treatment

The study revealed a significant positive correlation between telemedicine and the treatment of PPD, aligning with previous literature highlighting the effectiveness of telemedicine interventions in addressing mental health issues (Bashshur et al., 2016; Liu et al., 2022; Nair et al., 2018). Respondents acknowledged the improved efficiency of diagnosing and managing PPD cases through telemedicine tools, corroborating findings from Zhao et al. (2021) and Loveless-Yates (2023). The conclusions of this study however differed from Augusterfer (2013) who established barriers to the provision of telemedicine rather than the effect it had in already established locales.

5.2.2 Telemedicine Engagement

The study found positive perceptions regarding the convenience and flexibility offered by telemedicine consultations, leading to increased engagement and timely assistance for postpartum women. This resonates with the work of Furlepa et al. (2022), who emphasized addressing barriers to telemedicine adoption for successful implementation. The study could also be assessed from the perspective of Myers (2019) who assessed the engagement of telemedicine as a means of policy training and rural outreach unlike the findings of the current study that were focused on the perception by the health workers.

5.2.3 Telemedicine Assessments

The study highlighted the potential of telemedicine in improving treatment adherence and continuity of care. Respondents reported higher levels of adherence to treatment plans and a stronger sense of accountability following telemedicine-based consultations and support sessions, bearing similarity to the findings of Basit, Mathews, and Kunik (2020), Healy et al. (2023), and Dixon-Shambley and Gabbe (2021). The assessment of Telemedicine as employed in assessing overall mental established that there were barriers to tele psychiatry and not specifically the treatment of post-partum depression (Augusterfer, 2013). Ealrly detection and support were also highlighted as key tenets of improving the assessment of women who might be susceptible to postpartum depression.

5.2.4 Improved Use of Telemedicine

While the study contributed to the growing body of evidence supporting the efficacy of telemedicine interventions for PPD, it also identified areas for improvement, such as the need for a more patient-centered approach and enhanced emotional support during PPD treatment. This finding aligns with the recommendations of Brooks, Turvey, and Augusterfer (2013) and Vicente et al. (2022).

Other researchers took into account the interventions that telemedicine could present rather than its gradual improvement as it comes under use over time, studies such as those done by Alson, Bennett, Rochani (2019) and Vicente et al. (2022) highlight this discrepancy in findings.

5.2.5 Telemedicine Efficiency

The study underscored the need for context-specific research to address regional disparities and tailor solutions to the unique challenges faced by healthcare providers and patients in different settings. This aligns with the research gap identified by Alston, Bennett, and Rochani (2019) and Talal et al. (2022), who emphasized understanding the impact of telehealth delivery on engagement and continuity of care in specific contexts. The context in the current study is the effect that efficiency and overall telemedicine has on the treatment of postpartum depression.

The ease of communication and correspondence was highlighted by the respondents were women who were suffering from postpartum depression appreciated the prompt service that telemedicine had offered (Loveless-Yates 2023).

5.3 Conclusion

The findings of this study demonstrate the significant positive implications of telemedicine implementation for the treatment of postpartum depression (PPD) at Access Afya, Kenya. The study has successfully achieved its objectives, highlighting the effectiveness of telemedicine interventions in addressing mental health issues, which aligns with the existing body of literature. The increased use of telemedicine sets a precedent for the effectiveness of PPD treatment, emphasizing the importance of adopting and leveraging telemedicine solutions in this context.

Specifically, the study has shown that addressing concerns in postpartum depression treatment through telemedicine interventions can provide efficient and affordable care, while also prioritizing the individual needs and preferences of postpartum women, fostering a holistic and supportive treatment experience. Overall, the study's conclusions underscore the transformative potential of telemedicine in improving the diagnosis, management, and treatment of postpartum depression. By leveraging the benefits of telemedicine, including increased accessibility, early detection, improved treatment adherence, and overall efficiency, Access Afya, Kenya can better support postpartum women and contribute to improved mental health outcomes within the community.

5.4 Recommendations of the Study

The findings led the study to undertake the following recommendations pertaining to each variable of the study.

5.4.1 Treatment of PPD

The study recommended that a patient-centered approach be continually developed by incorporating the patients into the decision-making process, considering their preferences, and tailoring care plans and individual needs. This can be coupled with regular training and awareness programs for healthcare professionals to foster a deeper understanding of patient care and effective communication strategies. The provision of additional support measures could prove to increase the effectiveness of telemedicine interventions in the treatment of PPD. It can also be improved in terms of ensuring equitable access to telemedicine services for all individuals, regardless of socioeconomic status or geographical location. Initiatives that bridge the digital divide and address disparities of telemedicine utilization among underserved populations.

5.4.2 Telemedicine Engagement

The study recommends that the convenience and accessibility of telemedicine should be used to encourage more women to seek PPD preventive care as well a care when they suffer from PPD. Targeted awareness and education campaigns to encouraging screening and support through telemedicine platforms. This should especially be encouraged in areas where telemedicine has not come under wide use and implementation where community collaboration and local authorities can help in outreach to underprivileged women who might have a propensity to suffer form PPD. The patient centered approach should also entail the continuous augmentation of telemedicine platforms to ensure they are user-friendly that enhance the overall user experience and encourage sustained engagement.

5.4.3 Telemedicine Assessment

The research undertaking recommends investment in enhancing the quality and efficacy of telemedicine assessments for PPD. Provide healthcare providers with training and support to ensure that PPD symptoms are accurately and quickly identified during remote consultations. This can also be enhanced by formulating standardized protocols and guidelines for telemedicine care and support to ensure consistency and quality of care across healthcare facilities. Healthcare providers that have less experience cam also undertake comprehensive training programs to enhance their skills in conducting preemptive care, interpreting results, and providing appropriate interventions.

5.4.4 Improved Use of Telemedicine

The study recommends that healthcare workers and institutions encourage postpartum women to feel more accountable and committed to their depression treatment plan by providing periodic monitoring sessions, reminders, and personalized support via telemedicine platforms. This can be implemented to facilitate open interaction and input systems so that any hurdles to treatment adherence can be identified and addressed quickly using telemedicine-based interventions. Investigating the incorporation of telemedicine with other digital health technologies, such as mobile apps or wearable devices, to improve treatment tracking and support could also be a means of sustained improvement. Regular monitoring and evaluation of the effectiveness of telemedicine interventions in PPD treatment. Gathering feedback from healthcare providers and patients alike helps identify areas for improvement and adapt strategies accordingly.

5.4.5 Telemedicine Efficiency

Efficiency of operations necessitates that health care providers Continuously improve telemedicine systems by streamlining administrative processes, shortening wait times, and increasing overall efficiency through user experience enhancements and technological advancements. Implementing strong data security and privacy safeguards to secure patient information and keep trust in the telemedicine system can also enhance overall efficiency of the telemedicine system. Automating administrative processes and decreasing wait times for consultations via telemedicine. Invest in technical innovations to improve telemedicine platform efficiency and reliability, resulting in a better overall customer experience and treatment effectiveness.

5.5 Limitations of the Study

The current study, while giving useful insights into the influence of telemedicine adoption on the treatment of postpartum depression (PPD) at Access Afya, Kenya, is subject to certain drawbacks. One noteworthy restriction is that the study was conducted in a specific healthcare setting since they were only conducted in this context and could not be generalized to other localities. The nuance that may be present at Access Afya Kenya may alter the extent to which its findings can be extended to other contexts.

The study may also suffer from bias by virtue of the population comprising primarily of healthcare practitioners may introduce inaccuracies. The respondents could be influenced by various factors such as perceptions, experiences or a desire to provide answers that may be socially desirable. Furthermore, while the sample size of 58 respondents was acceptable for this study, it may not be truly representative of the entire population of healthcare practitioners at Access Afya in Kenya, thereby limiting the findings' generalizability within the organization.

5.6 Further Areas for Research

The study findings and limitations open up several avenues for future research in the field of telemedicine implementation and the treatment of postpartum depression. One area that warrants further exploration is the long-term effects of telemedicine interventions on the outcomes of PPD patients. Longitudinal studies could also highlight the sustainability that these effects have and identify potential challenges or adaptations require over an extended period.

Examining the cost-effectiveness of telemedicine services against traditional in-person therapy for PPD treatment is another exciting subject for future research. Given the scarcity of healthcare

resources, decision-making processes and resource allocation techniques may benefit from an awareness of the financial effects of telemedicine implementation. Additionally, by utilizing the most recent developments in healthcare technology, investigating the possible integration of telemedicine with other digital health technologies, such as wearables or mobile applications, may present chances to improve PPD monitoring and treatment.

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APPENDICES

Appendix I: Questionnaire

Section A: General Profile

1. Please indicate your role in the company?
   a) Healthcare Worker
   b) IT Specialist
   c) Any other (Specify)
2. What is your age group?
   a) 18-24
   b) 25-34
   c) 35-44
   d) 45-54
   e) 55 and above
3. How long have you worked with Access Afya?
   a) Less than 1 year
   b) 1-3 years
   c) 4 – 5 Years
   d) Over 5 years
4. What is your highest level of qualifications?
   a) High School Certificate
   b) Diploma
   c) Degree
   d) Post Graduate Degree
5. What is your view in regard to use of Telemedicine in treating postpartum depression patients? _____
6. Please indicate some challenges related to use of telemedicine in dealing with mental health illness?

Section B: Treatment of PPD Patients

Indicate the extent to which you disagree or agree with each of the statements in regard to Treatment of PPD Patients

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
The availability of telemedicine tools has improved the efficiency of diagnosing and managing PPD cases.					
Patients express satisfaction with the level of emotional support provided during their PPD treatment at Access Afya Kenya.					
The telemedicine platform used for PPD treatment facilitates effective communication between healthcare workers and patients.					
Healthcare workers at Access Afya Kenya demonstrate a good understanding of the treatment protocols for managing PPD.					
Patients report a high level of confidence in the effectiveness of the treatment received for PPD at Access Afya Kenya.					
The follow-up procedures implemented by Access Afya Kenya help ensure patients adhere to their treatment plans for PPD.					
IT systems at Access Afya Kenya adequately support the telemedicine services provided for PPD treatment.					
Healthcare workers receive sufficient training and support to effectively use telemedicine tools for PPD management.					
The approach to managing PPD at Access Afya Kenya is patient-centered and responsive to individual needs and preferences.					
The current screening procedures for postpartum depression (PPD) at Access Afya Kenya effectively identify high-risk patients early.					

The availability of telemedicine tools has improved the efficiency of diagnosing and managing PPD cases.					
Patients express satisfaction with the level of emotional support provided during their PPD treatment at Access Afya Kenya.					

Section C: Telemedicine Engagements

This section seeks to determine whether telemedicine engagement increases the number of postpartum women engaging in telemedicine consultations for depression screening and support. Please indicate the extent you disagree or agree with each of the statements.

Statement	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Telemedicine consultations have increased accessibility to depression screening and support for postpartum women who might otherwise have difficulty accessing in-person services.					
The availability of telemedicine options has encouraged more postpartum women to seek depression screening and support compared to traditional in-person consultations.					
Postpartum women are more likely to engage in telemedicine consultations for depression screening and support due to the convenience and flexibility it offers in accessing healthcare services.					
Telemedicine engagement has led to a noticeable increase in the number of postpartum women seeking timely assistance for depression symptoms, contributing to early intervention and improved outcomes.					
The utilization of telemedicine for depression screening and support has effectively reached underserved populations, including those in remote or rural areas, thereby increasing overall engagement among postpartum women.					

Section D: Telemedicine Assessments

The sections seeks to consider whether telemedicine enhances the early detection of postpartum depression through telemedicine assessments. Kindly indicate the extent to which you disagree or agree.

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Telemedicine assessments have enabled earlier detection of postpartum depression symptoms compared to traditional in-person assessments.					
The use of telemedicine tools for depression assessments allows for more frequent monitoring of postpartum women's mental health, facilitating early detection of potential concerns.					
Healthcare providers are able to identify signs of postpartum depression sooner through telemedicine assessments, leading to prompt intervention and support.					
Telemedicine assessments have improved the efficiency of identifying postpartum depression symptoms, reducing the risk of undiagnosed cases and associated complications.					
Postpartum women express confidence in the accuracy and effectiveness of telemedicine assessments for detecting depression symptoms early, contributing to timely access to appropriate care and support.					

Section E: Use of Telemedicine

This section examines whether improved use of telemedicine treatment adherence among postpartum women diagnosed with depression through telemedicine-based follow-up sessions and support. Indicate the extent you disagree or agree.

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

Postpartum women report a higher level of adherence to their depression treatment plans since incorporating telemedicine-based follow-up sessions into their care.					
The convenience of telemedicine follow-up sessions has contributed to improved treatment adherence among postpartum women diagnosed with depression.					
Healthcare providers have observed a noticeable increase in treatment adherence among postpartum women receiving telemedicine-based support compared to those receiving only in-person care.					
Postpartum women express a stronger sense of accountability and commitment to their depression treatment regimen following telemedicine-based consultations and support sessions.					
The integration of telemedicine into postpartum depression care has resulted in more consistent and regular engagement with treatment protocols, leading to better overall treatment adherence and management outcomes.					

Section F: Telemedicine Efficiency

Telemedicine efficiency improve patient satisfaction with postpartum depression care delivered through telemedicine platforms. Indicate how you disagree or agree with each of the statements.

Statement	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Postpartum women report high levels of satisfaction with the convenience and accessibility of receiving depression care through telemedicine platforms.					
The efficiency of telemedicine platforms in facilitating timely consultations and follow-up appointments has positively contributed to postpartum women's overall satisfaction with their depression care.					

Healthcare providers find that telemedicine platforms enhance their ability to deliver personalized and responsive care to postpartum women with depression, resulting in higher patient satisfaction ratings.					
Postpartum women appreciate the ease of communication and interaction with healthcare providers via telemedicine platforms, leading to increased satisfaction with the care received for depression.					
The streamlined administrative processes and reduced wait times associated with telemedicine consultations contribute to improved patient satisfaction levels among postpartum women accessing depression care through telemedicine platforms.					

Thank You for your time!

Appendix II: Work Plan

Task	**Duration**	**Time**
Writing Proposal	2 months	December 2023
Defence of Proposal	1 month	January 2024
Data Collection	1 month	February 2024
Data Analysis	2 months	April 2024
Thesis Defense	1 month	May 2024
Graduation	1 month	June 2024

Appendix III: Budget

Activity	**Amount (Kshs)**
Printing Costs and Photocopy	10,000
Airtime and Bundles Cost	5,000
Transport	10,000
Data Collectors	20,000
Miscellaneous	10,000
Total	55,000

Appendix IV: ETHIC REVIEW

Strathmore UNIVERSITY

7th May 2024

Ms Machari Susan,
susan.macharia@strathmore.edu

Dear Ms Machari,

RE: Importance of Telemedicine on Postpartum Depression in Access Afya, Kenya

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** research proposal. Your application reference number is **SU-ISERC2166/24.** The approval period is from **7th May 2024 to 6th May 2025.**
This approval is subject to compliance with the following requirements:

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

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

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC

Appendix V: NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **507650**

Date of Issue: **28/May/2024**

RESEARCH LICENSE

This is to Certify that Miss.. Susan Kabura Macharia of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: Importance of Telemedicine on Post-Partum Depression for the period ending : 28/May/2025.

License No: **NACOSTI/P/24/36118**

507650

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions