SOCIAL MEDIA HEALTH INFORMATION-SEEKING AND MEDICATION ADHERENCE AND DECISION MAKING AMONGST PATIENTS WITH CHRONIC DISEASES IN UNIVERSITY OF BENIN TEACHING HOSPITAL: DETERMINANTS AND CHALLENGES

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A ONE-YEAR PROJECT PRESENTED TO

THE DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE,

SCHOOL OF MEDICINE, COLLEGE OF MEDICAL SCIENCES, UNIVERSITY OF

BENIN, BENIN CITY.

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBBS) DEGREE IN

THE UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA.

MAY, 2026

DECLARATION

I hereby declare that this project work is original and will be carried out by the under-listed students under the supervision of **Prof Obehi Okojie** and **Dr. Ndubuisi Mokogwu** and has not been published elsewhere for the award of a degree or certificate.

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CERTIFICATION

This is to certify that this research work titled "social media health information-seeking and medication adherence and decision making amongst patients with chronic diseases in university of benin teaching hospital: determinants and challenges" will be carried out in the Department of Community Health, School of Medicine, College of Medical Sciences, University of Benin, Benin City, Edo State, Nigeria as part of the requirements for the award of Bachelor of Medicine, Bachelor of Surgery (MBBS) by **JOHN ESEOSA OSAZEE** with matriculation number **MED1807483.**

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DEDICATION

I dedicate this work to God Almighty, who has brought me this far in my pursuit of becoming a medical doctor. This project is also dedicated to my family, who have been my pillar over the years and have contributed immensely to my project. I also dedicate this to my colleagues, friends, and well-wishers.

ACKNOWLEDGEMENT

First and foremost, I give all glory and honour to God Almighty, whose mercies and grace have been my constant companion throughout this journey. None of this would have been possible without Him.

I would like to express my sincere gratitude to my project supervisors, Prof. Okojie Obehi and Dr. Mokogwu Ndubuisi, for their invaluable guidance, patience, and expertise throughout the course of this project. Their constructive feedback and dedication to my academic growth shaped this work in ways I am truly thankful for.

To my late mum, Mrs Stella Osazee, it's painful that you are not here to see what your son is about to become. I am deeply grateful mum for your sacrifices made when you were with me on this journey. To my ever supporting Father, Mr Philip Osazee, thank you for your unwavering love, sacrifice, and support. To my siblings; Samuel Osazee, Victor Osazee, Paul Osazee and my twin, Justin Osazee, thank you for the encouragement and financial support you always brought my way.

I also extend my heartfelt gratitude to Time No Dey; my group of friends who turned brothers on this journey, Joshua, Uka, Shred, Praise, Maclean and Favour.

A special appreciation to Ekor; ever kind and supporting friend.

To my friends; Jace, James, Tafari, Caleb, Jimmy, Hillary, Victory, Abel, Isaiah and the many others too numerous to fully list, your friendship made this journey lighter and more joyful.

A special appreciation to Dr. Chijioke for his knowledge and assistance on this project.

This degree is dedicated to every single one of you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AIDS: Acquired immune deficiency syndrome

CINAHL: Cumulative index to nursing and allied health literature

COVID: Corona virus disease

DASS: Depression anxiety stress scales

HINTS: Health information trends survey

HIV: Human immuno-deficiency virus

ICT: Information and communication technology

MMAS: Morisky medication adherence scale

NCDs: Non-communicable diseases

PRISMA: Preferred reporting items for systematic reviews and meta-analyses

RA: Rheumatoid arthritis

SAS: Statistical analysis system

SPSS: Statistical package for the social sciences

UBTH: University of Benin teaching hospital

UTAUT: Unified theory of acceptance and use of technology

DEFINITION OF TERMS

Health information-seeking behavior: ways in which individuals obtain information about health, illness, health promotion, and health risks

Medication adherence: extent to which patients take medications as prescribed by their healthcare providers

Social media health information-seeking: intentional or incidental acquisition of health-related content through platforms such as Facebook, Twitter, Instagram, YouTube, TikTok, and various online health communities and forums

ABSTRACT

Background: The rapid proliferation of social media platforms has transformed how patients access health information, with significant implications for medication adherence among those managing chronic diseases. In Nigeria, where medication non-adherence rates range from 40% to 65% across chronic conditions, understanding how social media health information-seeking influences medication adherence and health decision-making is a critical public health priority. This study examined the patterns and determinants of social media health information-seeking and their relationship with medication adherence among patients with chronic diseases at the University of Benin Teaching Hospital (UBTH), Benin City, Nigeria.

Methods: A descriptive cross-sectional study was conducted among 420 patients attending the Medical Out-Patient (MOP) clinic at UBTH, selected using a systematic sampling technique. Respondents were patients currently managing chronic health conditions on at least one regular medication and with prior social media exposure. Data were collected using a pretested, structured, self-administered questionnaire covering sociodemographic and health characteristics, patterns and frequency of social media health information-seeking, and medication adherence assessed using the validated Morisky Medication Adherence Scale-8 (MMAS-8). Data were analysed using IBM SPSS version 25.0, with descriptive statistics, chi-square tests, and multivariate logistic regression applied as appropriate.

Results: The mean age of respondents was 45.63 ± 16.95 years and 53.1% were male. The majority had tertiary education (60.2%), were married (58.6%), and financed their healthcare

out-of-pocket (82.6%). Cardiovascular system diseases were the most prevalent chronic condition (26.2%). All respondents (100%) used social media to seek health information, with Facebook (86.2%) and WhatsApp (58.3%) being the most commonly used platforms for health information-seeking. Nearly all, 408 (97.1%), had sought health information related to their current illness, most commonly for treatment options (87.6%), disease symptoms (56.0%), and medication side effects (46.0%). High use of social media for health information-seeking was found in 253 (60.2%) of respondents. Regarding medication adherence, 327 (77.9%) had low adherence, 63 (15.0%) had medium adherence, and only 30 (7.1%) had high adherence, with a mean MMAS-8 score of 4.36 ± 1.92. High social media health information-seeking was significantly associated with lower medication adherence (p=0.017). On multivariate logistic regression, independent predictors of high medication adherence included younger age (OR=0.942, p=0.005), being non-employed (OR=0.311, p=0.024), religion, and low use of social media for health information-seeking (OR=0.379, p=0.035). The most commonly reported challenges with social media health information-seeking were difficult medical terminology (44.6%), conflicting information (22.9%), and misinformation (19.4%).

Conclusion: Social media health information-seeking is highly prevalent among patients with chronic diseases at UBTH. However, medication adherence levels were generally poor, and high social media health information-seeking was independently and significantly associated with lower medication adherence. While social media offers convenient access to health information and peer support, misinformation, conflicting content, and difficult medical terminology remain substantial concerns. Strengthened patient-provider communication, digital health literacy programmes, greater involvement of healthcare professionals in online health spaces, and

regulatory frameworks governing health content on social media are urgently recommended to improve medication adherence among patients with chronic diseases in Nigeria.

Keywords: Social media; health information-seeking; medication adherence; chronic diseases; MMAS-8; UBTH; Benin City; Nigeria.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

In recent years, the rise of digital technologies has reshaped how individuals' access and engage with health information. Social media platforms have become major channels through which patients encounter and interact with health-related content, influencing their understanding of illness, treatment options, and health risks. Platforms such as Facebook, Twitter, Instagram, YouTube, TikTok, and online health communities now play a central role in shaping patient knowledge and perceptions.[1]

The global proliferation of social media use has dramatically altered the healthcare information landscape. According to recent statistics, approximately 4.9 billion people worldwide use social media platforms, with over 70% of internet users seeking health information online.[2] In Nigeria, internet penetration has reached 51.4% of the population as of 2023, with approximately 32.9 million Nigerians actively using social media platforms.[3] This digital transformation has democratized access to health information, bypassing traditional gatekeepers and creating new pathways for patient education and engagement, and reducing dependence on conventional medical channels

At the same time, medication adherence continues to present challenges for health systems worldwide. The World Health Organization estimates that adherence to long-term therapies for chronic illnesses in developed countries averages only 50%, with even lower rates in developing countries.[4] Poor medication adherence leads to disease progression, increased hospitalizations,

higher healthcare costs, and reduced quality of life. In Nigeria, studies have reported medication non-adherence rates ranging from 40% to 65% across various chronic conditions, highlighting the magnitude of the problem.[5]

The intersection of social media health information-seeking and medication adherence presents both opportunities and challenges. On one hand, social media can empower patients through increased access to information, peer support networks, and shared experiences. Studies have shown that well-informed patients demonstrate better self-management skills and treatment compliance.[6] On the other hand, the unregulated nature of social media content raises concerns about misinformation, which can promote dangerous self-medication practices, treatment abandonment, or delays in seeking professional medical care.[7]

Various factors influence patients' social media health information-seeking behaviors and subsequent medication decisions. These determinants include sociodemographic characteristics (age, education, income), health literacy levels, severity of health conditions, trust in healthcare providers, accessibility of healthcare services, and the perceived quality and credibility of online information.[8] Additionally, technological factors such as internet access, digital literacy, and social media algorithm biases play significant roles in shaping these behaviors.

The COVID-19 pandemic dramatically accelerated reliance on social media for health information, with 55% of adults reporting increased use of online platforms to obtain pandemic-related health information.[9] This surge highlighted the critical need to understand how patients evaluate, integrate, and act upon social media health information in their healthcare decisions, particularly regarding medication adherence.

Healthcare providers increasingly acknowledge the influence of social media on their patients' medication behaviors. A survey of physicians found that 87% had encountered patients who had altered their medication regimens based on information obtained from social media platforms.[10] This phenomenon underscores the urgent need for healthcare systems to adapt to this new reality by developing strategies to address misinformation and leverage social media's potential for improving medication adherence.

Cultural and contextual factors significantly shape social media health information-seeking behaviors and medication decisions. In Nigeria, cultural beliefs, traditional medicine practices, religious perspectives, and community influences interact with online information to affect medication adherence patterns.[11] The Nigerian healthcare system faces additional challenges from limited resources, access barriers, and workforce shortages, potentially driving patients toward social media for health information and self-management advice.

With this evolving dynamic in mind, it has become increasingly important to explore how social media-driven health information influences medication-related behaviours among Nigerian patients with chronic health conditions.

1.2 STATEMENT OF PROBLEM

Studies have documented that 60% of Nigerian internet users actively seek health information online, yet the quality and accuracy of the information they encounter vary widely.[12] A significant proportion of health-related social media content contains misleading or unverified claims—one analysis of health posts on Nigerian social media found that approximately 40% contained inaccurate information about medications and treatments.[13]

Exposure to misleading health information on social media can negatively influence patients' treatment behaviours and overall health outcomes. Such misinformation may lead to poor medication adherence, unsafe self-medication, delays in seeking professional care, and worsening of chronic conditions.[14] It can also erode trust in healthcare providers, heighten health anxiety, increase financial burden through ineffective remedies, and amplify misinformation within communities. Beyond individual effects, misleading content poses broader public health risks by promoting vaccine hesitancy and resistance to evidence-based guidelines.[15] These consequences are further compounded by low health literacy especially in our environment, algorithm-driven content exposure, and the unregulated nature of online information, underscoring the urgent need for strategies to support patients in critically evaluating digital health content.[16]

The problem of medication non-adherence has reached alarming proportions globally. In Nigeria, a study of hypertensive patients revealed that 63% had poor adherence to prescribed medications, with 28% citing information found on social media and online forums as influencing their decision to modify or discontinue their treatment regimens.[17] Similarly, research among diabetic patients in Lagos showed that 47% had altered their medication dosages based on experiences shared by other patients through social media platforms, often without consulting healthcare providers.[18]

Altering medication dosages based on social media information poses significant risks to patient safety and treatment outcomes. Such changes can result in ineffective therapy, worsening of chronic conditions, and increased likelihood of adverse drug reactions or toxicity. In infectious diseases, inconsistent dosing may promote drug resistance, while combining medications with

unverified remedies can lead to dangerous interactions. These practices contribute to higher rates of hospitalization, increased healthcare costs, and delays in seeking appropriate medical care. Added to this is the erosion of trust in healthcare providers promoted by increasing reliance on online advice and the further spread of misinformation within communities which already have a low level of health literacy.[19]

Healthcare professionals in Nigeria report growing concerns about patients arriving at consultations with preconceived notions about their conditions and treatments based on social media information. A survey of physicians at teaching hospitals in Nigeria found that 74% frequently encountered patients who questioned prescribed medications based on contradictory information from social media sources.[20] This phenomenon complicates provider-patient communication and may undermine trust in conventional medical advice.

The COVID-19 pandemic exacerbated these challenges, with a proliferation of misinformation about treatments and vaccines spreading rapidly through social media networks. In Nigeria, approximately 52% of adults reported exposure to false claims about COVID-19 treatments on social media platforms, and 23% admitted to following unverified preventive or treatment advice.[21] This trend reveals the vulnerability of health information ecosystems to misinformation, with potential consequences for medication adherence and public health outcomes including increased vaccine hesitancy, reducing vaccine coverage and the resurgence of preventable diseases. These can also lead to poorer adherence to other public health safety guidelines and summarily deter efforts to prevent and control disease outbreaks.[22]

Economic factors compound these challenges in the Nigerian context. With out-of-pocket payments constituting approximately 70% of healthcare expenditure and limited health insurance

coverage, many patients seek cost-saving alternatives to prescribed medications.[23] Social media platforms frequently promote less expensive or "natural" alternatives, which may appeal to economically constrained patients. A study in Ibadan found that 38% of patients with chronic conditions had substituted prescribed medications with alternatives recommended on social media due to cost considerations.[24] As a result, patients may be exposed to misleading information, especially coupled with the lack of regulation of social media information and the high accessibility among individuals. Consequently, reliance on social media may lead to self-diagnosis, inappropriate self-medication, altered medication regimens, and delays in seeking professional care. This may worsen health outcomes, increase the risk of developing serious complications and adverse drug reactions and invariably increase health cost.[25]

Health literacy remains a significant barrier to effective medication use in Nigeria. Research indicates that only 31% of Nigerian adults possess adequate health literacy skills necessary to critically evaluate online health information.[26] This deficiency renders many vulnerable to misinformation and inappropriate medication decisions when navigating social media health content.

The proliferation of counterfeit and substandard medications in Nigeria—estimated to constitute 17% of drugs in circulation—creates additional risks when patients make medication decisions influenced by social media.[27] Online recommendations may inadvertently direct patients toward unregulated suppliers or products, undermining medication safety and efficacy.

1.3 JUSTIFICATION

This research addresses a critical gap in the literature regarding the intersection of social media health information-seeking and medication adherence behaviors in Nigeria. While extensive research exists on medication adherence factors and, separately, on health information-seeking behaviors, few studies have examined how these phenomena interact in the Nigerian healthcare context. The rapid digitalization of health information access necessitates understanding these dynamics to develop effective interventions for improving medication adherence in the contemporary healthcare landscape.

In Nigeria, where resources are limited and the burden of chronic diseases is rising, improving medication adherence represents a cost-effective strategy for enhancing population health outcomes. By identifying the specific ways social media influences medication decisions, this research will inform targeted interventions to address major drivers of non-adherence.

The pharmaceutical and healthcare sectors in Nigeria stand to benefit substantially from insights into patients' information-seeking behaviors and decision-making processes. Understanding these patterns will enable pharmaceutical companies to develop more effective patient education materials, while healthcare institutions can implement strategies to counter misinformation and strengthen medication adherence.

This research will provide healthcare policy providers with practical value by illuminating the digital information environments their patients navigate. Physicians, pharmacists, and other providers frequently encounter patients influenced by social media content, yet many lack

evidence-based strategies for addressing this influence. By mapping the determinants and challenges of social media's impact on medication decisions, this study will equip healthcare professionals with knowledge to engage more effectively with digitally-informed patients.

From a policy perspective, Nigeria's National Health Policy emphasizes the importance of health literacy and patient empowerment in achieving universal health coverage. This research aligns with these priorities by examining how digital platforms shape health literacy and medication behaviors. Findings will inform policy interventions to regulate health misinformation, promote quality health content on social media, and integrate digital health literacy into patient education programs.

The timing of this research is particularly opportune given the accelerated digitalization of healthcare information during and following the COVID-19 pandemic. As social media platforms continue to evolve as health information sources, understanding their impact on medication behaviors becomes increasingly urgent for healthcare systems adapting to digital transformation. Understanding the complex relationship between patients' social media health information-seeking behaviors and medication adherence is essential for developing effective interventions to improve health outcomes in the digital age. This research aims to bridge the knowledge gap by examining the determinants and challenges of this relationship within the Nigerian healthcare context.

Finally, this study contributes to the broader scientific understanding of health behavior in the digital age. By examining the Nigerian context, it adds valuable diversity to a research field predominantly focused on Western healthcare systems, potentially revealing unique cultural,

economic, and structural factors that influence the relationship between social media use and medication adherence.

1.4 RESEARCH QUESTIONS

1. What are the patterns and frequency of social media health information-seeking behaviors among UBTH patients with chronic conditions requiring long-term medication therapy?
2. What is the level of medication adherence among UBTH patients with chronic conditions requiring medication therapy?
3. What is the relationship between social media health information-seeking and medication adherence among UBTH patients with chronic conditions?
4. Which demographic, psychosocial, technological, and cultural factors determine or influence the relationship between social media health information-seeking and medication adherence?
5. What challenges and opportunities arise from patients' access to health information on social media in relation to their medication adherence and health decision-making?

1.5 GENERAL OBJECTIVE

To examine how social media health information-seeking influences medication adherence among UBTH patients with chronic conditions, by exploring usage patterns, identifying underlying determinants, and evaluating the associated challenges and implications for patient health decision-making.

1.6 SPECIFIC OBJECTIVES

1. To assess the patterns and frequency of social media health information-seeking behaviors among UBTH patients with chronic conditions requiring medication therapy.
2. To determine the level of medication adherence among UBTH patients with chronic conditions requiring medication therapy.
3. To examine the relationship between social media health information-seeking and medication adherence among UBTH patients with chronic conditions requiring medication therapy.
4. To identify key determinants (demographic, psychosocial, technological, and cultural) that influence the relationship between social media health information-seeking and medication adherence behaviors.
5. To highlight the challenges and opportunities posed by access to health information on social media among UBTH patients with chronic conditions requiring medication therapy.

CHAPTER TWO

2.1 PATTERNS AND FREQUENCY OF SOCIAL MEDIA HEALTH INFORMATION-SEEKING BEHAVIORS AMONG PATIENTS WITH CHRONIC CONDITIONS REQUIRING MEDICATION THERAPY

A cross-sectional study was conducted using the Health Information Trends Survey (HINTS) dataset5 which is nationally representative of American adults in 2017 and 2018. The study conducted a secondary analysis on the information provided in the dataset with the aim of determining the relationship between using social media and sharing health information and participating in relevant health groups among chronic disease patients. The study included 6,650 respondents who were civilian non-institutionalized adults who live in the Unites States. Data was collected using self-administered mail questionnaires and analyzed using the SAS 9.4 software. The study found that 13.4% of the respondents share health information on social media and 6% were willing to join online support groups. The study was nationally representative, had a large sample size which enhances its statistical power and allowed for subgroup analysis among the different chronic disease. However, the use of secondary data limits control over variables specifically relevant to chronic medication therapy and measures social media use broadly and does not necessarily focus on seeking information concerning medication therapy. Also, the use of self-reporting gives chance to introduce recall and social desirability bias.[28]

A case study was conducted to identify the key factors affecting the acceptance of ICT for diabetes self-management among patients in low socio-economic communities in Western Cape, South Africa. The study participants were selected using purposive sampling and 498 diabetic patients were recruited for the study. The study was conducted using the Unified Theory of

Acceptance and Use of Technology (UTAUT) model. Results from the study found that 67.5% of the respondents did not use technology of any form (including social media) to help manage their health condition. The study also found that the strongest correlation with behavioural intention to use ICT for diabetes self-management (the dependent variable in this study) is effort expectancy, followed by social influence. The study measures ICT use broadly and does not necessarily focus on social media use in seeking information concerning medication therapy. It also narrows its focus to just respondents with diabetes and the use of self-reporting gives chance to introduce recall and social desirability bias.[29]

A cross-sectional study was conducted among uundergraduate students at the University of Ibadan, Nigeria which was aimed at determining the pattern of seeking online health information among the respondents. The study recruited 400 students from 8 faculties with limited knowledge of health-related matters based on their courses. Purposive sampling technique was used to select an average of 50 students from each of the select faculties. Data was collected using a self-administered questionnaire and analysed using SPSS version 17.0. The study found that up to 72.7% of the respondents sought information including but not limited to information on nutrition, fitness/exercise, HIV/AIDS, malaria, sore throat, mental health, menstrual pain, and sexual/reproductive health. The study assessed general health information seeking and included people who did not have chronic health conditions or are on regular medications.[30]

A descriptive cross-sectional study was conducted in Yaba a suburban area in Lagos State, Nigeria to assess the perceived benefits of using social media to seek health-associated information. The study also explored the pattern and frequency of use social media platforms for seeking health information. The study was done among patients presenting to three select primary health centres (Harvey Road Health Centre, Aiyetoro Primary Health Centre and Ebutte-

Meta Primary Health Centre) in the area. Convenience sampling technique was employed to recruit participants who fit the inclusion criteria and responses were collected from 221 using a self-administered questionnaire. Of the 221 respondents, 154 (70%) used at least one type of social media for health-seeking information. The commonest social media used by the respondents was Facebook (28%) and the least was Snapchat (8%). The highest proportion of respondents (91, 41%) respondents used social for seeking health information weekly, followed by daily (45, 20%) and then bi-weekly (33, 15%) and so on. The commonest reason for health information seeking among the respondents was concerning the common cold (flu) (23%), then tiredness/hypertension (18%), implants (bleeding) (15%), communicable diseases (13%) and so on. The study measures social media use in seeking general health information and not specifically about medication therapy. It also does not focus on those with health conditions and the use of self-reporting gives chance to introduce recall and social desirability bias.[31]

2.2 LEVEL OF MEDICATION ADHERENCE AMONG PATIENTS WITH CHRONIC CONDITIONS REQUIRING MEDICATION THERAPY

A systematic review was conducted to investigate the relationship between good medication adherence in adults with chronic health conditions. Studies were pooled from three electronic databases – PubMed, MEDLINE (Ovid) and Scopus and included studies published within a period of 20 years from March 2004 and March 2024. Twenty-four articles were chosen for the review based on the eligibility criteria and using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) template. The review focused on comparing the risk of mortality or hazard ratio (HR) between individuals with good and poor medication adherence. The effect measures from individual studies were categorized according to adherence levels: good, intermediate, poor and non-adherent. The review considered good adherence as those with

adherence rate of ≥80%, intermediate adherence rate was between 50% and <80% and poor adherence was set at <50%. A total of 61 effect measures was reported across all the studies, 17 effect measures were reported for good adherence and 44 effect measures reported for intermediate, poor and non-adherence categories. The study also showed that the hazard/mortality risk was higher among respondents who had poor, intermediate adherence or were classed as non-adherent compared to those who had good adherence. The study provides a broad international perspective and synthesizes evidence across different health systems and multiple chronic conditions. A large aggregated sample also enhances external validity. However, many of the studies relied on self-reported adherence which is prone to over or under reporting and also includes studies with considerable heterogeneity in measurement tools (MMAS, pill counts, pharmacy refill data) and this limits comparability across the studies.[32]

A descriptive cross-sectional study was conducted to determine the level of medication non-adherence among respondents with diabetes at Debre Markos Comprehensive Specialized Hospital, Northwest Ethiopia in 2021. A total of 176 study participants were included in the study and were selected using simple random sampling from ambulatory diabetic patients presenting to the diabetic out-patient clinic. Data was collected using a pretested questionnaire through face-to-face interview by trained health personnel. Additional data was collected using a check-list from the patients' medical charts. The data was cleaned, coded, entered and analysed using the SPSS version 25. The study found that the rate of non-adherence to antidiabetic medications among the participants was 41.5%. Factors that were found to be associated with increased medication non-adherence were being male, residing in a rural area, being divorced, being merchant, self- or family-borne medical cost and presence of comorbidities.[33]

An analytic cross-sectional study was conducted to assess medication adherence among patients with Rheumatoid Arthritis (RA) in a referral hospital in southern, Nigeria. The study was done among respondents who were out-patients hospital. The study collected data from 169 patients with RA and utilised two validated instruments – the Medication Adherence Report Scale and five-item Compliance Questionnaire for Rheumatology to determine the level of adherence. Results from the study showed that the rate of adherence to medication was 51.5% and 36.1% for the Compliance Questionnaire for Rheumatology and the Medication Adherence Report Scale respectively. The study also reported that being male, of an older age, having a higher number of pills o take, higher level of education and longer duration of disease all contributed significantly to a higher level of medication adherence among the respondents. The setting of the study at a referral hospital likely introduces a selection bias tilting more to towards respondents in an urban setting and its reliance on self-report scale poses a risk of overestimation. However, the study's use of validated adherence tools and disease-specificity allows for more reliable and comparable results as well as provide deeper clinical insight respectively.[34]

A correlation study was conducted to determine the association between medication belief and medication adherence among patients with diabetes mellitus in Edo State, Nigeria. A total enumeration was conducted for al the patients with diabetes who met the inclusion criteria and consented to the study. The study was conducted at three hospitals in the state - University of Benin Teaching Hospital, Central Hospital Benin and Faith Mediplex which are a Federal government, State government and Missionary run hospitals respectively. A total of 180 patients were included in the study – 90 from UBTH, 50 from Central Hospital and 40 from Faith Mediplex Hospital. Data was collected using a standardized questionnaire based on the Beliefs about Medicines Questionnaires (BMQ) and Morisky Medication Adherence Scale. Results from

the study showed that only 5.6% of the patients were found to have high adherence to their diabetic medication. About 38.9% had medium adherence and 55.6% had poor adherence to their medication. The study also found that medication belief was a significant determinant of medication adherence. The study utilises standardized models for measuring both medication belief and medication adherence and clearly quantifies adherence levels. The study's small sample size reduces its statistical power and all three hospitals included are located in the urban capital of the state and provides no data for rural areas and is therefore cannot be generalised for the state.[35]

2.3 RELATIONSHIP BETWEEN SOCIAL MEDIA HEALTH INFORMATION-SEEKING AND MEDICATION ADHERENCE AMONG PATIENTS WITH CHRONIC CONDITIONS REQUIRING MEDICATION THERAPY

A systematic review and meta-analytical study to determine the association between online health-information seeking and medication adherence was conducted. The study searched through study databases including Medline, Embase, Web of Science, Scopus, CINAHL and Psychology and Behavioural Science Collection for studies published up to December 2020 that met the inclusion criteria. Studies that reported the relationship between online health-information seeking and medication adherence, had a quantitative design and reported primary data only, related to any health condition requiring medication therapy, whether they were conducted in a clinical or community setting were included. A total of 17 studies were included and the pooled study population was at 24,890 patients. The meta-analysis study found no significant association or correlation between online-health information seeking and medication

adherence. The study has a broad focus extending towards all online-health information seeking and provides no specificity regarding social media. The study also allows for a inclusion of studies from a diverse period which may mask evolving social media/online-health information seeking dynamics.[36]

A longitudinal retrospective cohort study was conducted to assess the influence of online information seeking behaviour throughout treatment on medication belief and medication adherence among patients with chronic diseases across 6 hospitals in the Netherlands. The study recruited 107 patients with chronic diseases who were divided into 2 cohorts based on their exposure to the internet to seek for health information before their consultation with a doctor. The medication beliefs and medication adherence of the participants was assessed 3 weeks (T1) and at 6 months (T2) after their consultation. Most of the patients (79%) used the internet. Those who used the internet before consultation reported that they had more concerns about their medication at T1 and T2 when compared to those who were not exposed to the internet. Those who were exposed to the internet throughout the period of the study valued their concerns higher than the necessity after six months (T2). Summarily, patients who used the internet after the consultation reported higher levels of non-adherence after three weeks compared to those who did not.[37]

A scoping review was conducted across two major databases (Google Scholar and PubMed) focusing on studies within a 10-year period (2012 to 2022) in 2022. The study was aimed at identifying social determinants and cognitive factors which potentially influence use of digital health use in self-management among respondents with medical conditions associated with NCDs in sub-Saharan Africa. A total of 12 articles were chosen for the final analysis following a 5-stage scoping review using Preferred Reporting Items for Systematic Reviews and Meta-

Analyses (PRISMA). The study found that social and cognitive determinants of digital self-management behaviours, such as self-efficacy and cultural norms, can influence digital health use in self-management which can indirectly influence medication adherence. The study does not provide direct evidence of how social media health information influences medication adherence and lacks no primary data on patient behaviour. Also, its broad focus on digital tools makes it difficult to isolate social media's specific effects on medication adherence.[38]

A descriptive study was conducted among Nigeria youth who were active on social media. The study aimed at assessing the influence of social media on health adherence and mental well-being among the respondents. Three hundred and eighty-four (384) respondents between the ages of 18 and 50 years who were active on Facebook, Instagram and Whatsapp and were interacting with health-related content online. Data was collected with a structured questionnaire and a modified DASS-21 questionnaire. A significant proportion of the respondents (63.4%) reported that they experienced anxiety and stress after encountering distressing or alarming health information on social media. On the other hand, positive messaging and enhanced digital health literacy helped to mitigate these effects. While this does not directly speak to medication health adherence, it highlights the possible influence of social media on health behaviour including medication adherence. The study also focuses on a different population (youths) and not on those with chronic health conditions.[39]

2.4 KEY DETERMINANTS (DEMOGRAPHIC, PSYCHOSOCIAL, TECHNOLOGICAL, AND CULTURAL) THAT INFLUENCE THE RELATIONSHIP BETWEEN SOCIAL MEDIA HEALTH INFORMATION-SEEKING AND MEDICATION ADHERENCE BEHAVIORS

A cross-sectional study was conducted using the Health Information Trends Survey (HINTS) dataset5 which is nationally representative of American adults in 2017 and 2018. The study conducted a secondary analysis on the information provided in the dataset with the aim of determining the relationship between using social media and sharing health information and participating in relevant health groups among chronic disease patients. The study included 6,650 respondents who were civilian non-institutionalized adults who live in the Unites States. Data was collected using self-administered mail questionnaires and analyzed using the SAS 9.4 software. The study found that 13.4% of the respondents share health information on social media and 6% were willing to join online support groups. The study found that respondents who were aged 18 – 49 years and were underweight were more likely to share health information on social media while males were less likely. Those that were aged 35 – 49 years, had a Bachelor's or postbaccalaureate degree and those who had depression or anxiety disorder were more likely to join health support groups and males were less likely to participate. The study was nationally representative, had a large sample size which enhances its statistical power and allowed for subgroup analysis among the different chronic disease. However, the use of secondary data limits control over variables specifically relevant to chronic medication therapy and measures social media use broadly and does not necessarily focus on seeking information concerning medication therapy. Also, the use of self-reporting gives chance to introduce recall and social desirability bias.[28]

A systematic review and meta-analytical study to determine the association between online health-information seeking and medication adherence was conducted. The study searched through study databases including Medline, Embase, Web of Science, Scopus, CINAHL and Psychology and Behavioural Science Collection for studies published up to December 2020 that

met the inclusion criteria. Studies that reported the relationship between online health-information seeking and medication adherence, had a quantitative design and reported primary data only, related to any health condition requiring medication therapy, whether they were conducted in a clinical or community setting were included. A total of 17 studies were included and the pooled study population was at 24,890 patients. The meta-analysis study found no significant association or correlation between online-health information seeking and medication adherence. A sub-group analysis, however, showed that for people living with HIV/AIDS, online-health information seeking was associated with better medication adherence. The study has a broad focus extending towards all online-health information seeking and provides no specificity regarding social media. The study also allows for a inclusion of studies from a diverse period which may mask evolving social media/online-health information seeking dynamics.[36]

A meta-analytic study was conducted to assess how social media use influences health-promoting behaviour. The study used the PRISMA-ScR framework to screen relevant studies from 2010 to 2025 from databases such as PubMed, PsycINFO, Scopus, and CINAHL and 82 studies were eventually included in the study. Thematic analysis of the studies revealed five dominant categories as concerns health-related behaviour: physical activity and fitness, dietary behaviours and nutrition, mental health and wellbeing, substance use and risky behaviour, and health misinformation. The study found that social media was a useful enabler for positive health behaviour change. This was influenced by the specific platform, content exposure, and user engagement. For example, videos and post defining dietary culture and trends were found to drive behaviour change influencing social comparison and caloric reduction among teens. Facebook groups, Instagram fitness challenges, and Twitter/X campaigns were also found to be associated with increased physical activity in adults and adolescents. In general, older adults

were limited from using digital health resources due to a higher level of digital illiteracy. This was, however, found to reduce with digital training. Responding primarily to Facebook support groups, this specific demographic was seen to show increased walking and reduced sedentary behaviour. This study showed a substantial heterogeneity across studies included limiting conclusiveness of conclusions drawn and did not specifically relate to medication adherence though it measured other health-related behaviour.[40]

A descriptive cross-sectional study was conducted among undergraduate students at University of Abuja to determine how the respondents use social media for health information in 2025. Multi-stage sampling technique was used to select 242 students. A structured 33-item questionnaire which was distributed both online and in-person was used to collect data. The study found that 48% of the respondents regarded social media as a trusted health information source despite 43% strongly agreed that misleading health information was common on social media. Other factors that influenced their use of social media and how it influenced their health behaviour was relevance of the post to their personal health need. Socio-demographic characteristics were found not to influence the use of social media in the study population. This study does not measure medication adherence directly or include those with chronic health conditions specifically and the specificity of the sample population limits generalisation of the results.[41]

2.5 CHALLENGES AND OPPORTUINITIES POSED BY ACCESS TO HEALTH INFORMATION ON SOCIAL MEDIA AMONG PATIENTS WITH CHRONIC HEALTH CONDITIONS REQUIRING MEDICATION THERAPY

A meta-analytical study was conducted to assess the use of social media by health professionals facilitate chronic disease self-management with their patients. A systematic approach was used to select 7 studies which the criteria for inclusion. The study found that health care professionals perceived these discussion forums and collaborative projects as useful for facilitating chronic disease self-management support, offering opportunities to extend patient education beyond face-to-face consultations. Concerning the perceived ease of use, the findings from the studies were mixed. Barriers identified included lack of time, infrastructure constraints, and access to technology. The study focused on the perspective of the health care professional. Although it provides useful insight, it does not help in understanding the experience of the patients.[42]

A scoping review was conducted across two major databases (Google Scholar and PubMed) focusing on studies within a 10-year period (2012 to 2022) in 2022. The study was aimed at identifying social determinants and cognitive factors which potentially influence use of digital health use in self-management among respondents with medical conditions associated with NCDs in sub-Saharan Africa. A total of 12 articles were chosen for the final analysis following a 5-stage scoping review using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The study found that opportunities provided for social media and digital tools in promoting health included that social media can empower patients by increasing health knowledge and enabling peer support groups. Challenges identified included poor infrastructure, financial barriers, limited internet access and digital literacy gaps. The study does not provide direct evidence of how social media health information influences medication adherence and lacks no primary data on patient behaviour. Also, its broad focus on digital tools makes it difficult to isolate social media's specific effects on medication adherence.[38]

A descriptive cross-sectional study was conducted in Yaba a suburban area in Lagos State, Nigeria to assess the perceived benefits of using social media to seek health-associated information. The study also explored the pattern and frequency of use social media platforms for seeking health information. The study was done among patients presenting to three select primary health centres (Harvey Road Health Centre, Aiyetoro Primary Health Centre and Ebutte-Meta Primary Health Centre) in the area. Convenience sampling technique was employed to recruit participants who fit the inclusion criteria and responses were collected from 221 using a self-administered questionnaire. Of the 221 respondents, 154 (70%) used at least one type of social media for health-seeking information. The commonest social media used by the respondents was Facebook (28%) and the least was Snapchat (8%). The highest proportion of respondents (91, 41%) respondents used social for seeking health information weekly, followed by daily (45, 20%) and then bi-weekly (33, 15%) and so on. The commonest reason for health information seeking among the respondents was concerning the common cold (flu) (23%), then tiredness/hypertension (18%), implants (bleeding) (15%), communicable diseases (13%) and so on. Participants opined that social media increased health awareness and good health seeking behaviour and was a supplementary source of information. However, the high risk of misinformation was identified as a major drawback of using social media to seek information on healthcare on the internet. The study measures social media use in seeking general health information and not specifically about medication therapy. It also does not focus on those with health conditions and the use of self-reporting gives chance to introduce recall and social desirability bias.[31]

A descriptive study was conducted among Nigeria youth who were active on social media. The study aimed at assessing the influence of social media on health adherence and mental well-

being among the respondents. Three hundred and eighty-four (384) respondents between the ages of 18 and 50 years who were active on Facebook, Instagram and Whatsapp and were interacting with health-related content online. Data was collected with a structured questionnaire and a modified DASS-21 questionnaire. Respondents opined that social media was a valuable channel for creating awareness on health-related issues and engaging young people on health topics. Misinformation and lack or regulatory frameworks exacerbating information quality bias deterred its use according to respondents. While this does not directly speak to medication health adherence, it highlights the possible influence of social media on health behaviour including medication adherence. The study also focuses on a different population (youths) and not on those with chronic health conditions.[39]

CHAPTER THREE

METHODOLOGY

3.1 STUDY AREA

This study was conducted at the University of Benin Teaching Hospital (UBTH), located in Benin City, Edo State, South-South Nigeria. Edo state is one of the 36 states in Nigeria and is geographically located in the southern part which is one of the 6 states in the South-South geographical zone of Nigeria.[43,44] The state is bounded on the east by Anambra State, Delta State to the south, Ondo State to the west and northwest and Kogi State to the northeast and east with the Niger River flowing along its eastern boundary.[43,44] It lies at elevations between 500 feet (150m) in the south and more than 1800 feet (550m) in the north. The core Edo area is about 10,400 square kilometres and it is located on a rolling coastal plain crossed by rivers, in an area of tropical rainforest. Its capital is Benin City and is its largest urban city with a land mass of

approximately 1,204km (6°20′00″N 5°37′2 0″E) and a projected population of 2,120,000 in 2026.[45]

UBTH is one of Nigeria's leading federal tertiary health institutions and serves as a major referral center in the South-South geopolitical zone including neighbouring states like Ondo, Delta, Kogi, Anambra and Ekiti. The hospital was established on May 12, 1973 following the enactment of edict no. 12 of the Nigerian National Health Act. Located in Ugbowo, Egor local government area, the hospital is a multi-specialty healthcare services provider. The hospital also serves as the teaching hospital for the University of Benin. It is a 910-bed tertiary healthcare facility providing referral, emergency and primary care services for thousands of patients monthly. The hospital provides outpatient care services through its various specialized and primary care clinics – including the General Practice Clinic (GPC), the Paediatric Out-Patient (POP) clinic, the Surgical Out-Patient (SOP) clinic, the Well Person's clinic, and the Medical Out-Patient (MOP) clinic.[46]

This study will be carried out in the consultant out-patient department clinic comprising medical and surgical outpatient clinics which attends to an average of 450 patients weekly. The clinic caters to the needs of adult patients seeking specialised care for various acute and chronic health conditions.

3.2 STUDY DESIGN

The study will employ a descriptive cross-sectional design.

3.3 STUDY POPULATION

The study will be conducted among patients in the medical-out-patient (MOP) clinic.

3.4 SELECTION CRITERIA

3.4.1 Inclusion Criteria

i. Patients managing chronic health conditions (hypertension, heart disease, diabetes, stroke, asthma, chronic obstructive pulmonary disease, arthritis, chronic kidney disease, etc.) who give consent to participate in the study.

ii. Patients currently on at least one regular medication.

3.4.2 Exclusion Criteria

i. Patients who have not been exposed to social media.

ii. Patients who are clinicians/healthcare workers.

iii. Patients with severe cognitive or mental health problems affecting their ability to recall details accurately.

3.5 DURATION OF STUDY

The study is expected to last for a period of one-year from August 2025 to August 2026.

Conceptualization – 2 months

Initial writeup – 2 months

Data Collection – 3 months

Data Analysis – 2 months

Conclusion and Reporting - 3 months

3.6 SAMPLE SIZE DETERMINATION

The minimum sample size for the study will be determined using Cochran's formula for single proportions in descriptive studies. [47]

$$n = \frac{z^2 pq}{d^2}$$

Where:

n = Sample size.

z = Standard normal deviation, 1.96 (at 95% confidence interval).

p = Population proportion with characteristic of interest = Proportion of the customers that trusted the internet for information concerning their regular medications based on a study conducted in Norway in 2023 = (46.0% = 0.460)[48]

q = 1 – p =1 – 0.460 = 0.50

d = Margin of Error (0.05)

Thus;

$$n = \frac{1.96^2 \times 0.460 \times 0.540}{0.05^2}$$

n = 381

To account for non-response, a 10% non-response rate will be added

$$nf = \frac{n}{1 - nr}$$

Where:

n = Minimum sample size (381).

nr = non-response rate (10% = 0.10).

nf = Final minimum sample size.

$$nf = \frac{381}{1-0.10}$$

nf = 419

Thus, the minimum sample size will be 420.

3.7 SAMPLING TECHNIQUE

Respondents will be selected using systematic sampling as follows:

STEP 1: Defining the target Total population size.

At 450 patients per week, COPD will have approximately 5400 patients going through the clinic in a period of 12 weeks.

STEP 2: Sampling frame

A sampling frame will be generated based on the list of expected patients on a clinic visit day and a number assigned to each patient.

STEP 3: Selecting respondents

The first respondent will be selected using a simple random method by balloting. Subsequent respondents will be selected from every nth patient who meets the respondent criteria and is willing to participate. Patients who attend clinic multiple times within the period of sample

questionnaire will not be sampled more than once even if the randomisation falls on them. The process will be continued till the total sample size is completed.

$$nth = \frac{N}{n}$$

Where:

N = Total target population size.

n = total sample size.

N = Total population size = 450 x 12 = 5400

Thus:

$$nth = \frac{5400}{420} \approx 13$$

3.8 DATA MANAGEMENT

3.8.1 TOOLS FOR DATA COLLECTION

Data will be collected using structured, self-administered questionnaire. The questionnaire was adopted from the standardized Morisky Medication Adherence Scale (MMAS-8).[A] The questionnaire will consist of the following sections:

Section A: Socio-demographic and health characteristics of respondents.

Section B: Patterns and frequency of social media health information-seeking behaviours of respondents.

Section C: Level of medication adherence of respondents

Section D: Challenges and opportunities of access to social media health information

3.8.2 METHOD OF DATA COLLECTION

Data collection will be conducted using questionnaires which will be distributed to the selected participants during clinic visits. A brief description of the study and instructions on how to complete the questionnaire will be included at the beginning of the questionnaire.

3.8.3 PRE-TESTING

To ensure the clarity, validity, sensitivity, and reliability of the questionnaire, it will be pretested among patients presenting at the General out-patient department (GOPD) clinic at Edo state specialist hospital, with a sample comprising 10% of the minimum required sample size for the study.

3.8.4 MEASUREMENT OF VARIABLES AND SCORING

Level of medication adherence

The Morisky Medication Adherence Scale-8 (MMAS-8)[49] is a validated structured self-report measure used to access the level of adherence to prescribed medications. The scale consists of 8 questions which access different aspects of medication adherence. The first seven (7) questions are dichotomous questions with a possible answer of “yes” and “no”. The final question is a 5-point Likert question with the options scored as 1 = “never/rarely”, 0.75 = “once in a while”, 0.5 = “sometimes”, 0.25 = “usually” and 0 = “all the time”. Responses aligned with adherence will

be assigned a score of 1 and those who connote non-adherent behaviour will have a score of 0. A total score of 8 will be possible from the questions and computed. A total score of 8 will be considered "high adherence", 6 – 7 will be considered "medium adherence" and scores of 6 and below will mean "low adherence".

3.8.5 DATA ANALYSIS

The data collected will be screened for completeness and analysed using IBM's Statistical Package for the Social Sciences (SPSS) software, version 25.0. Descriptive (univariate) statistics such as frequencies, proportions, means, and standard deviations will be used to summarize the data. Chi-square ($\chi 2$) test will be used to assess associations between categorical variables, while *t*-test will be used for continuous variables. Logistic regression (multivariate) analysis will be conducted to identify determinants of medication adherence among the students. A p-value of less than 0.05 will be considered statistically significant.

3.9 ETHICAL CONSIDERATION

Ethical approval to carry out the study will be obtained from the Health Research Ethics Committee of the University of Benin Teaching Hospital (UBTH). Permission will be obtained from the hospital management. Informed verbal consent will be obtained from all participants. Confidentiality and anonymity will be assured to all participants and none will be induced with money. Participants will be given a brief description about the study and its objectives, and will be informed of their freedom to withdraw at any point.

3.10 STUDY LIMITATIONS

The study may face limitations such as recall bias, as participants may have difficulty accurately remembering their sleep patterns and related behaviours.

Reliance on self-reported data may potentially lead to under- or over-reporting of sleep disturbances and other relevant variables.

Non-response bias could also affect the study results, although efforts will be made to minimize this.

CHAPTER FOUR
RESULTS

A total of 420 respondents participated in the study giving a response rate of 100%. The results are presented in the following sections in line with the specific objectives.

SECTION A: Socio-demographic and health characteristics of respondents

SECTION B: Patterns and frequency of social media health information-seeking behaviors among respondents

SECTION C: Level of medication adherence among respondents

SECTION D: Relationship between social media health information-seeking and medication adherence among respondents

SECTION E: Key determinants that influence the relationship between social media health information-seeking and medication adherence behaviors among respondents

SECTION F: Challenges and opportunities posed by access to health information on social media among respondents

SECTION A

SOCIO-DEMOGRAPHIC AND HEALTH CHARACTERISTICS OF RESPONDENTS

Table 1: Socio-demographic characteristics of respondents

Variable	Frequency (n = 420)	Percent
Age group (years)		
≤ 20	26	6.2
21 – 40	138	32.8
41 – 60	160	38.1
> 60	96	22.9
Mean ±SD (years) = 45.6 ± 17.0		
Sex		
Male	223	53.1
Female	197	46.9
Religion		
Christian	354	84.3
Islam	56	13.3
ATR	10	2.4
Marital status		
Married	246	58.6
Single	110	26.2
Widowed	52	12.3
Separated/Divorced	12	2.9
Level of education		
No formal education	24	5.7
Primary	24	5.7
Secondary	119	28.4
Tertiary	253	60.2
Ethnic group		
Bini	117	27.9
Igbo	69	16.4
Yoruba	69	16.4
Esan	62	14.8
Etsako	35	8.3
Hausa	21	5.0
Urhobo	18	4.3
Isoko	11	2.6
Owan	8	1.9
Ijaw	7	1.7
Others[§]	3	0.7
Average monthly income		
< ₦50,000	77	18.3
₦50,000 - ₦100,000	108	25.7
₦100,001 - ₦200,000	141	33.6
₦200,001 - ₦300,000	73	17.4
> ₦300,000	21	5.0
Employment status		
Employed	293	69.8
Non-employed	127	30.2

§ = Efik, Igala

The highest proportion of the respondents 160 (38.1%) were within the age group 21 – 40 years. The mean age of the respondents was 45.63 ± 16.95 years. Two hundred and twenty-three (53.1%), accounting for a higher proportion, of the respondents were male. Three hundred and fifty-four (84.3%) of the respondents were Christian, 56 (13.3%) were Muslim and 10 (2.4%). practiced African Traditional Religion. The highest proportion of the respondents, 246 (58.6%) were married and 253 (60.2%) had tertiary level of education. The commonest tribes among the respondents were Bini 117 (27.9%), Igbo 69 (16.4%), Yoruba 69 (16.4%) and Esan 62 (14.8%). The highest proportion of the respondents 141 (33.6%) and 162 (38.6%) earned between ₦100,001 and ₦200,000 monthly and were self-employed respectively.

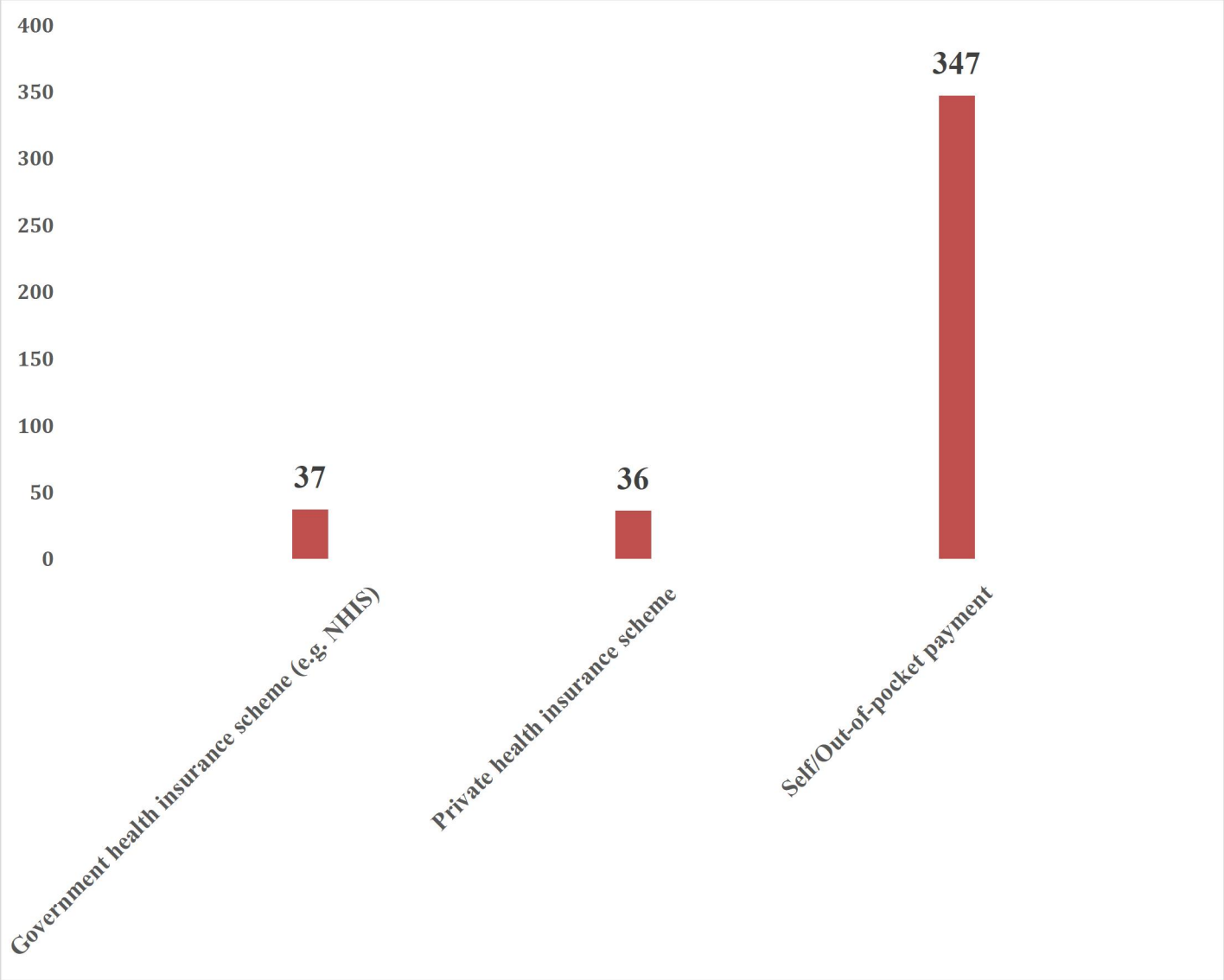


Figure 1: Source of health financing

Table 2: Chronic health condition of respondents

Chronic health condition*	Frequency (n = 420)	Percent
Cardiovascular system disease	110	26.2
Endocrine system disease	68	16.2
Gastrointestinal system disease	56	13.3
Respiratory system disease	51	12.1
Musculoskeletal system disease	50	11.9
Nervous system disease	35	8.3
Genitourinary system disease	31	7.4
Hematological system disease	16	3.8
Mental health disease	15	3.6
Cancers	12	2.9
Immunological system disease	9	2.1
Ophthalmologic disease	5	1.2

*** = multiple response question**

Most, 347 (82.6%) of the respondents paid their health bills out of their pocket. The highest proportion of the respondents, 110 (26.2%) and 162 (38.6%) had a cardiovascular system disease (e.g. hypertension, congestive cardiac disease, post myocardial infarction, post cardiovascular accident, coronary artery disease) and two (2) current regular medications respectively.

Table 3: Medication history of respondents

Variable	Frequency (n = 420)	Percent
No. of current regular medications		
One	87	20.7
Two	162	38.6
Three	113	26.9
Four	41	9.8
More than four	17	4.0
Regular medications*		
Antihypertensives	152	36.2
Supplements/multivitamins	54	12.9
Antiulcer	48	11.4
Antibiotics	46	11.0
Analgesics	41	9.8
Anti-diabetics	39	9.3
Statins	36	8.6
Anti-asthma	33	7.9
Immunosuppressants	33	7.9
Anticoagulants	24	5.7
Chemotherapy	18	4.3
Anti-Koch regimen	18	4.3
Antivirals	17	4.0
Antipsychotics	17	4.0
Antidepressants	15	3.6
Anti-arrhythmic	14	3.3
Thyroid drugs	13	3.1
Anti-Parkison's	10	2.4
Ocular hypotensive	8	1.9
Anticonvulsants	6	1.4
Antacids	5	1.2
5 alpha reductase inhibitor/alpha-1 adrenergic blockers	5	1.2
Hematinics	5	1.2
Others[§]	9	2.1

*** = multiple response question; [§] = antifungal, antiprotozoal, antianginal, organophosphate poison antidote, anti-migraine, neuroprotective agents**

The commonest types of regular medications among the respondents were antihypertensives 152 (36.2%), supplements/multivitamins 54 (12.9%), anti-ulcers 48 (11.4%), antibiotics 46 (11.0%) and analgesics 41 (9.8%)

SECTION B

PATTERNS AND FREQUENCY OF SOCIAL MEDIA HEALTH INFORMATION-SEEKING BEHAVIORS AMONG RESPONDENTS

Table 4a: Patterns and frequency of social media health information-seeking behaviors among respondents

Variable	Frequency (n = 420)	Percent
Use social media		
Yes	420	100.0
Social media platforms used regularly*		
WhatsApp	401	95.5
Facebook	381	90.7
Youtube	250	59.5
Tiktok	184	43.8
Instagram	126	30.0
Twitter/X	88	21.0
Telegram	36	8.6
Twitch	3	0.7
Thread	1	0.2
Discord	1	0.2
Use social media to search for health information		
Yes	420	100.0
Used social media to search for health information on current health condition		
Yes	408	97.1
No	12	2.9
Frequency of seeking health information on social media		
Daily	33	7.9
Weekly	158	37.6
Occasionally	229	54.5
Social media platforms used to search for health information*		
Facebook	362	86.2
WhatsApp	245	58.3
Youtube	192	45.7
Tiktok	140	33.3
Instagram	90	21.4
Twitter/X	33	7.9
Telegram	8	1.9
Type of health information sought for*		
Treatment options	368	87.6
Symptoms of disease	235	56.0
Medication side effects	193	46.0
Alternative medical practices	142	33.8
Competence of health personnel	135	32.1
Best place to get recommended medications	132	31.4
Confirm advice from doctor	72	17.1

*** = multiple response question**

All, 420 (100.0%) use social media. The commonest social media platforms used regularly by the respondents were WhatsApp 401 (95.5%), Facebook 381 (90.7%), Youtube 250 (59.5%) and Tiktok 184 (43.8%). The least common were Telegram 3 (0.7%), Thread 1 (0.2%) and discord 1 (0.2%). All, 420 (100.0%) use social media to search for health information and nearly all, 408 (97.1%) had used social media to search for health information related to their current illness. Most of the respondents, 229 (54.5%) occasionally seek for health information on social media. The commonest social media platforms used to search for health information by the respondents were Facebook 362 (86.2%), WhatsApp 245 (58.3%), Youtube 192 (45.7%) and Tiktok 140 (33.3%). The commonest reasons the respondents sought for health information on social media were to search for treatment options 368 (87.6%), symptoms of disease 235 (56.0%), medication side effects 193 (46.0%), and alternative medical practices 142 (33.8%).

Table 4b: Patterns and frequency of social media health information-seeking behaviors among respondents

Variable	Frequency (n = 420)	Percent
Motivation for online health information seeking*		
Personal health concerns	347	82.6
Curiosity	290	69.0
Lack of trust in health care professionals	189	45.0
Convenience	179	42.6
Recommended by others	123	29.3
Concerns not addressed at clinic visits	115	27.4
Non-satisfaction with experience/information at health visits	39	9.3
Frequency of verifying information from social media with a health professional		
Never	104	24.8
Rarely	87	20.7
Sometimes	153	36.4
Often	56	13.3
Always	20	4.8
Opinion of reliability of health information on social media		
Very unreliable	3	0.7
Unreliable	63	15.0
Neutral	177	42.1
Reliable	164	39.0
Very reliable	13	3.1
Ever changed a health-related behavior based on health information from social media		
Yes	200	47.6
No	220	52.4
Ever changed a medication regimen based on health information from social media		
Yes	33	7.9
No	387	92.1
Type of change (n = 33)		
Changed drug	20	60.6
Changed dose of drug	13	39.4

*** = multiple response question**

The commonest motivations for social media platforms among the respondents were personal health concerns 347 (82.6%), curiosity 290 (69.0%), lack of trust in healthcare professionals 189 (45.0%) and convenience 179 (42.6%). The highest proportion of respondents, 153 (36.4%)

sometimes verified the information they go on social media with a health professional and 177 (42.1%) were neutral on the reliability of information from social media. More than half, 220 (52.4%) of the respondents had never changed a health-related behavior based on health information from social media and only 33 (7.9%) of the respondents had changed a medication regimen based on health information from social media. Most of the respondents who had changed a medication regimen, 20 (60.6%) had changed the drug prescribed by their doctor.

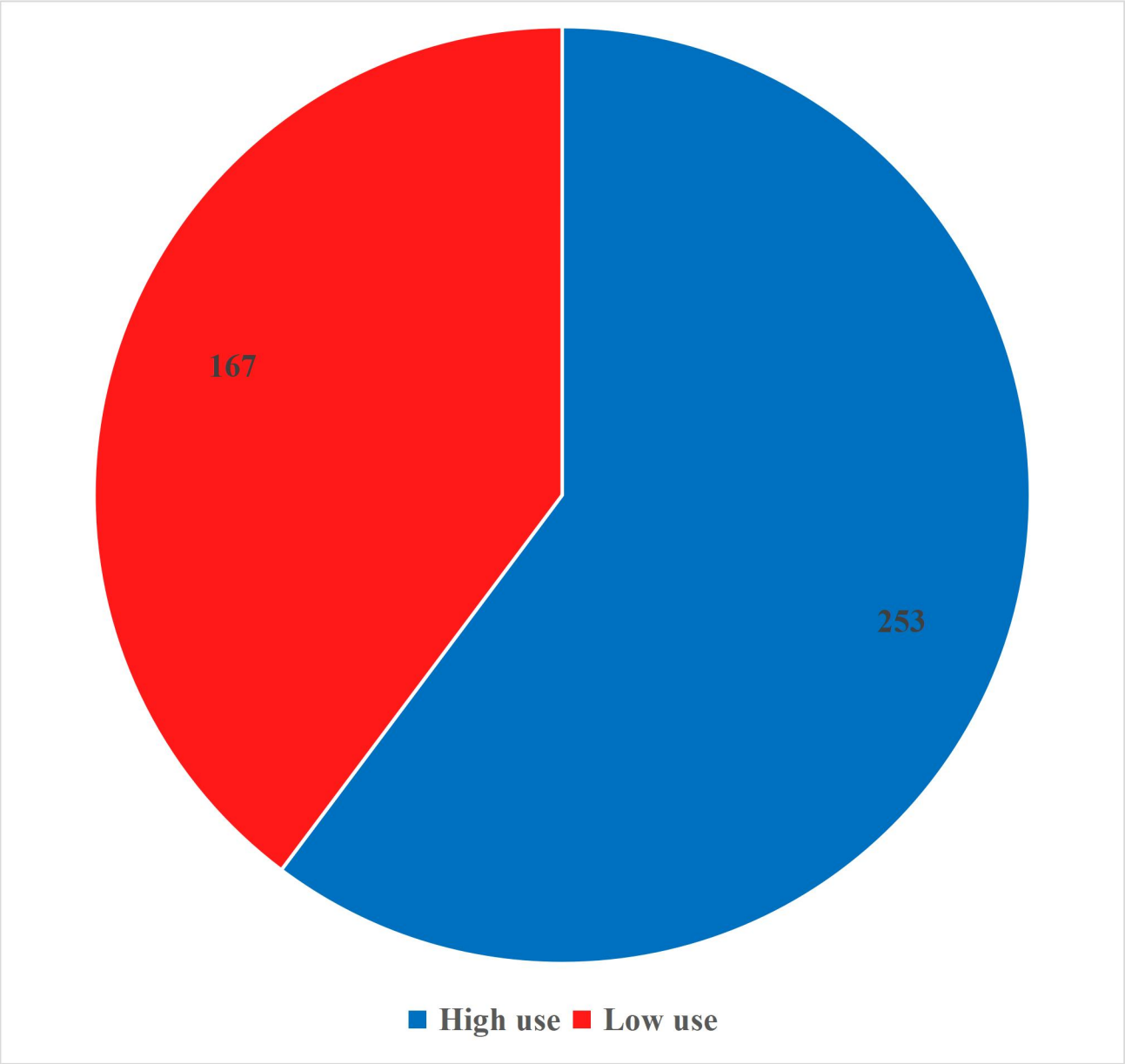


Figure 2: Social media use for health information-seeking among respondents

Two hundred and fifty-three (60.2%) of the respondents had a high use of social media for health information seeking and 167 (39.8%) had a below low use.

Table 5: Use of social media for health information seeking and sociodemographic characteristics

Variable	Use of social media for health information seeking		Chi-square test	p-value
	High use n = 253 Freq (%)	Low use n = 267 Freq (%)		
Age group (years)				
≤ 20	24 (92.3)	2 (7.7)	13.596	**0.003**
21 – 40	85 (61.6)	53 (38.4)		
41 – 60	87 (54.4)	73 (45.6)		
> 60	57 (59.4)	39 (40.6)		
Sex				
Male	133 (59.6)	90 (40.4)	0.071	0.842
Female	120 (60.9)	77 (39.1)		
Religion				
Christian	221 (62.4)	133 (37.6)	5.169	0.073
Islam	26 (46.4)	30 (53.6)		
ATR	6 (60.0)	4 (40.0)		
Marital status				
Married	148 (60.2)	98 (39.8)	8.801	**0.031**
Single	75 (68.2)	35 (31.8)		
Widowed	26 (50.0)	26 (50.0)		
Separated/Divorced	4 (33.3)	8 (66.7)		
Level of education				
No formal education	12 (50.0)	12 (50.0)	22.476	**< 0.001**
Primary	6 (25.0)	18 (75.0)		
Secondary	63 (52.9)	56 (47.1)		
Tertiary	172 (68.0)	81 (32.0)		
Employment status				
Employed	168 (57.3)	125 (42.7)	3.403	0.066
Non-employed	85 (66.9)	42 (33.1)		

The results showed that the proportion of the respondents with high use of social media for health information seeking was highest among those who were aged ≤ 20 years and least among those aged > 60 years, representing a downward trend and this was statistically significant (p = 0.003). Respondents who were female had the higher proportion 120 (60.9%) of those with high use of social media for health information seeking compared with the males 133 (59.6%) and this was not statistically significant (p = 0.842). Respondents who were Muslim had the least

proportion 26 (46.4%) of those with high use of social media for health information seeking and the Christians had the highest proportion 221 (62.4%) but this was not statistically significant ($p = 0.073$). Respondents who were single had the highest proportion 75 (68.2%) of those with high use of social media for health information seeking and those who were separated/divorced had the least proportion 4 (33.3%) and this was statistically significant ($p = 0.031$). Respondents who had primary level of education had the least proportion 6 (25.0%) of those with high use of social media for health information seeking and those with tertiary level of education had the highest proportion 172 (68.0%), representing an upward trend. This was also statistically significant ($p < 0.001$). Respondents who were non-employed 85 (66.9%) had a higher proportion of those with high use of social media for health information seeking and those who were employed 168 (57.3%) had the least proportion and this was not statistically significant ($p = 0.066$).

Table 6: Use of social media for health information seeking and health characteristics

Variable	Use of social media for health information seeking		Chi-square test	p-value
	High use n = 253 Freq (%)	Low use n = 267 Freq (%)		
Source of health financing				
Self/Out-of-pocket payment	205 (59.1)	142 (40.9)	1.761	0.418
Private health insurance scheme	26 (70.3)	11 (29.7)		
Government health insurance scheme (e.g. NHIS)	22 (61.1)	14 (38.9)		
No. of current regular medications				
One	54 (62.1)	33 (37.9)	13.304	**0.009**
Two	109 (67.3)	53 (32.7)		
Three	62 (54.9)	51 (45.1)		
Four	16 (39.0)	25 (61.0)		
More than four	12 (70.6)	5 (29.4)		

The proportion of those with high use of social media for health information seeking was highest among those who had a private health insurance coverage 26 (70.3%) and those who paid out-of-pocket 205 (59.1%) had the least proportion. The relationship between source of health financing and respondent's use of social media for health information seeking was not statistically significant (p = 0.418). Respondents who had more than four current regular medications 12 (70.6%) had the highest proportion of those with high use of social media for health information seeking and those who had four current regular medications 16 (39.06%) had the least proportion and this was statistically significant (p = 0.009).

Table 7: Determinants of high use of social media for health-information seeking among respondents

Factors	B (regression co-efficient)	Odds ratio	95% CI for OR Lower	Upper	p-value
Age	-0.012	0.988	0.970	1.005	0.171
Sex					
Male	-0.081	0.923	0.596	1.428	0.718
Female*		1			
Religion					
Christian	-0.539	0.583	0.151	2.255	0.435
Islam	-1.100	0.333	0.079	1.398	0.133
ATR*		1			
Marital status					
Married	1.399	4.051	1.138	14.420	0.031
Single	0.923	3.306	0.843	12.962	0.086
Widowed/ Separated/Divorced*		1			
Level of education					
None/Primary	-1.329	0.265	0.129	0.542	<0.001
Secondary	-0.683	0.505	0.307	0.830	0.007
Tertiary*		1			
Employment status					
Employed	-0.660	0.517	0.303	0.880	0.015
Non-employed*		1			
Source of health financing					
Self/Out-of-pocket payment	-0.241	0.786	0.439	1.408	0.418
Private/Government health insurance scheme*		1			
No. of current regular medications					
One	0.123	1.131	0.635	2.014	0.677
Two	0.403	1.496	0.929	2.410	0.098
Three or more*		1			

R^2 = 9.70 – 13.20%; * Reference category

The chances of having a high use of social media for health information seeking decreased with age and this was not statistically significant (OR = 0.988, 95%CI = 0.970 – 1.005, p = 0.171). Male respondents were less likely to have a high use of social media for health information seeking but this was not statistically significant (OR = 0.923, 95%CI = 0.596 – 1.428, p = 0.718). Respondents who were Christian and Muslim were less likely to have a high use of social media for health information seeking compared to those who practice African Traditional Religion but

this was also not statistically significant (OR = 0.583, 95%CI = 0.151 – 2.255, p = 0.435 and OR = 0.333, 95% CI = 0.079 – 1.398, p = 0.133 respectively). Respondents who were married and single were more likely than those who were widowed/separated/divorced to have a high use of social media for health information seeking but this was statistically significant (OR = 4.051, 95%CI = 1.138 – 14.420, p = 0.031 and OR = 3.306, 95% CI = 0.843 – 12.962, p = 0.086 respectively). Respondents with no formal/ primary level and those who had a secondary level of education were less likely than those with tertiary level of education to have a high use of social media for health information seeking. This was statistically significant (OR = 0.265, 95%CI = 0.129 – 0.542, p <0.001, and OR = 0.505, 95%CI = 0.307 – 0.830, p = 0.007 respectively).Respondents who were employed were less likely than those who were non-employed to have an high use of social media for health information seeking and this was statistically significant (OR = 0.517, 95% CI = 0.303 – 0.880, p = 0.015). Respondents who paid for their healthcare out-of-pocket were less likely than those who had a private or government health insurance coverage to have a high use of social media for health information seeking and this was not statistically significant (OR = 0.786, 95%CI = 0.439 – 1.408, p = 0.418). Respondents who had one or two current regular medications were less likely than those who had three or more current regular medications to have a high use of social media for health information seeking and this was not statistically significant (OR = 1.131, 95%CI = 0.635 – 2.014, p = 0.677 and OR = 1.496, 95%CI = 0.929 – 2.410, p = 0.098 respectively).

SECTION C

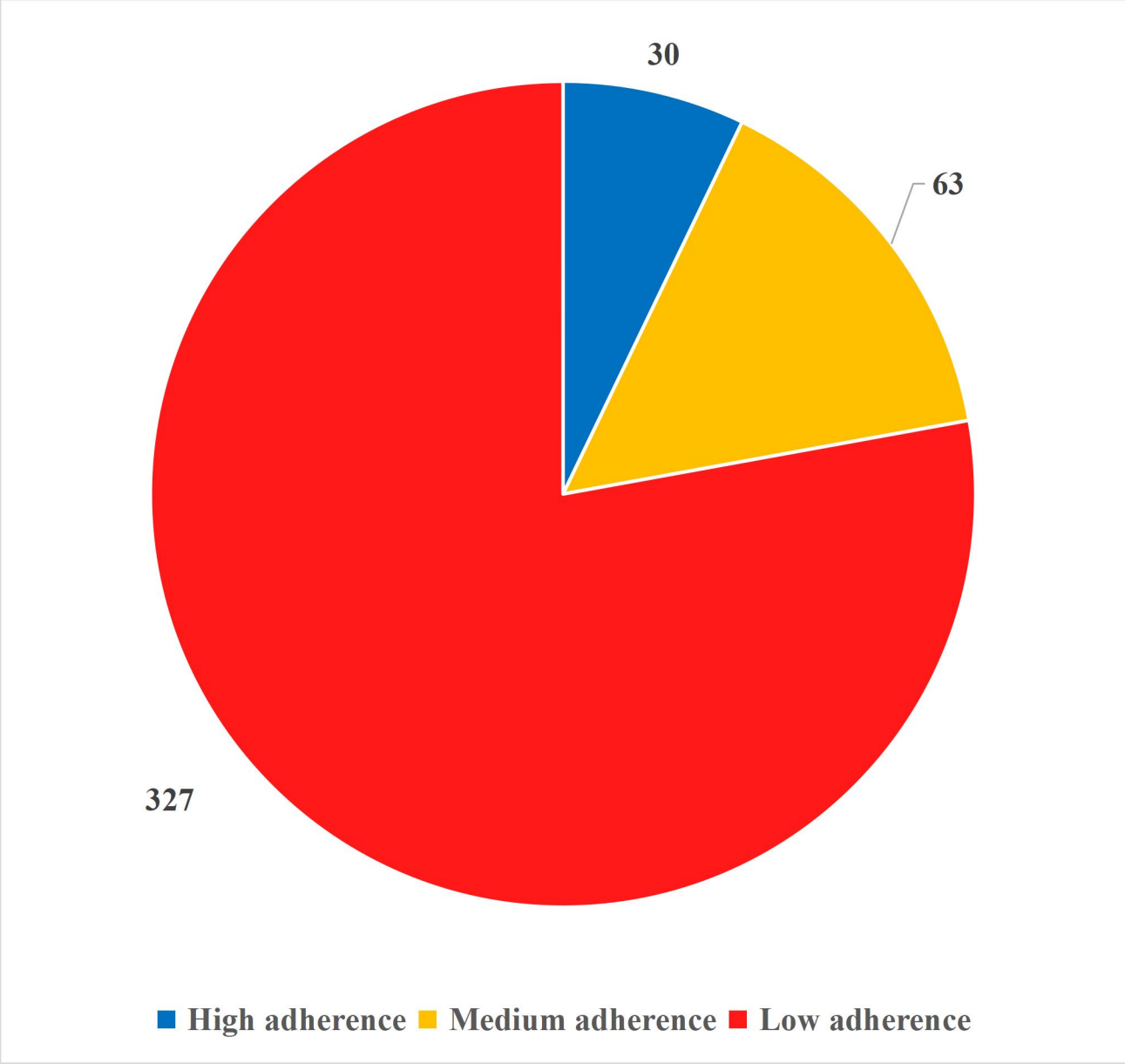
LEVEL OF MEDICATION ADHERENCE AMONG RESPONDENTS

Table 8: Level of medication adherence among respondents

Variable	Frequency (n = 420)	Percent
Ever forget to take medication		
Yes	287	68.3
No	133	31.7
Had problems remembering to take medication in past 2 weeks		
Yes	161	38.3
No	259	61.7
Ever cut back or stopped taking medication without telling your doctor because you felt worse		
Yes	224	53.3
No	196	46.7
Forget to bring medication when you travel or leave home		
Yes	222	52.9
No	198	47.1
Took medication the last time you were supposed to		
Yes	347	82.6
No	73	17.4
Stop medication sometimes when you feel symptoms are under control		
Yes	220	52.4
No	200	47.6
Taking medication as prescribed by doctor is inconvenient		
Yes	186	44.3
No	234	55.7
Have difficulty remembering to take all your medications		
Never/Rarely	66	15.7
Occasionally	115	27.4
Sometimes	202	48.1
Usually	37	8.8

Two hundred and eighty-seven (68.3%) of the respondents had ever forgot to take their regular medication. Two hundred and fifty-nine (61.7%) of the respondents had had no problems remembering to take their regular medication(s) in the past 2 weeks. Two hundred and twenty-

four (53.3%) and 222 (52.9%) of the respondents had ever cut back or stopped taking their regular medication without telling their doctor because they felt worse and had forgotten to bring their regular medication when they travel or left home respectively. Three hundred and forty-seven (82.6%) of the respondents took their medication the last time they were supposed to and 220 (52.4%) had ever stopped their medication when they felt their symptoms were under control. Two hundred and thirty-four (55.7%) of the respondents thought their medication as currently prescribed by their doctor was not inconvenient. Nearly half of the respondents, 202 (48.1%) had sometimes had difficulty remembering to take all their medications.



Mean MMS-8 score = 4.36 ± 1.92

Figure 3: Level of medication adherence among respondents

Three hundred and twenty-seven (77.9%) of the respondents had low medication adherence, 63 (15.0%) had medium adherence and 30 (7.1%) had high adherence. The mean Morinsky Medication Adherence score among the respondents was 4.36 ± 1.92.

SECTION D

RELATIONSHIP BETWEEN SOCIAL MEDIA HEALTH INFORMATION-SEEKING AND MEDICATION ADHERENCE AMONG RESPONDENTS

Table 9: Medication adherence and use of social media for health-information-seeking among respondents

Variable	Medication adherence		Chi-square test	p-value
	High adherence n = 30 Freq (%)	Medium/ Low adherence n = 360 Freq (%)		
Use of social media for health-information seeking				
High use	14 (5.5)	239 (94.5)	2.484	0.125
Low use	16 (9.6)	151 (90.4)		

Respondents who had a low use of social media for health-information seeking had a higher proportion 16 (9.9%) of those who had a high medication adherence compared to those who had high use 14 (5.5%). This was statistically significant (p = 0.017).

SECTION E

DETERMINANTS THAT INFLUENCE THE RELATIONSHIP BETWEEN SOCIAL MEDIA HEALTH INFORMATION-SEEKING AND MEDICATION ADHERENCE BEHAVIORS AMONG RESPONDENTS

Table 10: Medication adherence and sociodemographic characteristics of respondents

Variable	Medication adherence		Test statistic	p-value
	High adherence n = 30 Freq (%)	Medium/ Low adherence n = 360 Freq (%)		
Age (years)				
≤ 20	1 (3.8)	25 (96.2)	28.580†	**< 0.001**
21 – 40	23 (16.7)	115 (83.3)		
41 – 60	5 (3.1)	155 (96.9)		
> 60	1 (1.0)	95 (99.0)		
Sex				
Male	18 (8.1)	205 (91.9)	0.618†	0.455
Female	12 (6.1)	185 (93.9)		
Religion				
Christian	23 (6.5)	331 (93.5)	6.054*	**0.046**
Islam	4 (7.1)	52 (92.9)		
ATR	3 (30.0)	7 (70.0)		
Marital status				
Married	10 (4.1)	236 (95.9)	18.933*	**< 0.001**
Single	19 (17.3)	91 (82.7)		
Widowed	1 (1.9)	51 (98.1)		
Separated/Divorced	0 (0.0)	12 (100.0)		
Level of education				
No formal education	0 (0.0)	24 (100.0)	5.080*	0.122
Primary	4 (16.7)	20 (83.3)		
Secondary	10 (8.4)	109 (91.6)		
Tertiary	16 (6.3)	237 (93.7)		
Employment status				
Employed	13 (4.4)	280 (95.6)	11.972†	**0.002**
Non-employed	17 (13.4)	110 (86.6)		

*** = Fisher's exact test, † = Chi-square test**

The results showed that the respondents within the age group 21 – 40 years had the highest proportion 23 (16.7%) of those with high medication adherence compared to those aged ≤ 20 1 (3.8%), 41 – 60 years 5 (3.1%) and > 60 years 1 (1.0%) and this was statistically significant (p < 0.001). Respondents who were female had the lower proportion 12 (6.1%) of those with high

medication adherence compared with the males 18 (8.1%) and this was not statistically significant (p = 0.708). Respondents who practiced African Traditional Religion had the highest proportion 3 (30.0%) of those with high medication adherence and those who were Christian had the least proportion 23 (6.5%) and this was statistically significant (p = 0.029). Respondents who were single had the highest proportion 19 (17.3%) of those with high medication adherence and this was tistically significant (p < 0.001). Respondents who had primary level of education had the highest proportion 19 (16.7%) of those with high medication adherence and those with no formal education had the least proportion 0 (0.0%), and this was statistically significant (p = 0.040). Respondents who were non-employed 17 (13.4%) had a higher proportion of those with high medication adherence and those who were employed 13 (4.4%) had the least proportion and this was statistically significant (p = 0.002).

Table 11: Medication adherence and health characteristics of respondents

Variable	Medication adherence		Test statistic	p-value
	High adherence n = 30 Freq (%)	Medium/ Low adherence n = 360 Freq (%)		
Source of health financing				
Self/Out-of-pocket payment	26 (7.5)	321 (92.5)	4.036*	0.133
Private health insurance scheme	4 (11.1)	32 (88.9)		
Government health insurance scheme (e.g. NHIS)	0 (0.0)	37 (100.0)		
No. of current regular medications				
One	8 (9.2)	79 (90.8)	8.871†	0.062
Two	9 (5.6)	153 (94.4)		
Three	13 (11.5)	100 (88.5)		
Four	0 (0.0)	41 (100.0)		
More than four	0 (0.0)	17 (100.0)		

*** = Fisher's exact test, † = Chi-square test**

Respondents who had a private health insurance had the highest proportion 4 (11.1%) of those had a high medication adherence and those with a government health insurance 0 (0.0%) had the least proportion. This was statistically significant (p = 0.016). Respondents who had three current regular medications had the highest proportion of those with high medication adherence but this was not statistically significant (p = 0.063).

Table 12: Predictors of medication adherence among respondents

Factors	B (regression co-efficient)	Odds ratio	95% CI for OR Lower	Upper	p-value
Age (years)	-0.060	0.942	0.903	0.982	0.005
Sex					
Male	0.081	1.085	0.451	2.607	0.856
Female*		1			
Religion					
Christian	-2.895	0.055	0.008	0.377	0.003
Islam	-3.571	0.028	0.003	0.261	0.002
ATR*		1			
Marital status					
Married	1.056	2.876	0.297	27.893	0.362
Single	1.336	3.802	0.293	49.261	0.307
Widowed/ Separated/Divorced*		1			
Level of education					
None/Primary	-0.212	0.809	0.179	3.646	0.782
Secondary	-0.125	0.882	0.305	2.554	0.817
Tertiary*		1			
Employment status					
Employed	-1.166	0.311	0.133	0.856	0.024
Non-employed*		1			
Source of health financing					
Self/Out-of-pocket payment	-0.221	0.802	0.216	2.968	0.740
Private/Government health insurance scheme*		1			
No. of current regular medications					
One	0.145	1.156	0.366	3.650	0.805
Two	-0.636	0.530	0.183	1.535	0.242
Three or more*		1			
Use of social media for health-information seeking					
High use	-0.970	0.379	0.154	0.933	0.035
Low use*		1			

R^2 = 11.50 – 28.60%; * = Reference category

The chances of having high medication adherence decreased with age and this was statistically significant (OR = 0.942, 95%CI = 0.903 – 0.982, p = 0.005). Male respondents were more likely to have high medication adherence but this was not statistically significant (OR = 1.085, 95%CI = 0.451 – 2.607, p = 0.856). Respondents who were Christian and Muslim were less likely to

have high medication adherence compared to those who practiced African Traditional Religion and this was statistically significant (OR = 0.055, 95%CI = 0.008 – 0.377, p = 0.003 and OR = 0.028, 95%CI = 0.003 – 0.261, p = 0.002 respectively). Respondents who were married and single were more likely than those who were widowed/separated/divorced to have high medication adherence and this was not statistically significant (OR = 2.876, 95%CI = 0.297 – 27.893, p = 0.362 and OR = 3.802, 95%CI = 0.293 – 49.261, p = 0.307 respectively). Respondents with no formal/ primary level of education and those with secondary level of education were less likely than those with tertiary level of education to have high medication adherence. This was statistically not significant (OR = 0.809, 95%CI = 0.179 – 3.646, p = 0.782, and OR = 0.882, 95%CI = 0.305 – 2.554, p = 0.817 respectively). Respondents who were employed were less likely than those were not employed to have high medication adherence and this was statistically significant (OR = 0.311, 95%CI = 0.133 – 0.856, p = 0.024). Respondents who were not under any health insurance coverage were less likely to have high medication adherence compared to those who had a private/government health insurance and this was not statistically significant (OR = 0.802, 95%CI = 0.216 – 2.968, p = 0.740). Respondents who had one regular medication were more likely and those who had two regular medications were less likely to have high medication adherence compared to those with three or more but this was not statistically significant (OR = 1.156, 95%CI = 0.366 – 3.650, p = 0.805 and OR = 0.530, 95%CI = 0.183 – 1.535, p = 0.242 respectively). Respondents who had had an high use of social media for health-information seeking were less likely to have high medication adherence and this was statistically significant (OR = 0.379, 95%CI = 0.154 – 0.933, p = 0.035).

SECTION F

CHALLENGES AND OPPORTUNITIES POSED BY ACCESS TO HEALTH INFORMATION ON SOCIAL MEDIA AMONG RESPONDENTS

Table 13: Challenges posed by access to health information on social media among respondents

Variable	Frequency n = 420	Percent
Ever experienced any challenges in using social media for online health information seeking		
Yes	175	41.7
No	245	58.3
Challenges experiences (n = 175)		
Use of medical language too difficult to understand	78	44.6
Contradicting information	40	22.9
A lot of wrong health information online	34	19.4
Sources not trustworthy	8	4.6
Not tech savvy	5	2.9
Inability to verify information gotten online	3	1.7
Cannot find the information I need	3	1.7
Slow internet connection	2	1.1
Information was too scary	2	1.1

One hundred and seventy-five (41.7%) of the respondents had experienced a challenge with using social media for online health-information seeking. The commonest challenges experienced by the respondents were use of medical language too difficult to understand 78 (44.6%), encountering contradicting information 40 (22.9%) and a lot of wrong health information online 34 (19.4%).

Table 14: Significance of common challenges to using social media for online health information seeking among respondents

Variable	Not significant Freq (%)	Somewhat significant Freq (%)	Moderately significant Freq (%)	Significant Freq (%)	Very significant Freq (%)
Limited digital skill	14 (3.3)	61 (14.5)	151 (36.0)	123 (29.3)	71 (16.9)
Misinformation or misleading content	9 (2.1)	27 (6.4)	99 (23.6)	179 (42.6)	106 (25.2)
Conflicting health information	6 (1.4)	20 (4.8)	134 (31.9)	146 (34.8)	114 (27.1)
Concern over credibility of sources	9 (2.1)	35 (8.3)	96 (22.9)	156 (37.1)	124 (29.5)
Limited or unreliable access to internet facilities	28 (6.7)	35 (8.3)	111 (26.4)	188 (44.8)	58 (13.8)
Use of difficult to understand medical terms	9 (2.1)	6 (1.4)	79 (18.8)	180 (42.9)	146 (34.8)

One hundred and fifty-one (36.6%) of the respondents were had a moderately significant challenge with limited digital skill while using social media for health information seeking. One hundred and seventy-nine (42.6%) had a significant challenge with misinformation or misleading content while using social media for health information seeking. One hundred and forty-six (34.8%) were significantly challenged by conflicting health information while using social media for health information seeking. One hundred and fifty-six (37.1%) were significantly concerned with credibility of the sources while using social media for health information seeking and 188 (44.8%) were significantly affected by limited or unreliable access to internet facilities. One hundred and eighty (42.9%) were significantly challenged by use of difficult to understand medical terms while using social media for health information seeking.

Table 15: Opportunities presented by access to health information on social media among respondents

Variable	Frequency n = 420	Percent
Think social media is a useful source of health information		
Yes	244	58.1
No	176	41.9
Benefits experienced from using social media as a source of health information*		
Access to a variety of sources	320	76.2
Cheaper than a visit to the doctors	255	60.7
Support from other users/comfort from shared experiences	246	58.6
Convenience/anytime access	227	54.0
Quick access to health information	186	44.3
Access to health campaigns or updates	44	10.5
Likelihood of using social media for health information seeking in the future		
Very likely	34	8.1
Likely	184	43.8
Neutral	169	40.2
Unlikely	21	5.0
Very unlikely	12	2.9
Suggestions to help improve health information-seeking on social media		
Post should simplify medical terminology	20	36.4
Encourage professional health practitioners to post medical facts on social media	12	21.8
Government regulation of health-related posts on social media	5	9.1
Only licensed health officials should be allowed to make medical posts on social media	5	9.1
Untrue/unverified medical information should be censored/removed from social media	5	9.1
Create more access to doctors on social media	4	7.3
Patients should be encouraged to verify information from their doctors before making health decisions	2	3.6
Use of trusted voices and peer stories	2	3.6

*** = multiple response question**

Two hundred and forty-four (58.1%) of the respondents think of social media as a useful source of health information. The commonest benefits of using social media as a source of health information according to the respondents were access to variety of sources 320 (76.2%), cheaper than a doctors visit 255 (60.7%), support from other users/comfort from shared experiences 246 (58.6%) and convenience 227 (54.0%). One hundred and eighty-four (43.8%) were likely to use social media for health information in the future and 169 (40.2%) were neutral. The most popular suggestions to help improve health information seeking on social media according to the respondents were post should contain simplified medical terminology 20 (36.4%) and that professional health practitioners to post verified medical facts on social media 12 (21.8%).

CHAPTER FIVE

DISCUSSION

This study assessed the patterns and frequency of social media health information-seeking behaviors, medication adherence, and the relationship between both among adults with chronic illnesses. The study also highlights some common challenges presented by and opportunities posed by access to health information on social media with chronic health conditions. The findings provide critical insights into the respondent's behaviors as concerns social media health information-seeking.

Most of the respondents were aged between 41 – 60 years with a mean age of 45.6 ± 17.0 years and more than half were male. Majority were Christian, Married and had a Tertiary education. More of them had an income of between 100,001 and 200,000 naira and more than two-third were employed. More than four-fifth of the respondents paid for their healthcare out-of-pocket and they most commonly suffered from Cardiovascular chronic health conditions, had 2 regular medications and used antihypertensives. These finding reflects the age distribution commonly associated with chronic diseases, as the burden of non-communicable diseases tends to increase with age.[23,50,51] The high proportion of respondents with tertiary education may explain the widespread use of social media and online health information-seeking observed in the study because educational attainment is often associated with improved digital literacy and internet utilization. [52-54]

The heavy dependence on out-of-pocket payments for healthcare financing by the respondents is consistent with reports from Nigeria showing a reliance on out-of-pocket expenditure for healthcare due to limited health insurance coverage.[55] Cardiovascular diseases were the most commonly reported chronic conditions, followed by endocrine and gastrointestinal disorders.

Antihypertensive medications were the most commonly used drugs among respondents, reflecting the predominance of cardiovascular diseases. This pattern is similar to epidemiological trends in developing countries where hypertension and diabetes constitute major contributors to chronic disease burden. [56,57] Many respondents were also on multiple medications, indicating the likelihood of polypharmacy among patients with chronic conditions. [58]

All respondents reported using social media and seeking health information online, suggesting that social media has become an important source of health information among patients with chronic illnesses. WhatsApp and Facebook were the most frequently used platforms generally, while Facebook was the most commonly used platform for seeking health information. The popularity of these platforms may be due to ease of accessibility, affordability, and widespread smartphone penetration. These findings are inconsistent with those of some other studies which found Instagram, TikTok and YouTube to be more popular platforms for online health-information seeking than Whatsapp, although these studies were conducted around considerably younger populations. [59,60]

Most respondents searched for treatment options, disease symptoms, and medication side effects. Similar findings have been reported in previous studies where patients frequently searched online for disease-related information to better understand their conditions and treatment. The finding that nearly half of respondents sought information because of lack of trust in healthcare professionals or unresolved concerns during clinic visits highlights possible communication gaps between patients and healthcare providers. This, however, did not reflect the prevailing influence of peer-recommendation and influencer culture as drivers of social media online health information seeking as reported in some earlier studies. [59,60]

Although many respondents used social media for health information, only a small proportion consistently verified such information with healthcare professionals. Furthermore, most respondents were neutral regarding the reliability of online health information. This suggests uncertainty among users regarding the credibility of social media content. The low frequency of verification may expose patients to misinformation, inaccurate medical advice, and unsafe health practices. The study also found that about half of respondents had changed health-related behaviors based on social media information, while a smaller proportion had altered their medication regimens, mainly by changing prescribed drugs or dosages. This finding is clinically important because unsupervised medication changes may lead to adverse drug reactions, poor disease control, and treatment failure. A previous study, however, showed that most of the respondents did verify the information obtained from social media with their doctors. This study also found that only a small respondents changed their health behavior based on information from social media. [60] Similarly, a study among undergraduate study in Nigeria found that nearly half of the respondents regarded social media as a trusted source for health information while similarly agreeing that misleading health content were predominant on social media. [41]

Younger respondents demonstrated significantly higher use of social media for health information-seeking than older respondents. This may be attributed to greater familiarity with digital technologies among younger individuals. Educational status was also significantly associated with social media use, with respondents having tertiary education demonstrating the highest utilization. This finding aligns with previous studies showing that education improves digital literacy and the ability to navigate online information sources. Married respondents also significantly had the highest use of social media for health information-seeking than those who were single or previously married. This may, also, reflect greater independence in information-

seeking behaviors among unmarried individuals. In addition, unemployed respondents were more likely to engage in high social media health information-seeking, possibly because they had more available time to access online platforms. This is in keeping with a previous study which found that persons who were from higher social classes, married and had higher educational status were more likely to use internet for health-information seeking.[61]

Medication adherence among respondents was generally poor. More than three-quarters of respondents had low adherence according to the Morisky Medication Adherence Scale. Many respondents admitted forgetting medications, stopping treatment when symptoms improved, and discontinuing drugs without informing healthcare providers. The high prevalence of low adherence observed in this study is concerning because medication adherence is essential for achieving therapeutic goals in chronic disease management. Poor adherence contributes to disease progression, increased hospitalization, complications, and higher healthcare costs.[62]

This was similar to findings from previous studies which showed a high level of medication non-adherence.[63,64] This is, however, unlike findings from a study to assess level of medication non-adherence among diabetes in Cebu, South America.[62]

Younger respondents aged 21–40 years had significantly better medication adherence than older age groups. Younger individuals may have fewer cognitive challenges and greater ability to remember medication schedules. Religion, marital status, educational level, and employment status were also significantly associated with adherence. Single respondents and non-employed respondents demonstrated better adherence levels compared to their counterparts. The observed association between unemployment and better adherence may be explained by increased time available for medication management and clinic attendance. Respondents with private health insurance had better medication adherence than those without insurance coverage. Health

insurance may improve medication access by reducing financial barriers to treatment. This is unlike findings from a previous study where being middle aged, having higher education, being employed and being married all had a positive effect on medication adherence.[65]

A major finding of this study was the statistically significant relationship between social media health information-seeking and medication adherence. Respondents with high social media health information-seeking behaviors were less likely to have high medication adherence compared to those with low social media use.

This finding suggests that excessive reliance on social media for health information may negatively influence adherence behaviors. Exposure to conflicting information, misinformation, and non-professional opinions online may create confusion regarding prescribed treatments and reduce trust in healthcare providers. Patients may also become more likely to self-adjust medications or adopt alternative therapies without medical supervision.[66,67]

The logistic regression analysis further confirmed that high use of social media for health information-seeking independently predicted lower medication adherence. Respondents with high social media use were significantly less likely to demonstrate good medication adherence. This finding supports concerns regarding the influence of unregulated online health information on patient behaviors.[68] However, the study does not seem to have enough information that connotes that social media use itself may inherently reduce medication adherence. Rather, the quality, accuracy, and interpretation of information obtained from these platforms may determine their effects on patient outcomes. Other studies have also shown that social media can also serve as a useful tool for patient education, peer support, and dissemination of verified health information when appropriately utilized.[69]

Many respondents experienced challenges while using social media for health information. Difficult medical terminology, conflicting information, and misinformation were the most commonly reported problems. Concerns about credibility and unreliable internet access were also prominent. The abundance of inaccurate or misleading information on social media platforms may make it difficult for users to distinguish credible sources from false information. Limited digital skills may further worsen susceptibility to misinformation. The finding that difficult medical terminology was a major challenge suggests the need for simplified and patient-friendly health communication online.[4]

Despite the challenges, respondents identified several benefits of social media use for health information. Most respondents considered social media a useful source of health information because it provides access to multiple sources, convenience, affordability, and emotional support from individuals with similar experiences. Respondents recommended simplification of medical terms and greater involvement of healthcare professionals in online health communication. These suggestions underscore the need for improved regulation and professional participation in digital health spaces.[70]

CONCLUSION

This study demonstrated high utilization of social media for health information-seeking among respondents with chronic illnesses. However, medication adherence levels were generally poor, and high social media health information-seeking behavior was significantly associated with lower medication adherence. While social media provides convenient access to health information and peer support, challenges such as misinformation, conflicting information, and difficult medical terminology remain substantial concerns.

RECOMMENDATIONS

To the Federal and State Government

1. Develop and implement national policies aimed at regulating health-related information dissemination on social media platforms to reduce misinformation and harmful medical advice.
2. Promote verified and evidence-based health information and censor/provide deterrence for misleading medical content
3. Strengthen internet infrastructure and improve access and affordability to reliable internet services
4. Expand health insurance coverage to reduce financial barriers to healthcare and medication access especially targeting populations prone to chronic health diseases

To Healthcare Practitioners

1. Increase their presence on social media platforms to provide reliable, evidence-based, and patient-friendly health information
2. Actively educate patients to verify information from social media before making health decisions.
3. Encourage open discussions about online health information patients during clinic visits/encounters in other to promote easy addressing of misconceptions.
4. Provide targeted medication adherence support for populations prone to poor medication adherence preferably using social media platforms.

To the General Public

1. Verify health information obtained from social media with their healthcare professionals
2. Make relevant health decisions from credible information and not from social media trends
3. Report misleading or false health information on social media especially after verifying with their healthcare professional
4. Engage with reputable pages and trusted health professionals on social media as a source for seeking health information
5. Improve digital health skills to better utilize social media and be able to identify misinformation and misleading online health content.

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APPENDIX

APPENDIX I

QUESTIONNAIRE

DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE.

COLLEGE OF MEDICINE, UNIVERSITY OF BENIN.

SOCIAL MEDIA HEALTH INFORMATION-SEEKING AND

MEDICATION ADHERENCE AND DECISION MAKING AMONGST PATIENTS WITH CHRONIC DISEASES IN UNIVERSITY OF BENIN TEACHING HOSPITAL:

DETERMINANTS AND CHALLENGES

Dear respondent, I am a 600 Level medical student at the University of Benin conducting a research study on the social media health information-seeking and medication adherence and decision making amongst patients with chronic diseases in University of Benin teaching hospital: determinants and challenges. The goal is to draw conclusions that will help understanding of patient use of social media as a medium of seeking health information and how it impacts their medication adherence.

Please answer all questions as accurately as possible. All information you provide will be kept strictly confidential. Thank you for your participation.

SECTION A: SOCIO-DEMOGRAPHIC AND HEALTH CHARACTERISTICS.

1. Age (as at last birthday): _____
2. Sex: Male [ ] Female [ ]

3. Ethnic group: Hausa [ ] Igbo [ ] Yoruba [ ] Benin [ ] Esan [ ] Etsako [ ] Others (specify): _____

4. Religion: Christianity [ ] Islam [ ] African Traditional Religion [ ] Others (specify): _____

5. Marital status: Single [ ] Married [ ] Divorced [ ] Separated [ ] Widowed [ ]

6. Level of education: No formal education [ ] Primary [ ] Secondary [ ] Tertiary [ ]

7. Occupation/Employment status: Employed [ ] Unemployed [ ] Self-employed [ ] Student [ ] Retired [ ] Others (specify): _____

8. Average monthly income/allowance: < ₦50,000 [ ] ₦50,000 - ₦100,000 [ ] ₦100,001 - ₦200,000 [ ] ₦200,000 - ₦300,000 [ ] > ₦300,000 [ ]

9. Source of health financing: Self/Out-of-pocket payment [ ] Private health insurance scheme [ ] Government health insurance scheme (e.g. NHIS) [ ] Charity organizations [ ]

10. What chronic health condition(s) are you currently managing? (list all)

    _____

11. How many drugs do you have to take regularly as a result of your chronic health condition(s)?: One [ ] Two [ ] Three [ ] Four [ ] More than four [ ]

12. What regular medications do you take as a result of your chronic health condition(s)? (list all): _____

SECTION B: PATTERNS AND FREQUENCY OF SOCIAL MEDIA HEALTH INFORMATION-SEEKING.

13. Do you use social media? Yes [ ] No [ ]
14. What social media platforms do you use regularly? (multiple response question): Facebook [ ] Twitter/X [ ] Instagram [ ] TikTok [ ] WhatsApp [ ] YouTube [ ] Telegram [ ] Other(s), specify: _____
15. Do you use social media to search for health-related information? Yes [ ] No [ ]
16. Have you used social media to search for information concerning your current medical condition? Yes [ ] No [ ]
17. How often do you seek health information on social media? Daily [ ] Weekly [ ] Monthly [ ] Occasionally [ ]
18. What social media platform(s) do you use to check for health information? (multiple response question):Facebook [ ] Twitter/X [ ] Instagram [ ] TikTok [ ] WhatsApp [ ] YouTube [ ] Telegram [ ] Other(s), specify: _____
19. What type of health information do you usually look for? (multiple response question): Symptoms of disease [ ] Treatment options [ ] Medication side effects [ ] Competence of health personnel [ ] Alternative medical practices (aside conventional medicine) [ ] Best place to get recommended medications [ ] Confirm advice from doctor [ ] Other(s), specify: _____
20. What motivates you to seek health information on social media? (multiple response question): Curiosity [ ] Personal health concern [ ] Recommendation from others [ ]

Convenience [ ] Lack of trust in healthcare professionals [ ] Concerns not addressed at clinic visits [ ] Non-satisfaction with experience/information provided at health visits [ ] Other(s), specify: _____

21. Do you verify health information from social media with a health professional? Always [ ] Sometimes [ ] Often [ ] Sometimes [ ] Rarely [ ] Never [ ]

22. How reliable do you find health information on social media? Very reliable [ ] Reliable [ ] Neutral [ ] Unreliable [ ] Very unreliable [ ]

23. Have you ever changed a health-related behaviour based on information from social media? Yes [ ] No [ ]

24. Have you ever changed your medication regimen or stopped taking your medication based on information from social media? Yes [ ] No [ ]

25. If yes, pls specify: _____

SECTION C: LEVEL OF MEDICATION ADERENCE

26. Do you ever forget to take your medication? Yes [ ] No [ ]

27. Have you had problems remembering to take your medication on any days in the past 2 weeks? Yes [ ] No [ ]

28. Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it? Yes [ ] No [ ]

29. When you travel or leave home, do you sometimes forget to bring your medication? Yes [ ] No [ ]

30. Did you take your medication the last time you were supposed to take it? Yes [ ] No [ ]

31. When you feel like your symptoms are under control, do you sometimes stop taking your medication? Yes [ ] No [ ]

32. Is it really inconvenient to take your medication as the doctor asked you to? Yes [ ] No [ ]

33. How often do you have difficulty remembering to take all your medications?
Never/Rarely [ ] Once in a while [ ] Sometimes [ ] Usually [ ] All the time [ ]

SECTION D: CHALLENGES AND OPPORTUNITIES OF ACCESS TO SOCIAL MEDIA HEALTH INFORMATION

34. Have you ever experienced any challenges in using social media as a source of health information? Yes [ ] No [ ]

35. If yes to 34., what challenges have you faced? _____

What significance has the following challenges had in your experience of using social media to seek for health information?

36. Use of difficult to understand medical terms: Not significant [ ] Somewhat significant [ ] Moderately significant [ ] Significant [ ] Very significant [ ]

37. Limited digital skills: Use of difficult to understand medical terms? Not significant [ ] Somewhat significant [ ] Moderately significant [ ] Significant [ ] Very significant [ ]

38. Misinformation or misleading content: Not significant [ ] Somewhat significant [ ] Moderately significant [ ] Significant [ ] Very significant [ ]

39. Conflicting health information: Use of difficult to understand medical terms? Not significant [ ] Somewhat significant [ ] Moderately significant [ ] Significant [ ] Very significant [ ]

40. Concern over credibility of sources: Not significant [ ] Somewhat significant [ ] Moderately significant [ ] Significant [ ] Very significant [ ]

41. Limited or unreliable access to internet facilities: Not significant [ ] Somewhat significant [ ] Moderately significant [ ] Significant [ ] Very significant [ ]

42. Have any of the above challenges prevented you from seeking health information on social media? Yes [ ] No [ ]

43. Do you think social media is a useful source of health information? Yes [ ] No [ ] Not sure [ ]

44. What benefits have you experienced from using social media as a source of health information: (multiple response question, tick all that apply) Access to a variety of sources [ ] Support from other users/comfort from shared experiences [ ] Quick access to health information [ ] Cheaper than a visit to the doctors [ ] Convenience/anytime access [ ] Access to health campaigns or updates [ ]

45. How likely are you to use social media for health information in the future? Very likely [ ] Likely [ ] Neutral [ ] Unlikely [ ] Very unlikely [ ]

46. Do you have suggestions to help improve health information-seeking on social media?

_____

_____

_____

APPENDIX II

INFORMED CONSENT FORM

TITLE OF RESEARCH: SOCIAL MEDIA HEALTH INFORMATION-SEEKING AND MEDICATION ADHERENCE AND DECISION MAKING AMONGST PATIENTS WITH CHRONIC DISEASES IN UNIVERSITY OF BENIN TEACHING HOSPITAL: DETERMINANTS AND CHALLENGES

NAMES AND AFFILIATIONS OF INVESTIGATORS:

John Eseosa Osazee

Department of Public Health and Community Medicine,

University of Benin Teaching Hospital,

PMB 111,

Benin City,

Edo State.

Email: osazeejohn5646@gmail.com

PURPOSE OF RESEARCH: To examine how social media health information-seeking influences medication adherence among UBTH patients with chronic conditions, by exploring usage patterns, identifying underlying determinants, and evaluating the associated challenges and implications for patient health decision-making.

PROCEDURES INVOLVED IN THE STUDY: In this study, questions will be asked regarding how social media health information-seeking influences medication adherence among

UBTH patients with chronic conditions, by exploring usage patterns, identifying underlying determinants, and evaluating the associated challenges and implications for patient health decision-making.

CONFIDENTIALITY: All data collected will be treated with utmost confidentiality. Patients who volunteer to participate in this study will be given a unique study number, and data will be collected. Participants' information will be stored safely secured by codes in computers using only the study identification number. All those handling data will not at any time reveal participants' identity.

FINANCIAL COMPENSATION: There shall be no monetary compensation for participation in this study.

VOLUNTARY PARTICIPATION: Your participation in this study is entirely voluntary. If you desire to withdraw from this study at any time, no punitive measures will be meted against you for your withdrawal. Your refusal to participate or withdraw from the study will not involve any negative consequences or loss of benefits to which you are otherwise entitled.

RISK: It is not expected that any harm will come to you because of your participation in this study. The study does not entail any activity that would harm you.

BENEFIT: The study will help to assess how social media health information-seeking influences medication adherence among UBTH patients with chronic conditions, by exploring usage patterns, identifying underlying determinants, and evaluating the associated challenges and implications for patient health decision-making.

FINANCIAL SPONSORSHIP: This study will be sponsored by the principal investigator.

The investigator may be contacted in case you have any clarifications to make.

The under-listed may be contacted in case you have any clarifications to make.

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APPENDIX III

ETHICAL APPROVAL

HEALTH RESEARCH
ETHICS COMMITTEE (HREC)

UNIVERSITY OF BENIN TEACHING HOSPITAL
P.M.B. 1111 BENIN CITY NIGERIA Telephone: 09

CHIEF MEDICAL DIRECTOR
Prof. (Mrs) I.N Ize-Iyamu

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Committee email: ubthresearchethics@gmail.com
Registration Number:
NHREC-UBTH-HREC/24/12/2020

PROTOCOL NUMBER: ADM/E 22/A/VOL. VII/1486549127[illegible]

PROPOSAL TITLE: "SOCIAL MEDIA HEALTH INFORMATION SEEKING AND MEDICATION ADHERENCE AND DECISION MAKING AMONGST PATIENTS WITH CHRONIC DISEASES IN UNIVERSITY OF BENIN TEACHING HOSPITAL DETERMINANT AND CHALLENGES"

PRINCIPAL INVESTIGATOR(S): JOHN ESEOSA OSAZEE

DEPARTMENT/INSTITUTION: DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE, SCHOOL OF MEDICINE, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA

DATE CONSIDERED: MARCH 3RD, 2026

DECISION OF THE COMMITTEE: APPROVED

THIS APPROVAL DATES 3/03/2026 TO 2/03/2027. IF THERE IS DELAY IN STARTING THE RESEARCH, PLEASE INFORM THE HREC SO THAT THE DATES OF APPROVAL CAN BE ADJUSTED ACCORDINGLY

REMARK:

CHAIRMAN: PROF. (MRS) A.N. OFILI SIGNATURE & DATE Sign 3/3/2026 Date BENIN CITY P.M.B. 1111

SUPERVISOR (S): PROF OBEHI OKOJIE, DR NDUBUISI MOKOGWU

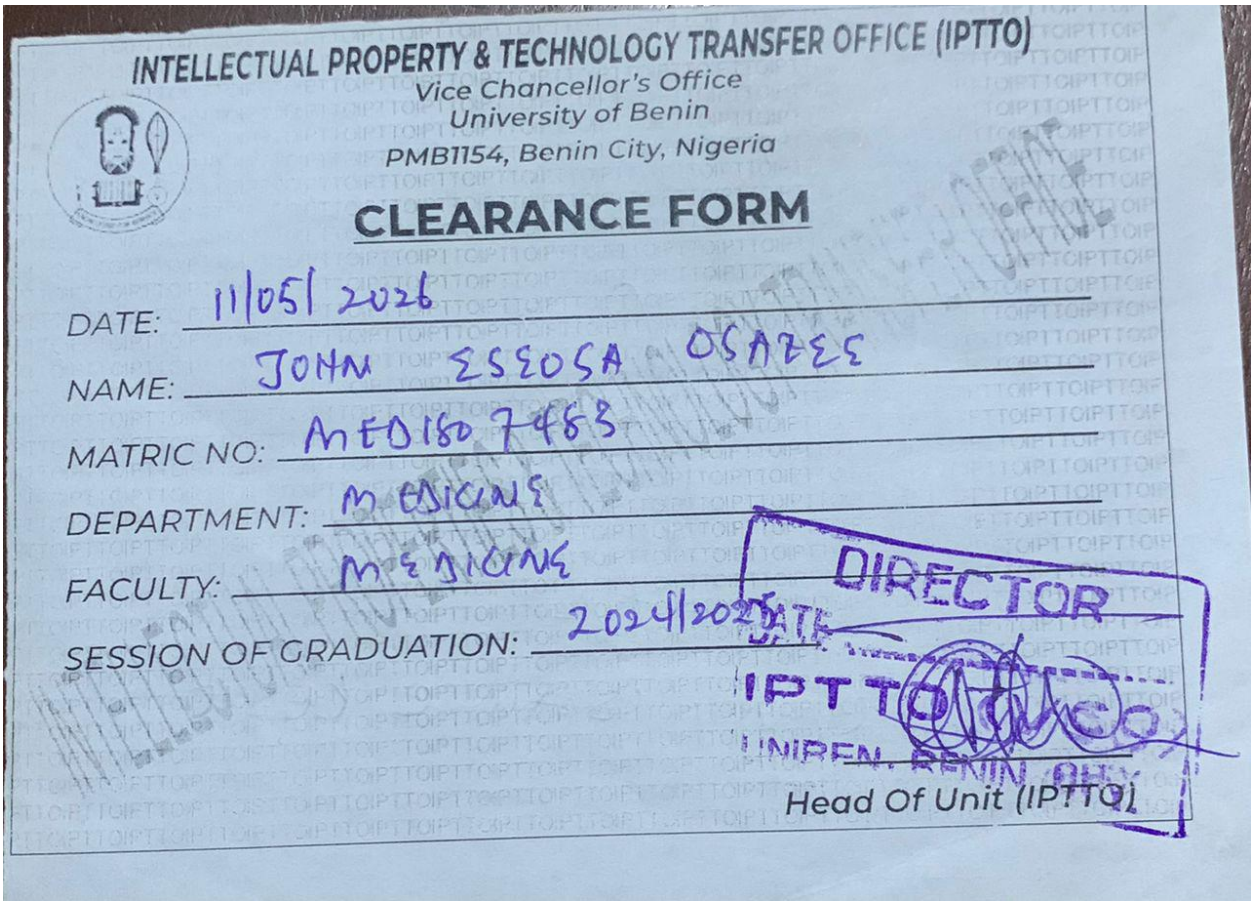
DECLARATION BY INVESTIGATOR(S):
PROTOCOL NUMBER (**please quote in all enquiries**)
Note that no participant accrual or activity related to this research may be conducted outside of these dates and **you are to furnish the committee with the research activities at the completion of the study**. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification.

Signature & Date.....

ubthresearchethics@gmail.com Registration Number: NHREC/24/01/2020

APPENDIX III

PLAGIARISM CLEARANCE FORM



INTELLECTUAL PROPERTY & TECHNOLOGY TRANSFER OFFICE (IPTTO)
Vice Chancellor's Office
University of Benin
PMB1154, Benin City, Nigeria

CLEARANCE FORM

DATE: 11/05/2026

NAME: JOHN ESEOSA OSAZEE

MATRIC NO: ME0180 7483

DEPARTMENT: MEDICINE

FACULTY: MEDICINE

SESSION OF GRADUATION: 2024/2025

DIRECTOR
DATE
IPTTO
UNIBEN, BENIN CITY
Head Of Unit (IPTTO)