

**INVESTIGATING FACTORS INFLUENCING SOCIAL MEDIA
USE BY GRADUATE STUDENTS FOR PERSONAL HEALTH
MANAGEMENT: DEVELOPING A MODEL: AN
EXPERIMENTAL STUDY**

BEHAILU G/MARIAM HAILE

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JIMMA UNIVERSITY

JIMMA INSTITUTE OF TECHNOLOGY



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FACULTY OF COMPUTING AND INFORMATICS

INFORMATION SCIENCE

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**A Ph.D. Dissertation Submitted to the School of Graduate Studies of Jimma
University for the Partial Fulfillment of the Requirements of a Degree of
Doctor of Philosophy (Ph.D.) in Information Science**

BEHAILU G/MARIAM HAILE

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JIMMA, ETHIOPIA

Examination Board Dissertation Approval Sheet

This is to certify that the dissertation entitled as “Investigating Factors Influencing Social media Use by Graduate Students for Personal Health Management: Developing a Model: An Experimental Study” submitted to Jimma Institute of Technology, Faculty of Computing and Informatics for partial fulfillment of the requirements for the degree of Doctor of Philosophy in Information Science complies with the regulations of the university and meet the accepted standards with respect to its originality and quality.

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DECLARATION

I hereby declare that this dissertation is my own, original work. It is being submitted for the Degree of Doctor of Philosophy, to Jimma Institute of Technology, Jimma University, Jimma, Ethiopia. It has not been submitted previously for any other degree or examination in this or in any other institution. Due citation and acknowledgement have been made properly.

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LIST OF ABBREVIATIONS

SM-Social media

NCD-Non-communicable diseases

COVID-19- Corona virus disease of 2019

TB- Tuberculosis

U.S.-United States

USA- United States of America

CDC - Center for Disease Control

WHO-World Health Organization

VR-Virtual Reality

AR-Augmented Reality

UK-United Kingdoms

SMS-Short Message Service

eHealth- Electronics health

mHealth- Mobile health

app- Application

HCP-Healthcare Providers.

TAM-Technology Acceptance Model

HBM-Health Belief Model

OPERETIONAL DEFINITIONS

- *Personal healthcare management*: the management of individual health by preventing disease before occurrence and coping with minimum risk and complications if a disease is happened.
- *Managing Chronic diseases*: the systematic and ongoing application of medical, behavioral, and lifestyle interventions aimed at controlling and mitigating the symptoms, progression, and impact of long-term health conditions. This process involves personalized strategies, including medication adherence, lifestyle modifications, regular medical monitoring, and patient education, with the overarching goal of optimizing the individual's well-being, minimizing complications, and improving overall quality of life in the context of chronic health conditions.

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EXECUTIVE SUMMARY

Chronic diseases often referred to as "silent killers," pose a growing global health challenge, contributing to increased mortality rates and placing a substantial burden on healthcare systems. Chronic diseases, characterized by their prolonged and often progressive nature, encompass a range of health conditions that persist over an extended period. Conditions like heart disease, high blood pressure, diabetes, chronic kidney disease, and mental health disorders are categorized under chronic diseases. According to the Global Burden of Disease studies, the estimated death rate for non-communicable disease in Ethiopia stands at 800 per 100,000 populations, underscoring the severity of the issue within the country. Graduate students are crucial demographic face unique challenges as they juggle academic responsibilities and professional commitments. Prevalence of chronic diseases among graduate students is a growing concern, compounded by limited time to seek information from healthcare providers. The demands on their schedules often hinder their ability to access healthcare resources, exacerbating the problem. Moreover, the lack of trustworthy information sources further compounds the issue, leaving graduate students with insufficient knowledge to proactively manage their health and address the risks associated with chronic diseases. Addressing this gap is essential for empowering graduate students to make informed decisions about their well-being, fostering a healthier and more resilient academic community.

Social media emerges as the ideal solution to address the existing gap in healthcare information about chronic diseases. The dearth of accessible and reliable information on chronic diseases for graduate students underscores the need for innovative approaches, and social media stands out as a promising avenue. Despite its potential, there remains an important gap in research regarding the specific uses of social media for the management of chronic diseases, particularly in the context of graduate students. This study aims to bridge this critical research gap by exploring the factors influencing the use of social media platforms, such as Telegram and Facebook, for personalized health management among graduate students. The ultimate goal is to contribute valuable insights that can guide the development of effective strategies for leveraging social

media to promote health awareness and proactive health management in the face of chronic diseases.

The research provides a comprehensive review of literature about the intersection of social media and personal healthcare management. Beginning with an exploration of chronic diseases, the discussion unfolds to elucidate the role of various social media platforms, including Facebook, Twitter, WhatsApp, and Skype—highlighted as the foremost platforms of 2021. The review literature delves into the relationship between social media and students, drawing from diverse sources to illuminate the experiences and practices of university students across different countries. Furthermore, it investigates the application of social media in healthcare, emphasizing its impact on personal healthcare management. The literature review culminates by examining theoretical foundations such as the Health Belief Model, Social Capital Theory, and the Technology Acceptance Model, providing a robust framework for the ensuing research.

The study employed a multifaceted approach, utilizing both cross-sectional and experimental designs, to thoroughly investigate the impact of social media on the adoption and effectiveness of personalized health management strategies among graduate students in Ethiopian universities. The cross-sectional design involved graduate students from Jimma, Mizan-Teppi, Adama, and Bonga universities, selected through robust stratified random sampling to ensure diverse representation within the Colleges of Business and Economics and Technology. Data collection involved a structured questionnaire, administered through paper printed form for baseline data collection, the purpose of it is to understand the status of respondents before the intervention. Google Forms data collection was used to gather the responses of the study participants after the intervention; it is used to understand the impact of the intervention on the respondent's healthcare management. Statistical analyses were conducted using SPSS version 20, including descriptive statistics and logistic binary regression to measure the association between independent variables and social media utilization for personal healthcare management. The experimental design, targeting the same universities, categorizes participants into control and experimental groups, with a sample size of 282 distributed and randomly assigned. The intervention, exclusive to the experimental group, employs Facebook and Telegram to deliver 21 educational sessions on chronic diseases, incorporating multimedia elements for diverse learning preferences. Hypotheses were carefully crafted and aligned with model variables, with statistical

analyses employing reliability tests and linear regression to evaluate relationships between social media influence and chronic disease management. This comprehensive approach aims to provide insights into the intricate dynamics of social media's impact on personalized health management among graduate students, contributing to both theoretical knowledge and practical healthcare interventions

The research outcomes showed a multifaceted perspective on the intersection of social media and chronic disease management among graduate students. Particularly the demographic analysis before the intervention underscores those individuals aged 25 to 30 exhibit a fourfold likelihood of utilizing social media for managing chronic diseases, while those aged 31 to 35 show a twofold likelihood. Despite these age-related trends, the overall use of social media for chronic disease information is found to be limited among students. Additionally, Facebook has emerged as the preferred platform for accessing healthcare content, particularly related to diet advice and walking techniques. The intervention results demonstrate that while baseline data indicated no significant group differences, post-intervention data revealed substantial improvements within the experimental group in healthcare knowledge and management dimensions. Specific diagnoses within this group surged from 7.8% to 86.5%, and platform utilization for healthcare purposes increased from 14.2% to 40.4%. A meticulous reliability test assures the internal validity of the study items. Furthermore, a correlation analysis reveals highly significant relationships between all studied items, highlighting strong interconnections. The hypotheses, rigorously tested through regression analysis, substantiate the impact of social media on chronic disease management. Overall, these findings provide a shade of understanding of the demographic dynamics, platform preferences, and the efficacy of interventions in leveraging social media for healthcare information among graduate students, offering valuable insights for future healthcare strategies.

The dissertation's multifaceted conclusions shed light on the nuanced dynamics of utilizing social media in chronic disease management among graduate students. The first key conclusion underscores that the students while utilizing social media primarily for acquiring information about chronic diseases, exhibit a constrained approach. Despite Facebook being the favored platform for specific healthcare content, the findings emphasize a pressing need for increased attention and encouragement to harness social media for various aspects of personal health

management. The second conclusion highlights the significant positive impact of the study's intervention on the experimental group, demonstrating notable increases in all measured outcomes post-intervention. This approach, tailored to accommodate the time constraints of graduate students, not only empowers them to enhance their understanding of chronic diseases but also promotes informed health decisions. It accentuates the pivotal role of social media in fostering healthcare awareness and engagement within the graduate student demographic. The third and final conclusion positions the research as an ambitious endeavor to construct a model for leveraging social media in chronic disease management. Drawing on established theories such as Social Capital, Health Belief, and Technology Acceptance, the study explores various factors influencing attitudes and behaviors. The comprehensive methodology, involving graduate students, a structured questionnaire, and robust statistical analyses, provides compelling insights and confirms the hypotheses' validity through linear regression. This research enriches the realms of healthcare and social media knowledge, accentuating the evolving role of social connections, beliefs, and technology in effective chronic disease management through social platforms. Overall, the study contributes to a deeper understanding of the intricate interplay between social media and graduate students' approaches to managing chronic diseases, offering valuable insights for future healthcare strategies.

Keywords: Social Media, Personal, Management, Chronic, Graduate, Intervention, Healthcare

CHAPTER ONE

1. Introduction

1.1 Background and Justification

Chronic diseases often referred to as "silent killers," represent an escalating global health challenge. These conditions frequently remain asymptomatic, making early diagnosis and timely intervention is daunting. The limited availability of trustworthy information sources on chronic diseases exacerbates this issue, perpetuating a widespread lack of awareness and understanding of the nature of these ailments. Access to knowledge about chronic diseases is primarily limited to interactions with healthcare providers; Occurs only when individuals seek medical attention or consultation with physicians. Consequently, this knowledge gap significantly impedes individuals from proactively managing their health. In many cases, these diseases are only diagnosed incidentally during clinical visits for other health concerns, often at a stage where treatment options are limited and lifelong medication becomes the prescribed course of action. However, emerging informal sources, such as social media and social networking platforms, hold the potential to empower individuals to take charge of their health and preempt the complications associated with chronic diseases.

Social media (SM) has emerged as a prominent platform heavily frequented by university students, significantly consuming their time (Satya, 2020). Within this digital realm, SM wields substantial potential to shape attitudes and behaviors, fostering the adoption of healthier lifestyles(Lin & Kishore, 2021). SM has played a pivotal role in elevating healthcare quality by enhancing the knowledge base of both professionals and patients regarding health-related matters (Alghafri et al., 2018). It transcends its initial role as a source of entertainment to become a vehicle for disseminating information capable of exerting a tangible impact on human behavior(Cherak et al., 2020). Previously designed for personal interactions within limited confines, SM has since proliferated widely, encompassing diverse users, including healthcare institutions, all of whom harness its transformative potential (Chawla et al., 2021). Carr and Hayes (2015) provide the following definition for Social Media (SM): "Internet-based channels that enable users to engage spontaneously and present

themselves selectively, either in real-time or asynchronously, to both wide and specific audiences who find value in user-generated content and the perception of interacting with others."

The advent of social media, defined as a virtual network technology mainly based on computers for exchanging ideas, feelings, and information (Dollahide, 2019), shifts the paradigm of social networking by alleviating the limitations of personal interaction by creating virtual relationships. Social media is also defined as "Internet-based applications (apps) that allow the creation and exchange of user-generated content" (Kaplan, 2010). The overview of social media use showed that 4.76 billion people, or 59.4% of the total population of the world are active users of social media this number grows by 13.2% annually, whereas in Ethiopia 6.4 million people, or 9.2% of the population are active users of social media with a 8.1% annual growth (We are social, 2023). Dhingra, (2019) discussed that the use of social media trends in the past years grew highly and this number will also continue to grow exponentially in the future.

The contents of social media created by individuals or institutes are not only limited to activities such as leisure, posting weekend photos, and engaging in entertainment but also disseminate content that could influence human behavior. Even though social media was initially created for the sake of personal interaction within a limited boundary, it now becomes huge in size and a large number of people and institutes are using it for personal and professional purposes. The profession of healthcare is highly utilizing social media. SM use in healthcare institutes for relationship-building between patients and the public is rapidly increasing (Pentescu et al., 2015). WHO (n.d) defines health as state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Social media has a great impact on the improvement of healthcare quality (Karim et al., 2020). Since healthcare sector improvement includes the development of professionals' and patients' knowledge regarding health issues, social media plays a vital role in upgrading their knowledge. Regarding healthcare professionals, social media primarily increases knowledge and awareness. By using social media, patients obtain information that they are interested in and that they can provide to others (Kordzadeh et al., 2016). Social media is not only a source of information for a patient, but also a means to communicate with health professionals and

friends to create opportunities and to share their experience. SM highly contributes to fulfilling patients' needs by providing emotional, esteem, and information support (Cherak et al., 2020). A study (Anderson, 2019) identifies the impact of SM on patients influences them by (i) increasing the capability of access to information, (ii) increasing interaction with peers, (iii) helping to search for information before starting consultation and sharing their personal information on follow-up and treatment. SM can influence patients to create interaction with people who have similar diseases with them (Pentescu et al., 2015). According to (Karen G. et.al, 2008), there is a change in health behavior as the use of SM increases. A study by Fortmann, (2017) makes an intervention called "Dulce Digital" which sends contents such as medication reminders, glucose level monitoring commands, and general health education messages for type two diabetes patients, the intervention influences the patients to follow their healthcare and highly improves their health status.

Students can have the opportunity to choose improved healthcare quality and self-manage their health. The quality of information to which they have access may affect the quality of their healthcare management. The description of students for this study is termed as "Graduate students". The term graduate student includes students who are attending their master's and Ph.D. degree education for upgrading and subject specialization after they have completed their first-degree education. It is expected that graduate students are expected to have abundant knowledge of academics, society, life, politics, and most importantly their health. Therefore, the development of their knowledge depends upon the quality of information they obtain.

Personal health management skills and chronic disease knowledge are also important issues that graduate students need to consider managing their health. The quality of healthcare information that graduate students obtain can highly widen their attitude, perception, knowledge, and skills of personal healthcare management of chronic diseases. To improve the healthcare quality of graduate students, it is necessary to provide current, speedy, relevant, and exhaustive information to them. Social media can be an ideal choice to be a source of recent, holistic, dynamic, and accessible information for the needs of graduate students. Similarly, social media has highly influenced people globally from different perspectives.

Though social media is a platform created for the sake of people's advantage, it now becomes more than that, and started to be said: "social media matter" (Treem et al., 2016). Many politicians and businessmen have been influenced by social media on the decisions they make at their work (Muhammad, 2019). Healthcare workers and patients also noticed the importance of social media for improving healthcare. Features of social media platforms create opportunities for healthcare professionals to communicate and share information with their colleagues. According to Campbell, (2016), social media contributes to healthcare professionals by advancing their profession, increasing their accessibility, and giving opportunities for expressing their thoughts and creating influence on patients.

Ethiopia is a country that has a long history of state formation and traditional education which is related to religious education. Studies by (Abebe, 1995; Kebede, 2010; Teferra, 2017), indicated that higher education in Ethiopia is not a new concept but it was practiced differently from now and has a tight attachment to Orthodox Church. Those researchers also claimed that Islam also introduced education of Quran teaching and learning in the 7th century. According to Alemayehu et al.,(2017), higher education in Ethiopia has a long history since the fifth century, the justification for this is considering Yared Musical School as a higher institution that is organized to train professional priests to conduct religious music. Even though those schools were used to educate religious workers, they were also used to train civil servants such as judges, governors, scribes, treasurers, and general administrators (Addisalem, 2020).

Regarding modern education, the country has a short history which could start from the inauguration of Addis Ababa University by the last king of Ethiopia, Emperor Hailesilase the First, and continued to open up to less than five universities and colleges around more urban cities at that moment. Within the past two decades, the expansion of universities in Ethiopia has been highly improved and has reached more than five public and more than a hundred private universities. Similarly more graduate programs in government and private universities are opened. Addis Ababa University started teaching graduate programs in 1978, and since then, graduate studies have been diversified and expanded through other public universities (Addisalem, 2020). The same study mentioned that the expansion of total graduate enrollment in Ethiopian universities has more than doubled in the past six years. There are millions of undergraduate students following their education in universities and thousands of

graduate students who are currently following their MSc and PhD level education. Almost all graduate students are following their education by living in their home off campus, some of them are also on their regular jobs as they study, which is stressful and might lead to health problems.

Chronic diseases also referred to as non-communicable diseases (NCDs), are persistent health conditions that endure over an extended period and frequently worsen with time (Grimaldi, 2006). This category includes conditions such as heart disease, diabetes, cancer, chronic respiratory illnesses, and mental health disorders. Chronic diseases are a matter of grave concern due to their potential to lead to premature death if not managed effectively (Grimaldi, 2006). They place a significant burden on healthcare systems and the economy, often necessitating continuous medical attention, lifestyle adjustments, and adherence to prescribed treatments (Boutayeb & Boutayeb, 2005).

The seriousness of chronic diseases is indisputable. Their management is pivotal not only for the well-being of patients but also for mitigating the impact on healthcare infrastructure and economic resources (Harris, 2020). Living with a chronic condition can be physically, emotionally, and financially demanding. Patients often require ongoing care and support to enhance their quality of life while ensuring their survival.

In recent years, the emergence of social media has revolutionized the support and management of chronic diseases (Patel et al., 2015). Online communities, support groups, and health-focused social media platforms have provided individuals with chronic conditions the means to connect with others sharing similar health challenges. These digital spaces facilitate the sharing of experiences, access to information, and emotional support from a global community of individuals who empathize with the daily struggles of chronic disease (Santoro et al., 2015). Patients can access an abundance of resources and stay informed about the latest treatments and research, contributing to improved quality of life. Furthermore, social media platforms empower patients to advocate for their needs, raise awareness about their conditions, and influence healthcare policies (Grajales et al., 2014). Through social media, individuals are empowered to actively engage in their health management, fostering a sense of control over their well-being. In essence, social media has become a powerful ally in connecting individuals, providing support, and catalyzing positive change in the lives of those living with chronic diseases.

1.2 Problem Statement

Chronic diseases are diseases that most of the times have no symptoms; due to this fact, people are not able to get a diagnosis for their health at an early stage. Such diseases are sometimes known as "silent killers". Lack of good information sources about chronic diseases is one of the factors for not having awareness and the necessary knowledge on the nature of these diseases. Knowledge sources of chronic diseases are only limited to healthcare providers because most people only get knowledge and influence when they go to healthcare providers or when they have the opportunity to discuss with physicians. The lack of knowledge on chronic diseases could highly hinder people from focusing and taking care of their health. Most of the time, such a disease is diagnosed when the patient goes to a clinic or hospital to be treated for another disease and it might be too late to reverse it by management but by being on medication to be taken for a long time or lifetime. Informal sources such as social media and social networking could have the power to influence people to manage their health and prevent the problems, they might encounter due to chronic diseases. Several studies, including those conducted by Islam et al. (2019), Kubheka et al. (2020), Hagg et al. (2018), and Soheylizad et al. (2019), have highlighted the benefits of social media in healthcare

Although social media has many potential advantages for healthcare, the influence of social media on personalized health management and preventing chronic diseases has not yet been researched in Ethiopian settings. According to Sultana (2011), there are very few research works done on social media and those discussed social media uses for healthcare but did not discover its influence on personal healthcare management of chronic diseases. Therefore, more research needs to be conducted to fill the gap and show the influence of social media on personalized health management of chronic diseases.

Graduate education plays a crucial role in the development of a country, as it contributes to the advancement of knowledge, research, and innovation. In Ethiopia, the number of graduate students has seen significant growth over the years, indicating the increasing demand for specialized education and expertise (Addisalem, 2020). According to the study, the expansion of total graduate enrollment in Ethiopian universities has doubled in the past six years, reflecting the importance of advanced education in the country's development.

However, despite the growing number of graduate students, limited research has been conducted on the prevalence of chronic diseases among this population. Chronic diseases can have a profound impact on individuals' health and well-being, and they often require long-term management and care (Yosef, 2020). A study by Tesfaye (2022) highlighted the need for more research on chronic diseases in Ethiopia, emphasizing the importance of understanding the burden of these diseases on different segments of the population, including graduate students.

Currently, there is a dearth of information on the occurrence of chronic diseases among graduate students in Ethiopian universities (Amare, 2019). While chronic diseases are prevalent worldwide, the specific prevalence and impact on this particular student population remain largely unexplored. A study by Alemayehu (2020) indicated that the healthcare focus in Ethiopian universities has mainly been on infectious diseases and general health issues, with limited attention to chronic diseases. This lack of focus may contribute to a lack of awareness and preventive measures among graduate students.

Despite the limited research, studies have reported that a significant number of graduate students are living with undiagnosed chronic conditions (Alemayehu et.al 2020). As highlighted by (Shewaye,2021), many students may not seek medical attention until they experience acute symptoms, leading to delayed diagnosis and management of chronic diseases. This delay can have severe consequences on their health and academic performance(Cherak et al., 2020).

To address these gaps in knowledge and improve the healthcare of graduate students, it is essential to conduct more comprehensive research on the prevalence of chronic diseases among this population. Understanding the burden of chronic diseases on graduate students can inform targeted interventions and healthcare strategies that cater to their unique needs. By promoting early diagnosis, prevention, and management of chronic conditions, universities can support the overall well-being and academic success of their graduate students (Abdela et al., 2019).

Understanding chronic diseases is essential for preventing their prevalence and effectively managing their impact on individuals' health. However, recent research highlights a significant knowledge gap among university students in Ethiopia, including those pursuing graduate studies, regarding chronic diseases(Shockley et al., 2020; Islam et al., 2019; Hagg et al., 2018). This lack of awareness is particularly concerning among graduate students who

face several challenges of demanding academic requirements and additional stressors such as financial constraints and familial responsibilities. These pressures may inadvertently lead the students to neglect their overall well-being, particularly chronic diseases. Consequently, many graduate students might remain uninformed about the early signs and risks associated with chronic conditions.

To address this issue, it is crucial to consider innovative approaches, among other interventions, leveraging social media platforms for health education and awareness. Studies have explored the potential benefits of social media in disseminating information about non-communicable diseases and promoting health behaviors (Islam et al., 2019; Hagg et al., 2018). Integrating health-related content and resources on platforms commonly used by students can offer a convenient and accessible way to deliver knowledge about chronic diseases. As a result, the lack of knowledge about chronic diseases among graduate students in Ethiopia necessitates targeted interventions that account for their unique challenges. By harnessing the power of social media and other relevant strategies, it is possible to bridge the knowledge gap and empower students to make informed decisions about their health and well-being.

Unlike formal healthcare settings where direct access to healthcare professionals is readily available, graduate students encounter restricted channels for obtaining comprehensive information about chronic diseases. Leveraging social media becomes imperative as a powerful tool to bridge this knowledge gap, empowering them with valuable insights and personalized health management strategies for prevalent conditions like diabetes, high blood pressure, and chronic kidney disease. A study by Amare (2019) showed that health science students differently know chronic disease signs and symptoms, but lack the diagnosis knowledge. This scarcity of accessible and credible information sources significantly contributes to their limited understanding of both preventative measures and early detection strategies for chronic diseases (Aldahdouh et al., 2020). The impact of this gap is highlighted by Alfian (2021), who conducted a systematic review demonstrating the potential of social media health interventions to enhance patient outcomes, particularly in the case of diabetes mellitus. The importance of reliable health information dissemination aligns with (Ahmad et al., 2020), who explored the content and user engagement of videos on YouTube by medical professionals, emphasizing the critical role of accurate information in healthcare settings. This underscores the need to address the lack of accessible knowledge about chronic diseases

among graduate students, how they use social media to satisfy their information needs for personal health management as demonstrated by Kaushik (2022), who employed Twitter data to identify signs of depression and mental illness on social media, further emphasizing the significance of leveraging such platforms for healthcare awareness and intervention.

To address this issue, it is essential to explore innovative approaches to disseminating healthcare information and raising awareness among graduate students. Social media intervention, which has shown promising results in health promotion and education, could serve as a valuable platform to bridge the knowledge gap. By utilizing social media platforms such as Telegram and Facebook, targeted educational campaigns can be designed to deliver relevant and timely information to graduate students about chronic diseases. This approach aligns with the findings of previous studies conducted among Ethiopian university students, which highlighted their knowledge and perception of cardiovascular disease risk factors (Abdela et al., 2019).

Additionally, exploring the use of social media platforms by public universities, as discussed by Halaweh (2020), underlines the potential of these platforms for health-related interventions in educational settings. Furthermore, Yosef's (2020) study on the prevalence and associated factors of chronic non-communicable diseases among cross-country truck drivers in Ethiopia provides insights into the importance of addressing chronic disease management among various populations.

Employing social media interventions can offer the advantage of delivering adaptable and readily available content, granting graduate students the flexibility to access health-related information at their convenience. Especially, the anonymous nature of social media platforms allows students to engage in discussions regarding sensitive health topics and seek guidance without the apprehension of scrutiny, thereby cultivating an environment conducive to open learning (OyOladapoebode, 2019). This approach aligns with the findings of Thomas (2023), who highlighted the use of social media as a platform for education and support among individuals with diabetes during a global pandemic.

By harnessing the capabilities of social media intervention, Ethiopian universities have the potential to enrich the health literacy and health-seeking behavior of their graduate students. Equipping these students with the necessary knowledge and resources for preventing and managing chronic illnesses could lead to enhanced overall health outcomes and academic

achievements. This notion aligns with the findings of Deng (2020), who conducted a cross-sectional survey study on the association between web-based physical education and the mental health of college students during the COVID-19 outbreak in Wuhan.

Recent studies underscore the significant role of social media interventions in empowering graduate students to effectively self-manage chronic diseases. By leveraging social media platforms for health education, students acquire valuable insights into preventive measures, such as engaging in physical activity and adopting healthy dietary habits. Access to such information equips students with the knowledge necessary to proactively prevent the onset of chronic conditions or manage existing ones more effectively. This perspective aligns with the findings of Acha-Anyi (2020), who conducted a visual analysis of the "TB proof" South Africa's Facebook page, illustrating the potential of social media for health promotion (Jatobá et al., 2016). Similarly, Mayberry (2019), discussed mHealth interventions for disadvantaged individuals with type 2 diabetes, highlighting the benefits of digital health approaches for vulnerable populations. Soheylizad (2019), emphasized the opportunity for developing countries to utilize social media to promote healthy behaviors. Furthermore, Mohammed (2021), explored the usage of social media for health awareness among health educators and students in Saudi Arabia, further exemplifying the diverse potential applications of social media in healthcare.

Moreover, social media interventions have demonstrated their effectiveness in promoting a proactive approach among students to seek prompt medical attention for potential chronic conditions. The enhanced awareness and knowledge garnered through social media platforms empower students to identify early indicators of illnesses and engage healthcare providers for timely diagnosis and treatment. This perspective is in line with the findings of Lin & Kishore, (2021), who proposed a conceptual model for social media-enabled healthcare, encompassing social media affordances, online social support, and health behaviors and outcomes. Additionally, Brown (2021) explored the role of social media in facilitating healthcare-seeking behavior among graduate students, providing further insight into the positive impact of digital platforms on health-related actions.

Moreover, social media platforms facilitate better medication adherence and follow-up among graduate students managing chronic conditions (Brown, 2021). Access to reliable healthcare information through social media enables students to stay informed about their prescribed medications and adhere to treatment plans, (Brown, et al. 2021). Real-time

feedback features of social media serve as valuable reminders and motivators for students to adhere to their medication regimens and attend follow-up appointments (Williams., et al. 2018).

Recognizing the transformative potential of strategic social media interventions in bolstering graduate students' understanding and self-management of chronic diseases, this study aims to delve into the factors shaping the utilization of social media. Through the provision of accessible and trustworthy health information, these interventions empower students to make well-informed decisions about their health, seek timely medical care, and actively participate in preventive measures to alleviate the impact of predominant chronic diseases.

Hence, this research was initiated with the main objective to investigate the factors that influence the use of social media among graduate students for personal health management of predominant chronic diseases. Through an experimental study, it seeks to uncover the drivers that lead graduate students to engage with social media platforms for their health-related needs. The ultimate goal of this investigation was to provide valuable insights into the healthcare and Information Science fields, enhancing our understanding of how social media can be effectively utilized as a tool to support the personal health management of graduate students, particularly in the context of Ethiopia on chronic diseases. This research seeks to unveil valuable insights that can drive positive health behavior changes and foster a healthier graduate student community. The study also intends to address a significant gap in the existing research by examining the impact of social media and informal sources on personalized health management among graduate students, a level of specificity not previously explored. The study has focused on Telegram and Facebook as key platforms for healthcare information sharing and developed a model to assess the relationships and relative importance of the variables influencing graduate students in this context, aiming to answer the following research questions.

1.3 Research Questions

To address the research problem and understand the issue involved with the influence of social media among graduate students for personalized health management of some

predominant chronic diseases in four universities in Ethiopia, namely, Adama, Jimma, Bonga, and Mizan Tepi universities, the following research questions were formulated.

1. How do graduate students use social media to satisfy their information needs when it comes to personal health management?
2. What are the driving factors that lead graduate students to use social media to prevent and manage chronic disease?
3. What is the perception of social media use among graduate students in Jimma, Bonga, Adama, and Mizan Teppi University?
4. To what extent do graduate students trust the information they find on social media for personal health management?
5. What is the overall influence of social media on graduate students' personalized health management?
6. Which model can explain the social media use phenomena by graduate students in Ethiopian universities?

1.4 General Objectives

The general objective of this study is to explore the impact of social media on graduate students with a focus on personalized health management for prevalent chronic conditions such as diabetes, high blood pressure, and chronic kidney disease.

1.4.1 Specific Objectives

1. To address how social media helps to improve the personal healthcare quality of graduate students.
2. To identify the driving factors that lead postgraduate students to use social media for the prevention and management of chronic diseases.
3. To identify the perception of postgraduate students on social media use.
4. To determine the extent to which postgraduate students trust Social media information for personalized healthcare

5. To examine the influence of social media use on personalized health management of chronic diseases among graduate students.

6. To develop a model that explains the social media use phenomena by graduate students in Ethiopian universities.

1.6 Significance of the Study

This study holds substantial importance in investigating the impact of social media on patients' healthcare management and addressing the specific needs of graduate students dealing with chronic diseases. By conducting an experimental examination of social media's influence on personalized health management, the study aims to enlighten graduate students about the advantages of integrating social media into healthcare practices. The findings will be beneficial in recommending the adoption of social media as a valuable tool for healthcare management. Moreover, the research contributes to understanding graduate students' perceptions of social media's role in personalized healthcare, potentially guiding healthcare content developers to create trustworthy information. The study's insights into the trustworthiness of social media content can benefit healthcare developers in tailoring content that garners students' trust. Additionally, the research identifies the value of informal sources alongside formal healthcare information, offering valuable insights for healthcare communication strategies. Ultimately, the study is expected to provide practical suggestions for enhancing graduate students' utilization of social media as a valuable information source, thereby improving personalized health management and addressing chronic diseases.

1.6 Scope of the study

This research study is designed to investigate the influence and impact of social media platforms, specifically Facebook and Telegram, on motivating and assisting graduate students in Ethiopia to actively manage their healthcare, particularly focusing on the management of chronic diseases. The scope of this study was delimited to the graduate student population in Ethiopia, acknowledging the unique characteristics and challenges faced by this demographic in utilizing social media for healthcare management. By concentrating on these specific social media platforms and this particular target group, the research aimed to provide insights into the role and effectiveness of social media as a tool for supporting and enhancing personal health management practices among graduate students in the context of chronic diseases.

CHAPTER TWO

2. Literature Review

This chapter reviews the literature related to social media and its influence on personal healthcare management. The review starts with the definition of chronic diseases, followed by an explanation of social media and the commonly used social media platforms such as Facebook, Twitter, WhatsApp, and Telegram, which Digital 2023 put on the first rank of platforms used by users. The review also includes the topic of social media and students; in this topic, different literature is included that explains the experiences of different country university students and their social media usage practices. Social media and healthcare is the other topic included in the review, which mainly discussed the application of SM in healthcare. Social media influence on personal healthcare management is also a topic that includes literature that is more similar to the current research. Finally, the review included theoretical foundations such as the health belief model, Social capital theory, and Technology Acceptance Model.

2.1 Chronic Diseases

According to the Center for Disease Control, chronic illnesses are characterized by lasting a year or more, necessitating continual medical attention or restricting daily activities. Several chronic diseases stem from a limited set of risk behaviors, including tobacco use and exposure to secondhand smoke, inadequate nutrition marked by low fruit and vegetable intake and high sodium and saturated fat consumption, insufficient physical activity, and excessive alcohol consumption (CDC, 2022). Chronic diseases are many and have different terminologies according to the context people refer to such as non-communicable diseases, lifestyle-related diseases, and lifelong diseases but the meaning of such terminologies does not always fit with such diseases. According to the World Health Organization, (2005) report, the term chronic disease is defined as it is a disease that takes a long time to become fully well-known, during those durations there are many opportunities for prevention, the treatment needs a long time and systematic approach and integrating the response of these diseases with the response of acute and infectious diseases. From this explanation, it is possible to understand the meaning of chronic disease as it is an illness that is not infectious, usually of long periods, slow in progress, and most of the time it is caused by genetics,

environment, or poor lifestyle. The United States National Center for Health Statistics also categorizes chronic disease as an ailment persisting for duration of three months or more.

(National Center for Health Statistics, 2013). Chronic conditions encompass heart disease, stroke, cancer, chronic respiratory ailments, and diabetes.

Visual impairment and blindness, hearing impairment and deafness, oral diseases, and genetic disorders are other chronic conditions that account for a substantial portion of the global burden of disease. (World Health Organization, 2005).

2.2 Social Media

Human beings are endowed by nature with the capacity for communication. Sharing of information, exchanging of ideas and opinions, giving and accepting feedback, and the capability of creating social networks with people surrounding them are considered the talents of human beings. People can't live in the absence of communication as it is not possible to live with no food and water (Fuchs, 2014). As it is known, from ancient times people preferred to be social. That is why it is said that human beings are social animals. It could be the nature of being a social animal that drives human beings to create social interaction with other people who have common interests with them. Previously people used different mechanisms to create their social network; mainly through personal interaction. Only personal interaction may hinder the span of people's social network, which would be limited based on geographical area. The invention of social media shifts the paradigm of social networking by accommodating the limitations of personal interaction. The recent form of social networking helps people to connect for different purposes (Dhingra et.al, 2019). Social media (SM) is defined as a virtual network technology that is mainly based on computers for exchanging ideas, feelings, and information (E. Dollarhide, 2019). The above-listed talents of human beings could be facilitated through social media as it is defined as "a group of Internet-based applications (apps) that allow the creation and exchange of user-generated content" (Kaplan, 2010). According to Barve, (2016), social media is the top one on the list of communication platforms and it would not be possible to think of people's regular activities in the absence of it. The expansion of the Internet creates the opportunity for the world to be tight together highly through social media platforms. Currently, almost all

individuals can be connected across the globe with the one whom they like to be their friend or partner.

In the realm of social media, interactions differ significantly from real-life situations. Social media platforms facilitate many-to-many connections, allowing people to easily share information, pictures, and videos. This serves the purpose of keeping in touch with individuals, including those whom one may not have previously known (Meru, 2012).

Though social media is a platform developed to foster social interactions, it is now becoming part of everyday life such that the original scope has expanded and slogans like "social media matters" are common today. As Treem, (2016) referred to different scholars, studies of them showed that social media matters because of the different reasons and purposes it offers for individuals and organizations. The idea of social media matters started from protest groups that organize events to oppose the government to individuals seeking social support to navigate difficult life situations (Treem, et al., 2016). According to Fuchs (2014); and Humphreys (2015), social media matters because it has the advantage of producing a digital record of our manners that can be used by corporations or researchers. Social media is not only a choice but it also starts to be mandatory on advertisement for many business organizations (Dhingra, 2019). It is not an easy task to put the whole concept of social media into a single word or sentence, but possible to conceptualize it from the perspective of its nature, advantages, functionalities, and purpose of the media. Different scholars and researchers agree about the influence and impact of social media. Nevertheless, achieving a consensus on a universal definition for the term proves challenging, as it is difficult to formulate a singular definition encompassing all the technologies and activities linked to social media. This implies that social media lacks a specific delineation based on scope, format, topic, audience, or source. Sims, (2017) also said that there is no unambiguous meaning of what social media is, which means that research findings are often not comparable or transferable. Since social media has grown into a multi-billion dollar sector of the global economy and become a common term in our daily dictionary, understanding the scope and nature of social media activity has become more difficult to discern (Treem, 2016). Furthermore, the absence of a universally agreed-upon definition results in researchers adopting the definition from one platform to another. This occurs due to shared properties, even in the presence of disagreements on certain aspects.

Related to this, though there is no clear and common definition for the term social media, there are plenty of definitions given by different scholars that share a common meaning for the concept they are describing. With this regard, the researcher investigates definitions of social media given by different researchers as follows. Boyd (2007), describes social media as websites that allow profile creation and visibility of relationships between users. From the perspective of web-based application, there are definitions such as: Bercovici, (2010), describes that it is a web-based communication tool that facilitates online interaction. It is a web-based application that provides functionality for sharing, relationships, groups, conversations, and profiles (Kietzmann et al., 2011). Most researchers start by going back to the previous history of Web 2.0 and attempt to relate the conceptual framework of social media and Web 2.0. The research conducted by Ravenscroft (2012) and Valjatan (2011) defines social media as applications or technologies embedded in Web 2.0, enabling the generation and sharing of content created by users. Kaplan (2010) aligns this definition with internet-based applications, characterizing social media as "a set of internet-based applications that extend from the ideological and technological foundations of Web 2.0, facilitating the creation and exchange of user-generated content." An alternative definition associates Internet-based applications with Web 2.0, describing them as "applications constructed on the Web 2.0 framework, with Web 2.0 representing both a concept and a platform for leveraging collective intelligence" (Huang et al., 2013).

Numerous scholars have provided precise definitions delineating the boundaries of social media. They have also connected the functionalities of social media platforms with the goals of communication and the sharing of resources. This is because nowadays it is known that information distribution and the sharing of content are becoming important social needs. Social media falls within the extensive array of internet-based and mobile services that link individuals to engage, interact collaboratively, communicate, discuss, and share ideas and information within an online community (Boateng, 2016). In the following discussion, it is explored the most widely used social media platforms in 2023, as reported by We Are Social's 'World's Most Used Social Platforms'.

2.2.1 Facebook

Facebook was established by Mark Zuckerberg also known as "The Facebook" in February 2004, From the first month until September 2006 the system was only given access to

students in the United States with a valid ".edu" email address, and at the beginning only for students from Harvard (Linke, 2015). According to the digital data of January 2021 by Hootsuite, (2021) Facebook is the first rank of user-used platform of the month. The popularity and utility of the platform are increasing from time to time.

Facebook is a web-based, interactive network that allows users to share information and thoughts over a wide area. Facebook makes possible a relation to those with common interests across political, economic, and geographic borders, is not a one-window store that will accomplish all peoples' communications needs and it helps to raise people's profile publicly (National Association of Counties, 2018). The objectives of individuals using Facebook may vary, but there are some similar objectives when they are connected, but the platform creates environments to provide a venue for an exchange of ideas and to encourage communication, encouraging a variety of spectators, the public, media, and business group of people.

The use of Facebook is not only limited to social interactions and business firms; it has also been used in healthcare sectors to improve healthcare sector quality. Puljak (2015), in his review on Facebook, finds that Facebook enables multiple possibilities to engage with the target audience and to disseminate evidence-based medicine content. Facebook, can be used to include the patient's perspective in the healthcare management system (Van De Belt et al., 2015). The application of Facebook also helps the healthcare sector to create awareness. In a case study conducted by Zowawi (2015), it was discovered that the utilization of social media platforms like Facebook appears to be effective in disseminating awareness messages. Meta Platforms, Inc., formerly known as Facebook, has been consistently at the forefront of technological evolution, demonstrating noteworthy developments in several key areas. Significantly, Meta is actively exploring the concept of the Metaverse and has undergone a substantial rebranding initiative. This entails the creation of a virtual reality space designed to revolutionize the way people engage in work, social interactions, and entertainment.

In the realm of Virtual Reality (VR), Meta has channeled substantial investments through its Oculus brand. The release of the Oculus Quest 2, a standalone VR headset, garnered positive acclaim and has become a pivotal milestone. Meta is also diligently working towards constructing a metaverse that integrates VR and Augmented Reality (AR) technologies. Beyond VR, Meta delved into the realm of cryptocurrency with the announcement of Libra, subsequently rebranded as Diem, in collaboration with other prominent companies. The

initial aim was to introduce a global digital currency; however, this initiative faced considerable regulatory challenges. Furthermore, Meta's dedication to advancing Artificial Intelligence (AI) and Augmented Reality (AR) is palpable. The objective of these investments is to enhance user experiences and introduce cutting-edge tools across Meta's platforms. In response to previous concerns and data breaches, Meta has consistently emphasized the enhancement of privacy and security features, underscoring its commitment to safeguarding user data and maintaining the integrity of its platforms (Meta Platforms, Inc., 2023).

Facebook has been remarkably popular in Ethiopia, serving as a significant platform for social interaction, communication, and information sharing among the Ethiopian population (Adamu, 2020). In recent years, it has been instrumental in influencing the political landscape and contributing to the political process in the country (Adamu, 2020). Ethiopians have used Facebook as a means to express their opinions, engage in discussions about political matters, and mobilize for various causes. During politically significant events, such as elections and protests, Facebook has emerged as a central platform for disseminating information, coordinating activities, and facilitating discussions among citizens (Daracho, 2020). It has enabled Ethiopians to access news and insights, share their perspectives, and engage with political issues, fostering a sense of political empowerment and involvement (Workneh, 2020). Consequently, Facebook has evolved into a crucial component of Ethiopia's socio-political fabric, illustrating its broad popularity and impact on the nation's political discussions (Kumlachew, 2014). Leveraging Facebook's fair use policies to maximize its benefits is a strategic approach, especially when considering its role in healthcare management for Ethiopian graduate students dealing with chronic diseases. Fair use of Facebook involves adhering to its community guidelines and utilizing the platform to foster genuine health-related discussions, share accurate information, and maintain privacy standards. By ensuring responsible and ethical use, graduate students can harness the full potential of Facebook as a valuable resource for managing chronic diseases. They have the option to establish or participate in groups focused on particular health conditions, sharing experiences and providing mutual support throughout their healthcare journeys. Furthermore, students can follow verified healthcare pages and professionals, accessing reliable information that can aid them in making informed decisions about their health. Leveraging

Facebook's fair use, graduate students have the opportunity to establish a supportive ecosystem, enabling them to proficiently navigate their chronic conditions and lead healthier lives. This highlights the substantial influence of social media on healthcare management within the context of Ethiopian universities.

2.2.2 Twitter

Computer scientists Evan Williams, Jack Dorsey, Biz Stone, and Evan Williams founded Twitter in March 2006 (Kirchherr, 2011). Following its creation, the user base of the platform has evidently expanded, as stated by Alfarhoud (2008).

Lively registered Twitter users globally in 2023 reached 560 million (We are Social, 2023). Twitter is the 140-character messaging service that was originally developed for cell phones. The main reason could be, that it only holds 140 characters (Britt Roebuck et al., 2013). The situation that Twitter incredibly admired was the case of a US Airways jet that crashed into the Hudson River (Kang, 2012). The report of We are Social, (2023) ranked it by counting people who used the platform in 2023, according to the report Twitter placed 14th on the list. The limit of characters that Twitter provides may reduce the number of people who prefer to use it. As with any relationship, there's always the possibility of adding a new customer, client, audience member, or some other unforeseen benefit. According to Britt (2013), the applicability of Twitter depends on people's specific goals but it provides access, for personal and professional purposes.

The Arab Spring, a sequence of demonstrations and revolts that occurred in the Middle East and North Africa from 2010 to 2011, was notably accelerated by the rise of social media, with Twitter assuming a crucial role (Govern, 2012). This platform became the epicenter for protesters to organize, connect, and share information swiftly. This period marked a turning point not only for the Arab Spring but also for Twitter and other social media networks, showcasing their potential to instigate social and political transformations.

In the years following the Arab Spring, Twitter experienced substantial growth and transformation. In 2021, a consortium of investors acquired Twitter for a staggering \$2.1 billion (Stanaway et al., 2018). The company also underwent important alterations, including a revamp of its logo and user interface (Rohlinger et al., 2023). Conspicuously, a contentious

issue emerged surrounding the acquisition of verified accounts, which are frequently employed by public figures and celebrities to authenticate their presence on the platform.

Nonetheless, Twitter has retained its status as a favored medium for communication and information dissemination. Prominent figures, including former US President Donald Trump, have harnessed Twitter to engage directly with their followers and unveil policy decisions (Rohlinger et al., 2023). Simultaneously, Twitter has encountered criticism for its approach to handling hate speech and misinformation, eliciting demands for increased social media regulation.

Twitter is a versatile platform that extends its advantages to various domains, making it an invaluable tool for businesses, education, and healthcare. In the business realm, Twitter enables companies to reach and engage with their target audience effectively (Curran et al., 2011). In education, it fosters interactive learning and knowledge sharing among students and instructors (Htay et al., 2020). This multifaceted platform is equally beneficial in healthcare for personal healthcare management, especially for busy individuals (Abbasi et al., 2018). These diverse applications of Twitter underscore its significance in today's interconnected world.

When it comes to personal healthcare management, Twitter has emerged as a valuable resource for individuals dealing with chronic diseases, especially those who lead busy lives and cannot visit physicians frequently, such as graduate university students (Abbasi et al., 2018). Twitter facilitates the dissemination of information related to chronic diseases, allowing users to access the latest updates, engage with healthcare providers, and connect with support communities (Abouzahra & Tan, 2021). This platform is particularly beneficial for busy individuals who may struggle to balance their academic commitments with regular medical visits (Htay et al., 2020). Through Twitter, users can follow healthcare-related accounts, gain insights on disease management, and stay informed about advancements in treatment (Curran et al., 2011). It additionally nurtures a community spirit, providing comfort and empathy for individuals managing chronic illnesses (Gomes & Coustasse, 2015). For individuals with limited time for frequent physician visits, Twitter plays a vital role in personal healthcare management, contributing to improved well-being.

2.2.3 WhatsApp

WhatsApp was founded in 2009 by Brian Acton and Jan Koum as an alternative to pricey SMS services (WhatsApp, n.d.). Koum has said that he came up with the idea for WhatsApp after missing too many calls on his iPhone while at the gym. The app allows users to upload their contact book and message anyone who has the app installed, at no cost (WhatsApp, n.d.). WhatsApp was initially slow to take off, but by 2011, it was squarely in the top 20 of all apps in the U.S. App Store (Forbes, 2022, May 20). By 2014, WhatsApp had more than 400 million users globally and was acquired by Facebook for over \$19 billion (WhatsApp, n.d.). The users of WhatsApp globally have passed the number of 2.5 billion in 2023, it is placed as the 3rd active user-visited application in the year (We are Socia, 2023). WhatsApp has continued to evolve since its acquisition by Facebook. In 2021, WhatsApp launched its "Business Directory" in Brazil, Mexico, Colombia, Indonesia, and the UK, allowing users to search and find companies (TechCrunch, 2022). The company has also announced comprehensive innovations to make it easier for companies to scale marketing campaigns, bring them live more quickly, and measure success in more detail (TechCrunch, 2022). WhatsApp has become a popular platform for communication and information sharing, with users able to message and call each other over the internet (BBC News, 2022). However, WhatsApp has also faced criticism for its handling of privacy and security issues, leading to calls for greater regulation of social media and messaging platforms. (BBC News, 2022).

WhatsApp is a well-liked mobile application for giving instant messaging service on smartphones, it uses Internet services to communicate different types of text and multimedia messages between people (Kumar, 2017). People's usual lives and cultures become drastically affected by WhatsApp. This is mainly by starting to interchange SMS with a cross-platform feature.

Kumar (2017) explained that WhatsApp utilizes mobile network data or local area networks for transmitting messages. Moreover, users have the capability to easily send pictures, videos, and audio media messages. With the widespread adoption of smartphones, numerous electronic communication services for mobile devices have emerged. Among them, WhatsApp has gained significant popularity. According to Financial Times (Kumar, 2017), "WhatsApp Messenger, an app which permits unlimited free text-messaging between users, has done to SMS on mobile phones what Skype did to international calling on landlines.

WhatsApp, a widely used messaging platform, has shown promising potential in the realm of healthcare management, particularly for chronic diseases. Several studies have explored the use of WhatsApp as a tool to improve knowledge and enhance self-management skills for chronic conditions. As an example, Alanzi (2018) conducted a study that assessed a mobile social networking application, specifically WhatsApp, as an intervention to improve knowledge about Type 2 diabetes. The study demonstrated that WhatsApp interventions can effectively improve diabetes knowledge. This aligns with the broader trend observed in eHealth and mHealth interventions, as identified in a systematic review by Müller (2016), which highlights the effectiveness of electronic and mobile health interventions in promoting healthy behaviors in developing countries.

Moreover, WhatsApp's capacity to deliver short message services (SMS) and facilitate ongoing communication has proven valuable for enhancing adherence among individuals with chronic diseases. Research conducted by Zolfaghari (2012) examined the influence of nurse SMS and telephone follow-ups on diabetic adherence. The study concluded that these interventions successfully enhanced adherence among patients with diabetes.

In both Africa and Ethiopia, WhatsApp has become a versatile tool in healthcare management, offering various applications to enhance medical services and healthcare delivery. WhatsApp is increasingly being utilized for capacity-building among healthcare professionals and supporting healthcare services in these regions. For instance, Hossain (2021) conducted a study in Kenya, employing WhatsApp as part of a blended learning approach to strengthen immunization services by building the capacity of health workers. This approach involved the utilization of peer mentoring and WhatsApp for effective training and support. Similarly, in Ethiopia, healthcare professionals in primary hospitals have been using mobile phone-based tele-consultation services through WhatsApp, as highlighted by Kasie (n.d.). WhatsApp has been employed for real-time consultations and guidance, contributing to improved healthcare delivery. Additionally, WhatsApp serves as an interactive educational tool in healthcare settings. Thorp (2021) initiated a trial program in Lilongwe, Malawi, demonstrating how WhatsApp facilitates the integration of medical education and clinical management. These examples illustrate the diverse applications of WhatsApp in healthcare management across Africa and Ethiopia, emphasizing its role in capacity-building, teleconsultation, and medical education.

These findings collectively underscore the potential of WhatsApp as a valuable tool for healthcare management, specifically for chronic disease management. It offers a convenient and accessible platform for patient education, support, and engagement. Additionally, the use of WhatsApp aligns with the broader global trend of utilizing mobile and digital technologies to empower individuals and enhance healthcare outcomes.

2.2.4 Telegram

Telegram was founded in Russia in 2009 by brothers Pavel and Nikolai Durov as a messaging app that prioritized privacy and security (Mashable,2021). The app has grown to become one of the biggest social networks in the world, with 700 million users and only about 60 core employees (We Are Social, 2023). Telegram has positioned itself as a sanctuary for secure and anonymous communication. However, it necessitates users to take deliberate steps to designate a chat as "secret"; unlike WhatsApp or Signal, end-to-end encryption is not the automatic default (Wired, 2023). The platform, currently situated in Dubai, implements limited content moderation, focusing primarily on the removal of illegal pornography, violations of intellectual property rights, scams, and instances of incitement to violence, as outlined by Wired in 2023. In the United States, Telegram experienced a gradual adoption, but following Donald Trump's suspension from Facebook and Twitter in January 2021, it has emerged as a focal point for far-right groups such as the Proud Boys and QAnon followers (Press-Telegram, May 9, 2023). In many parts of the world, Telegram is mainstream, and much of the January 2023 insurrection in Brazil was planned on the platform (Wired, 2023). Pavel Durov, the creator of Telegram, is often referred to as the "Mark Zuckerberg of Russia" and is a billionaire (Business Insider, 2022). Before establishing Telegram, Durov founded the Russian social network Vkontakte, gaining fame but also becoming a target of the Kremlin (Business Insider, 2022). Durov's conflicts with the Kremlin persisted beyond Vkontakte. In 2018, after he refused to grant the Kremlin access to user data, Russia banned Telegram (Meduza, 2023). In response, hundreds protested, some depicting Durov as a saint on their signs (Meduza, 2023). The app was eventually reinstated in Russia two years later, and today, Telegram plays a significant role in the war in Ukraine. Recently, Telegram launched a cryptocurrency wallet named Fragment, developed by only five people in five weeks, according to Durov (Business Insider, 2022). Within a month, the wallet saw \$50 million worth of usernames purchased (Meduza, 2023).

Telegram has become a prominent platform for communication and information sharing, allowing users to message and call each other over the Internet (Business Insider, 2022). However, it has faced criticism for its handling of privacy and security issues, prompting calls for increased regulation of social media and messaging platforms (Wired, 2023).

In various domains such as academia, business, politics, and healthcare, Telegram has proven to be an invaluable tool. In academia, its intuitive interface has facilitated the formation of study groups and real-time exchange of research findings, fostering academic collaboration and resource sharing among students and researchers (Amini et al., 2022). In the business landscape, Telegram serves as a crucial communication tool, enabling rapid decision-making, efficient information dissemination, and seamless team collaboration. Politicians and their supporters prefer Telegram for its secure means of distributing information, connecting with the public, and coordinating political campaigns, given its end-to-end encryption ensuring private communication (Adamu, 2020).

Telegram's most profound impact may be in healthcare, particularly in managing chronic diseases, crucial for busy individuals like graduate students juggling academic activities and heightened stress levels. Telegram's role in healthcare spans providing accessible health resources, enabling remote monitoring, fostering patient communities, issuing medication reminders, and facilitating telehealth consultations (Alfian et al., 2021). These functionalities not only offer a convenient means of managing chronic diseases but also alleviate challenges faced by those struggling to find time for in-person medical visits (Amini et al., 2022).

Studies further underscore Telegram's significance in diverse contexts. Basirat et al. (2022) found that persuasive messages shared on Telegram influence individuals' intentions to stay home during pandemics, highlighting its potential for public health communication. Bekele et al. (2021) conducted a study in Ethiopia, emphasizing the role of social media, including Telegram, in spreading knowledge about COVID-19 and preventive practices. Hasanpour et al. (2021) explored the prevalence of generalized anxiety disorder among nursing students in Iran during the pandemic, emphasizing online platforms like Telegram in mental health awareness and support. These studies collectively underscore Telegram's diverse applications and far-reaching impact, spanning from public health to mental well-being and the management of chronic diseases (Shewaye et al., 2021).

2.3 Social Media and Students

Some studies showed how social media is applied to the academic life of university students. Boateng, (2016) reported how students of higher institutions in China used social media, and the impact it has on their academic life. In the study, he found that social networks such as Facebook, WeChat, WhatsApp, and LinkedIn are mostly used by all students. The research argued that students use social media as a platform of discussions for their assignment and other course work, they get feeds on class schedules, and class venues, receives and sends information among their peers, and explore issues related to their coursework and a host of others. It can be possible to argue that social media platforms are widely used by students of higher institutions for academic activities. However, the study of Boateng, (2016) did not mention the relationship between academic performance and SM use overall, it demonstrates that social media contributes a significant quota to the development of students' academic life.

Academic performance can be affected by many things; from those social media is one aspect. The study of Gina, (2018), presented that SM has a significant role in academic performance. The research investigated the beneficial outcomes of employing social media as a means of communication to discuss course-related content, leading to a notable enhancement in student academic performance. Therefore, it is possible to conclude that the majority of the participants are profitable of social media usage for academic-related purposes, but it needs attention to guide students on proper usage of it.

From the ubiquitous and flexible nature of social media, students can use it for their different interests them, engaging in politics and managing strikes also utilized by SM platforms. Research has explored the use of social media by university students to coordinate campus unrest and protests (Koross, 2016). In their study, they state that social media is an inherently dialectical force that university students use to organize, mobilize, and spread unrest plans in Kenyan universities. It can be argued that the spread of the Internet and the increasing use of uncontrolled SM in universities lead students to use the platform for activities that are not important for academic performance. Therefore, the absence of good policy on the usage of social media in universities can create opportunities for students to use it for politics and strike organizations.

Social media is also being utilized by university students for the management of personal healthcare, but the perception of students on its utility matters to the extent. A study (Oh & Kim, 2014) aiming to understand the perception of social media use by college students for obtaining health information compares college students from the USA and Korea. In the study, a public university in the USA and another in South Korea were chosen and surveyed 342 college students from two universities in the USA and Korea and an online data collection tool was used to collect data from respondents. In their study, the result found that 59.5% (342) of respondents reported that they used social media for seeking and sharing health information. Privacy concerns, lack of interest, and unreliable resources are the reasons found in the study for hindering students from using SM for healthcare. The study also found that the respondents are searching for various health topics such as '*fitness*' and '*diet and nutrition*', and few reported searching for '*violence*' or '*sexual abuse*' they argued that both countries' students agree on the perceived usefulness of social media for healthcare.

Another study by (Zhang, 2012), explores the use and perception of college students on social media for healthcare. The study found that even though people use SM for healthcare it has not yet become a mainstream activity. In their study, they found that 26% of participants reported that they had used social networking sites for health-related information. The study states students used social networking sites to keep updated with friends' health and find out means to cure viruses and infections that could lead to influenza rather than serious health conditions. One can argue that the use of social networking sites for healthcare is perceived positively by students but it could be doubtful about the quality of information, worried about the lack of medical knowledge of their peers, and mistrustful about potential threats to their privacy and potential misuse of their health information. Therefore, it can be said that SM usage for healthcare is important but needs separate social media channels or groups that are dedicated to providing related information that is more visible and readily accessible to users

2.4 Social Media and Healthcare

Social media has a great impact on the improvement of healthcare quality. Since healthcare sector improvement includes the development of professionals' and patients' knowledge regarding health, social media plays a vital role in upgrading their knowledge. For many centuries healthcare professionals used to develop their knowledge by reading textbooks and sharing experiences with other professionals whom they know personally. After the invention

of social media carrying old and huge textbooks became outdated and professionals started to refer to professional social media platforms and use data delivered by iPhone and texting (Eckler, 2020). Regarding healthcare professionals, social media primarily increases knowledge and awareness. Features of social media platforms create opportunities for healthcare professionals to communicate and share information with other healthcare professionals. Social media is also used by patients as a source of information. The expansion of social media has widened people's sources to get information for almost all of their interests. Given that healthcare information is among the most intriguing domains for patients seeking information, they rely on social media to acquire pertinent knowledge and enhance their understanding. Using social media patients obtain information that they are interested in and they can provide to others (Kordzadeh, 2016). It is thus possible to argue that social media is not only a source of information for a patient; it is also meant to communicate with health professionals and friends to create opportunities and to share their experiences. Hence, one can contend that social media has the potential to make a substantial contribution to the enhancement of healthcare sectors. The contribution of social media to healthcare sector improvement includes its contribution to improving the industry, the physicians, and the patients. Algashaam's study in 2016 discovered that social media's primary contributions to the healthcare sector as an industry include recruitment, patient ratings, the introduction of new products, and emergency notifications. In his study, he states that social media contributes to the healthcare sector as a recruitment tool to post notices, look for a professional's profile, interview candidates, and post results. The study also found that patient rating is a social media activity that is going to be performed by patients for their satisfaction after they get the services of healthcare providers (HCP). It is possible to say that the recruitment process using social media can reach many applicants, solve the problem of distance, and reduce the time spent which will be raised by applicants and patient ratings could help the sector by improving their performance of getting qualified and adequate candidates. Therefore, it could be possible to conclude that SM has significant use in healthcare sectors for the improvement of healthcare sector quality improvements.

Social media is also used as emergency notices, healthcare sectors post emergency notices which need quick notification of patients. Massachusetts General Hospital is an example that notifies emergency notice and gets patients' trust, in return the number of customers increased (Morrison et al., 2010). Government healthcare authorities can utilize emergency

notifications to inform crucial healthcare updates. According to Campbell, (2016), social media contributes to healthcare professionals by advancing their profession, increasing their accessibility, and giving opportunities for expressing their thoughts. The author argued that SM helps professionals advance their profession by participating on platforms that have professional discussion forums and online conferences. A study found that there are professional associations related to healthcare that use social media as a communication tool, for example, the Tennessee Medical Association uses SM platforms by allowing professionals to share documents and ideas (Eckler et al., 2016.). Online social media participation helps physicians to update their knowledge and learn new concepts. The authors state that SM increases the accessibility of physicians to their patients. Based on the above studies, it is possible to argue that the use of SM improves the shortage of physicians who give treatment to many patients. Using social media a physician can reduce the burden of consulting similar things for many patients differently by forming group discussions. Even physicians can give support to patients who live in remote areas who are not able to come to healthcare centers due to limited movement due to physical problems and/or age. Social media benefits healthcare professionals to express their professional ideas and opinions without restriction. Some healthcare institutes restrict professionals from speaking about some kinds of health-related issues that have no direct relation to the services they are delivering, but SM creates an environment for physicians to speak their ideas without restriction (Campbell, 2016). In general, the increase in the use of SM by healthcare professionals increased the amount of opinions and ideas raised by physicians.

The use of social media by patients is increasing from time to time, the main intention of patients to use social media is not to replace health professionals; they use it to fill the gap that physicians do not acquire for supporting patients. A study presented that, SM highly contributes to fulfilling patients' needs by providing emotional, esteem, and information support (Smailhodzic et al., 2016). The study argued that patients start to get involved in social media and related communities because they are not satisfied by the professionals of healthcare for their incapability to handle patients' need for information and satisfy emotional interests. They defined emotional support as support that intends to help to improve the moods of patients. A study by Pentescu, (2015), states that the use of SM by patients significantly helped them to get support groups who share their own experiences on how to pass difficult times, the use of SM can help to uncover different healthcare experiences that

are hidden by people. The study defined Support of esteem as encouraging patients to handle the difficulties related to treatments and the disease itself. One possibly can argue that using SM patients get encouragement from patients with similar conditions, and share experiences on new treatment before they start the treatment. Thus, patients utilizing social media can empower themselves in managing their treatment.

One of the main social supports that patients highly need is information support. A study by Smailhodzic, (2016) described that information support is providing patients with important and needed information. The study found that often patients who are new and diagnosed as a patient with a new disease need more information about the behavior of the disease, the treatment, and how to live with it. Another study by Rozenblum, (2013), argued that SM highly helps patients by experience sharing and providing important information from other patients and giving opportunities to ask questions to share information among them. The use of SM for information support is not only to provide a pack of information for patients but also to provide information that is important for a patient in handling a specific disease. Thus information support is a crucial aspect of SM uses for healthcare, which could greatly help the patient in the management of healthcare issues.

2.5 Social Media Influence on Personal Healthcare Management

Social media has become a powerful platform with significant potential for healthcare purposes, especially among university students (Mohammed et al., 2021). The utilization of social media in various areas, including health promotion, interventions, and information dissemination, has revolutionized the ways individual access and engages with healthcare-related content social media has transformed the healthcare landscape by providing new avenues for health promotion and interventions. A study conducted by Acha-Ayni (2020) emphasized the prospective application of social media for health promotion. This investigation illustrated the successful utilization of social media in disseminating health-related information and involving the community in raising awareness about tuberculosis. A systematic review conducted by Alfian (2021) highlighted the utilization of strategies employing social media platforms to enhance outcomes for individuals with diabetes mellitus. This review disclosed that diverse health interventions on social media have yielded positive effects on diabetes management and patient outcomes. The concept of social media in healthcare goes beyond information dissemination; it includes online social support,

behavior change, and improved health outcomes. As social media continues to evolve, researchers and healthcare practitioners recognize the need to harness its potential to address public health challenges effectively. Omar's analysis in 2022 illuminates the relationship between seeking online health information and self-care practices among individuals with diabetes mellitus in Saudi Arabia. This research emphasizes the significant impact of social media platforms on shaping current dynamics in the healthcare sector. Patients' proactive engagement with digital health resources not only satisfies their informational needs but also translates into heightened self-care practices. This mutual connection underscores the ability of social media to enable patients, promoting informed decision-making and personalized health management within the context of Saudi Arabia. As individuals born into the digital age, university students are frequent users of social media platforms. They actively seek health-related information, support, and interventions through these platforms. Research conducted by Shewaye (2021) at Debrebirhan University in Ethiopia suggests a notable increase in the utilization of social media by university students for health awareness. As per Mohamed (2021), healthcare educators and students in Saudi Arabia extensively utilize social media for campaigns related to health awareness. The review highlights the character of social media in engaging university students in health promotion and fostering a culture of health awareness. The study indicates that social media has served as a readily available and convenient medium for students to seek health-related information and support. It is possible to argue that since, university students are a crucial demographic group, understanding their engagement with social media in the context of healthcare is vital for designing effective health interventions and campaigns. Kaushik's (2022) viewpoint underscores the integration of social media and healthcare, particularly in comprehending depression and associated mental health issues.

Through the analysis of linguistic nuances, sentiment trends, and behavioral cues on platforms like Twitter, a novel approach emerges for identifying potential issues discreetly. This symbiotic relationship between technology and healthcare not only promises timely support but also reshapes mental health interventions, reflecting the evolving synergy between digital discourse and well-being awareness.

Social media offers unique opportunities and challenges for healthcare purposes. It enables health promotion initiatives to reach a broader audience, making it an essential tool in public health campaigns (Kubheka et. al, 2020). Social media helps the dissemination of health-

related information and health education. Moreover, it promotes active participation within health initiatives in the community. Furthermore, a theoretical framework that includes social media affordances, online social support, and health behaviors and outcomes highlights the potential of social media to improve health outcomes (Lin et al., 2021).

The conceptual model underscores the way social media can offer emotional and informational support to individuals, influencing their health behaviors, and ultimately affecting their health outcomes. However, the impact of social media interventions in healthcare needs critical assessment, as not all interventions yield the desired results. For example, a comprehensive scoping review focused on the influence of social media interventions on informal caregivers of critically ill patients underscored the necessity for further research in identifying effective interventions for this group (Cherak et. al,2020).

University students actively engage with social media for healthcare purposes they actively seek health-related information, access support groups, and participate in health campaigns (Mohammed et.al, 2021). The aforementioned research illustrates how social media acts as a platform for promoting health-conscious behaviors among university students and the broader community. Likewise, students at Debrebirhan University utilize social media as a means of accessing health information (Shewaye et al., 2021). The ease of access and the ability to connect with peers and experts make social media an attractive platform for students to address their healthcare needs. As digitally savvy individuals, university students are keen on utilizing social media to empower themselves with health-related knowledge and resources.

In general, social media has revolutionized healthcare and offers a unique opportunity for health promotion and interventions, especially among university students. As digitally native individuals, university students actively engage with social media for health-related information, support, and awareness campaigns. While the potential of social media in healthcare is immense, it is essential to critically assess its impact and effectiveness in achieving desired health outcomes. As the field continues to evolve, further research is needed to optimize social media's role in promoting and improving healthcare among university students and the broader population. Understanding the patterns of social media usage among university students for healthcare purposes can inform the development of tailored interventions that cater to the specific needs and preferences of this demographic group. By harnessing the power of social media effectively, healthcare professionals and

policymakers can positively impact the health and well-being of university students and the communities they serve.

2.6 Advantages and Disadvantages of Social Media

Social media, in its multifaceted nature, offers a spectrum of advantages and disadvantages that encompass various aspects of life. It is presented with a general exploration and then delves into the realm of healthcare management, highlighting the specific benefits and challenges it presents.

In a broader context, social media provides global connectivity, transcending geographical boundaries to connect people worldwide. This global reach fosters collaboration and information exchange (Barve, 2016). Rapid and efficient communication is another significant benefit, particularly in health crises where it serves as a crucial channel for disseminating updates and addressing concerns promptly (Cherak et al., 2020). Moreover, the vast amount of data generated on social media can be harnessed for research and analytics, providing insights into various domains, including healthcare trends and academic performance (Koross & Kosgei, 2016). However, the extent to which global connectivity and data analysis are harnessed for academic achievement or healthcare management depends on the users' approach and objectives.

Nonetheless, the unregulated nature of social media can lead to the rapid spread of misinformation, resulting in confusion, potential harm, and adverse effects on public health and academic accuracy (Islam et al., 2019). This risk underscores the importance of responsible information sharing and discerning credible sources on these platforms. Privacy concerns arise when personal or sensitive information is shared on social media, which can affect personal well-being and data security. Whether in a general or specific context, safeguarding privacy and ensuring data security remains a significant challenge (Pentescu et al., 2015).

Advancing to the realm of healthcare management, social media offers unique advantages. It provides an efficient means for disseminating crucial health information, including updates on chronic diseases, preventive measures, and treatment options (Kubheka et al., 2020). This invaluable platform for patient education and well-being has great potential to reduce information gaps. Patients can engage with healthcare professionals, ask questions, and share

experiences through social media platforms, contributing to better-informed healthcare decisions (Campbell et al., 2016). Online communities dedicated to specific health conditions foster peer support, allowing individuals to exchange experiences and advice, which is particularly beneficial for those dealing with chronic diseases (Alfian et al., 2021). These advantages have the potential to significantly enhance healthcare management.

However, as in general contexts, the unverified spread of incorrect medical information on social media can harm patients' well-being and contribute to misconceptions regarding their conditions. The potential for misinformation requires careful monitoring and fact-checking within healthcare management. Moreover, sharing personal health information on social media in the context of healthcare management raises significant privacy concerns, which is particularly important given the sensitivity of health data. Safeguarding this information and ensuring patient confidentiality remains critical.

In the academic realm, the relationship between social media and academic performance is complex. While it can enhance learning and communication, excessive use can lead to distraction and information overload, potentially impeding students' ability to discern credible sources and focus on their studies. The impact on academic achievement depends on the students' usage patterns and their awareness of social media addiction. By increasing students' awareness about the potential effects of social media addiction and promoting responsible use, academic institutions can harness the advantages while mitigating the disadvantages of these platforms (Britt Roebuck et al., 2013).

With the integration of social media into healthcare management, it is crucial to recognize the specific needs of graduate students in Ethiopia, who may face unique challenges in healthcare management (Boateng & Amankwaa, 2016). Filling the research gap in this context is vital for understanding how social media can effectively enhance healthcare management for this particular demographic. This research will not only enhance health outcomes but also elevate the quality of life for graduate students in Ethiopia. The objective of this study is to fill this research gap and explore how social media can be utilized to address the distinct healthcare needs of this population (Soheylizad & Moeini, 2019).

2.7 Factors Affecting Social media Use

Social media usage elucidates a myriad of factors that intricately shape individuals' interactions with these platforms. A foundational aspect examined in studies such as Hampton et al.'s (2011) is the influence of demographics on social media adoption. The research underscores how variables like age, education, and socio-economic status contribute to divergent patterns of engagement, illuminating the nuanced ways in which different segments of the population embrace and utilize social networking sites.

Moreover, the digital landscape is not solely delineated by demographic parameters; technological access and literacy emerge as critical determinants, as evidenced by Hargittai's investigation into the skills and uses among the "Net Generation" (2010). This dimension highlights that disparities in access to devices and proficiency in navigating the online environment act as significant barriers or facilitators to widespread social media adoption.

Cultural and social norms, as explored in Kim et al.'s comparative study (2011), introduce another layer of complexity. The research reveals that cultural context significantly influences individuals' motivations and usage patterns, shaping the acceptance and integration of social media into daily life. This underscores the need to consider regional and cultural nuances when analyzing social media behaviors.

Privacy and security concerns within the realm of social networking sites have been extensively examined by Dwyer et al. (2007). Their research delves into users' apprehensions surrounding data protection and online safety, acknowledging that the perceived security of personal information plays a pivotal role in shaping user trust and engagement on these platforms.

Psychological factors, such as personality traits and motivations, provide further insights into social media usage. Ryan and Xenos' study (2011) on Facebook usage explores how individual differences, including shyness and narcissism, influence engagement levels. This dimension emphasizes the importance of understanding the underlying psychological drivers that motivate individuals to participate in online social networks.

Beyond individual-level factors, social influence, as explored by Ellison et al. (2007), becomes evident in the impact of friends on social capital and network site engagement. Peer

influence and the social context in which individuals find themselves contribute significantly to the adoption and continued use of social media platforms.

Geographical location and infrastructural differences are crucial factors influencing social media usage, as highlighted by Mazman and Usluel's (2010) study. Variations in internet infrastructure and access can significantly impact the prevalence and patterns of social media adoption, revealing the role of regional context in shaping online behaviors.

Lastly, time constraints and user experience, as emphasized in Kim and Lee's study (2011), further contribute to the complexity of social media usage. Understanding how individuals allocate their time to engage with these platforms and their overall experience while doing so is essential for comprehending the dynamics of user interaction.

The literature underscores the intricate interplay of demographic, technological, cultural, psychological, social, geographical, and experiential factors that collectively shape the landscape of social media usage. A comprehensive understanding of these multifaceted influences is imperative for researchers, policymakers, and industry professionals seeking to navigate the evolving terrain of digital communication.

2.8 Theoretical Foundation

The following paragraphs discuss models and theories that will be important for the development of a model after the experiment of the study. The section includes discussions of the social capital theory, health belief model, and the technology acceptance model (TAM).

2.8.1 Health Belief Model

The Health Belief Model primarily centers on how an individual's beliefs impact their inclination toward taking preventive measures against diseases. This model has its roots in the 1950s when American public health researchers initiated the development of psychological models to enhance the effectiveness of health education programs (Abraham, 2014). It is well-established that an individual's beliefs play a pivotal role in determining the success or failure of endeavors aimed at achieving specific objectives. Importantly, one's beliefs can transform or be influenced by the thoughts that occupy their mind. As discussed by the authors of the book, beliefs establish a significant link between socialization and

behavior. Notably, beliefs can vary among individuals with similar backgrounds due to their capacity to adapt their behavior.

The Health Belief Model (HBM) delves into two critical aspects of an individual's perception of health and health-related actions: threat perception and behavioral assessment. Threat perception comprises two key beliefs: the perception of susceptibility to illnesses or health issues and the anticipation of the severity of the consequences of these illnesses. Perception, in this context, refers to the psychophysical evaluation of the perceived quality of something based on personal experience (Anuar et al., 2020).

Furthermore, behavioral assessment encompasses two distinct sets of beliefs: those related to the advantages or effectiveness of a recommended health behavior and those associated with the costs or barriers to executing that behavior. Additionally, the model suggests that cues to action can trigger health-related behaviors when individuals hold appropriate beliefs. The HBM originates from psychological and behavioral theories and is founded on the notion that health-related behavior hinges on two primary components: the desire to evade illness or, conversely, to recover from illness if already afflicted, and the belief that a specific health action can prevent or remedy illness. Ultimately, an individual's course of action is often influenced by their perceptions of the benefits and obstacles associated with health behavior (Mikhail, 1981). The visual representation of the Health Belief Model is depicted in Figure 2.1.

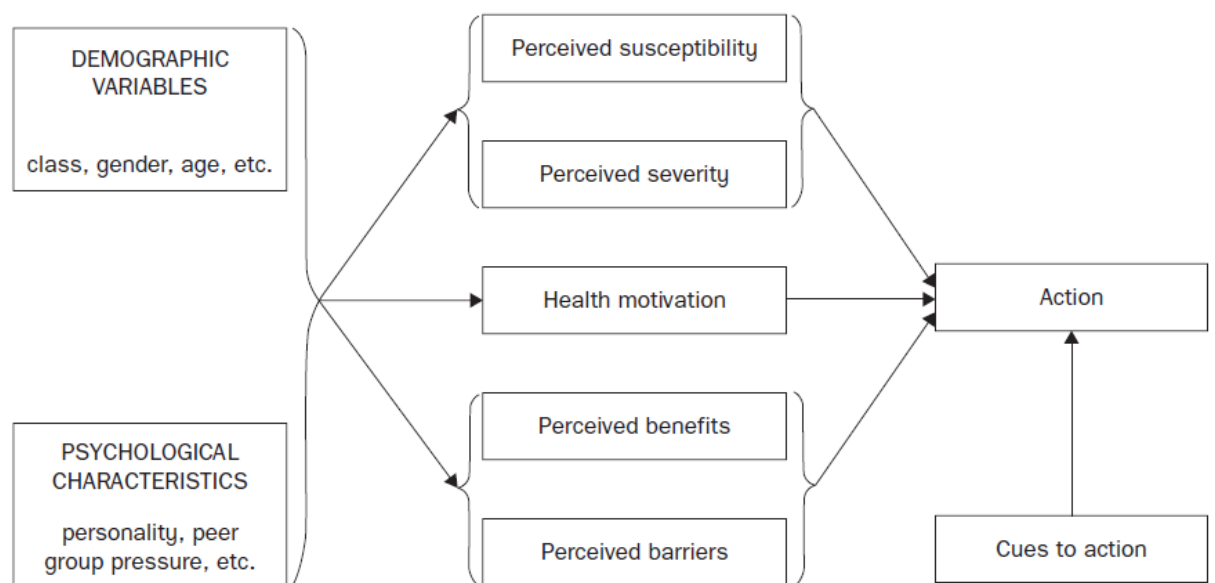


Fig 2.1: Health belief model (Adopted from Abraham & Sheeran, 2014)

2.8.2 Social Capital Theory

Social capital theory is comprehensively defined as the "features of social structures, such as interpersonal networks, norms, and trust that facilitate coordination and cooperation for mutual benefit" (Bhandari & Yasunobu, 2009). This theoretical framework emphasizes the value of social relationships and networks, highlighting the resources embedded within these connections. Social capital comes in various forms, such as bonding, bridging, and linking capital, each serving as a means to access information, support, and opportunities through trusted social ties.

The development of social capital theory has been a dynamic and interdisciplinary process, drawing from the works of various scholars and encompassing a wide range of applications. As highlighted by Bhandari and Yasunobu (2009), the concept of social capital evolved into a comprehensive framework that underscores the importance of social structures, interpersonal networks, norms, and trust for fostering cooperation and mutual benefit. The theory began to take shape in the late 20th century and has since been refined and expanded upon.

Prominent scholars have significantly contributed to the development of social capital theory. Pierre Bourdieu laid the foundation by introducing the idea of different forms of capital, including social capital. James Coleman extended the theory by emphasizing the role of social networks in education and economic transactions. Robert Putnam's work further popularized the concept, illustrating its relevance in civic engagement and community well-being. These contributions collectively enriched and deepened our understanding of social capital and its various forms.

The theory's development has also paved the way for diverse applications across disciplines. For instance, in healthcare, scholars like Kritsotakis and Gamarnikow (2004) explored the link between social capital and health. Social capital was found to influence health behaviors, access to health information, and self-care. Additionally, the advent of social media has expanded the scope of social capital theory, as discussed by Carmichael, Archibald, and Lund (2015). This integration into social media research has provided new insights into the role of social capital in the digital age, particularly in areas such as healthcare management. Researchers like Cockerham (2013) and Hao et al. (2023) have further examined the

relationship between social capital and health, offering evidence of its significance in population health.

In essence, the development of social capital theory has been a collaborative effort, incorporating insights from various disciplines and adapting to the changing social landscape. It has evolved into a versatile framework that informs research across numerous fields, including healthcare management, by emphasizing the role of social connections, trust, and cooperation in shaping individual and collective outcomes.

The application of social capital theory to social media platforms for personal healthcare management offers compelling arguments for its significance. As highlighted by Carmichael, Archibald, and Lund (2015), social media has become an integral part of people's lives, serving as a primary source of information and support. When applied through the lens of social capital theory, social media platforms offer several advantages for personal healthcare management.

First, social media platforms foster the creation of bonding social capital by connecting individuals with shared health concerns and experiences. These platforms provide a sense of community and emotional support for those dealing with chronic conditions or health challenges. Users can form close-knit groups, share their journeys, and exchange valuable insights, which can be particularly beneficial for those feeling isolated or seeking encouragement.

Second, social media platforms enable the development of bridging social capital by connecting individuals across diverse networks. Users can access a wealth of information, engage with healthcare professionals, and participate in health-related discussions. This broadens their knowledge and resources, empowering them to make informed decisions about their healthcare. The diverse perspectives and expertise available on these platforms contribute to more holistic healthcare management.

Third, linking social capital is established as social media platforms facilitate connections between users and healthcare institutions, organizations, and professionals. Users can easily access credible health information, schedule appointments, and receive guidance from

medical experts. This bridges the gap between individuals and the healthcare system, ensuring seamless communication and access to care.

Moreover, these platforms promote the principles of trust and reciprocity, which are central to social capital theory. Users tend to trust the information shared by their peers, making it more likely that they will adhere to recommended healthcare strategies. Additionally, the act of giving and receiving support on these platforms fosters a sense of community and cooperation, enhancing the likelihood of individuals actively participating in their healthcare management.

Applying social capital theory to social media platforms for personal healthcare management underscores their potential to enhance health outcomes. These platforms facilitate the creation of bonding, bridging, and linking social capital, offering support, knowledge, and access to healthcare resources. This integration promotes trust and reciprocity among users, contributing to more effective and comprehensive healthcare management strategies.

2.8.3 Technology Acceptance Model

The Technology Acceptance Model (TAM), originally proposed by Davis in 1989, has been extensively studied and applied in various domains, including social media, healthcare, education, and business (Davis, 1989; Surendran, 2013). TAM is designed to understand and predict users' intentions and behaviors when adopting new technology. The model posits that users' acceptance and usage of technology are primarily influenced by two key factors: perceived usefulness and perceived ease of use (Davis, 1989; Venkatesh & Davis, 2000).

Numerous studies have adapted and extended the TAM to explore its applicability in diverse contexts. For instance, Rauniar et al. (2014) applied TAM to investigate users' acceptance of Facebook, demonstrating its relevance in the realm of social media usage. Furthermore, Owusu et al. (2022) employed TAM to assess the acceptance of social media platforms in the context of e-commerce, underscoring its utility in evaluating technology adoption beyond traditional domains.

In the healthcare sector, Nguyen et al. (2020) utilized TAM to examine healthcare providers' and administrators' perceptions of technology's usefulness and ease of use in palliative care, showcasing the model's adaptability in understanding the acceptance of technology in the

medical field. Likewise, Alsyouf et al. (2023) utilized the Technology Acceptance Model (TAM) to anticipate the utilization of a personal health record system by patients, emphasizing the significance of security, privacy, and usability in the adoption of healthcare technology.

In the field of education, Amadu et al. (2018) applied TAM to measure the use of social media for collaborative learning in Ghana. Their study illustrated how TAM can be instrumental in assessing technology acceptance and its impact on educational practices.

TAM has been instrumental in evaluating technology adoption not only in developed countries but also in emerging economies. Berhanu et al. (2017) utilized TAM to examine its relevance in Ethiopian agriculture education and research, shedding light on its cross-cultural applicability.

The Technology Acceptance Model (TAM) has proven to be a versatile and influential framework for understanding users' acceptance and adoption of technology in various contexts, including social media, healthcare, education, and cross-cultural settings. Researchers have adapted and extended the model to suit specific domains, highlighting its enduring relevance in the ever-evolving landscape of technology acceptance and adoption (Davis, 1989; Rauniar et al., 2014; Alsyouf et al., 2023; Amadu et al., 2018; Berhanu et al., 2017).

The Technology Acceptance Model (TAM) figure serves as a visual representation that captures the fundamental concepts of TAM, a widely acknowledged theory in the realm of technology adoption and user behavior. Typically, this figure comprises two pivotal components: Perceived Usefulness and Perceived Ease of Use, illustrated as two distinct paths leading to Behavioral Intention and Actual System Use. Perceived Usefulness reflects users' beliefs regarding how adopting a particular technology or system will enhance their performance and productivity, underscoring the practical benefits perceived by users. On the other hand, Perceived Ease of Use signifies the users' perceptions of how effortlessly they can interact with and navigate the technology, emphasizing the importance of user-friendly interfaces and intuitive designs in influencing technology adoption. These two components ultimately impact Behavioral Intention, indicating the user's willingness or intention to use the technology based on their perceptions of usefulness and ease of use, serving as a mediator

between these perceptions and the actual system use. In practice, Actual System Use represents the tangible outcome, the real-world application of the technology, shaped by users' initial perceptions and intentions. The TAM figure is a valuable tool for researchers, designers, and decision-makers, enabling a better understanding of the intricate relationships between these elements and their collective influence on technology adoption and utilization in diverse domains, from healthcare to education and beyond. Figure 2.2 describes the TAM

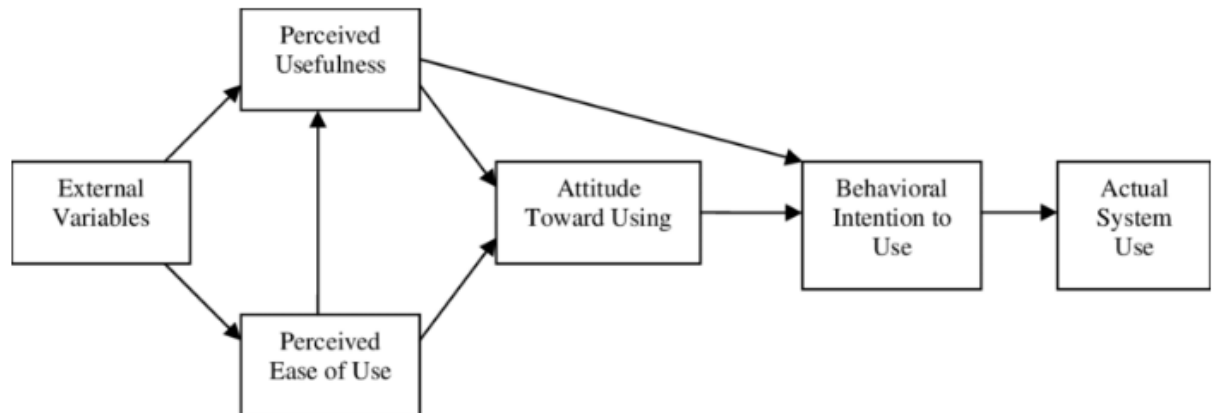


Fig 2.2: Technology acceptance model (TAM) (Davis et al., 1989).

The integration of multiple theories and models, such as the Health Belief Model (HBM), Social Capital Theory, and the Technology Acceptance Model (TAM), provides a comprehensive framework for understanding the dynamics of social media influence on personal healthcare management, especially in the context of chronic diseases.

The Health Belief Model (HBM) offers insights into individuals' perceptions of the seriousness of their chronic conditions, the perceived benefits of managing them, and the barriers they face in utilizing social media for healthcare. It emphasizes how an individual's perceived susceptibility to health risks and the perceived benefits of taking action, such as seeking support and information through social media, influence their engagement in self-care and health management.

Social Capital Theory brings a social dimension into the equation by highlighting the importance of social networks and connections. In the context of chronic disease management, social media can serve as a platform for individuals to access social support, share experiences, and build social relationships with others facing similar health challenges.

This theory underscores the significance of social ties and resources in enhancing individuals' resilience and self-efficacy in managing their chronic conditions.

The Technology Acceptance Model (TAM) complements these theories by focusing on users' acceptance of digital technology, including social media, for healthcare purposes. TAM underscores the role of perceived usefulness and perceived ease of use in determining individuals' intentions and behaviors in adopting technology. In the context of social media, it addresses the relevance of user-friendly interfaces, data security, and the perceived benefits of using these platforms for health information and peer support.

When combined, these models provide a holistic understanding of how social media influences personal healthcare management of chronic diseases. They illuminate the interplay between individuals' health beliefs, social networks, and technology acceptance, shaping their decisions to utilize social media platforms for chronic disease management. This integrated approach can guide healthcare professionals, researchers, and policymakers in developing tailored interventions and strategies to harness the full potential of social media for better healthcare outcomes in the context of chronic disease.

Research philosophy: In the context of experimental research focused on the management of chronic diseases using social media, a positivist research philosophy is deemed appropriate for its emphasis on empirical observation, quantifiable measurements, and the establishment of causal relationships. Positivism aligns with the objective of deriving generalizable and universal principles that can inform evidence-based practices. By employing a positivist approach, the researcher seeks to identify and measure specific variables related to social media interventions for chronic disease management, allowing for the quantification of outcomes and the identification of patterns or regularities. The positivist philosophy's reliance on structured, measurable data is particularly well-suited for experimental designs, enabling the establishment of cause-and-effect relationships between independent and dependent variables. This empirical orientation facilitates the testing of hypotheses and the development of interventions grounded in statistically validated findings. In the context of chronic disease management, a positivist philosophy offers a systematic and rigorous framework for evaluating the efficacy of social media interventions, providing stakeholders with clear and objective insights into the impact of these interventions on health outcomes.

CHAPTER THREE

3. Personal Healthcare Management through Social Media: A Study of Graduate Students in Select Ethiopian Universities

Abstract

Background: Social media serves as a valuable repository of healthcare information, holding significant potential for enhancing healthcare quality. This study aims to investigate how graduate students perceive and utilize health-related information from social media to manage their health. **Objective:** The research explores methods, through which graduate students discover and employ health-related information from social media for personal healthcare management, while also examining their perceptions. **Method:** A cross-sectional study design was adopted, involving a sample size of 282 students from various universities in Ethiopia, including Jimma, Mizan-Teppi, Adama, and Bonga. Data were collected and entered into Microsoft Excel, and statistical analysis was performed using SPSS version 20. Independent variables with a p-value of <0.05 were deemed statistically significant. **Results:** The data analysis demonstrated that respondents aged 25 to 30 years were approximately four times more likely (OR 3.972, 95% CI [2.342-6.738]) to utilize social media for managing chronic diseases, while those aged 31 to 35 years were nearly two times more likely (OR 1.814, 95% CI [1.094-3.009]). However, overall, students showed limited use of social media to obtain information about chronic diseases. Facebook emerged as the preferred platform among respondents for accessing healthcare content related to diet advice and walking techniques. **Conclusion:** The findings indicate that students use social media primarily in a constrained manner to acquire information about chronic diseases. Although Facebook is favored for specific healthcare content, other aspects of personal health management through social media require more attention and encouragement.

Keywords: SocialMedia Use, Personal Health Management, Promotion of a Healthy Lifestyle, Information About Chronic Disease, Graduate Students

3.1. Introduction

Social media has become a prominent platform among university students, significantly consuming their time. This digital platform has the potential to influence attitudes and behaviors, encouraging the adoption of healthier lifestyles (Lin et.al, 2021). Notably, social media has played a crucial role in improving healthcare quality by enhancing professionals' and patients' knowledge of health-related issues (Alghafri et.al, 2019) [2]. Moreover, it goes beyond mere entertainment to disseminating information that can impact human behavior (Cherak et. al, 2020). Firstly designed for personal interactions within limited boundaries, social media has expanded widely, with diverse users, including healthcare institutions, leveraging its potential (Chawla et.al, 2021).

The increase in social media has revolutionized social networking, transcending physical barriers and fostering virtual relationships (Dhingra et.al, 2019). As an internet-based platform facilitating the sharing of user-generated content, social media boasts a massive global user base, comprising a significant proportion of the world's population (Hootsuite 2020). The rapid growth indicates that internet usage is on track to encompass approximately half the total population, with social media adoption expected to increase more rapidly (Hootsuite 2020). Social media's potential in healthcare has been demonstrated through the various opportunities it offers for health promotion and education (Alghafri et.al, 2019). Among graduate students in Ethiopia, social media has emerged as a significant channel for accessing health-related information (Mohammed et. al, 2021; Kubheka et.al, 2020). Due to their extensive knowledge of academics, society, and politics, graduate students recognize the importance of health in their lives. Access to reliable health information on social media can significantly impact their attitudes, perceptions, knowledge, and self-care practices (Anderson, 2019; Soheylizad et.al, 2019). However, this potential comes with the responsibility to critically assess the sources and accuracy of the shared information to ensure credibility and reliability (Hagg et.al,2019).

Over time, Ethiopia's education landscape has undergone a significant transformation with the establishment of various universities and colleges (Addisalem,2020). The surge in graduate enrollment is remarkable, with thousands of graduate students now pursuing MSc and Ph.D. programs. These students face challenges, as many live off-campus and juggle

work responsibilities alongside their studies, potentially leading to stress and health issues. Given the relevance of social media in the lives of graduate students and its potential impact on health knowledge, attitudes, and practices, this study aims to delve into the social media habits of graduate students in Ethiopia (Mohammed et. al, 2021). The research will thoroughly evaluate the quality and reliability of health-related information accessible on social media platforms (Cherak et. al, 2020). By identifying the specific health needs and concerns of this population, the study aims to offer insights into tailoring health promotion and intervention strategies catering to the unique needs of graduate students (Kubheka et.al, 2020). Furthermore, this research will contribute to the international literature on the impact of social media on healthcare, particularly in developing countries like Ethiopia (Islam et. al, 2019). Understanding how social media can effectively enhance health awareness and education will be instrumental in improving healthcare outcomes among graduate students, providing valuable guidance for healthcare institutions and educators utilizing social media as a platform for disseminating credible health information (Mayberry et.al, 2019).

3.1.1. Research Questions

To address the research problem and understand the issues involved with the utilization of social media for personal healthcare management and related factors. Among graduate students in Jimma, Adama, Bonga, and Mizan-Teppi universities, the following research questions have been formulated:

1. What are the driving factors that lead graduate students to use social media for personal health management?
2. To what extent do graduate students use social media to obtain information about a healthy lifestyle and chronic diseases?
3. How do graduate students perceive, use, and evaluate the credibility of health-related information from social media?

3.1.2. Objectives of the Study

The objectives of the study are to examine how social media helps promote personal health management and facilitate a healthy lifestyle for graduate students at selected universities in Ethiopia and to investigate the factors related to perceptions of the credibility of health-related information found on social media platforms.

3.2. Literature Review

Social media has become a powerful platform with significant potential for healthcare purposes, especially among university students. The utilization of social media in various areas, including health promotion, interventions, and information dissemination, has revolutionized the ways individual's access and engage with healthcare-related content. This literature review aims to investigate the changing ideas about social media in the healthcare context, its utilization, and its adoption among college students. It offers an extensive examination of the current body of research in this area. Social media has transformed the healthcare landscape by providing new avenues for health promotion and interventions. For instance, a visual analysis of South Africa's "TB proof" Facebook page highlighted the potential of social media as a tool for health promotion. This analysis demonstrated the effective use of social media in disseminating health-related information and engaging the community in promoting tuberculosis awareness (Acha-Anyi et.al,2020). A systematic review emphasized the use of strategies involving social media platforms to improve outcomes for patients with diabetes mellitus. This review revealed various social media health interventions have positively impacted diabetes management and patient outcomes (Alfian et.al,2021). The concept of social media in healthcare goes beyond information dissemination; it includes online social support, behavior change, and improved health outcomes. As social media continues to evolve, researchers and healthcare practitioners recognize the need to harness its potential to address public health challenges effectively. Omar's (2022) analysis sheds light on the interplay between online health information seeking and self-care among diabetes mellitus patients in Saudi Arabia. This study underscores the influential role of social media platforms in shaping contemporary healthcare dynamics. Patients' proactive engagement with digital health resources not only satisfies their informational needs but also translates into heightened self-care practices. This reciprocal relationship highlights social media's capacity to empower patients, fostering informed decision-making and personalized health management within the Saudi Arabian context.

University students, being digitally native, are active users of social media platforms. They actively seek health-related information, support, and interventions through these platforms. Research indicates that university students' use of social media for health awareness has increased significantly (Shewaye et.al,2021). According to Shewaye (2021), healthcare teachers and learners in Saudi Arabia extensively use social media for health-related

awareness campaigns. The review highlights the role of social media in engaging university students in health promotion and fostering a culture of health awareness. Shockley (2020) found that university students at Debrebirhan University utilize social media as a source of health information. The study indicates that social media has served as a readily available and convenient medium for students to seek health-related information and support. As university students are a crucial demographic group, understanding their engagement with social media in the context of healthcare is vital for designing effective health interventions and campaigns.

Kaushik (2022) perspective highlights the fusion of social media and healthcare, specifically in understanding depression and related mental health concerns. Through the analysis of linguistic nuances, sentiment trends, and behavioral cues on platforms like Twitter, a novel approach emerges for identifying potential issues discreetly. This symbiotic relationship between technology and healthcare not only promises timely support but also reshapes mental health interventions, reflecting the evolving synergy between digital discourse and well-being awareness.

Social media offers unique opportunities and challenges for healthcare purposes. It enables health promotion initiatives to reach a broader audience, making it an essential tool in public health campaigns (Kubheka et.al, 2020). Social media helps the dissemination of health-related information and health education. Also, it encourages community engagement in health initiatives. Moreover, a theoretical framework encompassing social media affordances, online social support, and health behaviors and outcomes accentuates the capacity of social media to enhance health outcomes (Lin et.al, 2021). The conceptual model emphasizes how social media can provide emotional and informational support to individuals, influencing their health behaviors and ultimately impacting their health outcomes. However, the impact of social media interventions in healthcare needs critical assessment, as not all interventions yield the desired results. For example, a comprehensive scoping review focused on the influence of social media interventions on informal caregivers of critically ill patients underscored the necessity for further research in identifying effective interventions for this group (Cherak et. al, 2020). This call for evidence-based approaches in designing social media interventions to maximize their effectiveness and potential in healthcare settings.

University students actively engage with social media for healthcare purposes. They actively seek health-related information, access support groups, and participate in health campaigns.

In Saudi Arabia, university students, and health teachers, utilize social media extensively to raise health awareness. The above study demonstrates how social media serves as a platform to foster health-conscious behaviors among university students and the wider community. Similarly, at Debrebirhan University, students use social media as a source of health information. The ease of access and the ability to connect with peers and experts make social media an attractive platform for students to address their healthcare needs. As digitally savvy individuals, university students are keen on utilizing social media to empower themselves with health-related knowledge and resources.

In conclusion, social media has revolutionized healthcare and offers a unique opportunity for health promotion and interventions, especially among university students. As digitally native individuals, university students actively engage with social media for health-related information, support, and awareness campaigns. While the potential of social media in healthcare is immense, it is essential to critically assess its impact and effectiveness in achieving desired health outcomes. As the field continues to evolve, further research is needed to optimize social media's role in promoting and improving healthcare among university students and the broader population. Understanding the patterns of social media usage among university students for healthcare purposes can inform the development of tailored interventions that cater to the specific needs and preferences of this demographic group. By harnessing the power of social media effectively, healthcare professionals and policymakers can positively impact the health and well-being of university students and the communities they serve.

3.3. Materials and Methods

3.3.1. Study Design

This study employed a rigorous cross-sectional design, targeting graduate students from four esteemed Ethiopian universities: Jimma, Mizan-Teppi, Adama, and Bonga. The participants were selected using a robust stratified random sampling method, with one university randomly chosen from each of the four generations found in Ethiopian government Universities. The study population consisted of students from the distinguished College of Business and Economics and the innovative College of Technology within the selected Universities. The selection of colleges is done by considering choosing similar colleges from the four universities previously chosen.

The primary objective of this research is to thoroughly investigate social media's influence on the adoption and effectiveness of personalized health management strategies among graduate students, with a keen focus on prevalent chronic diseases. By doing so, this study brought clarity to the situation on the potential benefits and implications of using social media as a tool for fostering proactive health management practices among this population.

3.2.2. Study Participants, Sample Size, and Sampling Procedure

Study participants were meticulously selected from the well-defined population of graduate students attending Jimma, Adama, Mizan-Teppi, and Bonga universities. To ensure unbiased representation, universities were previously chosen randomly from each generation of educational institutions. Within these selected universities, the researchers identified and carefully matched students from similar colleges, specifically the esteemed College of Business Economics and the innovative College of Technology. Interestingly, both Adama and Bonga universities exclusively have one college each for their graduate programs, namely Technology and Business Economics, respectively, streamlining the participant selection process.

The comprehensive population comprises 441 graduate students from Jimma, 316 from Adama, 123 from Bonga, and 180 from Mizan-Teppi, ensuring an inclusive representation of diverse academic backgrounds and research interests. This meticulous approach to participant selection aims to minimize bias and enhance the study's internal validity.

By employing this rigorous sampling technique, the research aims to establish a robust foundation for analyzing the impact of social media on personalized health management strategies among graduate students dealing with prevalent chronic diseases. Such meticulousness in participant selection is crucial in generating reliable and meaningful results, fostering credibility, and contributing to advanced research on health management and social media.

A sample size of the study was calculated from a total population of 1060 graduate students previously summarized. The calculation is based on the assumption of a 50% frequency or extent of social media usage for personal healthcare management in Ethiopian universities, a 95% confidence level, a 5% margin of error, and a 10% response rate. Consequently, a sample size of 282 was derived using the research sampling technique. To ensure a proportional representation of sample size was allocated among the universities: 117 for

Jimma, 84 for Adama, 33 for Bonga, and 48 for Mizan-Teppi universities.

By adopting this systematic approach to sampling and randomly assigning, the study aims to achieve a representative and unbiased distribution of participants, thereby enhancing the research's reliability and validity. This meticulous attention to participant allocation is vital in drawing meaningful conclusions, and also contributes to the advanced knowledge in the field of social media's impact on personalized health management among graduate students.

3.3.3. Statistical Analysis

Data were entered into Microsoft Excel 2007, and analysis was performed using the Statistical Package for Social Sciences (SPSS) version 20. The researchers choose this version of SPSS because it is the stable version and available in their laboratory. Descriptive statistics were employed to summarize the study variables. From the analysis of logistic binary regression, independent variables with a p-value < 0.05 were considered significant. An odds ratio (OR) with a 95% confidence interval (CI) was used to measure the association between independent variables and social media utilization for personal healthcare management by graduate students.

3.4. Results

3.4.1. Personal Characteristics and Previous Diagnosis History

A comprehensive cohort of 282 students participated in responding to the questionnaire, with an overwhelming majority of 262 (92.9%) being enrolled in master's programs, while the remaining 20 (7.1%) were pursuing Ph.D. studies. Among this engaged group, a notable 184 (65.2%) were male, and an equally substantial 190 (67.4%) fell below the age threshold of 36.

Turning our attention to the medical landscape, the chronicle of prior diagnosis history for chronic diseases unveiled that a significant 207 (73.4%) students exhibited a lack of awareness regarding any previous chronic disease diagnoses. Among those who had grappled with prior diagnoses, a modest 22 (7.8%) were identified as having encountered high blood pressure, while chronic kidney disease remained absent from the medical narrative.

In the realm of digital health management, the vanguard of personal healthcare was distinctly commanded by Facebook. An impressive contingent of 71 (25.2%) respondents attested to its prime role as the preferred social media platform for their healthcare management endeavors.

A telling majority, comprising 248 (87.9%) respondents, confirmed their penchant for engaging with healthcare content tailored around physical exercise in their chronic disease management pursuits (Table 3.1).

Table 3.1. Personal and health history of respondents

Variables	Frequency and (%)
Enrolment category	
Masters	262(92.9%)
PhD	20(7.1%)
Gender	
Male	184(65.2%)
Female	98(34.8%)
Age categories	
25-30	91(32.3%)
31-35	99(35.1%)
36-40	75(26.6%)
41 and above	17(6%)
Previous Diagnosis history	
Diagnosed	75(26.6%)
Not Diagnosed	207(73.4%)
History of medical conditions	
Blood pressure	22(7.8%)
Diabetes	12(4.3%)
Chronic Kidney Disease	0(0%)
SM platform for Healthcare utilization	
Facebook	71(25.2%)
Telegram	25(8.9%)
Twitter	2(0.7%)
YouTube	2(0.7%)
Healthcare content browsing	
Physical exercise	248(87.9%)
Walking	11(3.9%)
Diet advice	13(4.6%)
Medication	10(3.5%)

3.4.2. General Social Media Utilization Experience of Respondents

The overarching portrait of social media engagement exhibited a distinct pattern among the participants. Notably, 161 (57.1%) respondents actively navigated the landscape of Facebook, while a commendable 121 (42.9%) opted for the dynamic avenue of Telegram. Additionally, a modest contingent acknowledged their involvement with platforms like TikTok and YouTube, serving as supplementary channels of interaction.

Delving into the frequency of interaction, the experiential tapestry of research participants unfurled intriguing dynamics. A considerable number of 123 (43.6%) individuals were discerned as ardent daily users, while a notable 132 (46.8%) partook in weekly interactions. A discerning subset of 27 (9.6%) exhibited a more measured approach, engaging every month.

When dissecting the temporal investment in this digital realm, the daily users furnished illuminating insights. A substantial 139 (49.6%) respondents dedicated 1 to 7 hours daily, while a smaller cohort of 25 (8.9%) engaged for 8 to 14 hours. The spectrum was further broadened, with 6 (2.1%) allocating 15 to 21 hours, and 4 (1.4%) surpassing 21 hours. This rich tapestry of engagement was embellished by 27 (9.6%) individuals who spent 1 to 7 hours, and an intriguing 53 (18.8%) who clocked in between 8 to 14 hours, lending credence to the diverse dynamics at play.

3.4.3. Healthcare Information and Knowledge of Chronic Diseases

The scrutiny of data concerning the origin of healthcare information unveiled compelling insights. Among the 282 respondents, a notable 262 (92.9%) leaned on their social circle for healthcare insights, while a modest 12 (4.3%) turned to the Ministry of Health for guidance. A smaller contingent of 8 (2.8%) sought counsel from the medical fraternity, specifically physicians or doctors. A prevailing trend emerged, with an impressive 266 (94.3%) acknowledging social media as their conduit for accessing healthcare information.

Intriguingly, the pursuit of knowledge revealed that a mere 5 (1.8%) respondents laid claim to a strong grasp of chronic diseases, indicating a scarcity of comprehensive awareness. These findings, meticulously outlined in Table 3.2, paint a vivid picture of the intricate landscape surrounding healthcare information and its diverse channels of acquisition.

Table 3.2. Healthcare information and knowledge of chronic disease

Variables	Frequency	Percent
How do you use SM		
Watching healthcare video clips	6	2.1%
Reading posts	266	94.3%
Joining healthcare discussion groups	2	0.7%
Subscribing to healthcare mail lists	8	2.8%
Sources of healthcare information		
Friends	262	92.9%
Ministry of Health	12	4.3%
Physicians/doctors	8	2.8%
Knowledge of chronic diseases		
Very good	5	1.8%
Good	32	11.3%
Moderate	129	45.7%
None at all	116	41.1%
Driving factors to use SM		
The increase in chronic disease occurrence	5	1.8%
The accessibility of chronic disease information on social media	25	8.9%
The ease of use of social media	26	9.2%
The attractiveness of social media	43	15.2%
The availability of technology	77	27.3%
Access of internet	68	24.1%
The information obtained from the media	37	13.1%

3.4.4. Driving Factors to Use Social Media Information for Chronic Disease

Management

The meticulous analysis of results has unveiled a nuanced landscape. A mere 2 (0.7%) respondents found themselves engaged in healthcare-focused discussion groups, while a striking 266 (94.3%) preferred the avenue of perusing posts on social media to glean their healthcare information. Intriguingly, a mere 8 (2.8%) individuals resorted to social media as a consequence of the scarcity of healthcare-related information.

When delving into the origins of healthcare knowledge, a distinctive pattern emerges. A

modest 25 (8.9%) respondents acknowledged doctors or physicians as their source, while a significant majority of 262 (92.9%) entrusted their friends for this crucial insight.

Turning our gaze towards the realm of chronic diseases, a revealing picture unfolds. A mere 5 (1.8%) respondents held the conviction of possessing an intricate understanding; while a considerable 129 (45.7%) endorsed a more moderate level of knowledge.

Steering the discourse toward the motivations underpinning the use of social media for chronic disease management, the dynamics are compelling. A notable 26 (9.2%) respondents underscored the ease of use that social media platforms offer. Meanwhile, the surge in technology's ubiquity, epitomized by smart phones and laptops, was identified as a dominant factor by a substantial 77 (27.3%) respondents, underscoring its pivotal role

3.4.5. Utilization of Social Media for Personal Healthcare Management and Its Association with Independent Variables

The subsequent tables (Tables 3.3 and 3.4) present the association between the dependent variable, which is the utilization of social media for personal healthcare management, particularly for chronic diseases, and independent variables such as gender, age, previous diagnosis history of chronic diseases, the specific diseases for which they have a history, and the type of healthcare content they predominantly browse.

Table 3.3: The analysis of factors associated with the utilization of social media for personal healthcare management and knowledge about chronic diseases.

Independent variables	Social media utilization		Odds ratio and CI95%
	Yes	No	
Enrolled in			
Masters	99(35.1%)	163(57.8%)	11.54(1.521-87.544)
PhD	1(0.35%)	19(6.74%)	0.87(0.011-0.657)
Gender			
Male	96(52.17%)	88(47.82%)	25.64(9.047-72.646)
Female	4(4.08%)	94(95.91%)	0.039(0.014-0.111)
Age			
Age1(25-30)	52(18.44%)	39(13.83%)	3.972(2.342-6.738)
Age2(31-35)	44(15.6%)	55(19.5%)	1.814(1.094-3.009)
Age3(36-40)	4(1.41)	71(25.17%)	0.065(0.23-0.185)
Age4(41&above)	0	17(6.02)	0(0)
Diagnosis History			
Diagnosed	63(22.34%)	12(4.26%)	24.122(11.831-49.181)
Not diagnosed	37(13.12%)	170(60.28%)	0.041(0.020-0.085)

Table 3.4: The analysis of factors associated with the utilization of social media for personal healthcare management and knowledge about chronic disease.

Independent variables	Social media utilization		Odds ratio and CI95%
	Yes	No	
History of medical conditions			
Reactive BP	16(5.67%)	6(2.13%)	5.59(2.11-14.79)
Reactive Diabetes	12(4.26%)	0	Not significant
Reactive CKD	0	0	1.82(1)
SM platform for utilization			
Facebook	71(25.17%)	0	Not significant (0.996)
Telegram	25(8.87%)	0	Not significant (0.998)
Twitter	2(0.7%)	0	Not significant (0.999)
YouTube	2(0.7%)	0	Not significant (0.999)
SM Healthcare content			
Physical exercise	73(25.89%)	175(62.06%)	0.108(0.45-0.259)
Walking	7(2.5%)	4(1.41%)	3.349(0.956-11.735)
Diet advice	10(3.54%)	3(1.06%)	6.630(1.78-24.69)
Medication	10(3.54%)	0	Not significant (0.999)
Do SM help			
Yes	89(31.56%)	1(0.35%)	1464.4(186.13-11522.0)
No	11(3.9%)	181(64.18%)	0.001(0-0.005)

The findings unearthed a compelling array of insights, painting a vivid picture of factors influencing the utilization of social media for chronic disease management:

Age Influence: Respondents aged between 25 to 30 exhibited an intriguing proclivity; being nearly four times more inclined (OR 3.972, 95% CI [2.342-6.738]) to harness social media for chronic disease management. Equally intriguing, those aged 31 to 35 showcased a doubled inclination (OR 1.814, 95% CI [1.094-3.009]) compared to their older counterparts.

Gender Dynamics: A striking gender dimension emerged. Males surfaced as significantly more disposed (OR 25.64, 95% CI [9.047-72.646]) towards utilizing social media for chronic disease management, while females exhibited a contrary tendency (OR 0.039, 95% CI [0.014-0.111]).

Impact of Prior Diagnosis: An illuminating nexus surfaced between prior diagnosis history and social media utilization for chronic disease management. Students with a history of chronic disease diagnosis demonstrated a remarkable inclination (OR 24.122, 95% CI [11.831-49.181]) compared to their counterparts without such history (OR 0.041, 95% CI [0.020-0.085]). Of note, individuals grappling with high blood pressure (OR 5.59, 95% CI [2.11-14.79]) showed a notable correlation with heightened social media engagement, whereas diabetes and chronic kidney disease did not establish such a link.

Platform Predilection: While the relationship between social media platform types and utilization for chronic disease management did not yield statistically significant findings, nuanced dynamics emerged.

Content Preferences: Respondents' proclivity towards specific healthcare content bore intriguing implications. Those engaging with diet advice content exhibited a striking six-fold inclination (OR 6.630, 95% CI [1.78-24.69]), while those tapping into physical exercise content displayed a three-fold likelihood (OR 3.349, 95% CI [0.956-11.735]) compared to those drawn to different contents.

Perceived Helpfulness: The perceived utility of social media for chronic disease management resounded powerfully. A robust association (OR 1464.4, 95% CI [186.13-11522.0]) emerged between those finding it helpful and their heightened utilization, juxtaposed against those who perceived it as unhelpful (OR 0.001, 95% CI [0-0.005]).

These multifaceted dynamics underscore the intricate interplay of age, gender, health history, content preferences, and perceived efficacy in shaping the utilization of social media for effective chronic disease management.

3.5. Discussion

The outcomes of this study unveiled that a substantial portion of respondents, comprising 35.5%, harnessed the potential of social media for healthcare management, endorsing a healthy lifestyle, and sourcing insights about chronic diseases. Among the array of social media platforms at their disposal, Facebook emerged as the standout choice, with 71 respondents (25.2%) utilizing it for healthcare management. This observation resonates with the Digital 2023 report, which underscores Facebook's preeminence as the most favored platform (Hootsuite, 2020).

An intriguing revelation from this investigation is that students predominantly earmarked social media for entertainment pursuits (33%), followed by educational endeavors (22%), friend networking (20.6%), healthcare (14.9%), and business pursuits (9.2%). This hints at a disparity in effectively leveraging social media for healthcare goals, as the lion's share of their interaction time is allocated to recreational activities. Pertinently, the respondents' usage patterns showed that 123 (43.6%) were daily users, 132 (46.8%) engaged weekly, and 27 (9.6%) indulged every month. The correlation between the frequency of social media use and its healthcare-oriented utilization implies that habitual daily interaction could catalyze an increased adoption of the platform for personal healthcare management.

Further scrutiny into the gender dimension spotlighted that males exhibited a higher inclination toward using social media for healthcare management in comparison to their female counterparts. In terms of age, respondents aged 25 to 30 exhibited a greater propensity for deploying social media as a healthcare management tool, relative to those aged 31 to 35. This temporal pattern hints at a declining trend in social media's healthcare utility with advancing age, suggesting an inverse correlation between age and utilization.

A compelling observation from this study elucidates a direct nexus between prior diagnosis history and social media's utility for healthcare management. This implies that a history of diagnosis exerts a discernible impact on personal healthcare management via social media channels. Within the subset of diagnosed respondents, those grappling with high blood pressure manifested the highest proportion. This could be attributed to the intricate linkage between blood pressure and an array of chronic health conditions.

Evaluating the contours of content engagement, it becomes evident that a significant proportion of students, within the realm of chronic disease healthcare management, were drawn to dietary advice and walking guidance disseminated through social media. However,

intriguingly, avenues related to physical exercise and medication counsel did not garner comparable attention. Of those harnessing social media for healthcare pursuits, a substantial contingent, and 89 (31.56%), voiced agreement that it indeed facilitated effective chronic disease management.

In conclusion, this study accentuates the substantial role that social media can play in healthcare management, advocating a healthy lifestyle, and augmenting awareness about chronic diseases among graduate students. Nevertheless, the findings underscore the imperative for channeling efforts towards bridging the gap between recreational and healthcare-focused social media usage, along with fostering a more inclusive utilization of the platform across various age groups and genders. Such endeavors stand to amplify the constructive impact of social media on personal healthcare management.

3.6. Conclusions

In this study, we delved into how graduate students in Ethiopia utilize social media for personal healthcare management, particularly concerning chronic diseases. The results offer intriguing insights into the dynamics of this emerging trend.

Our analysis revealed that male students between the ages of 25 and 35, especially those with a history of chronic disease diagnosis, were more inclined to leverage social media for managing their health. However, despite the vast array of healthcare information available, only a small fraction of respondents considered themselves well-versed in chronic diseases. This suggests a pressing need for more accurate and credible health-related content on social media platforms to foster better understanding among graduate students.

Interestingly, the platforms of choice for healthcare management were predominantly Facebook and Telegram, while platforms like Twitter and YouTube had a lesser impact. Nevertheless, the specific platform itself didn't significantly dictate the utilization of chronic disease management.

This study underscores the potential of social media as a powerful tool for promoting healthy lifestyles and managing chronic diseases. Yet, it also emphasizes the importance of tailored strategies to enhance information dissemination and uptake among graduate students. The convenience and widespread availability of technology, including smart phones and laptops, emerged as pivotal drivers motivating the adoption of social media for managing chronic conditions.

In conclusion, this research underscores the crucial role that social media can play in disseminating health information and facilitating healthcare management, especially concerning chronic diseases. By focusing on targeted, reliable, and user-friendly content, we can harness the true potential of social media to enhance the overall health and well-being of graduate students and beyond.

3.7. Recommendations

The insights garnered from our study highlight that postgraduate students predominantly rely on informal sources, like friends and discussion groups, for their healthcare information. To optimize the dissemination of accurate health-related knowledge, it's imperative for governmental bodies such as the Ministry of Health, along with healthcare service providers, to take a proactive stance in sharing vital healthcare information.

Furthermore, we propose that students diversify their engagement across various categories of social media platforms. By embracing a wider spectrum of platforms, students can unlock the full potential of these tools for their healthcare management.

Our findings also underscore the underutilization of social media for healthcare purposes by students. This reveals an opportunity for enhancement in leveraging these platforms, particularly in the realm of chronic disease management. Given that social media significantly enhances information accessibility, we recommend that the government take a more prominent role in harnessing this evolving technology to cater to the individualized knowledge needs of students concerning chronic diseases.

In essence, our study underscores the importance of a concerted effort between government institutions, healthcare providers, and students themselves in optimizing the utilization of social media as a powerful tool for disseminating accurate healthcare information and managing chronic conditions effectively.

CHAPTER FOUR

4. Social Media Usage Intervention Experiment for Enhanced Personal Healthcare Management of Predominant Chronic Diseases: The Case of Graduate Students in Selected Ethiopian Universities

Abstract

Background: Chronic diseases are a global concern and though many researchers have been conducted, it is yet scant when it comes to postgraduate students. Leveraging social media for health education can fill this gap, empowering students to manage chronic conditions, seek timely care, and enhance overall well-being.

Objective: The objective of this research was to assess the influence of social media on postgraduate students' personalized management of predominant chronic diseases (diabetes, high blood pressure, chronic kidney disease) using an experimental approach.

Methods: An experimental research design was employed. A total of 282 postgraduate students from four Ethiopian universities: Jimma, Mizan-Teppi, Adama, and Bonga were sampled and a stratified random sampling ensured proportional representation. Control and Experimental groups were formed, with 141 students in each. Pre- and post- intervention data was collected. Contents validated by physicians were released on social media for the experimental group during the study period, while the control group never got such intervention. A comparative analysis of measurement outcomes between Control and Experimental groups was done using Mean scores and paired T-tests. **Results:** The baseline data indicated that there is no significant difference between the groups. Post-intervention data however revealed that the Experimental group demonstrated significant improvements in various healthcare knowledge and management dimensions. The rate of specific diagnoses within the control group increased from 7.8% to 86.5% in the experimental group. Likewise, the utilization of the platform for healthcare purposes saw an increase from 14.2% prior to the experiment to 40.4% following the experiment. The comparative analysis of measurements before and after the intervention in both the control and experimental groups revealed a significant increase in mean values with the experimental group yielding a paired t-test p-

value of 0.00 for all assessments, where as for control group there is no significance increases.

Conclusion: In conclusion, the study's intervention had a significant positive impact on the experimental group, with notable increases in all measurement outcomes post-intervention. This approach accommodated graduate students' time constraints and empowered them to enhance their understanding of chronic diseases. The tailored multimedia-rich intervention effectively increased mean scores across all measurement outcomes, promoting informed health decisions and emphasizing social media's role in healthcare awareness and engagement among graduate students.

Keywords: Social media, intervention, personal health management, Healthcare, Chronic diseases, graduate students

4.1. Background

Graduate education plays a crucial role in the development of a country, as it contributes to the advancement of knowledge, research, and innovation. In Ethiopia, the number of postgraduate students has seen a significant growth over the years, indicating the increasing demand for specialized education and expertise (Addisalem, 2020). According to a study by Addisalem (2020), the expansion of total graduate enrollment in Ethiopian universities is doubled in the past six years, reflecting the importance of advanced education in the country's development.

However, despite the growing number of postgraduate students, limited research has been conducted on the prevalence of chronic diseases among this population. Chronic diseases can have a profound impact on individuals' health and well-being, and they often require long-term management and care (Yosef,2020) . A study by Tesfay (2022) highlighted the need for more research on chronic diseases in Ethiopia, emphasizing the importance of understanding the burden of these diseases on different segments of the population, including postgraduate students.

Currently, there is a dearth of information on the occurrence of chronic diseases among postgraduate students in Ethiopian universities. While chronic diseases are prevalent worldwide, the specific prevalence and impact on this particular student population remain largely unexplored. Research by Alemayehu (2020), indicated that the healthcare focus in Ethiopian universities has mainly been on infectious diseases and general health issues, with limited attention to chronic diseases. This lack of focus may contribute to a lack of awareness and preventive measures among graduate students.

Despite the limited research, studies have reported that a significant number of postgraduate students are living with undiagnosed chronic conditions (Alemayehu, 2020). As highlighted by Shewaye (2021), many students may not seek medical attention until they experience acute symptoms, leading to delayed diagnosis and management of chronic diseases. This delay can have severe consequences on their health and academic performance (Cherak et al., 2020).

To address these gaps in knowledge and improve the healthcare of graduate students, it is essential to conduct more comprehensive research on the prevalence of chronic diseases among this population. Understanding the burden of chronic diseases on postgraduate students can inform targeted interventions and healthcare strategies that cater to their unique

needs. By promoting early diagnosis, prevention, and management of chronic conditions, universities can support the overall well-being and academic success of their graduate students (Abdela et al., 2019).

Understanding chronic diseases is essential for preventing their prevalence and effectively managing their impact on individuals' health. However, recent research highlights a significant knowledge gap among university students in Ethiopia, including those pursuing graduate studies, regarding chronic diseases (Shockley et al., 2020; Islam et al., 2019; Hagg et al., 2018). This lack of awareness is particularly concerning among graduate students who face several challenges of demanding academic requirements and additional stressors such as financial constraints and familial responsibilities. These pressures may inadvertently lead the students to neglect their overall well-being, particularly chronic diseases. Consequently, many postgraduate students might remain uninformed about the early signs and risks associated with chronic conditions.

To address this issue, it is crucial to consider innovative approaches, among other interventions, leveraging social media platforms for health education and awareness. Studies have explored the potential benefits of social media in disseminating information about non-communicable diseases and promoting health behaviors, especially in low- and middle-income countries (Islam et al., 2019; Hagg et al., 2018). Integrating health-related content and resources on platforms commonly used by students can offer a convenient and accessible way to deliver knowledge about chronic diseases.

As a result, the lack of knowledge about chronic diseases among postgraduate students in Ethiopia necessitates targeted interventions that account for their unique challenges. By harnessing the power of social media and other relevant strategies, it is possible to bridge the knowledge gap and empower students to make informed decisions about their health and well-being.

In contrast to the formal healthcare environments where students have direct access to healthcare professionals, postgraduate students face limited avenues for acquiring comprehensive knowledge about chronic diseases. This scarcity of accessible and credible information sources significantly contributes to their limited understanding of both preventative measures and early detection strategies for chronic diseases (Aldahdouh et al., 2020). The impact of this gap is highlighted by Alfian (2021), who conducted a systematic review demonstrating the potential of social media health interventions to enhance patient

outcomes, particularly in the case of diabetes mellitus. The importance of reliable health information dissemination aligns with Ahmad (2020), who explored the content and user engagement of videos on YouTube by medical professionals, emphasizing the critical role of accurate information in healthcare settings. This underscores the need to address the lack of accessible knowledge about chronic diseases among postgraduate students, as demonstrated by Kaushik (2022), who employed Twitter data to identify signs of depression and mental illness on social media, further emphasizing the significance of leveraging such platforms for healthcare awareness and intervention.

To address this issue, it is essential to explore innovative approaches to disseminating healthcare information and raising awareness among postgraduate students. Social media intervention, which has shown promising results in health promotion and education, could serve as a valuable platform to bridge the knowledge gap. By utilizing social media platforms such as Twitter and Facebook, targeted educational campaigns can be designed to deliver relevant and timely information to postgraduate students about chronic diseases. This approach aligns with the findings of previous studies conducted among Ethiopian university students, which highlighted their knowledge and perception of cardiovascular disease risk factors (Abdela et al., 2019).

Additionally, exploring the use of social media platforms by public universities, as discussed by Halaweh (2020), underlines the potential of these platforms for health-related interventions in educational settings. Furthermore, Yosef's (2020) study on the prevalence and associated factors of chronic non-communicable diseases among cross-country truck drivers in Ethiopia provides insights into the importance of addressing chronic disease management among various populations.

Employing social media interventions can offer the advantage of delivering adaptable and readily available content, granting postgraduate students the flexibility to access health-related information at their convenience. Notably, the anonymous nature of social media platforms allows students to engage in discussions regarding sensitive health topics and seek guidance without the apprehension of scrutiny, thereby cultivating an environment conducive to open learning (OyOladapoebode, 2019). This approach aligns with the findings of Thomas (2023), who highlighted the use of social media as a platform for education and support among individuals with diabetes during a global pandemic.

By harnessing the capabilities of social media intervention, Ethiopian universities have the potential to enrich the health literacy and health-seeking behavior of their graduate students. Equipping these students with the necessary knowledge and resources for preventing and managing chronic illnesses could lead to enhanced overall health outcomes and academic achievements. This notion aligns with the findings of Deng (2020), who conducted a cross-sectional survey study on the association between web-based physical education and the mental health of college students during the COVID-19 outbreak in Wuhan. Additionally, the influence of individual innovativeness on technology and social media usage in higher education, as explored by Aldahdouh (2020), in their work published in SAGE Open, further supports the potential benefits of integrating social media into educational contexts. Likewise, Halaweh (2020), investigated the utilization of social media platforms by public universities, highlighting the significance of incorporating such platforms to foster effective communication and information dissemination.

Recent studies underscore the significant role of social media interventions in empowering graduate students to effectively self-manage chronic diseases. By leveraging social media platforms for health education, students acquire valuable insights into preventive measures, such as engaging in physical activity and adopting healthy dietary habits. Access to such information equips students with the knowledge necessary to proactively prevent the onset of chronic conditions or manage existing ones more effectively. This perspective aligns with the findings of Acha-Anyi (2020), who conducted a visual analysis of the "TB proof" South Africa's Facebook page, illustrating the potential of social media for health promotion. Similarly, Mayberry (2019), discussed mHealth interventions for disadvantaged individuals with type 2 diabetes, highlighting the benefits of digital health approaches for vulnerable populations. Soheylizad (2019), emphasized the opportunity for developing countries to utilize social media to promote healthy behaviors. Furthermore, Mohammed (2021), explored the usage of social media for health awareness among health educators and students in Saudi Arabia, further exemplifying the diverse potential applications of social media in healthcare. Moreover, social media interventions have demonstrated their effectiveness in promoting a proactive approach among students to seek prompt medical attention for potential chronic conditions. The enhanced awareness and knowledge garnered through social media platforms empower students to identify early indicators of illnesses and engage healthcare providers for timely diagnosis and treatment. This perspective is in line with the findings of Lin (2021),

who proposed a conceptual model for social media-enabled healthcare, encompassing social media affordances, online social support, and health behaviors and outcomes. Additionally, White (2021) [24], explored the role of social media in facilitating healthcare-seeking behavior among postgraduate students, providing further insight into the positive impact of digital platforms on health-related actions.

Additionally, social media platforms facilitate better medication adherence and follow-up among graduate students managing chronic conditions. Access to reliable healthcare information through social media enables students to stay informed about their prescribed medications and adhere to treatment plans (Brown et.al, 2021). Real-time feedback features of social media serve as valuable reminders and motivators for students to adhere to their medication regimens and attend follow-up appointments (Williams, J. S., et al.,2018).

The strategic use of social media interventions can significantly enhance graduate students' knowledge and self-management of chronic diseases. By offering accessible and reliable health information, these interventions empower students to make informed decisions about their health, seek timely medical care, and engage in preventive measures to reduce the burden of chronic diseases.

This research endeavors to delve into the factors influencing social media use among graduate students for personal health management. Through an experimental study, this research seeks to shed light on the various aspects that drive graduate students to engage with social media platforms for their health-related needs. Ultimately, this investigation aspires to contribute valuable insights to the field of healthcare and Information science, fostering a better understanding of how social media can be harnessed as a powerful tool in supporting the personal health management of graduate students.

4.2. Objectives

The general research objective of this study is to examine the impact of social media usage intervention on postgraduate students' personalized health management strategies for predominant chronic diseases, specifically focusing on diabetes, high blood pressure, and chronic kidney disease, within the context of experimental design.

4.3. Methodology

4.3.1. Study design

This study employed an experimental design, targeting graduate students from four esteemed Ethiopian universities: Jimma, Mizan-Tepi, Adama, and Bonga. The participants were selected using a robust stratified random sampling method, with one university randomly chosen from each of the four generations. The study population consisted of students from the College of Business and Economics and the College of Technology within the selected universities. The students were categorized into two distinct groups: the Control group and the Experimental group. The Control group did not receive any social media content related to chronic diseases, while the Experimental group received personalized health information and support through Facebook and Telegram. Data were collected both at the beginning of the study and at the end of the intervention to analyze and compare changes in health behaviors and outcomes over time.

4.3.2. Study Participants, Sample size, and Sampling Procedure

Study participants were meticulously selected from the well-defined population of graduate students attending Jimma, Adama, Mizan-Tepi, and Bonga universities. These universities were selected purposively from each generation of Ethiopian Higher education institutions. Within these selected universities, the researchers identified and carefully matched students from similar colleges, specifically the College of Business Economics and the College of Technology. Interestingly, both Adama and Bonga universities exclusively have one college each for their graduate programs, namely Technology and Business Economics, respectively, streamlining the participant selection process.

In total, the comprehensive population comprises 441 graduate students from Jimma, 316 from Adama, 123 from Bonga, and 180 from Mizan-Tepi, ensuring an inclusive representation of diverse academic backgrounds and research interests. This meticulous approach to participant selection aims to minimize bias and enhance the study's internal validity.

By employing this rigorous sampling technique, the research aims to establish a robust foundation for analyzing the impact of social media on personalized health management strategies among graduate students dealing with predominant chronic diseases. Such meticulousness in participant selection is crucial in generating reliable and meaningful

results, fostering credibility, and contributing to the advancement of research in the field of health management and social media.

In this research study, the sample size was calculated from a total population of 1060 graduate students previously summarized. The calculation was based on the assumption of a 50% prevalence of social media utilization for personal healthcare management in Ethiopian universities, a 95% confidence level, a 5% margin of error, and a 10% response rate. Consequently, a sample size of 282 was derived using sampling technique. To ensure proportional representation, the sample size was allocated among the universities as follows: 117.3 for Jimma, 84 for Adama, 33 for Bonga, and 48 for Mizan-Teppi universities.

Within the total sample size of 282, participants were divided into two groups, consisting of 141 students each for the control and experimental groups. The assignment of students into these groups was done by randomly selecting one college from each university to be part of the control group, while the other college was assigned to the experimental group. Since Adama and Bonga universities each have one college for technology and business economics, respectively, the researchers treated them as one university and random assignment was applied accordingly.

The distribution of students in the control group comprised 85 technology students from Jimma, 33 Business economics college students from Bonga, and 23 Technology college students from Mizan-Teppi. Conversely, the experimental group included 32 Business economics students from Jimma, 84 Technology college students from Adama, and 25 Business economics students from Mizan-Teppi.

By adopting this systematic approach to sampling and random assignment, the study aims to achieve a representative and unbiased distribution of participants, thereby enhancing the research's reliability and validity. This meticulous attention to participant allocation is vital in drawing meaningful conclusions and contributing to the advancement of knowledge in the field of social media's impact on personalized health management among graduate students.

4.3.3. Intervention Strategy

The intervention was implemented exclusively for the experimental group of students. To determine the platform preferences of these students, the researchers conducted a baseline data collection. Based on this data, 96 students within the intervention group actively used Telegram, while the remaining 45 preferred Facebook. Once their platform preferences were identified, the researchers invited them to join the created Facebook and Telegram channel groups, where they became members of the intervention program.

Through these platforms, the researchers delivered 21 educational sessions on chronic diseases for three months, with seven sessions dedicated to each of the prevalent chronic conditions: high blood pressure, diabetes, and chronic kidney disease. The session lessons were collaboratively prepared by the researchers and two volunteer medical doctors. Each lesson comprehensively covered essential aspects of the respective diseases, including definitions, signs and symptoms, causes, risk factors, complications, preventions, and indicators of when to seek medical attention.

To cater to diverse learning preferences, the lessons were thoughtfully designed to incorporate various multimedia elements. These included audio, video, pictures, and text, ensuring that all types of learners had access to the information in a manner that best suited their learning styles. This comprehensive and well-tailored intervention sought to empower the experimental group students with a deep understanding of chronic diseases and equip them with practical strategies for personalized health management.

4.3.4. Data collection

Data collection for this research involved the use of a carefully designed questionnaire, created by the researchers following the principles of smart questionnaire design. Before implementing the main survey, a pilot questionnaire was administered to graduate students at Bahirdar University to assess its effectiveness and make necessary refinements. The primary data collection occurred in two phases. The first phase, known as the baseline data collection, spanned from January 9 to January 19, 2023, and 282 participants responded to the questions. During the two phases, participants responded to a series of questions covering topics such as personal characteristics, previous diagnosis history, general social media usage experience, healthcare information and knowledge of chronic diseases, driving factors behind using social

media for chronic disease management, as well as their perception and knowledge of chronic diseases.

Subsequently, post-intervention data was gathered from two groups using an online questionnaire deployed through Google Forms. The researchers shared the questionnaire link with the respondents, and a total of 276 individuals participated and provided their valuable responses.

4.3.5. Measurement

The measurement instrument utilized in this study was meticulously crafted by the researchers, drawing upon key principles from the Health Belief Model and the Technology Acceptance Model. To ensure its relevance and accuracy, the questionnaire underwent rigorous assessment by two medical professionals who evaluated its content. The questionnaire encompasses various essential sections, each dedicated to a specific facet of chronic disease management. These sections encompass diagnosis of chronic diseases, reactivity to particular chronic illnesses, knowledge level concerning chronic diseases, the potential influence of social media on augmenting awareness of chronic conditions, perceived utility of social media for chronic disease-related matters, the extent to which social media might enhance treatment outcomes, perceptions regarding its efficacy as a viable option, the diverse applications of social media in the context of chronic diseases, subsequent actions taken post-social media engagement, and the perceived assistance rendered by social media in the overall management of chronic illnesses.

Past Chronic Diagnoses

This item presents respondents with an essential baseline query: Have you ever received a prior diagnosis of any chronic ailment, such as hypertension, diabetes, or chronic kidney disease? The potential responses encompass "yes," indicating a history of previous diagnoses, and "no," denoting the absence of such diagnoses. The responses garnered from this item hold substantial significance, serving as a crucial determinant in discerning the potential influence of social media on the diagnosis of chronic illnesses. The range of responses spans from 1 to 2, where 1 signifies a low score or no response and 2 indicate a high score or a positive response.

Specify Reactive Diagnoses

Reactivity to specific chronic illnesses constitutes a subsequent component stemming from the preceding inquiry concerning the diagnosis of chronic diseases. This item offers respondents the opportunity to specify the particular chronic ailment they have been diagnosed with, encompassing conditions such as high blood pressure, diabetes, chronic kidney disease, or any other pertinent condition. The insights gleaned from this item hold significant relevance in comprehending the prevalent chronic diseases that disproportionately impact graduate students in contemporary times.

Assumption of Personal Chronic Disease Knowledge

This item serves as a pivotal inquiry, aiming to gauge the level of knowledge possessed by respondents concerning chronic diseases. Respondents are presented with a range of options for rating their knowledge, ranging from "Excellent" and "Very good" to "Good," "Moderate," and "None at all." The significance of this particular item lies in its capacity to shed light on the extent to which social media platforms contribute to the enhancement of respondents' understanding of chronic diseases. The response scale spans from 1 to 5, with 1 indicating a low score and 5 representing an excellent score. Additionally, 4 stand for a very good score, 3 for a good score, and 2 for a moderate score. By discerning the correlation between respondents' perceived knowledge levels and the potential impact of social media, this item facilitates a deeper comprehension of the role these platforms play in fostering awareness about chronic health conditions.

Role of Social Media to increase knowledge of healthcare management

This item asks the question do social media increase your knowledge of chronic diseases. This item delves into the prospective impact of social media in heightening awareness regarding chronic health conditions. It prompts respondents to express their perspective on whether social media contributes to the enhancement of their knowledge concerning chronic diseases. The potential response choices cover a range starting from "Strongly agree" and "Agree," then moving to "Neutral," "Disagree," and finally "Strongly disagree," assigned values of 5 through 1 in that order. The significance of this item lies in its capacity to unveil the perceived self-esteem of respondents, offering insights into how individuals perceive their understanding and empowerment related to chronic health matters through engagement with social media platforms.

Perceived use of social media for the management of chronic disease

This item asks a question: How do you perceive the use of social media for the management of chronic disease? The item is designed to gauge respondents' perceptions; this item seeks to inquire about their perspective on the utilization of social media to manage chronic diseases. Participants are provided with a set of response alternatives that span a variety of attitudes: "Positively," "Negatively," and "Neutral." Each of these options is assigned a value: 3 for "Positively," 2 for "Negatively," and 1 for "Neutral." This particular item holds a vital role in enhancing our understanding of how social media platforms contribute to the management of chronic diseases among graduate students. By delving into respondents' attitudes and viewpoints, this item sheds light on the efficacy and impact of social media as a tool for facilitating effective chronic disease management strategies within this specific demographic.

Enhancing Chronic Disease Treatment: Social Media Integration?

This item serves as a platform for inquiring whether respondents believe that the integration of social media into healthcare management services would enhance the treatment of chronic diseases. In this particular context, survey participants are offered a binary selection of responses: "Yes" or "No." The response labeled as "yes" holds a value of 2, while the response labeled as "no" is assigned a value of 1. The significance of this item lies in its capacity to unravel the perceptions of students regarding the potential for social media to positively impact treatment outcomes when seamlessly integrated with healthcare management. By eliciting insights into their opinions and expectations, this item contributes to a deeper understanding of the extent to which social media's integration is perceived as a viable enhancement to chronic disease treatment by the student community

Social Media for Healthcare: User Preferences

The question at hand pertains to whether the utilization of social media for healthcare-related content is considered a favorable option by respondents. The provided response alternatives are uncomplicated: "yes" or "no." Opting for "yes" corresponds to a score of 2, whereas opting for "no" aligns with a score of 1. This query delves into the preferences and inclinations of individuals regarding the suitability and desirability of sourcing healthcare information from social media platforms. By eliciting such opinions, this question aids in gauging the perceived value and credibility of healthcare content disseminated through social

media channels, ultimately providing insights into respondents' decision-making processes and attitudes toward utilizing such platforms for health-related information.

Social Media Purpose

The question centers on the diverse applications of social media in respondents' lives. They are presented with a range of options, including networking with friends, engaging in healthcare-related activities, pursuing learning opportunities, seeking entertainment, utilizing these platforms for business purposes, and others. This query aims to gain insights into the multifaceted roles that social media platforms play in respondents' lives, spanning from personal connections and health-related engagements to educational pursuits, leisure, and professional endeavors. By exploring these various avenues, the question provides a comprehensive understanding of the versatile ways in which social media is harnessed for a multitude of purposes by individuals.

Actions after Social Media Use

This inquiry delves into the post-engagement behaviors of respondents following their use of social media. They are presented with a selection of options that encompass visiting a physician, seeking a diagnosis, initiating treatment, following up on medical matters, and implementing recommendations received. The purpose of this question is to gain insights into the tangible steps individuals take in response to information or interactions encountered on social media platforms. By exploring these subsequent actions, the question sheds light on the practical impact that social media engagement has on respondents' healthcare decision-making processes, providing valuable insights into the link between virtual interactions and real-world health-related actions.

Social Media had an Impact on personal healthcare management

This question revolves around the influence of social media on respondents' management of chronic health conditions. The survey employs a binary response paradigm: respondents are given the option of either selecting "yes" or "no." In this scheme, choosing "yes" corresponds to a score of 2, while opting for "no" is associated with a score of 1. By probing into this aspect, the question seeks to uncover whether social media platforms have played a discernible role in shaping respondents' approaches to healthcare management for chronic diseases. The significance of this inquiry lies in its potential to illuminate the broader impact

of social media on individuals' health-related behaviors and decisions, thereby contributing to a better understanding of the relationship between virtual interactions and the practical management of chronic health conditions.

4.3.6. Statistical Analysis

The collected data were entered into Microsoft Excel, and subsequent analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 20. To summarize the study variables, descriptive statistics were employed. In the binary logistic regression analysis report, independent variables with a p-value of less than 0.05 were identified as significant variables. The distribution of sample characteristics was presented using means, standard deviations, and percentages.

To assess the compatibility of the pretest data, a T-test was utilized. Additionally, the mean difference between the experimental and control groups was examined using a paired t-test. To measure the association between independent variables and social media utilization for personal healthcare management among graduate students, an odds ratio (OR) with a 95% confidence interval (CI) was calculated. This statistical approach allowed for a comprehensive evaluation of the relationships between variables and the utilization of social media for healthcare management purposes.

4.4. Results

Table 4.1-4.4 illustrate a comparative analysis of the measurement outcomes between the Experimental and Control groups before and after the intervention. This assessment is based on the Mean scores for comparison, accompanied by the utilization of a paired T-test to assess the statistical significance of the observed variations. Table 4.4 delineates the discrepancy in frequency and percentage for distinct measurement outcomes before and after the intervention.

The research outcomes are presented in Table 4.1 is outlining the comparison of outcome measures between the experimental and control groups before the intervention. The tabulated data demonstrates a lack of statistically significant differences in the outcome measures within the two groups. This encompasses domains such as Assumption of Personal Chronic Disease Knowledge, Perceived Use of Social Media for Chronic Disease Management and Social Media for Healthcare: User Preferences.

Regarding the impact of social media on personal healthcare management, as presented in table 4.1, it is noteworthy that the experimental group displayed lower baseline scores compared to the control group in areas including Past Chronic Diagnoses, Social Media Help to Increase Knowledge of Healthcare Management, and Enhancing Chronic Disease Treatment: Social Media Integration? Although there was a minimal decrease in the mean value of the experimental group before the experiment, there will be no opportunity to raise the mean value of the experimental group after the experiment because decreasing values will not lead to an increase.

These findings underscore the initial equivalence of the experimental and control groups concerning baseline outcome measures. Furthermore, they suggest that the experimental intervention holds the potential to influence and enhance specific dimensions related to healthcare knowledge and management through the utilization of social media platforms. Further analysis post-intervention was conducted to precisely assess the impact of the experimental intervention on these outcome measures.

Table 4.1 Comparison of outcome measures of the experimental and control group before intervention.

Outcome measures	Total (n=282)				
	Control group		Experimental group		Paired t-test
	Mean	SD	Mean	SD	p-value
Past Chronic Diagnoses	1.43	.497	1.10	.300	.000
Assumption of personal Chronic Disease Knowledge	1.71	.671	1.77	.780	.518
The Social media help to increase knowledge of healthcare management	1.40	.491	1.24	.429	.000
Perceived use of social media for the management of chronic disease	1.59	.720	1.44	.690	.089
Enhancing Chronic Disease Treatment: Social Media Integration?	1.44	.498	1.30	.462	.033
Social Media for Healthcare: User Preferences	1.36	.481	1.29	.456	.212
Social Media had an Impact on personal healthcare management	1.09	.281	1.08	.269	.828

Beginning with the comparison of total students before and after the experiment, Table 4.2 demonstrates a noteworthy and statistically significant difference across all measurement outcomes within the Experimental group following the intervention. The findings highlight a significant increase in the mean difference for all seven attributes distinct trend emerges. Notably, increases in mean values are observed concerning, Past Chronic Diagnoses, the Assumption of Personal Chronic Disease Knowledge, the role of Social Media in enhancing healthcare knowledge, and the perceived utilization of social media for managing chronic diseases within the Experimental group. These statistical findings not only underscore the potential impact of integrating social media into healthcare management but also emphasize its implications for enhancing chronic disease treatment.

Table 4.2: Comparison of total student before and after the experiment

Outcome measures	Total (n=282)				Paired t-test p-value
	Before Mean+/-SD		After Mean+/-SD		
Past Chronic Diagnoses	1.27	.443	1.54	.499	.000
Assumption of personal Chronic Disease Knowledge	1.74	.727	2.94	1.605	.000
The Social media help to increase knowledge of healthcare management	2.37	.467	4.32	1.043	.000
Perceived use of social media for the management of chronic disease	1.51	.708	2.09	.825	.000
Enhancing Chronic Disease Treatment: Social Media Integration?	1.37	.484	1.56	.497	.000
Social Media for Healthcare: User Preferences	1.32	.469	1.65	.478	.000
Social Media had an Impact on personal healthcare management	1.08	.275	1.57	.497	.000

Table 4.3 presents a comprehensive comparison of the outcomes before and after the intervention for both the control and experimental groups. Within the experimental group, all measurement outcomes exhibited a important and statistically significant increase after the intervention. Conversely, in the control group, specific trends emerged. Notably, there were substantial increases in measurement outcomes relating to "Social Media help to increase knowledge of healthcare management" and "Social Media had Impact on personal healthcare management." However, the measurement outcomes for "Assumption of personal Chronic Disease Knowledge," "Enhancing Chronic Disease Treatment: Social Media Integration?," and "Past Chronic Diagnoses" experienced significant decreases. Moreover, the "Social Media for Healthcare: User Preferences" and "Perceived Use of Social Media for the Management of Chronic Disease" did not show a significant difference. These findings provide valuable insights into the differing impacts of the intervention on various aspects within the two groups, shedding light on the nuanced effects of the intervention in the context of chronic disease management.

Table 4.3: The comparison of before and after the intervention of the control and experimental group

Outcome measures	Experimental Group					Control Group				
	Before intervention Mean+/-SD		After intervention Mean+/-SD		Paired t-test p-value	Before intervention Mean+/-SD		After intervention Mean+/-SD		Paired t-test p-value
Past Chronic Diagnoses	1.10	.300	1.93	.260	.000	1.43	.497	1.15	.363	.000
Assumption of personal Chronic Disease Knowledge	1.77	.780	4.38	.748	.000	1.71	.671	1.48	.596	.007
The Social media help to increase knowledge of healthcare management	1.24	.429	2.43	1.394	.000	1.40	.491	1.62	.486	.000
Perceived use of social media for the management of chronic disease	1.44	.690	2.62	.727	.000	1.59	.720	1.54	.500	.603
Enhancing Chronic Disease Treatment: Social Media Integration?	1.30	.462	1.94	.247	.000	1.44	.498	1.18	.383	.000
Social Media for Healthcare: User Preferences	1.29	.456	1.91	.283	.000	1.36	.481	1.38	.488	.797
Social Media had an Impact on personal healthcare management	1.08	.269	1.93	.260	.000	1.09	.281	1.20	.400	.013

Table 4.4 presents a comprehensive analysis of the outcomes observed before and after the intervention in both the control and experimental groups. The analysis focuses on the frequency and percentage distribution of attributes within the outcome measures of "Specify Reactive Diagnoses," "Social Media Purpose," and "Post-Social Media Actions." Respondents were provided with various options to select from within each outcome measure.

In terms of "Specify Reactive Diagnoses," the control group exhibited a diagnosis frequency of 23 cases (16.3%) before the experiment. However, this number decreased significantly to 4 cases (2.8%) after the experiment. In contrast, the experimental group displayed a diagnosis frequency of 11 cases (7.8%) before the experiment, which surged dramatically to 122 cases (86.5%) after the experiment.

Regarding "Social Media Purpose," the control group reported a pre-intervention usage of 22 instances (15.6%) for healthcare-related activities. However, this utilization declined post-intervention. Conversely, the experimental group experienced a substantial rise in using the platform for healthcare purposes, increasing from 20 instances (14.2%) before the experiment to 57 instances (40.4%) after the experiment.

Analyzing "Post-Social Media Actions," the control group exhibited minimal engagement in various actions such as visiting a physician, undergoing diagnosis, initiating treatment, adhering to medication follow-ups, and implementing recommendations. In contrast, the experimental group demonstrated a marked increase in these actions after the intervention.

In summary, Table 4 showcases a distinct shift in outcomes between the control and experimental groups before and after the intervention. The intervention had a pronounced effect on the frequency and distribution of diagnoses, social media usage for healthcare purposes, and engagement in post-social media actions. The results indicate that the experimental group showed a more substantial response to the intervention, leading to increased utilization of healthcare-related activities and improved engagement with post-social media actions compared to the control group.

Table 4.4: Comparison of outcome measures on the Control and Experimental group before and after the intervention

Outcome measures	Control group Before experiment		Control group After experiment		Experimental group before the experiment		Experimental group after experiment	
	No.	%	No.	%	No.	%	No.	%
Specific reactive diagnosis								
Blood pressure	14	9.9			8	5.7	76	53.9
Diabetes	9	6.4	4	2.8	3	2.1	35	24.8
Chronic kidney disease							7	5
Others							4	2.8
Total	23	16.3	4	2.8	11	7.8	122	86.5
Social Media Purpose								
Networking with friends and families	31	22.0			27	19.1	32	22.7
Healthcare	22	15.6			20	14.2	57	40.4
Learning	37	26.2			25	17.7	6	4.3
Entertainment	37	26.2	76	55.9	56	39.7	4	2.8
For business	13	9.2	30	22.1	13	9.2	4	2.8

Others			30	22.1			1	.7
Total	140	99.3	136	96.5%	141	100	104	73.8
Post-Social Media Actions								
To visit physician			14	9.9			68	48.2
To Diagnosis	5	3.5			6	4.3	46	32.6
To start treatment			6	4.3			15	10.6
To follow up medication							4	2.8
To apply recommendation	125	88.7	116	82.3	127	90.1	5	3.5
Total	130	92.2	136	96.5	133	94.3	138	97.9

Reactions of the Experiment Group Members on Intervention

Following the interaction of experimental groups on the intervention of chronic disease management, profound insights and positive outcomes have emerged. Participants engaged in the intervention exhibited heightened awareness and understanding of their respective chronic conditions, ranging from high blood pressure to diabetes and chronic kidney disease. Through tailored educational materials and practical sessions, individuals gained the necessary skills to effectively manage their health conditions. Moreover, the intervention fostered a supportive community environment, where participants shared experiences, challenges, and successes, thus bolstering motivation and accountability. As a result, many expressed newfound confidence in their ability to navigate their health journey and implement lifestyle changes conducive to better management of chronic diseases. The intervention not only equipped participants with vital knowledge but also instilled a sense of empowerment, enabling them to take proactive steps towards improved health outcomes. Overall, the interaction within the experimental groups underscored the effectiveness and importance of such interventions in facilitating holistic chronic disease management strategies some of the responses of the group members are as follow.

Telegram Responses:

"This intervention is crucial! I've struggled with high blood pressure for years, and having access to management lessons like these is a game-changer. Thank you!"

"I appreciate the effort put into these lessons. It's empowering to learn how to better manage chronic conditions like diabetes. Count me in!"

"Learning about managing chronic kidney disease is invaluable. These lessons provide practical insights that can make a real difference in people's lives."

"Wow, this initiative is amazing! As someone with diabetes, I'm always looking for ways to improve my management strategies. Thank you for providing such valuable resources."

"The impact of these lessons cannot be overstated. By empowering individuals to take control of their health, we're creating healthier communities. Count me in for every lesson!"

"I've seen firsthand the toll that chronic diseases can take on individuals and families. These intervention lessons offer hope and practical solutions. Kudos to the organizers!"

"This is exactly what we need! Education is key to managing chronic diseases effectively. Thank you for making this accessible to everyone."

"I'm grateful for these lessons. They provide a roadmap for navigating the challenges of chronic diseases. Let's spread the word and empower more people to take charge of their health!"

"I'm impressed by the comprehensive approach taken in these lessons. From high blood pressure to diabetes and chronic kidney disease, there's something here for everyone. Count me in for the next session!"

"These lessons are a game-changer! By equipping individuals with the knowledge and skills to manage chronic diseases, we're improving quality of life and reducing healthcare costs. Keep up the great work!"

"The positive impact of these intervention lessons cannot be overstated. By raising awareness and providing practical strategies, we're empowering individuals to live healthier lives. Count me in for the next session!"

"I've been looking for resources like these! Managing chronic diseases can feel overwhelming, but these lessons break it down into manageable steps. Thank you for making this available."

"These lessons are a breath of fresh air! Instead of just treating symptoms, we're addressing the root causes of chronic diseases and empowering individuals to take control of their health. Sign me up!"

"The value of these intervention lessons cannot be overstated. By promoting early detection and effective management, we're saving lives and reducing healthcare costs. Thank you for this initiative!"

"I'm thrilled to see these intervention lessons being offered. As someone with high blood pressure, I know how important it is to stay informed and proactive about my health. Thank you for providing these resources!"

"This initiative is a game-changer! By empowering individuals with the knowledge and skills to manage chronic diseases, we're improving health outcomes and reducing the burden on healthcare systems. Count me in for every lesson!"

"I'm so grateful for these intervention lessons. As someone with diabetes, I know how challenging it can be to navigate this condition. These lessons offer practical strategies for managing diabetes and improving quality of life. Thank you!"

"These lessons are invaluable! By educating individuals about the importance of early detection and effective management, we're saving lives and reducing healthcare costs. Thank you for this important initiative!"

"I'm impressed by the depth and breadth of these intervention lessons. From high blood pressure to diabetes and chronic kidney disease, there's something here for everyone. Count me in for the next session!"

"This initiative is exactly what we need! By promoting education and awareness, we're empowering individuals to take control of their health and reduce the burden of chronic diseases on society. Thank you for making this possible!"

"As a busy student, I often struggled to find time to visit doctors for regular check-ups, but these intervention lessons have been a lifeline for me. They've equipped me with the knowledge and tools to manage my health effectively, even with a hectic schedule. Thank you for making it possible!"

Facebook Comments:

"These lessons are fantastic! I've already learned so much about managing high blood pressure. Thank you for this valuable resource!"

"As someone with diabetes, I can't express how grateful I am for these intervention lessons. They provide practical tips and strategies for better management. Keep them coming!"

"Being a student, I used to find it hard to prioritize doctor visits amidst my busy schedule, but these intervention lessons have made a significant difference. They've provided me with the guidance and resources I need to take charge of my health on my own time. Thank you for this invaluable support!"

"I've been following these lessons closely, and I'm truly impressed. They're informative, engaging, and most importantly, they inspire action. Thank you for making a difference!"

"These lessons have opened my eyes to the importance of early detection and proactive management of chronic diseases. Thank you for this invaluable resource!"

"I've shared these lessons with my friends and family because I believe everyone can benefit from this knowledge. Thank you for raising awareness and empowering us to take control of our health!"

"These intervention lessons are a game-changer! They provide practical guidance for managing chronic diseases and improving overall well-being. Thank you for making this information accessible to all!"

"I've been incorporating the tips from these lessons into my daily routine, and I'm already feeling more in control of my health. Thank you for this empowering initiative!"

"These lessons are a lifeline for those of us managing chronic diseases. They offer practical advice and support that can make a real difference in our lives. Thank you for this invaluable resource!"

"I've been struggling with managing my diabetes, but these lessons have given me hope and practical strategies for improvement. Thank you for making a difference!"

"I've been following these lessons and implementing the advice given, and I can already see positive changes in my health. Thank you for this empowering initiative!"

"These intervention lessons are a breath of fresh air! They provide practical solutions for managing chronic diseases and improving overall quality of life. Thank you for this important work!"

"I'm grateful for these intervention lessons. They provide much-needed support and guidance for those of us managing chronic diseases. Thank you for making a difference!"

"These lessons are so informative and empowering! They're helping me better manage my chronic condition and live a healthier life. Thank you for this invaluable resource!"

"I've been struggling with high blood pressure for years, but these lessons have given me hope and practical strategies for improvement. Thank you for this empowering initiative!"

"I've been sharing these lessons with my community because I believe everyone should have access to this valuable information. Thank you for raising awareness and empowering us to take control of our health!"

Likes on each Lesson: More than 45 likes on each lesson

4.5. Discussion

The strength of this study lies in its implementation of a well-structured intervention for the experimental group, focusing on personal healthcare management concerning chronic diseases. The results demonstrate the significant benefits that this intervention brought to the experimental group, as evidenced by the substantial increase in all measured outcomes. Notably, this intervention was effective in enhancing participants' understanding and management of their chronic health conditions. However, it is important to acknowledge that the study's consideration of the improvements in "Social Media's role in increasing knowledge of healthcare management" and "The impact of Social Media on personal healthcare management" within the control group, which did not receive the intervention, can be viewed as a limitation as it introduces a potential confounding variable that may affect the interpretation of the intervention's effectiveness.

One illustrative study in this realm, conducted by Shewaye (2021), delved into the utilization of social media for healthcare information among students at Debrebirhan University. Notably, this research design stands out for its comprehensive approach, involving a substantial total of 282 students. Within this framework, 141 students were assigned to the experimental group, while an equivalent number comprised the control group. This advantageous research design provides valuable insights into the efficacy of social media interventions within a controlled context, serving as a model for future studies aiming to address the limitations observed in previous research endeavors.

Graduate students, often bogged down by their demanding academic schedules, frequently face a shortage of time that compounds the challenges they encounter in gaining comprehensive knowledge about chronic diseases (Abdela et al., 2019). The rigorous academic activities and commitments that define graduate education leave little room for students to engage in extensive research or consultations with healthcare providers. In this context, social media intervention

emerges as a practical solution, addressing the time limitations that hinder traditional methods of acquiring health-related information. By utilizing social media platforms, graduate students can conveniently access valuable insights into chronic diseases without having to navigate the constraints of their already jam-packed routines (Kaushik et.al.,2022). This innovative approach accommodates their time limitations and empowers them to develop a thorough understanding of chronic diseases, contributing to their overall well-being and informed decision-making.

The intervention exclusively targeted the experimental group, determined through baseline data collection, with 96 students opting for Telegram and 45 for Facebook. Subsequently, the students were invited to join dedicated Facebook and Telegram groups, forming the core of the intervention. Over a period of three months, the researchers delivered 21 educational sessions on prevalent chronic conditions high blood pressure, diabetes, and chronic kidney disease – through multimedia-rich lessons. Collaboratively prepared with two volunteer medical doctors, these lessons incorporated audio, video, images, and text to cater to diverse learning preferences. The aim was to equip the experimental group with an in-depth understanding of chronic diseases and effective personalized health management strategies.

The study's initial findings indicated that there were no significant disparities in mean scores between the experimental and control groups across various measurement outcomes related to personal Chronic Disease Knowledge, Perceived use of social media for chronic disease management, Social Media for Healthcare preferences, and the impact of Social Media on personal healthcare management. In general, both groups demonstrated similar levels of skills and knowledge necessary for chronic disease management. However, there were slight variations observed in specific areas, including Past Chronic Diagnoses, Social Media's role in enhancing healthcare knowledge, and its integration into chronic disease treatment. Especially, the Experimental group displayed a decrease in mean scores in these areas, suggesting a marginally lower baseline performance.

It's important to consider that this minimal decrease in the Experimental group's mean value before the experiment implies limited room for subsequent improvement. This is because decreasing values prior to intervention do not provide an opportunity for an increase in post-intervention phases. This observation highlights the need to further investigate the nuances of the intervention's effects on chronic disease management, especially in light of the initial similarities

between the two groups and the decreases observed in specific measurement outcomes within the Control group.

Subsequent to the social media intervention spanning over three months with 21 session lessons, notable changes were observed in the outcome variables. A comparison of students' scores before and after the intervention revealed a significant increase in mean scores across all seven measurement outcomes post-intervention. This outcome underscores the substantial impact of social media intervention on the personal behaviors of graduate students concerning the management of chronic diseases. Similarly, when assessing the measurement outcomes of both the Experimental and Control groups post-intervention, a significant increase in mean scores was evident within the Experimental group, while the Control group exhibited a decrease.

An analysis of frequency scores further supported the effectiveness of the intervention. The Experimental group demonstrated a significant increase in diagnosing chronic diseases and an elevated utilization of the platform for healthcare purposes following the intervention. These outcomes collectively underscore the positive influence of social media intervention on graduate students' engagement with chronic disease management strategies. This suggests that the intervention heightened their understanding of chronic diseases and particularly influenced their proactive behaviors in seeking diagnosis and utilizing social media for healthcare-related purposes.

4.6. Conclusion and recommendation

The study's intervention yielded significant insights. The experimental group experienced notable and statistically significant increases in all measurement outcomes post-intervention. Conversely, the control group demonstrated distinct trends, with certain outcomes showing significant decreases. Moreover, the study shed light on the time constraints faced by graduate students due to demanding academic schedules, making social media intervention an effective solution to these challenges. This approach accommodated their time limitations and empowered them to enhance their understanding of chronic diseases.

Furthermore, the tailored intervention, grounded in baseline data, effectively delivered multimedia-rich educational sessions, resulting in a significant increase in mean scores across all measurement outcomes post-intervention. This highlights the substantial impact of social media intervention on graduate students' personal behaviors related to chronic diseases management.

The intervention fostered an environment that encouraged students to actively engage with healthcare content and take steps toward diagnosis.

In essence, the study underscores the potential of social media interventions in promoting informed health decisions among graduate students. It advocates for including control groups, addressing time constraints, and providing comprehensive, multimedia-enriched contents. The findings of this study contribute to the evolving understanding of social media's role in enhancing healthcare awareness and engagement, particularly within the context of chronic disease management among graduate students.

Based on the study's compelling findings, it is strongly recommended to consider implementing tailored social media interventions among graduate students to enhance their understanding and management of chronic diseases. The results underscore the effectiveness of such interventions, as the experimental group exhibited significant improvements in all measured outcomes post-intervention. Customized multimedia-rich educational sessions proved instrumental in engaging students and fostering positive behavioral changes. Importantly, these interventions address the time constraints inherent in graduate student life, offering a flexible and accessible approach to healthcare education. Overall, this study advocates for the incorporation of social media interventions, the use of control groups for comprehensive assessment, and the development of multimedia-enriched content to promote informed health decisions and active engagement in chronic disease management among graduate students.

CHAPTER FIVE

5. Developing a Model on the Influence of Social media on Personal Healthcare Management of Prominent Chronic Diseases by Graduate students in Select Ethiopian Universities

Abstract

Introduction: Social media constitutes a valuable reservoir of healthcare information, offering substantial potential to improve healthcare quality. This study aims to examine the impact of social media on personal management of chronic diseases and to develop a comprehensive model.

Objective: The primary objectives of this study are to identify the key variables that drive students to utilize social media for chronic disease management and to develop a comprehensive model that elucidates the impact of social media on the personalized healthcare management of chronic diseases among Ethiopian graduate students in universities and

Method: The study, considered graduate students from four Ethiopian universities—Jimma, Mizan-Teppi, Adama, and Bongaby employing a cross-sectional survey with a stratified random sampling method. Divided into Control and Experimental groups, participants from the College of Business and Economics and the College of Technology received either no social media content or personalized health information through the selected social platforms, *i.e.*, Facebook and Telegram. The sample size of 282, calculated from a total population of 1060 graduate students, was taken. Post-intervention data collection involved 276 respondents, utilizing a Likert scale questionnaire to gauge social media's impact on chronic disease management. Statistical analyses, including a reliability test and linear regression, ensured the study's robustness.

Results: This comprehensive approach contributes to understanding social media's role in chronic disease management among diverse graduate students, fostering reliability and validity in research outcomes.

This study enriches healthcare and social media knowledge, emphasizing the role of social connections, beliefs, and technology in effective chronic disease management via social platforms.

Conclusion: This research endeavors to create a model for leveraging social media in chronic disease management, drawing on established theories like Social Capital, Health Belief, and Technology Acceptance. It explores factors that shape attitudes and behaviors, from the influence of information sources to technology accessibility. The methodology, involving graduate students, a structured questionnaire, and robust statistical analyses, delivers compelling insights. Linear regression confirms hypotheses validity. It highlights social media's evolving role in healthcare decision-making, enhancing practices, and providing valuable health resources for individuals managing chronic conditions.

Key words: Social media influence, Model, Chronic disease, Personal healthcare, graduate students

5.1. Introduction

Social media has become an indispensable tool in today's interconnected world, reshaping various aspects of our lives, including healthcare. It has significantly influenced healthcare in diverse ways, particularly in the management of chronic diseases and the support of graduate students who face time constraints in accessing healthcare services. The traditional mode of social interaction relied heavily on personal interactions, limiting the reach of one's social network to geographical proximity. However, the advent of social media has transformed this landscape, enabling people to connect globally for various purposes (Dhingra et al., 2019).

Social media, often defined as internet-based applications that facilitate the creation and exchange of user-generated content (Kaplan, 2010), has expanded the scope of communication and interaction. It has become an integral part of our daily lives, with a wide range of applications, and is no longer confined to personal interactions alone (Treem, 2016). The influence of social media extends to numerous aspects, making it a vital component of our modern society. It serves as a platform for social support, enables the sharing of information, and plays a crucial role in healthcare-related endeavors.

Graduate students, who often face time constraints and struggle to access healthcare services in person, represent a unique demographic that can benefit significantly from the potential of social media in healthcare management. The use of social media in healthcare is not limited to the exchange of information or emotional support; it extends to personalized health management, education, and engagement with healthcare professionals (Oh & Kim, 2014).

In recent years, studies have demonstrated the multifaceted influence of social media on healthcare, particularly in enhancing patient and physician knowledge, increasing accessibility, and providing essential information support (Smailhodzic et al., 2016). Moreover, social media platforms enable individuals to share their experiences, seek emotional support, and obtain relevant information for various health-related issues, making it a valuable resource in healthcare management (Pentescu, 2015).

Privacy concerns, misinformation, and the lack of medical expertise among peers can raise questions about the credibility of health-related content. To maximize the potential of social

media for healthcare, dedicated platforms or groups focused on providing accurate and accessible health information may be necessary.

The symbiotic relationship between social media and healthcare is evident in the continuous evolution of the healthcare landscape. Social media platforms have transformed the ways individuals access and engage with healthcare-related content. These platforms serve as vital tools for health promotion, interventions, and information dissemination, offering new avenues for community engagement and support.

University students are active users of social media for healthcare-related purposes because they seek health information, participate in support groups, and engage in health awareness campaigns. Understanding their patterns of social media usage for healthcare can inform the development of tailored interventions that cater to their specific needs and preferences (add citation). As the field of social media in healthcare continues to evolve, further research is essential to optimize its role in promoting and improving healthcare, not only among university students but also among the broader population. By harnessing the power of social media effectively, healthcare professionals and policymakers can positively impact the health and well-being of individuals and communities. The influence of social media on personal healthcare management has become increasingly evident, especially among university students. This dynamic relationship is transforming the healthcare landscape and offering novel approaches to health promotion, interventions, and information dissemination. The potential of social media in healthcare has been highlighted in various studies, showcasing its positive impact on patients and health outcomes (Alfian, 2021; Acha-Ayni, 2020; Omar, 2022). These studies demonstrate how social media serves as a valuable platform for health promotion, providing accessible and engaging channels for the dissemination of health-related information.

One distinguished study by Alfian (2021) emphasized the role of social media in improving outcomes for patients with diabetes mellitus. The findings reveal that various social media health interventions have positively impacted diabetes management and patient outcomes. This research underscores the importance of leveraging social media platforms to enhance health awareness and interventions, particularly in the context of chronic diseases like diabetes.

University students, known for their digital proficiency, are actively utilizing social media platforms for healthcare-related purposes. Studies conducted at Debrebirhan University in Ethiopia (Shewaye, 2021) and among healthcare teachers and learners in Saudi Arabia have observed a significant increase in the use of social media for health awareness (Mohammed, 2021). These studies demonstrate how university students and healthcare professionals are engaging with social media to seek health-related information and support, further emphasizing the vital role of social media in promoting health awareness.

In addition to information dissemination, social media offers a platform for online social support, behavior change, and improved health outcomes (Lin et al., 2021). This comprehensive approach recognizes the potential of social media to provide emotional and informational support, influencing health behaviors and ultimately impacting health outcomes. The symbiotic relationship between social media and healthcare is further exemplified by the analysis conducted by Kaushik (2022), which explores the interplay between social media and mental health. By analyzing linguistic nuances and sentiment trends on platforms like Twitter, this approach offers a discreet means of identifying potential mental health issues and providing timely support, reshaping the landscape of mental health interventions.

While social media offers immense potential for healthcare, it also presents challenges and requires careful assessment. The effectiveness of social media interventions in healthcare is not uniform, as highlighted by a scoping review focused on informal caregivers of critically ill patients (Cherak et al., 2020). This review emphasizes the need for further research to identify effective interventions tailored to specific healthcare contexts. However, despite the widespread recognition of social media's significance in various domains, there is a notable research gap regarding the development of a comprehensive model to demonstrate the influence of social media on chronic disease management. While the impact of social media on healthcare has been acknowledged, there remains a need for a unified framework to analyze and understand the complex dynamics and implications of this influence.

5.1.1 Research Questions

In order to tackle the research problem and gain insights into the complexities surrounding the development of a model for utilizing social media in the personal healthcare management of chronic diseases among graduate students in Jimma, Adama, Bonga, and Mizan-Teppi universities, the following research questions have been carefully formulated:

1. What is the overall influence of social media on graduate students' personalized health management?
2. Which model can explain the social media use for chronic disease management for graduate students in Ethiopian universities?

5.1.2. Objectives of the study

The primary objectives of this study are to develop a comprehensive model that elucidates the impact of social media on the personalized healthcare management of chronic diseases such as High blood pressure, diabetes and chronic kidney disease among Ethiopian graduate students in universities and to identify the key variables that drive students to utilize social media for chronic disease management.

5.2. Theoretical Foundation

This section delves into the theoretical underpinnings that will be pivotal in the development of a model examining the impact of social media on chronic disease management. The literature review encompasses discussions of the Health Belief Model (HBM), Social Capital Theory, and the Technology Acceptance Model (TAM).

5.2.1 Health Belief Model

The Health Belief Model (HBM) primarily revolves around the influence of an individual's beliefs on their propensity to undertake preventive measures against diseases (Abraham, 2014). Originating in the 1950s, the HBM was conceived by American public health researchers aiming to enhance the effectiveness of health education programs. It is widely acknowledged that an individual's beliefs play a pivotal role in determining the success or failure of endeavors aimed at achieving specific health objectives. Importantly, one's beliefs can evolve or be swayed by the thoughts that occupy their mind. As elucidated by the authors, beliefs form a significant link

between socialization and behavior. Particularly, beliefs can vary among individuals with similar backgrounds due to their capacity to adapt their behavior.

The HBM dissects two pivotal facets of an individual's health-related actions: threat perception and behavioral assessment. Threat perception encompasses two key beliefs: the perception of susceptibility to diseases or health issues and the anticipation of the severity of the consequences of these illnesses (Anuar et al., 2020).

Furthermore, behavioral assessment comprises two distinct sets of beliefs: those related to the advantages or effectiveness of a recommended health behavior and those associated with the costs or barriers to executing that behavior. Additionally, the model suggests that cues to action can trigger health-related behaviors when individuals hold appropriate beliefs. The HBM originates from psychological and behavioral theories and is founded on the notion that health-related behavior hinges on two primary components: the desire to evade illness or, conversely, to recover from illness if already afflicted, and the belief that a specific health action can prevent or remedy illness. Ultimately, an individual's course of action is often influenced by their perceptions of the benefits and obstacles associated with health behavior (Mikhail, 1981).

5.2.2. Social Capital Theory

Social Capital Theory is comprehensively defined as the "features of social structures, such as interpersonal networks, norms, and trust that facilitate coordination and cooperation for mutual benefit" (Bhandari & Yasunobu, 2009). This theoretical framework emphasizes the value of social relationships and networks, highlighting the resources embedded within these connections. Social capital comes in various forms, such as bonding, bridging, and linking capital, each serving as a means to access information, support, and opportunities through trusted social ties.

The development of social capital theory has been a dynamic and interdisciplinary process, drawing from the works of various scholars and encompassing a wide range of applications. As highlighted by Bhandari and Yasunobu (2009), the concept of social capital evolved into a comprehensive framework that underscores the importance of social structures, interpersonal networks, norms, and trust for fostering cooperation and mutual benefit. The theory began to take shape in the late 20th century and has since been refined and expanded upon.

Prominent scholars have significantly contributed to the development of social capital theory. Pierre Bourdieu (1979) laid the foundation by introducing the idea of different forms of capital, including social capital. James Coleman (1990) extended the theory by emphasizing the role of social networks in education and economic transactions. Robert Putnam's work (2015) further popularized the concept, illustrating its relevance in civic engagement and community well-being. These contributions collectively enriched and deepened our understanding of social capital and its various forms.

The theory's development has also paved the way for diverse applications across disciplines. For instance, in healthcare, scholars like Kritsotakis and Gamarnikow (2004) explored the link between social capital and health. Social capital was found to influence health behaviors, access to health information, and self-care. Additionally, the advent of social media has expanded the scope of social capital theory, as discussed by Carmichael, Archibald, and Lund (2015). This integration into social media research has provided new insights into the role of social capital in the digital age, particularly in areas such as healthcare management. Researchers like Cockerham (2013) and Hao et al. (2023) have further examined the relationship between social capital and health, offering evidence of its significance in population health.

In essence, the development of social capital theory has been a collaborative effort, incorporating insights from various disciplines and adapting to the changing social landscape. It has evolved into a versatile framework that informs research across numerous fields, including healthcare management, by emphasizing the role of social connections, trust, and cooperation in shaping individual and collective outcomes.

The application of social capital theory to social media platforms for personal healthcare management offers compelling arguments for its significance. As highlighted by Carmichael, Archibald, and Lund (2015), social media has become an integral part of people's lives, serving as a primary source of information and support. When applied through the lens of social capital theory, social media platforms offer several advantages for personal healthcare management.

First, social media platforms foster the creation of bonding social capital by connecting individuals with shared health concerns and experiences. These platforms provide a sense of community and emotional support for those dealing with chronic conditions or health challenges.

Users can form close-knit groups, share their personal journeys, and exchange valuable insights, which can be particularly beneficial for those feeling isolated or seeking encouragement.

Second, social media platforms enable the development of bridging social capital by connecting individuals across diverse networks. Users can access a wealth of information, engage with healthcare professionals, and participate in health-related discussions. This broadens their knowledge and resources, empowering them to make informed decisions about their healthcare. The diverse perspectives and expertise available on these platforms contribute to more holistic healthcare management.

Third, linking social capital is established as social media platforms facilitate connections between users and healthcare institutions, organizations, and professionals. Users can easily access credible health information, schedule appointments, and receive guidance from medical experts. This bridges the gap between individuals and the healthcare system, ensuring seamless communication and access to care.

Moreover, these platforms promote the principles of trust and reciprocity, which are central to social capital theory. Users tend to trust the information shared by their peers, making it more likely that they will adhere to recommended healthcare strategies. Additionally, the act of giving and receiving support on these platforms fosters a sense of community and cooperation, enhancing the likelihood of individuals actively participating in their healthcare management.

Applying social capital theory to social media platforms for personal healthcare management underscores their potential to enhance health outcomes. These platforms facilitate the creation of bonding, bridging, and linking social capital, offering support, knowledge, and access to healthcare resources. This integration promotes trust and reciprocity among users, contributing to more effective and comprehensive healthcare management strategies.

5.2.3. Technology Acceptance Model

The Technology Acceptance Model (TAM), originally proposed by Davis in 1989, has been extensively studied and applied in various domains, including social media, healthcare, education, and business. TAM is designed to understand and predict users' intentions and behaviors when adopting new technology. The model posits that users' acceptance and usage of

technology are primarily influenced by two key factors: perceived usefulness and perceived ease of use.

Numerous studies have adapted and extended the TAM to explore its applicability in diverse contexts. For instance, Rauniar et al. (2014) applied TAM to investigate users' acceptance of Facebook, demonstrating its relevance in the realm of social media usage. Furthermore, Owusu et al. (2022) employed TAM to assess the acceptance of social media platforms in the context of e-commerce, underscoring its utility in evaluating technology adoption beyond traditional domains.

In the healthcare sector, Nguyen et al. (2020) utilized TAM to examine healthcare providers' and administrators' perceptions of technology's usefulness and ease of use in palliative care, showcasing the model's adaptability in understanding the acceptance of technology in the medical field. Similarly, Alyouf et al. (2023) employed TAM to predict patients' usage of a personal health record system, emphasizing the role of security, privacy, and usability in healthcare technology adoption.

In the field of education, Amadu et al. (2018) applied TAM to measure the use of social media for collaborative learning in Ghana. Their study illustrated how TAM can be instrumental in assessing technology acceptance and its impact on educational practices.

TAM has been instrumental in evaluating technology adoption not only in developed countries but also in emerging economies. Berhanu et al. (2017) utilized TAM to examine its relevance in Ethiopian agriculture education and research, shedding light on its cross-cultural applicability.

The Technology Acceptance Model (TAM) has proven to be a versatile and influential framework for understanding users' acceptance and adoption of technology in various contexts, including social media, healthcare, education, and cross-cultural settings. Researchers have adapted and extended the model to suit specific domains, highlighting its enduring relevance in the ever-evolving landscape of technology acceptance and adoption.

This study aims to develop a comprehensive model for the utilization of social media content in the management of chronic diseases. This model draws from several established theories, including the Social Capital Theory, the Health Belief Model, and primarily, the Technology

Acceptance Model. These theoretical foundations form the basis for constructing various hypotheses, derived from an extensive literature review of existing models, questionnaires, and relevant variables.

The Social Capital Theory, as expounded by Bhandari and Yasunobu (2009) and Carmichael, Archibald, and Lund (2015), provides insights into the role of social connections and relationships in health-related behaviors. Additionally, the Health Belief Model, discussed in works by Cockerham (2013) and Kritsotakis and Gamarnikow (2004), elucidates the influence of individual beliefs on health practices. Moreover, the Technology Acceptance Model, highlighted in studies such as Al-Qaysi, Mohamad-Nordin, and Al-Emran (2020) and Ammendu, Muhammad, Mohammed, Owusu, and Lukman (2018), helps us understand how individuals perceive and adopt technology in the context of health management.

Furthermore, this research extends the Social Capital Theory, as demonstrated in works by Hao et al. (2023) and Nieminen et al. (2013), to explore the configuration perspective of social capital and its impact on health. Additionally, insights from research by Poetze and Strauss (2020) regarding the trustfulness of social capital on social media platforms are considered.

The Technology Acceptance Model, which finds ample support in studies like Chuttur (2009) and Davis (1989), aids in comprehending users' acceptance of technology, which is crucial in the context of social media content utilization for chronic disease management. This model explores aspects such as perceived usefulness, ease of use, and behavioral intention towards technology adoption.

To this end, this research integrates and extends existing theories to formulate a comprehensive model that can provide valuable insights into the use of social media content for managing chronic diseases. It considers the interplay of social capital, health beliefs, and technology acceptance, creating a framework for testing hypotheses derived from the literature review. The amalgamation of these theories is expected to shed light on the factors influencing the effective utilization of social media content for chronic disease management. Figure 5.1 shows the proposed model developed with the hypothesis constructed to test.

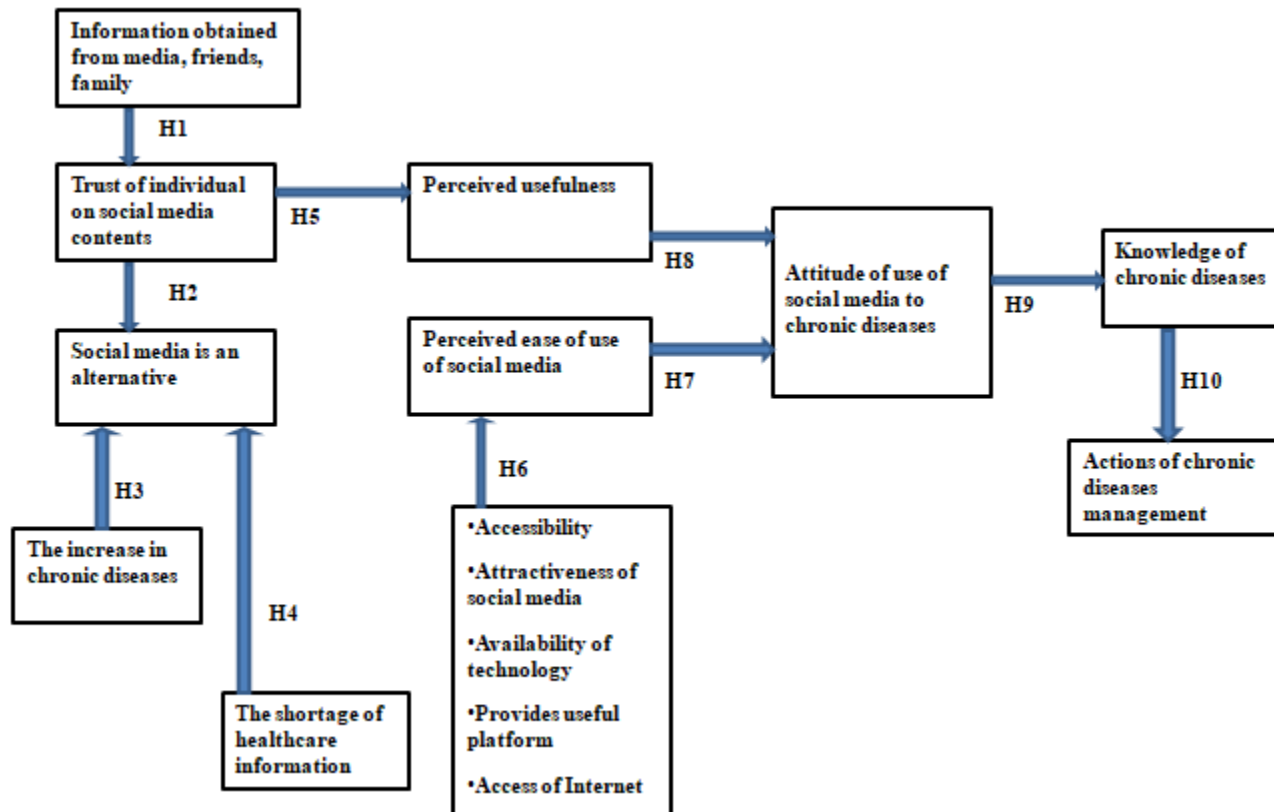


Figure 5.1: Research model with hypotheses

5.3. Material and Methods

5.3.1. Study Design

The study utilized a robust cross-sectional survey approach and focused on graduate students enrolled in four Ethiopian universities: Jimma, Mizan-Teppi, Adama, and Bonga. The participants were selected through stratified random sampling technique, with one university randomly chosen from each of the four generations of government universities. The study population comprised students from the College of Business and Economics and the College of Technology within the selected universities. These students were allotted into two distinct groups: the Control group and the Experimental group. The control group did not receive any social media content related to chronic diseases, while the experimental group received personalized health information and support through platforms such as Facebook and Telegram. Data collection took place at the end of the intervention period, enabling the analysis and development of a model for understanding the influence of social media on personal healthcare management of chronic diseases.

5.3.2. Study Participants, Sample Size, and Sampling Procedure

The study participants were meticulously selected from graduate students at Jimma, Adama, Mizan-Teppi, and Bonga universities, representing different generations of Ethiopian higher education institutions. Students from the College of Business Economics and the College of Technology were matched within these universities, simplifying the participant selection process.

The study populations were 441 students from Jimma, 316 from Adama, 123 from Bonga, and 180 from Mizan-Teppi, ensuring diverse academic backgrounds and research interests, thus minimizing bias and enhancing internal validity.

The sample size was calculated from the total population of 1060 graduate students, assuming a 50% prevalence of social media use for personal healthcare management in Ethiopian universities, a 95% confidence level, a 5% margin of error, and a 10% response rate, resulting in a sample size of 282. This number was proportionally allocated: 117 for Jimma, 84 for Adama, 33 for Bonga, and 48 for Mizan-Teppi. The 282 participants were divided into two groups, each consisting of 141 students. Randomly, one college from each university was assigned to the control group, while the other was assigned to the experimental group. Adama and Bonga

universities were treated as one entity, and random assignment was applied accordingly. The control group comprised 85 technology students from Jimma, 33 business economics students from Bonga, and 23 technology students from Mizan-Teppi. On the other hand, the experimental group included 32 business economics students from Jimma, 84 technology students from Adama, and 25 business economics students from Mizan-Teppi. This systematic sampling and random assignment approach aimed to achieve a representative and unbiased participant distribution, ultimately enhancing the study's reliability and validity.

5.3.3. Data Collection

The methodology employed in this research is geared towards examining the impact of social media influence on the management of chronic diseases, with a specific focus on graduate students as the target demographic. Data were gathered from both control and experimental groups after the intervention.

In addition to the aforementioned components, this research utilized a structured questionnaire comprising 16 questions. These questions were designed to construct a model for assessing the impact of social media on the management of chronic diseases among graduate students. Respondents were asked to express their opinions using a five-point Likert scale, where they could indicate their level of agreement or disagreement. This Likert scale ranged from "Strongly Agree" (assigned a value of 5) to "Strongly Disagree" (assigned a value of 1). This approach allowed participants to provide their perspectives on various aspects of social media influence in the context of chronic disease management.

5.3.4. Statistical Analysis

The collected data were entered into Microsoft Excel, and subsequent analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 20. To ensure the robustness of the research findings, a reliability test was conducted, aiming to gauge the internal validity and consistency of the items used in the study. This step was essential in assessing the quality of the data and ensuring that the research instruments accurately measured the intended variables.

Furthermore, a linear regression test was performed to evaluate the hypotheses proposed in the study. This statistical analysis allowed for an in-depth examination of the relationships between social media influence and chronic disease management. The results of these tests are crucial in

providing valuable insights into the role of social media in improving the management of chronic diseases among graduate students.

5.3.5. Hypotheses and associated variables

The hypotheses are meticulously crafted by aligning them with the variables inherent to the model, thereby elucidating the intricate relationships between these variables. These hypotheses serve as a vital tool to ascertain how single or multiple variables exert a positive influence on one another within the framework of the model. Through these hypotheses, the research endeavors to unravel the complex web of connections and dependencies, shedding light on the interplay of factors and their impact on the overall dynamics of the model. The following variables are employed in constructing the hypotheses and the resulting hypotheses themselves.

Information obtained from media, friends, and family

Hypotheses 1; H0: Information obtained from media, friends, and family does not positively influences the trust of individuals in social media content.

Trust of individuals on social media content

Hypotheses 2; H0: Trust of an individual in social media content does not positively influences the individual's consideration that social media is an alternative

The shortage of healthcare information

Hypotheses 3; H0: The shortage of healthcare information does not positively influences individual's consideration that social media is an alternative

The increase in chronic disease occurrence

Hypotheses 4; H0: The increases in chronic diseases occurrence does not positively influence individuals' consideration that social media is an alternative

Individual's consideration that social media is an alternative

Hypotheses 5; H0: An Individual's consideration that social media is an alternative does not positively influences perceived usefulness

The accessibility of chronic diseases information on social media, the attractiveness of social media, and the availability of technology e.g. phones, laptops, etc., social media provides useful platforms for healthcare group discussions on chronic disease and access to the Internet.

Hypotheses 6; H0: The accessibility of chronic diseases information on social media, the attractiveness of social media, the availability of technology e.g smartphones, laptops, etc., social media provides useful platforms for healthcare group discussions on chronic diseases, Access to the Internet, do not positively influences perceived ease of use of social media

Perceived ease of use of social media

Hypotheses 7; H0: Perceived ease of use of social media does not positively influences the attitude of individuals to use social media content for chronic disease management

Perceived usefulness

Hypotheses 8; H0: perceived usefulness does not positively influences the attitude of individuals to use social media content for chronic disease management

Attitude of individuals to use social media content for chronic disease management

Hypotheses 9; H0: The attitude of individuals to use social media content for chronic diseases management does not positively influences individual's knowledge of chronic diseases

Knowledge of chronic diseases

Hypotheses 10; H0: Knowledge of chronic diseases does not positively influences an individual's action of chronic diseases management

Actions of chronic disease management

5.4. Results

5.4.1. Reliability Test

A reliability test was carried out using the SPSS version 20 Scale test. The purpose of this reliability analysis was to assess the internal validity and consistency of the items employed in the study. The results are considered satisfactory; meeting the acceptable criterion of Cronbach's Alpha is 0.7. The outcomes of this analysis are presented in Table 5.1.

Table 5.1: Reliability test of items

Items	Cronbach's Alpha
Actions of chronic disease management	.979
social media provides useful platforms for healthcare group discussions on chronic disease	.980
Trust of individuals on social media content	.981
Attitude of individuals to use social media content for chronic disease management	.980
Individual's consideration that social media is an alternative	.981
Perceived usefulness	.980
Knowledge of chronic diseases	.979
The shortage of healthcare information	.984
The increase in chronic disease occurrence	.979
The accessibility of chronic disease information on social media	.979
Perceived ease of use of social media	.979
attractiveness of social media	.980
the availability of technology e.g smartphones, laptops, etc.,	.980
Access of Internet	.979
Information obtained from media, friends, and family	.980

5.4.2. Correlation Analysis

After successfully conducting the reliability test, the researcher proceeded to perform a correlation analysis with the aim of scrutinizing the interconnections between the various items under investigation. The calculation of correlation coefficients was meticulously carried out using SPSS version 20, ensuring a rigorous and precise examination of the data.

The results derived from this correlation analysis were notably significant. Specifically, all items exhibited a significant level of correlation, denoted by a significance level of 0.01, as indicated by the statistical analysis. This means that the relationships observed between these variables were highly noteworthy, with p-values below 0.01, suggesting a strong and meaningful association between the studied items.

5.4.3. Regression Analysis and Hypotheses Testing

The hypotheses in this study were tested through a regression analysis, a statistical method employed to assess how one variable influences another within the context of the research. In this test, the R-squared (R^2) value played a pivotal role in elucidating the overall validity of the regression model. This value signifies the proportion of variance in the dependent variable that can be explained by the independent variable(s), thus providing valuable insights into the rationality and effectiveness of the test.

Furthermore, the standardized coefficients (β) were instrumental in quantifying the magnitude of the impact exerted by one variable, typically the independent variable, on the dependent variable. These coefficients offered a precise measure of the strength and direction of this influence, aiding in the interpretation of the relationships under investigation.

Moreover, the significance values associated with these coefficients were crucial in assessing the statistical significance of the observed relationships. A significant positive value implied that the independent variable had a noteworthy and positive impact on the dependent variable, providing empirical support for the formulated hypotheses.

5.4.4. Hypotheses Testing

Hypotheses 1; H1: Information obtained from media, friends, and family positively influences the trust of individuals in social media content.

In this hypothesis, the independent variable under examination is "Information obtained from media, friends, and family," while the dependent variable is "the trust of individuals in social media content." As indicated in Table 5.2, the R-squared (R^2) value, which stands at 55.3%, offers valuable insight into the proportion of variance in the trust of social media content that can be accounted for by the information received from media, friends, and family. The standardized coefficient (β), with a substantial value of 0.743, underscores the robust and positive impact of the predictor variable on the trust individuals place in social media content.

Of particular significance is the statistical result that the significance level (sig) ($p=0.001$), indicating a highly significant relationship. This finding strongly supports Hypothesis 1, which posits that "Information obtained from media, friends, and family" positively influences "the trust of individuals in social media content." The empirical evidence derived from this analysis affirms the validity of this hypothesis, reinforcing the assertion that information from these sources indeed plays a statistically highly significant role ($p<0.001$) in shaping individuals' trust in social media content

Table 5.2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.743 ^a	.553	.551	1.028

a. Predictors: (Constant), posteq27

Table 5.3: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.945	.151		6.274	.000
	posteq27	.758	.041	.743	18.365	.000

a. Dependent Variable: posteq15

Hypotheses 2; H1: Trust of an individual in social media content positively influences an individual's consideration that social media is an alternative

In this hypothesis, the independent variable is "Trust in individuals' use of social media," and the dependent variable is "individuals' belief that social media serves as a viable alternative." The R-squared value is 0.588, and the standardized coefficient (β) is 0.767. The analysis indicates that the hypothesis holds true, demonstrating a significant impact ($p < 0.001$) of the first variable on the second one Table 5.4 and 5.5 shows the model summary and coefficient of the analysis.

Table 5.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.767 ^a	.588	.587	.928

a. Predictors: (Constant), posteq15

Table 5.5: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.962	.138		6.947	.000
	posteq15	.721	.037	.767	19.739	.000

a. Dependent Variable: pposteq17

Hypotheses 3; H1: The shortage of healthcare information positively influences individual's consideration that social media is an alternative

In these hypotheses, the independent variable is "The scarcity of healthcare information," and the dependent variable is "an individual's contemplation of social media as an alternative." The analysis reveals that the R-squared value is merely 0.133, indicating a minimal relationship. Additionally, the standardized coefficient (β) is also minimal at 0.370, yet it is statistically

significant with a p-value of ($p < 0.001$). It's worth noting that other unidentified factors may influence an individual's consideration, but, to a limited extent, the scarcity of healthcare information does impact their decision-making Table 5.6 and 5.7 shows the result.

Table 5.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.370 ^a	.137	.133	1.338

a. Predictors: (Constant), posteq20

Table 5.7: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.587	.298		5.316	.000
	posteq20	.523	.080	.370	6.559	.000

a. Dependent Variable: pposteq17

Hypotheses 4; H1: The increases in chronic disease occurrence positively influence individuals' consideration that social media is an alternative

The research hypothesis examines the relationship between two vital variables: "The increases in chronic disease occurrence" and "individual's consideration that social media is an alternative." The analysis revealed a strong connection, with an R-squared value of 0.662, signifying that a significant ($p < 0.001$), portion of the variation in individuals' consideration of social media as a health alternative can be attributed to the rise in chronic diseases. The standardized coefficient (β) of 0.814 further substantiates this link, demonstrating that as chronic disease occurrences

increase, individuals are more likely to view social media as a valuable resource for health-related needs. These findings underscore the evolving role of social media in healthcare decision-making and have important implications for public health and healthcare providers, as well as social media platforms.

The research suggests that the increasing prevalence of chronic diseases is positively impacting individuals' perceptions of social media as a viable tool for health-related information and support. This insight highlights the potential for healthcare professionals and social media platforms to collaborate in offering tailored services to meet the needs of individuals managing chronic conditions, ultimately improving healthcare decision-making and access to valuable health resources Table 5.8 and Table 5.9 shows the analysis.

Table 5.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.814 ^a	.662	.661	.840

a. Predictors: (Constant), posteq21

Table 5.9: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.306	.106		12.304	.000
	posteq21	.688	.030	.814	23.123	.000

a. Dependent Variable: pposteq17

Hypotheses 5; H1: An Individual's consideration that social media is an alternative positively influences perceived usefulness

The hypothesis indicating that the perceived usefulness is positively influenced by individuals' consideration of social media as an alternative has been confirmed through the analysis. The findings reveal an R-squared value of 0.551, signifying a substantial proportion of the variation in perceived usefulness can be attributed to this consideration. Furthermore, the standardized coefficient (β) is 0.744, which is statistically significant with a p-value of ($p < 0.001$). This indicates a strong positive association, affirming that individuals believing that social media can serve as an alternative for accessing healthcare information significantly enhances their perception of social media's usefulness in the same context.

The results underscore that individuals' belief in social media as a viable source of healthcare information has a significant and positive impact on their perception of social media's utility. This finding has important implications for the role of social media in healthcare information dissemination and suggests that individuals' attitudes and considerations play a crucial role in shaping their overall perception of the usefulness of social media in the realm of health and wellness Table 5.10 and 5.11 shows the analysis.

Table 5.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.744 ^a	.553	.551	1.039

a. Predictors: (Constant), pposteq17

Table 5.11: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.624	.163		3.826	.000
pposteq17	.800	.044	.744	18.379	.000

a. Dependent Variable: posteq18

Hypotheses 6; H1: The accessibility of chronic disease information on social media, the attractiveness of social media, the availability of technology e.g smartphones, laptops, etc., social media provides useful platforms for healthcare group discussions on chronic disease, Access to the Internet, positively influences perceived ease of use of social media

The hypothesis that the perceived ease of using social media can be influenced by several attributes has been rigorously examined. These attributes include the accessibility of chronic disease information on social media, the overall appeal of social media, the availability of technological devices such as smart phones and laptops, the presence of useful platforms for healthcare group discussions on chronic diseases, and access to the internet. The comprehensive analysis of these factors resulted in an impressive R-squared value of 0.855 in total. Furthermore, the standardized coefficients (β) were calculated to be 0.203, 0.183, 0.197, 0.260, and 0.143, respectively, for each of the mentioned attributes, all of which exhibited statistical significance with respective p-values of 0.000, 0.002, 0.007, 0.000, and 0.001.

It's worth noting that while the significance values differ for these variables, they all share a significant impact on the dependent variable, which is the perceived ease of using social media. These findings collectively emphasize the importance of these attributes in shaping individuals' perceptions of how user-friendly social media is, particularly in the context of accessing

information and engaging in discussions related to chronic diseases. This insight underscores the multifaceted nature of factors that influence the perceived ease of using social media in the healthcare domain Table 5.12 and 5.13 shows the analysis.

Table 5.12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.924 ^a	.855	.852	.640

a. Predictors: (Constant), posteq26, posteq14, posteq24, posteq25, popsteq22

Table 5.13: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
(Constant)	-.110	.106		-1.036	.301	
1	posteq14	.213	.048	.203	4.462	.000
	posteq25	.197	.057	.183	3.446	.001
	posteq24	.153	.056	.143	2.739	.007
	popsteq22	.251	.064	.260	3.933	.000
	posteq26	.188	.062	.197	3.057	.002

a. Dependent Variable: posteq23

Hypotheses 7; H1: Perceived ease of use of social media positively influences the attitude of individuals to use social media content for chronic disease management

The hypothesis under examination centers on two key variables: the independent variable being "Perceived ease of using social media," and the dependent variable being "individuals' attitudes towards using social media content for managing chronic diseases." The results of the hypothesis test are noteworthy, with an R-squared value of 0.681 and a substantial standardized coefficient

(β) of 0.825, which is statistically significant at a p-value of ($p < 0.001$). These findings provide compelling evidence that the perceived ease of using social media has a positive influence on individuals' attitudes toward utilizing social media content as a valuable resource for managing chronic diseases. This suggests that when individuals perceive social media as user-friendly, they are more inclined to embrace it as a tool for their chronic disease management, underlining the pivotal role of user experience in healthcare information dissemination Table 5.14 and 5.15 shows the analysis.

Table 5.14 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.825 ^a	.681	.680	.942

a. Predictors: (Constant), posteq16

Table 5.15: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.023	.141		.161	.872
	posteq16	.950	.039	.825	24.145	.000

a. Dependent Variable: posteq23

Hypotheses 8; H1: perceived usefulness positively influences the attitude of individuals to use social media content for chronic diseases management

The hypothesis at hand investigates the relationship between two essential variables: the independent variable, "perceived usefulness," and the dependent variable, "individuals' attitudes towards using social media content for chronic disease management." The results of the hypothesis test are striking, with an R-squared value of 0.604 and a substantial standardized

coefficient (β) of 0.777, which is highly significant at a p-value of ($p < 0.001$). These findings provide strong evidence that perceived usefulness, when viewed positively, significantly influences individuals' attitudes toward employing social media content as a valuable resource for managing chronic diseases. This underscores the critical role of individuals' perceptions of utility in shaping their willingness to utilize social media for managing chronic health conditions, highlighting the importance of user experience in healthcare information dissemination Table 5.16 and 5.17 shows the analysis.

Table 5.16: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.777 ^a	.604	.602	.912

a. Predictors: (Constant), posteq18

Table 5.17: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.834	.132		6.302	.000
	posteq18	.724	.035	.777	20.396	.000

a. Dependent Variable: posteq16

Hypotheses 9; H1: The attitude of individuals to use social media content for chronic disease management positively influences individual's knowledge of chronic diseases

The hypothesis in question explores the interplay between two pivotal variables: the independent variable, "Attitude of individuals to use social media content for chronic disease management," and the dependent variable, "individuals' knowledge of chronic diseases." The results of the hypothesis analysis are compelling, with an R-squared value of 0.697 and a robust standardized

coefficient (β) of 0.835, signifying a highly significant relationship with a p-value of ($p < 0.001$). These findings provide compelling evidence supporting the hypothesis that the positive attitude of individuals toward using social media content for managing chronic diseases has a substantial and positive influence on their knowledge of chronic diseases. This underscores the critical role of attitudes in shaping individuals' understanding of chronic health conditions and highlights the potential of social media as an effective platform for knowledge dissemination in the realm of chronic disease management Table 5.18 and 5.19 shows the analysis.

Table 5.18: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.835 ^a	.697	.696	.928

a. Predictors: (Constant), posteq16

Table 5.19: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.020	.139		.142	.887
	posteq16	.973	.039	.835	25.083	.000

a. Dependent Variable: posteq19

Hypotheses 10; H1: Knowledge of chronic diseases positively influences an individual's action of chronic disease management

This hypothesis represents the final step in our model testing, focusing on the relationship between the dependent variable, which involves various actions in managing chronic diseases such as "Diagnosis," "Treatment Initiation," "Medication Adherence," and "Following

Recommendations," and the independent variable of an individual's knowledge about chronic disease management. The analysis outcomes are compelling, with an R-squared value of 0.781, signifying ($p < 0.001$) a reasonable degree of explanatory power. Additionally, the standardized coefficient (β) is substantial at 0.884, and the statistical significance is evident. This signifies that an individual's knowledge of chronic disease management significantly and positively influences their actions related to managing chronic diseases. The findings highlight the pivotal role of knowledge in motivating individuals to take the necessary steps for effective chronic disease management, emphasizing the importance of education and awareness in healthcare practices. Table 5.20 and 5.21 shows the analysis.

Table 5.20: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.896 ^a	.803	.802	.776

a. Predictors: (Constant), posteq19

Table 5.21: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.064	.101		.632	.528
	posteq19	.928	.028	.896	33.363	.000

a. Dependent Variable: posteq12

The earlier hypotheses testing confirmed that all independent variables significantly influence the dependent variables, and based on these results, the research has developed a model. Figure 5.2 depicts the finalized model

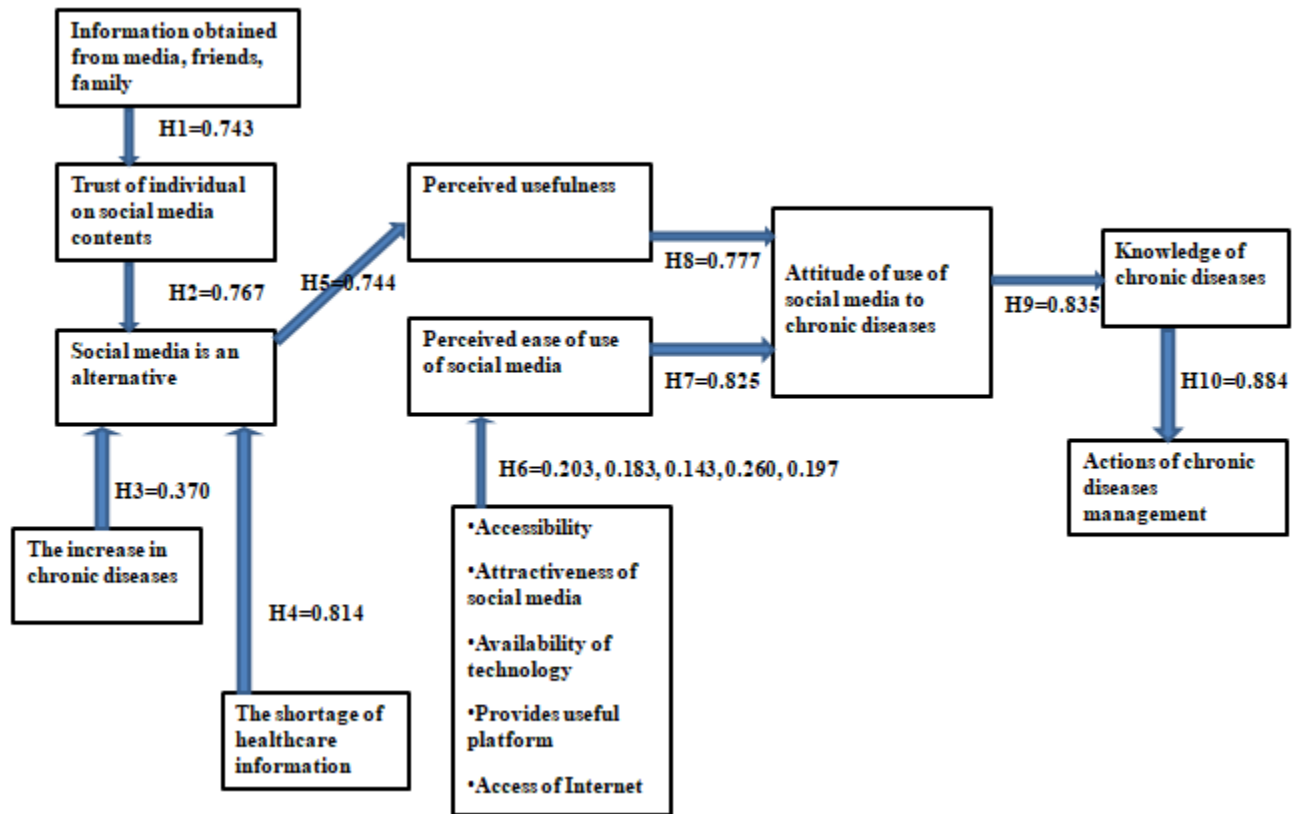


Figure 5.2: Model developed

5.5. Discussion

This study aims to develop a comprehensive model for the effective utilization of social media content in managing chronic diseases. This model draws from well-established theories, including the Social Capital Theory, the Health Belief Model, and primarily, the Technology Acceptance Model. These theoretical foundations serve as the cornerstone for constructing various hypotheses derived from an extensive literature review of existing models, questionnaires, and pertinent variables.

The Social Capital Theory, as discussed by Bhandari and Yasunobu (2009) and Carmichael, Archibald, and Lund (2015), sheds light on the role of social connections and relationships in health-related behaviors. Additionally, the Health Belief Model was elaborated in the studies by Cockerham (2013) and Kritsotakis and Gamarnikow (2004), which explains the influence of individual beliefs on health practices. Moreover, the Technology Acceptance Model, highlighted in works such as Al-Qaysi, Mohamad-Nordin, and Al-Emran (2020) and Ammendu, Muhammad, Mohammed, Owusu, and Lukman (2018), provides insights into how individuals perceive and adopt technology in the context of health management.

Furthermore, this research extends the Social Capital Theory, as demonstrated in works by Hao et al. (2023) and Nieminen et al. (2013), to explore the configuration perspective of social capital and its impact on health. Insights from research by Poecze and Strauss (2020) regarding the trustworthiness of social capital on social media platforms are also considered.

The Technology Acceptance Model, finding ample support in studies like Chuttur (2009) and Davis (1989), aids in comprehending users' acceptance of technology, which is crucial in the context of social media content utilization for chronic disease management. This model delves into aspects such as perceived usefulness, ease of use, and behavioral intention towards technology adoption.

In summary, this research integrates and extends existing theories to formulate a comprehensive model that provides valuable insights into the use of social media content for managing chronic diseases. It considers the interplay of social capital, health beliefs, and technology acceptance, creating a framework for testing hypotheses derived from the literature review. The

amalgamation of these theories is expected to shed light on the factors influencing the effective utilization of social media content for chronic disease management.

The hypotheses formulated are designed to establish the intricate relationships between the variables within the model. These hypotheses are instrumental in uncovering the manner in which individual or multiple variables positively influence one another within the model. Through these hypotheses, the research aims to untangle the complex web of connections and dependencies, providing insights into the interplay of factors and their impact on the model's dynamics.

In the subsequent hypotheses, each variable plays a unique role in shaping individuals' attitudes, beliefs, and actions in the context of managing chronic diseases using social media. For instance, information from media, friends, and family positively influences trust in social media content, while trust in social media content impacts an individual's consideration of it as an alternative to healthcare information. The scarcity of healthcare information, the prevalence of chronic diseases, and several other factors are explored to determine their influence on individuals' perception of social media and its ease of use. Ultimately, these variables culminate in shaping individuals' attitudes and knowledge regarding chronic disease management and their subsequent actions in this regard.

The methodology employed in this research revolves around the examination of the impact of social media on chronic disease management, specifically among graduate students. The data was collected from both control and experimental groups, totaling 276 participants, providing valuable insights into the effects of social media on chronic disease management within this demographic.

A structured questionnaire comprising 16 questions was used to assess the impact of social media on chronic disease management among graduate students. The Likert scale, ranging from "Strongly Agree" to "Strongly Disagree," was employed to gauge respondents' opinions. A reliability test ensured the quality of data, and a correlation analysis examined the interrelationships between the variables.

The results of the reliability test and correlation analysis were significant, demonstrating the internal consistency of the research instruments and the meaningful relationships between

variables. The linear regression test was used to evaluate the hypotheses and provided insights into the relationships within the model. The R-squared value, standardized coefficients, and significance values played a crucial role in this analysis.

Overall, this research has meticulously examined the multifaceted relationships between various variables in the context of social media's impact on chronic disease management. The comprehensive analysis and testing of hypotheses have shed light on the intricate web of connections and dependencies, providing valuable insights into the field of healthcare and social media.

The development of a sophisticated social media model for chronic disease management is viewed as a transformative initiative by the Ministry of Health and the Ministry of Education, each playing a distinct role. The Ministry of Health is primarily focused on crafting engaging and scientifically accurate content tailored to the needs of individuals managing chronic conditions. This content includes informative materials presented in various formats, such as videos, infographics, and interactive discussions, to maximize user understanding and participation.

Simultaneously, the Ministry of Education is dedicated to formulating a comprehensive policy for students' responsible and beneficial use of social media in the context of chronic disease management. The policy emphasizes the importance of privacy, security, and ethical considerations in utilizing social media platforms for health-related purposes. It also addresses the integration of digital literacy education to enhance students' proficiency in navigating and extracting valuable information from the social media model.

Both ministries recognize the crucial role of trust-building measures, stringent privacy protocols, and transparent communication channels to ensure the secure handling of sensitive health data. Additionally, the ministries acknowledge the significance of enhancing users' perceived usefulness and ease of access to encourage active student engagement. By aligning their efforts, the Ministry of Health and the Ministry of Education contribute to the holistic success of the social media model, with one focusing on content development and the other on policy formulation to foster responsible usage among students

5.7. Conclusion

In conclusion, this research represents a comprehensive effort to develop a model exploring the utilization of social media content in the management of chronic diseases. Drawing from established theories like the Social Capital Theory, Health Belief Model, and the Technology Acceptance Model, this study aimed to untangle the complex dynamics at play in this domain.

The hypotheses crafted in this research delve into various factors influencing individuals' attitudes, beliefs, and actions concerning the management of chronic diseases through social media. From the impact of information sources such as media, friends, and family on trust in social media content to the influence of technology accessibility and perceived ease of use, each variable contributes uniquely to shaping individuals' perspectives and behaviors.

The research methodology, involving data collection from graduate students, a structured questionnaire, reliability testing, and correlation analysis, provided robust and reliable insights into the relationships and interactions of variables. The results were compelling, and linear regression analysis further confirmed the validity of the hypotheses.

This research contributes valuable knowledge to the healthcare and social media domain, shedding light on the factors influencing the effective use of social media content for managing chronic diseases. It underscores the significance of social connections, individual beliefs, and technology acceptance in this context, offering insights that can guide healthcare professionals and social media platforms in tailoring services to meet the needs of individuals managing chronic conditions. Ultimately, the study highlights the evolving role of social media in healthcare decision-making and its potential to enhance healthcare practices and the accessibility of valuable health resources for individuals managing chronic diseases that they are living with.

CHAPTER SIX

6. Conclusions and recommendations

6.1. Conclusions

This dissertation presents a comprehensive exploration about the utilization of social media for personal healthcare management among graduate students in Ethiopia, with a specific focus on predominant chronic diseases, namely high blood pressure, diabetes, and chronic kidney disease. The multi-study approach unravels intriguing insights into the dynamics of this emerging trend.

The first study highlights the demographic nuances, revealing that male students aged 25 to 35, especially those with a history of chronic diseases, are more inclined to leverage social media for health management. Despite the vast healthcare information available, a small fraction of respondents considers themselves well-versed in chronic diseases, emphasizing the need for more accurate and credible content on social media such as Facebook and Telegram. The study also revealed that while Facebook and Telegram are predominant platforms, the specific platform does not significantly dictate the utilization of chronic disease management.

The intervention study provides significant insights into the effectiveness of tailored social media interventions. The experimental group witnesses notable and statistically significant increases in all measurement outcomes post-intervention, emphasizing the potential of social media interventions in addressing time constraints and enhancing understanding of chronic diseases. The tailored multimedia-rich intervention fosters an environment encouraging active engagement with healthcare content and positive behavioral changes.

In essence, this research underscores the pivotal role of social media in disseminating health information and facilitating healthcare management, especially concerning chronic diseases. By focusing on targeted, reliable, and user-friendly content, the true potential of social media to enhance the overall health and well-being of graduate students and beyond can be harnessed.

Drawing on established theories a model exploring the utilization of social media content in chronic disease management was developed in this research. The hypotheses crafted in the research delve into various factors influencing individuals' attitudes, beliefs, and actions concerning chronic diseases through social media. The research methodology, involving robust data collection, reliability testing, and correlation analysis, contributes valuable knowledge to the healthcare and social media domain.

In summary, this dissertation serves as a comprehensive effort to untangle the complex dynamics of utilizing social media for chronic disease management among graduate students. It not only highlights the evolving role of social media in healthcare decision-making but also provides actionable insights for healthcare professionals and social media platforms to tailor services to meet the needs of individuals managing chronic diseases with which patients pass their lifetime.

Implications of the Dissertation Findings:

Theoretical Contributions:

The research contributes to the field by integrating and extending well-established theories such as Social Capital Theory, Health Belief Model, and Technology Acceptance Model. This synthesis provides a comprehensive model for understanding the effective utilization of social media content in managing chronic diseases.

The extension of the Social Capital Theory to explore the configuration perspective and the consideration of trustworthiness on social media platforms contribute novel insights to the existing literature.

Practical Implications for Healthcare Professionals:

Healthcare professionals can leverage the developed model to enhance their understanding of factors influencing the effective utilization of social media in chronic disease management.

Insights into the significance of social connections, individual beliefs, and technology acceptance can guide professionals in tailoring healthcare services on social media platforms to better meet the needs of individuals managing chronic conditions.

Implications for Graduate Students:

Recommendations emphasize responsible and well-informed use of social media for healthcare management among graduate students. This includes verifying the credibility of information, staying informed about privacy settings, and promoting age and gender neutrality in accessing healthcare content.

Policy Implications:

Policymakers are encouraged to incorporate guidelines for responsible social media use within broader healthcare frameworks. This recognizes the growing influence of social media in healthcare and ensures ethical and informed engagement.

The development of intervention strategies and policies supporting social media use in chronic disease management within academic institutions can positively impact the health outcomes of students and faculty.

Public Awareness and Trust:

Policymakers should actively advocate for the use of social media in disseminating accurate and reliable health information. This can contribute to public awareness and understanding of healthcare issues.

Collaboration to construct and promote trustworthy sources of healthcare information on social media is recommended to enhance the public's trust in the information available on these platforms.

Model Integration in Education Programs:

Policymakers are recommended to support the integration of the developed social media healthcare management model into academic health education programs. This ensures that future healthcare professionals are equipped with the necessary skills to utilize social media responsibly for improved health outcomes.

Overall Significance: The dissertation provides a valuable contribution to the intersection of healthcare and social media. Its theoretical foundations, practical implications, and recommendations offer a roadmap for stakeholders to harness the potential of social media responsibly for chronic disease management. Policymakers, healthcare professionals, and

graduate students can benefit from the insights and guidance provided, ultimately contributing to improved health outcomes in the digital age.

6.2. Recommendations for Stakeholders Based on Dissertation Findings

For Graduate Students:

Usage Practices: It is highly advisable to promote responsible and well-informed utilization of social media within the realm of healthcare management. By advocating for usage practices that prioritize responsibility and knowledge, individuals can unlock the full potential of social media for their healthcare needs. This approach ensures that users interact with healthcare information on these platforms in a manner that is both ethical and effective. Encouraging responsible use involves verifying the credibility of health-related information before sharing or acting upon it, thereby fostering a more reliable and secure digital health environment. Additionally, highlighting the importance of staying informed about privacy settings and confidentiality measures on social media platforms is crucial. This recommendation aims to empower individuals to navigate the digital healthcare landscape responsibly, contributing to better-informed decisions and improved healthcare outcomes.

Age gender Neutrality: It is strongly recommended to leverage the inclusive nature of social media in healthcare management for graduate students. Recognizing that social media is not age and gender-restricted, it becomes an invaluable tool for ensuring accessibility to healthcare content for all graduate students. By utilizing social media platforms, we can create a diverse and equitable space where relevant health information is readily available to individuals, irrespective of age or gender. This recommendation emphasizes the potential of social media to democratize access to healthcare content, providing all graduate students with the knowledge and resources necessary for effective health management. Embracing social media's inclusive features aligns with the goal of fostering a supportive and accessible healthcare environment for the diverse needs of graduate students.

Trusted Platforms: Emphasizing these trusted platforms ensures that graduate students have access to credible and reliable health content. By promoting the use of well-established and recognized social media channels, we enhance the likelihood of accurate and verified healthcare

information. This recommendation underscores the importance of choosing platforms with a proven track record for disseminating reliable health content, contributing to a more informed and responsible healthcare management approach for graduate students.

Knowledge Source: It is strongly recommended to emphasize the significance of acquiring knowledge about chronic diseases from trusted and verified sources on social media. Graduate students should prioritize accessing information from credible platforms to ensure the accuracy and reliability of health-related content. By emphasizing the importance of discerning and selecting trustworthy sources, students can enhance their understanding of chronic diseases and make informed decisions about their health. This recommendation encourages a responsible approach to knowledge-seeking on social media, fostering a more reliable and beneficial resource for graduate students in managing chronic diseases.

For Policy Makers:

Incorporate Social Media in Health Policies: It is recommended that policy makers consider incorporating social media in health policies by integrating guidelines for responsible use within broader healthcare frameworks. Recognizing the growing influence of social media in the health landscape, it is crucial to establish clear and comprehensive guidelines that promote ethical and informed use of these platforms. By incorporating such guidelines into overarching health policies, policymakers can address the dynamic intersection of social media and healthcare, ensuring that these platforms contribute positively to public health. This approach not only acknowledges the pervasive role of social media but also establishes a framework for responsible engagement, fostering a digital environment that aligns with the broader goals of promoting health and well-being.

Intervention Strategies:

It is strongly recommend that policy makers develop intervention strategies and policies supporting the use of social media in chronic disease management within academic institutions. Recognizing the prevalence of social media use among academic communities, it is crucial to influence these platforms for targeted interventions aimed at managing chronic diseases. By

incorporating policies that encourage and guide the responsible use of social media in healthcare interventions, policymakers can harness the potential of these platforms to enhance health outcomes among students and faculty. This approach not only embraces the digital age but also ensures that academic institutions actively contribute to promoting healthier lifestyles and chronic disease management through innovative and accessible means.

Advocacy: We recommend that policy makers actively promote social media as a crucial tool for disseminating healthcare information through robust awareness campaigns. Recognizing the extensive reach and influence of social media platforms, policymakers should harness their potential to educate the public on healthcare matters. By actively advocating for the use of social media in disseminating accurate and reliable health information, policymakers can empower individuals to make informed decisions about their well-being. This recommendation emphasizes the role of social media as a valuable medium for health communication and encourages policymakers to leverage it effectively to enhance public awareness and understanding of healthcare issues.

Trustful Sources Construction:

It is recommend that policy makers collaborate to construct and promote trustworthy sources of healthcare information on social media. Given the vast and influential role of these platforms, policymakers should work together to establish reliable sources of health information, ensuring accuracy and credibility. By fostering partnerships and guidelines for trustworthy content creation, policymakers can contribute to building a more informed and responsible digital health environment. This recommendation underscores the importance of actively engaging in the construction and promotion of reliable sources on social media, ultimately enhancing the public's trust in the health information available on these platforms.

Model Implementation: We recommend that policy makers support the integration of the developed social media healthcare management model into academic health education programs. Acknowledging the transformative potential of social media in healthcare, policymakers should endorse and facilitate the incorporation of innovative models into academic curricula. By actively supporting the integration of this model into health education programs, policymakers can ensure that students receive comprehensive training on leveraging social media for effective healthcare management. This approach aligns with the evolving healthcare landscape and equips

future healthcare professionals with the necessary skills to navigate and utilize social media responsibly for improved health outcomes.

For Further Studies:

Population Expansion: We recommend delving into Population Expansion to explore the applicability of findings across diverse populations for a more comprehensive understanding. Expanding research to include diverse demographic groups will contribute valuable insights into how various populations engage with and benefit from healthcare interventions utilizing social media. This approach will enhance the generalizability of findings, providing a more nuanced understanding of the impact and effectiveness of social media in healthcare management across different cultural, socioeconomic, and geographical contexts. Conducting further studies with a focus on population expansion will not only contribute to the academic knowledge base but also foster the development of more inclusive and tailored healthcare strategies leveraging social media.

General Model Development: Undertake studies to develop a generalized social media healthcare management model considering cultural and socio-economic variations.

These recommendations provide guidance for stakeholders to leverage social media effectively in healthcare practices, ensuring responsible use, trustworthy content, and integration into broader health policies and educational programs

APPENDIX A- base line data collection questionnaire

1. Are you a Master's or Ph.D. student?
 - Masters
 - PhD
2. Your gender?
 - Male
 - Female
3. How old are you?
 - 25-30
 - 31-35
 - 36-40
 - 41 and above
4. Do you previously diagnose any chronic diseases such as Blood pressure, diabetes, and chronic kidney disease?
 - Yes
 - No
5. If your answer to the previous question is yes please write when and how you are diagnosed and if your answer is no please justify your reason for not being diagnosed.

_____.
6. If you are diagnosed as reactive for one or more of them please specify them.
 - Blood pressure
 - Diabetes
 - Chronic kidney disease
 - Others please specify it_____
7. Do you have experience utilizing Social media for personal healthcare management of disease?
 - Yes
 - No
8. If your answer to the previous question is yes, which social media platform do you use mostly? You can choose more than one.
 - Facebook
 - Telegram
 - Twitter
 - Youtube
 - Others please specify it_____
9. What kinds of chronic diseases healthcare content do you most of the time browsing?
 - Physical exercise

- Walking
 - Diet advise
 - Medication
 - Others please specify it_____
10. Do social media help you to increase your knowledge of healthcare management?
- Yes
 - No
11. If your answer to the previous question is yes please justify how it helped you
- _____
- _____
- _____.
12. How do you use social media to get information on healthcare management?
- Watching healthcare video clips
 - Reading posts
 - Listening to audio on healthcare management
 - Joining healthcare discussion groups
 - Subscribing to healthcare mail lists
 - Others please specify them_____.
13. Who are your sources of healthcare information on chronic disease?
- Friends
 - Healthcare providers
 - Ministry of Health
 - Physicians/doctors
 - Others please specify them _____.
14. How often do you use Social media?
- Everyday
 - Weekly
 - Monthly
 - Others, please specify it_____
15. If your answer is "Every day", do you have a habit of checking social media in the morning first? Please write down how many hours you spent using social media _____hours.
16. What Social media channels are you most active on? Choose as many as applicable and please rank the top three.
- Facebook
 - Telegram
 - Twitter
 - Youtube
 - Others please specify it_____
17. How is your knowledge of chronic disease?

- Excellent
- Very good
- Good
- Moderate
- None at all

18. What drives you to use social media information for managing chronic disease? Choose as many as possible

- The shortage of healthcare information
- The increase in chronic diseases occurrence
- The accessibility of chronic diseases information on social media
- The ease of use of social media
- The attractiveness of social media
- The availability of technology eg. Smart phones, laptops,
- Access of Internet
- The information obtained from media, friends, and family
- Others please specify them_____

19. How do you perceive the use of social media for the management of chronic disease?

- Positively
- Negatively
- Neutral

20. If your answer is either positive or negative please give reasons_____

21. Do you think social media will improve chronic disease treatment if it is integrated with the services of healthcare management?

- Yes
- No

22. Is using Social media healthcare content for chronic disease management a good choice for you?

- Yes
- No

23. If your answer to the previous question is yes please justify your reason why

24. Do you have a habit of cross-checking chronic disease content and sources that you get from Social media?
- Yes
 - No
25. Do you share healthcare content with friends you got from social media?
- Yes
 - No
26. What do you use Social media for? Choose as many as applicable.
- Networking with friends and families
 - Healthcare
 - Learning
 - Entertainment
 - For business.
 - Others please specify it_____
27. What actions did you take after the use of SM/To what extent does healthcare information on Social media influence your healthcare management for chronic diseases?
- To visit physician
 - To Diagnosis
 - To start treatment
 - To follow up on medication
 - Apply the recommendations eg.(exercise, diet change, lifestyle change)
28. Has Social media healthcare content had any effect on your healthcare management of chronic disease?
- Yes
 - No
29. If yes how_____
30. Please use a tick mark inside the boxes under the choices to show your choices.

Question items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
By increasing access to recent healthcare information social media helps to improve healthcare quality.					
The use of social media for healthcare purposes improves the limitations of distance and time for the access of healthcare information.					
Social media provides useful platforms for healthcare group discussions on chronic disease					
Healthcare information found from social media is trust full					
your use of social media for healthcare management change your attitude on chronic disease					
Social media is an alternative for the management of chronic diseases					
The utilization of Social media healthcare information for personal healthcare management is useful					

31. Regarding the use of SM for healthcare specifically chronic diseases please add your additional information_____

_____.

APPENDIX B- Sample Odds ratio of the utilization of Social media and Academic status Enrolled in

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	PhD(1)	-2.446	1.034	5.597	1	.018	.087	.011	.657
	Constant	2.944	1.026	8.236	1	.004	19.000		

a. Variable(s) entered on step 1: PhD.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masters(1)	2.446	1.034	5.597	1	.018	11.540	1.521	87.544
	Constant	.499	.127	15.314	1	.000	1.646		

a. Variable(s) entered on step 1: Masters.

PENDIX C- Sample Comparison of outcome measure

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre-tQ4	1.27	274	.443	.027
	posteq1	1.54	274	.499	.030

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pre-tQ4 & posteq1	274	-.343	.000

Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	pre-tQ4 - posteq1	-.277	.773	.047	-.369	-.185	-5.943	273	.000

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