Digital Health Communication Campaigns and Health Beliefs among Students of Tertiary Institutions in Akwa Ibom State, Nigeria

Uduak Udoudom, Herbert Batta

Faculty of Communication and Media Studies, University of Uyo, Akwa Ibom State, Nigeria

Abstract

This study sought to findout how digital health campaigns influence the health beliefs of students in tertiary institutions in Akwa Ibom State. The study examined the extent to which students were exposed to digital health campaigns and whether they observe the health advisory provided. The two theories used were the Social Cognitive Theory and the Health Belief Model. A cross-sectional survey design was employed. The population of the study consisted of 55, 849 male and female undergraduates from three tertiary institutions in Akwa Ibom State. The sample size for this study was determined using Krejcie and Morgan's formula, with a final sample size of 381. Also, six students from biomedical and digital health communication disciplines participated in the in-depth interview. Data were collected through the questionnaire and interviews. The findings showed that while students actively discussed digital health content and became more aware of health risks, their actual adoption of recommended health behaviours was low (WMS = 2.91). The actual behaviour change was also low (WMS = 2.24). Some students trusted health messages from reliable sources, but others were unsure due to personal beliefs, culture, or distractions from games and entertainment (WMS = 2.48). The study concluded that digital health campaigns increased awareness and promoted better choices, but their full impact was limited by certain challenges. It recommended that campaign creators should work with trusted health professionals and use clear, easy-to-understand messages. This would help build trust and make the health advice more useful and acceptable to students.

Keywords

Cyberspace, Health Promotion, Youth Perception/Behaviour, Survey Research, South Eastern Nigeria

1. Introduction

In recent times, health communication has changed a great deal due to the rapid development of digital technology. Previously, health messages were mainly disseminated through newspapers, radio, television and posters. Today, we are able to access information on our phones. Everything about the way information gets shared and the way people think about, believe in, and react to the information has changed due to digital health communications.

Health communication is the way health information is created and disseminated for people to make sound health decisions [1]. Over time, health communication has evolved from the traditional means to include television, smart phones, websites, and now the social media. According to [2], health communication plays a significant role in disease prevention, the promotion of health behaviours, and enhancing the overall quality of living. Indeed, health communication is regarded as a cornerstone of contemporary public health.

As technology advanced, a new concept emerged - digital health communication. It involves the utilisation of digital media such as social media, websites, phone apps, and online videos for the purpose of disseminating health messages. As [3] observe, digital health communication utilises online tools to promote health awareness and behaviour change. It enables real-time interactions, tailored messaging, and reaches a wider population than traditional methods. [4] explain that digital health communication targets specific populations, monitors the effectiveness of the campaign, and engages people interactively.

Throughout the world, digital health communication campaigns are becoming increasingly popular. In some countries such as the United States of America, millions were reached via YouTube and Facebook for the "Tips From Former Smokers" campaign put forth by the Centers for Disease Control and Prevention (CDC) [5]. In a similar vein, the "Change4Life" digital campaign promoted healthy eating and physical activity among families in the United Kingdom, benefiting over one million households [6].

The technological progress in Africa has been significant, most notably in areas of communication pertaining to digital healthcare. A good example of this includes South Africa's "MomConnect" project, where mobile messaging was used to send free maternal healthcare details to pregnant women [7]. In Kenya, the mHealth programme, ‘mPedigree’ made consumers capable of using mobile technology to check whether medicines were genuine [8]. These examples prove that digital healthcare solutions are not unique to developed countries; instead, they are making substantial impacts throughout the continent of Africa.

In Nigeria, the digital health communication space is rapidly growing. More organisations create health messages on social media and other digital platforms, especially for the youth. This is because Nigeria has one of the largest populations of youths in the world [9]. Millions of young people in Nigeria are active on Facebook, Instagram, Twitter (now X), TikTok, and YouTube. Digital platforms thus open a wide access channel on which health communication can be delivered to the audience.

One significant example is the National Drug Law Enforcement Agency (NDLEA)'s 'War against Drug Abuse' (WADA) campaign launched in 2023. It smartly used platforms such as YouTube, Instagram, Twitter and Facebook to narrate real life stories of narcotic drug users who had lived a life with drugs and also given a message to the youths on the dangers of taking drugs. Through alliances with Naira Marley and other popular Musicians and other influencers, the campaign reached over five million youths in Nigeria. In addition to this, there was an increase in calls to NDLEA's helpline by 23% and the establishment of 126 drug free clubs in various secondary schools in the country [10].

Another initiative worthy of mention, is the 'Sober Nigeria' campaign undertaken by the Youth against Drug Abuse (YADA) Foundation. The campaign reached university students and young professionals aged 18 to 30 years old; using different social media platforms: Facebook, TikTok, and YouTube to spread messages on the dangers of alcohol abuse. In strong collaboration with state governments and campus authorities, YADA was able to reach over three million young Nigerians. As a result, alcohol related incidents on campuses were reduced by 15% and support groups were established in 25 universities [11].

Mental health, another crucial area, has also benefitted from digital campaigns. The "Speak Up Nigeria" campaign launched by the Association of Psychiatrist in Nigerian in 2022 sought to fight the stigmatisation of mental ill health. By using Twitter, Facebook, Instagram, road walks and radio shows, the campaign reached over 2.7 million Nigerians, leading to an increase in consultation in mental health clinics nationwide by 50% [12].

Heart health also found a voice online with the Nigerian Heart Foundation's "Heart of Gold" campaign in 2022. It promoted healthy hearts among individuals in Lagos, Abuja, and Port Harcourt through blog articles, WhatsApp, and Facebook. It effectively raised awareness of the risk of heart diseases by 35% and encouraged preventive health check-ups by 28% among the target audience [13].

Tobacco control campaigns have not been left out either. The Federal Competition and Consumer Protection Commission (FCCPC), partnering with the National Drug Law Enforcement Agency (NDLEA), came up with the "Smokers are liable to die young" campaign mainly directed towards young adults aged 18-25 years. During the campaign, Facebook, YouTube, and Instagram were utilised to illustrate the risks of smoking and vaping. In their study, [14] established that the campaign impacted a 20% decrease in smoking prevalence among the target group within three years.

Another significant campaign is NDLEA's "Substance Abuse Prevention" campaign. The campaign educated Nigerian youths between 15 and 30 years old about the issue of substance abuse. The campaign employed websites, YouTube, Facebook, Twitter, and online advertisements to enlighten citizens about psycho-active substance abuse hazards in various areas of the country [10].

All these examples show the notable effects digital health campaigns have had in Nigeria. Young people, who are the most active users of digital platforms, are engaged in a vital way. However, understanding how these digital health messages affect young people's health belief systems is necessary. The health belief system is the individual convictions, feelings, and views people have about health and sickness, and how these beliefs shape their behaviours [15]. Moreover, [16] state that the Health Belief Model suggests people are more likely to adopt healthy behaviours if they believe themselves at risk of a disease, understand the serious consequences of the disease, believe that taking action would lower their risk, and think of the benefits of taking action.

2. Statement of the Research Problem

Health beliefs have been investigated in several studies among Nigerian tertiary institution students. For instance, [17] found out that many students acknowledge the dangers of drug misuse but undervalue their own susceptibility. Likewise, [18] note that while students were usually conscious of smoking dangers, peer pressure tends to compromise their health beliefs. This indicates that although knowledge is crucial, personal beliefs and perceptions strongly shape behaviour.

The fast development of digital technology has altered the methods of discussing health matters. More people in Akwa Ibom State like many other States in Nigeria use smartphones and social media platforms. University students have different methods of obtaining crucial health information through this technological atmosphere. The expanding utilisation of digital platforms becomes a key approach for Nigerian healthcare organisations to distribute health information to youths. Different health organisations carryout digital health campaigns using websites, mobile applications, blogs, and social media to deliver content about HIV prevention, mental health education, drug abuse prevention, sexual health education and other health matters. The current evidence fails to demonstrate the success levels of digital health campaigns in modifying students' health beliefs. Health beliefs in a community are shaped by the existing cultural values and collective beliefs that surround each community. A lack of understanding of community beliefs makes it harder to develop digital health campaigns which attract and inspire students for health care. The issue

is that little is known about how digital health campaigns impact Akwa Ibom State tertiary students' perceptions of their health.

This gap in knowledge raises the research problem: How do digital health campaigns influence students' health belief systems in Akwa Ibom, Nigeria, amidst great enthusiasm for resorting to digital platforms? Are they just seeing the messages and failing to internalise them, or are such campaigns reshaping how they perceive health risks and motivating them to adopt healthier behaviours?

Given the increasing significance of health initiatives worldwide and locally, accompanied by major health challenges confronting youths in Nigeria today, this study is not only timely but also pertinent. It fills a critical knowledge gap and presents workable solutions for enhancing the health and well-being of those in Akwa Ibom State and beyond.

3. Objectives of the Study

Specifically, this study:

- assesses the level of exposure to digital health campaigns among students in tertiary institutions in Akwa Ibom State;
- investigates the perceptions of students in tertiary institutions in Akwa Ibom State toward digital health communication campaigns;
- examines the practices of health behaviours informed by information from digital platforms among students in tertiary institutions in Akwa Ibom State;
- probes the influence of digital health communication campaigns on the formation and reinforcement of health belief systems among students.

4. Understanding Digital Health Communication

Digital health communication campaigns are well-organised efforts that use digital tools and platforms to inform, persuade, and engage individuals or communities in discussions around health issues [17]. Through targeted digital messages, these campaigns are designed to promote positive health attitudes, practices, and encourage disease prevention as well as create awareness about health policies [18]. Unlike traditional media campaigns that depend on print or broadcasting outlets, digital health campaigns leverage the interactivity and breadth of reach that the Internet provides. The growing utilisation of digital devices and the Internet for health information-seeking has made these campaigns particularly essential [19]. Thus, clear and concise messaging is part of a successful digital health communication campaign, alongside identifiable goals and audience strategies to ensure message diffusion and influence on health attitudes and choices.

Digital health communication exists in different digital forms, these digital platforms include: social media posts, mobile health (mHealth) applications, short message service alerts and reminders, and interactive virtual sites. Each platform offers unique advantages. People today connect and participate in discussions through Facebook, Instagram, and X (formerly Twitter) as well as other social media applications by telling visual stories with hashtags to reach wider audiences [2].Through health apps, users can view customised health tracking features in addition to getting reminders about their medications and they can also obtain virtual consulting services. SMS-based health campaigns provide the best use in areas with limited Internet access since they offer both cost-effective communication and direct messaging [20]. Websites, on their part, generally serve as one-stop shops for articles, videos, Frequently Asked Questions (FAQs), and helplines for users demanding extensive details. A well-integrated system of these tools enables a multichannel delivery method which meets the needs of users from different population segments with different digital literacy levels [21].

The attention to digital health communication among youths increased recently because young people actively use digital platforms. Research indicates that young individuals prefer health content distributed online when the information stems from peer influencers or relatable content creators [1].Current campaigns tend to incorporate gamified content, animated videos, memes, interactive quizzes, and other tools to capture the interest of a younger demographic and promote their health literacy [22].Digital content marketing emphasises inclusive messaging because youths from diverse backgrounds have different ways of responding to electronic media messages. Health-related AI applications and chatbots together provide personalised guidance in addition to sustaining the engagement of young patients [23]. Altogether, the rapid evolution witnessed in digital health communication campaigns can be attributed to a number of factors, such as youth behaviour, emerging technologies, and the need for accessible and trustworthy health information.

5. Health Communication Campaigns

Health communication campaigns inform and persuade groups of people to take action for their health. They have been employed for a long time to promote healthier behaviours. In the past, television alongside radio broadcasting, posters, newspapers and magazines served as the main channels for outreach. Nowadays, online media including websites, social media, mobile phone applications and texting services have gained significant popularity; especially among the millenials and gen-Zees. These promotional initiatives instruct people about health threats along with inspiring them to

take necessary measures. The campaigns lead people toward receiving medical screenings as well as educating them about disease management. The implementation of campaigns bring about changes at different stages from awareness, attitude, and intentions, to behaviour. Health behaviour improvement occurs successfully through these initiatives. Although success depends on the approach and tactics used.

Health communication campaigns began in the U.S. over fifty years ago. The first health promotion initiatives concentrated on raising child immunisation rates [24]. Early successes recorded in the campaigns were about getting people to stop smoking, make use of seat belts, and prevent forest fires [25].The evaluation process has revealed critical elements which lead to campaign success over the decades.

The progression of media technology caused health authorities to recognise new communication systems as effective tools for reaching the mass audience. Digital channels allow healthcare professionals to deliver interactive, targeted, and personalised messages [26]. The expansion of mobile technology and application development enabled new solutions for tracking personal behaviours and offering assistance to users [27]. Health communication campaigns deliver information to the public about health matters to enhance community health results. Public health campaigns assist the public healthcare field to overcome increasing rates of heart disease and diabetes because of unhealthy eating choices and physical inactivity. The efforts target lasting challenges of psycho-active substance misuse among teenagers as well as control infection transmission.

The purpose of health communication campaigns is to influence how people perceive health threats, their corresponding prevention measures and treatment strategies [27]. Even small, positive changes across a population can have a meaningful public health impact. This makes campaigns a valuable health promotion strategy with typically low cost per person reached [28].

The present-day digital campaigns utilise marketing principles together with health behaviour research to develop their audience engagement strategies [28]. Popular digital channels include:

- **websites** - through websites, users can find content that educates while giving power and creating motivation to take action through visual materials combined with tools and social assistance. People who use these means can establish individual objectives along with monitoring their metric development;

- **social media** - users can distribute messages across social networks, such as Facebook, Twitter (now X), Instagram, and others to create viewer dialogue or audience discussion;

- **phone apps** - phone applications enable self-awareness development and teach skills while allowing users to monitor themselves alongside sending customised guidance; and,

- **texting** - mass and personalised messages combined with service links can be sent through texting. This is effective for youths and minorities.

The selection of platforms and strategies depends on the goal, budget, and target audience [1]. Real-time data processing across digital platforms allows for better messaging optimization alongside result measurement. When different platforms are integrated, the number of available opportunities increases both online and through in-person community engagement. Health agencies have established their objective of using mass communication campaigns to guide population behaviour towards health priorities. Digital media allow people to receive specialised guidance through interactive communication channels. Health promotion campaigns continue serving as vital tools to utilise technology for encouraging self-motivated, social, and behavioural changes. Evidence-based methods delivered through digital networks hold promise to achieve better outcomes among the population.

6. Health Belief Systems among Tertiary Institution Students

Health belief systems among students in tertiary institutions are shaped by a combination of factors such as personal experiences, social expectations, and cultural backgrounds. Students' health-related decision assessment processes can be explained through the framework of the Health Belief Model. The model consists of four main elements which include perceived susceptibility and perceived severity along with perceived benefits and perceived barriers [29]. A student who has a high susceptibility to malaria alongside serious disease perceptions seeks preventive measures if he or she perceives mosquito nets to be beneficial and implementable. Research findings reveal that among youth populations, especially in Africa, these components strongly influence how students engage with health interventions [14]

Students’ perception of health receives substantial influence from both cultural factors and social dynamics that exist in tertiary institutions in Akwa Ibom State. Many youths embrace the traditional teachings set down by their families, churches, and community elders. Students who believe in the superior effectiveness of spiritual protections and herbal solutions against modern treatments become less likely to get formal medical assistance [30]. Peer pressure or the social norms of campus environments also influence behaviour; what is perceived as "normal" or accepted in student communities can either facilitate or hinder health practices. Students tend to copy the behaviours of their social networks thus increasing their risk involvement with dangerous habits such as unprotected sex and delayed medical help until emergency situations arise [31].

Awareness of health issues is increasing in Akwa Ibom State's tertiary institutions; however, belief systems still influence students' priorities and reactions to health issues. Students identify numerous advantages of HIV testing and mental health counselling while avoiding these programmes because they fear stigma and doubt confidentiality [32]. Students base their health-related reactions on the combination of their educational achievements and religious convictions together with their available channels of trustworthy health information. A recent research urges health professionals to design culturally adjusted health campaigns which would utilise reputable student groups or peer educators [31]. Health interventions need proper design with clear understanding and proper handling of students' health beliefs since digital platforms continue expanding their presence on campuses.

7. Adoption and Use of Digital Health Platforms by Students

Digital health platforms adopted by tertiary education students have experienced substantial growth in recent years because students have increased access to smartphone devices and Internet technologies. Students access these digital platforms primarily to obtain information regarding nutrition, sexual and reproductive health topics, mental wellness details and disease self-diagnosis services [21]. The health guidance received by young adults comes primarily from health-related apps namely: MyTherapy, Flo, Ada Health, and social media health pages. In Nigeria, especially in urban campuses such as in Akwa Ibom State, students routinely utilise these tools to track health symptoms, set medication reminders, and engage in free health consultations [25].The patterns of digital technology usage differ between different user groups based on age categories and educational levels as well as their digital technology exposure [24].

Various factors affect students' intention toward digital health tools utilisation. Students tend to utilise the platform frequently when they believe it brings meaningful value to their health practice [33]. The ease of access combined with platforms that have simple interfaces and require small amounts of data to deliver prompt and understandable information drives students to remain active platform users. Trust also plays a big role; students tend to mistrust platforms which lack either proper branding or scientific evidence or authorisation from established health organisations [22]. Students' adoption of digital health platforms also depends on gender, peer influence and institutions that support particular mobile health applications through health centres [26].

Despite these positive trends, there remain some challenges with sustained engagement. Some students have expressed fears about data privacy and simply not being comfortable with digital health interactions, which are often really important, such as mental health and sexually transmitted infection consultations [14]. Some develop disinterest because of limited interactivity and recurrent disruptions from app glitches. Furthermore, the usage by less privileged students continues to be hampered by poor Internet access and poor digital literacy in some regions [25]. To make digital health platforms more appealing to tertiary institution students, developers and health promoters must strive to align the tools with the lifestyle, cultural preferences, and tech capabilities of the students. Working alongside students when designing this may improve acceptance and sustained use.

8. Impact of Digital Health Campaigns on Students' Health Beliefs and Behaviours

Digital health campaigns have successfully transformed how tertiary institution students learn about health, how they think, and what they do regarding their health practices. With the advent of smartphones and greater access to social media, students are constantly exposed to health-related content that influences their thinking and behaviour. Sexual health, mental wellness, hygiene, and disease prevention campaigns carried out on social media platforms such as Instagram, WhatsApp, and YouTube are thus narrowing the gap between health information and daily decisions [33]. [20] indicate that good digital campaigns have enabled students to understand the implications of unsafe sex, the importance of vaccination, and the need to check-up their mental status for making informed choices.

These health awareness campaigns successfully transform the way students think about their well-being. Students throughout the world increasingly consider health to be not merely the absence of illness but instead complete physical, mental and social well-being according to universal health standards. This new way of thinking about health has fostered a receptive attitude toward checking health regularly and implementing therapeutic practices and fitness training. [24] observe that students who engaged regularly with digital health messages showed higher levels of belief in their ability to prevent illnesses and manage their stress. The research demonstrates that digital health campaigns are successful when directly targeting youth demographics to modify their health beliefs about susceptibility and benefits.

The behavioural aspects of health practice show positive progress. Students use mHealth apps to track food consumption and monitor their menstrual periods and symptoms as well as access telemedicine services. The positive results of the actions showcase a positive change in health practices that tend to be instigated by campaign messages urging early intervention and preventive care from health practitioners [27]. Additionally, using the digital campaign on mental health, [3] discovered that students were more willing to seek help, while also less likely to stigmatise those who are depressed or suffer from anxiety. This behavioural shift is due to the nature of digital communication, moving from the passive awareness to real action, especially when language, visuals, and peer-led stories are real.

The ability of digital health campaigns to impact communities has several constraints that must be considered. Students face confusion because they are faced with numerous conflicting pieces of health information available online. Health campaigns aimed at students can lose their audience when they become too technical or when they fail to reflect the cultural background of students [7]. Some students express doubts regarding the validity of health social media

influencers and websites when clear medical backing is missing from their content. The emphasis of these problems suggests that digital campaigns should be interesting, trustworthy, and include stakeholders from different backgrounds backed by professionals. In summary, digital health campaigns have contributed positively in shaping student knowledge, beliefs and behaviours. However, their effectiveness lies in their capacity to synchronise with the realities and communication pattern of students [28].

9. Akwa Ibom State and its Tertiary Institutions

Akwa Ibom is in the coastal (southern part) of Nigeria. The State was originally part of Cross River State when it was created in 1967, but became a separate State in September, 1987. The present-day Akwa Ibom has been the home of various ethnic groups and tribes over the centuries. Archaeological evidence dates human activities in the Cross River region back at least 3000 years. Ethnic groups such as the Efik, Ibibio, Annang, and Oron, among others, established clans, settlements, and trade networks long before colonisation [34]. Since its creation, there has been accelerated development in education, transport, health-care, commerce, and population growth. With the wealth accrued from rich oil and gas deposits, many tertiary institutions and urban centers have come into being [35].

Akwa Ibom State is famous for not only its outstanding public but also its private tertiary institutions that shape the students' health beliefs and behaviours in a significant way. These institutions include: University of Uyo, Federal University of Technology, Ritman University, Heritage Polytechnic, Akwa Ibom State University, Uyo City Polytechnic, Akwa Ibom State College of Education and Akwa Ibom State Polytechnic, Maritime Academy, Oron and others. With the growth of digital technology, students of these institutions have an unparalleled opportunity to use digital health platforms to predicate healthy behaviours [36].

These institutions in Akwa Ibom State have a major role to play in popularising digital health communication campaigns that meet the students' health beliefs system. Using digital platforms, students can promote healthy behaviours, instigate good health habits, and ultimately increase their wellness in general. As [37] note, the health belief model is a critical framework for understanding health behaviours, and digital health communication campaigns can effectively target these beliefs to promote positive health behaviours.

10. Theoretical Framework

This study is based on the Health Belief Model (HBM) which is an explanation and prediction of how individuals behave when it comes to healthcare. Social psychologists Hochbaum, Rosenstock, and Kegels developed this model when they worked with the U.S. Public Health Service in the early part of the 1950s. What the model does best is explain why people take care of their health, and why others do not, such as enrolling in preventive health programmes or visiting doctors. Based on the Model, individuals are more likely to do things that enhance their health when they believe they may have an urgent health issue, perceive the rewards of health improvement as more important than the effort involved, and have assurance they can comply with the prescribed advice.

The Health Belief Model has been extensively applied in numerous health promotion/education campaigns and in the planning and conduct of interventions intended to encourage healthy lifestyles and promote healthy behaviours prevent or manage diseases. It has been used for a wide range of health issues such as cancer screening and avoidance of STDs, avoiding smoking, and compliance to medical treatment programmes.

In the context of this study, the Health Belief Model provides a valuable framework for understanding the factors that influence Akwa Ibom State tertiary institutions' students' attitudes and behaviours toward health-related issues such as substance abuse, sexual health, mental health stigma, physical inactivity, vaccination and immunisation, sleep and relaxation, etc. and their engagement with digital health communication campaigns.

11. Methodology

This study adopted a cross sectional survey research design. The justification for using a cross-sectional survey was to enable the researcher obtain a representative sample of the target population. It allowed exploration of the relationships between variables without long-term follow-up and repeated measurements [38].

This study targeted undergraduates of tertiary institutions in Akwa Ibom State during the 2023/2024 academic year. The targeted population consisted of all undergraduates from various academic levels and disciplines at the Akwa Ibom State Polytechnic, Ikot Osurua (8, 500), Heritage Polytechnic Eket (4,300), Federal Polytechnic Ukana (6,200), College of Education, Afaha Nsit (4000), Akwa Ibom State University (10, 126), University of Uyo (19, 890), Ritman University, Ikot Ekpene (1000), Obong University (499), Top-Faith University, Mkpatat (322), Federal University of Technology, Ikot Abasi (1, 012). This selection was informed by the fact that the undergraduate students are young adults, that is late adolescent age to early adulthood. Members of this age group are also a key audience for health promotion/behaviour change activities because they are at a transitional phase of life whereby healthy habits and beliefs can be instilled in or re-enforced (Udoudom, 2025).The population of this study was 55, 849 male and female students of tertiary institutions in Akwa Ibom State.

The sample size was determined using the Krejcie and Morgan (1970) formula. Thus, the sample drawn from the population of fifty-five thousand, eight hundred and forty nine (55, 849) was 381 respondents. The study utilised a multi-stage sampling procedure to select the participants. Firstly, a simple random sampling technique was employed to

select three tertiary institutions out of the ten in Akwa Ibom State. One University (University of Uyo - representing universities), one Polytechnic (Heritage Polytechnic, Eket - representing polytechnics), and a College of Education (College of Education, Afaha Nsit) were selected to ensure a diverse representation of the different types of tertiary institutions in the state. Secondly, a stratified random sampling technique was used to select the required number of students from each of the three institutions. The strata were based on the faculties or schools within each institution to ensure that students from various disciplines were included in the study. The number of students sampled from each stratum was proportionate to the size of the stratum in relation to the total student population of the institution. Finally, within each stratum, a systematic sampling technique was employed to distribute the questionnaire. Every nth student on the list of each stratum was selected until the required sample size was achieved. This process was repeated for all selected institutions to ensure a fair representation.

In the qualitative part of the study, the purposive sampling was used to select the participants for the in-depth interviews. Participants were selected based on their knowledge, experiences, and willingness to share information related to the research topic. Data were collected using a structured questionnaire measuring awareness, usage, beliefs, and engagement with the Internet as well as exposure to digital health campaigns. Out of the number of distributed questionnaire copies, 368 copies (96.5%) were retrieved and found valid. The quantitative data collected were analysed using descriptive statistics (weighted mean scores and standard deviation). For the interview, appointments were scheduled with selected participants, and interviews were conducted in a conducive location within the campus to ensure privacy and minimise disruptions. All interviews were audio-recorded with the consent of the participants for accuracy in transcription and analysis.

12. Results and Discussion

Table 1. Awareness of Digital Health Communication Campaigns

Statement	SA (4)	A (3)	D (2)	SD (1)	Total	Mean (WMS)
I have heard about digital health communication campaign	70	222	69	7	368	2.96
I often come across digital health Campaigns on social media	116	149	51	52	368	2.89
In the past three months, I have listened to or watched online health messages directed at students.	123	105	100	40	368	2.85
I have good knowledge of or I am highly exposed to digital health campaigns	102	133	100	33	368	2.83
I am familiar with at least one digital health campaign that has recently targeted students	94	147	32	95	368	2.65

Source: Survey data, 2025. Keys: SA - Strongly Agree, A - Agree, D - Disagree, SD - Strongly Disagree

The data in Table 1 above reveal that in general, the respondents showed a moderate level of exposure to digital health campaigns. The highest Weighted Mean Score of 2.96 was recorded in item 1. This indicates that most students had at least heard about such campaigns. Item 2, centred on encountering the campaigns on the social media platforms, also received relatively higher WMS of 2.89, validating the role of social media in health communication campaigns. Item 3, which asked if students had viewed or listened to online digital health messages in the previous three months had a Weighted Mean Score of 2.85 which showed that exposure is therefore existent, but is not necessarily experienced frequently and universally. Item 4, assessing knowledge and perceived exposure, followed closely with 2.83, indicating that despite exposure to health campaigns, not all students felt well-informed or deeply interested in the topic. Lastly, Item 5 had the lowest score of 2.65, indicating that familiarity with certain, relatively recent digital campaigns was rather limited among the students. The above data show that though tertiary institutions' students in Akwa Ibom state had been exposed to digital health campaigns, there was the need for improvement in their engagement, rate of contact, and familiarity with specific initiatives.

Table 2. Effectiveness of Digital Health Communication Campaigns

Item	SA (4)	A (3)	D (2)	SD (1)	Total	Mean
Awareness Creation	71	168	100	29	368	2.89
Trustworthiness	116	144	43	65	368	2.91
Engagement and Appeal	20	182	100	66	368	2.57
Importance to Students	208	98	47	15	368	3.36
Motivation to Change Behaviour	122	118	62	66	368	2.75
Overall Mean Score						2.90

Source: Survey data, 2025. Keys: SA - Strongly Agree, A - Agree, D - Disagree, SD - Strongly Disagree

The overall Weighted Mean Score (WMS) of 2.90 in Table 2 above, indicates that students had a generally positive perception of digital health communication campaigns. The highest-rated item: "The campaigns address health issues that are important to me as a student" (3.36), show that the majority of the students found these campaigns relevant. The lowest-rated item: “Digital health campaigns are engaging and appealing to young people” (2.57) show that although the students liked the information, the engagement strategies might need improvement. In addition, while students largely agreed that the campaigns created awareness (2.89) and provided trustworthy information (2.91), the motivation to take action (2.75) was a bit lower.This implies therefore that while students receive the information, extra effort may be required, for instance, interactive engagement, relatable storey-telling, or incentives may be needed to drive actual behavioural change.

Table 3. Utilisation of Digital Health Communication Campaigns

Statement	SA (4)	A (3)	D (2)	SD (1)	Total	Mean
I regularly obtain advice from digital health platforms to improve my personal health practices.	66	110	39	153	368	2.24
I have adopted at least one health behaviour based on recommendations from digital campaigns.	116	144	68	40	368	2.91
I have participated in health-related activities after learning about them on digital platforms.	104	124	72	68	368	2.72
I use digital health tools, such as apps and trackers to monitor or manage my health.	100	94	41	133	368	2.44
I share or discuss information from digital health campaigns with friends or family to encourage healthy practices.	200	68	61	39	368	3.17

Source: Survey data, 2025. Keys: SA - Strongly Agree, A - Agree, D - Disagree, SD - Strongly Disagree

The data in Table 3 above indicate a mixed perception about students' utilisation of digital health campaigns. The highest mean score of 3.17 was for the item: "I share or discuss information from digital health campaigns with friends or family." This indicates that students discussed health on the basis of what they see in the Internet. It implies that health campaigns can make it possible for students to discuss issues of health among themselves. The lowest mean score was 2.24 for the item: "I regularly follow advice from digital health platforms." This implies that although students used health guidance from the Internet, they did not always act on it. This is perhaps due to lack of inspiration, finding it hard to practicalise the information, or using other avenues for health information. After the exposure to the digital health campaigns, students demonstrated a moderate tendency to the adoption of health behaviours (2.91) and participating in health-related activities (2.72). This suggests that digital platforms played some role in promoting some health behaviours, but may require boosts for sustained effect. The digital health tools used scored 2.44 which means that although some students used health apps trackers, adoption was not high. Using mobile apps was the most popular tool, identifying an area where campaign designers can incorporate mobile-optimised health solutions. What this implies is that online health campaigns were effective in raising awareness and getting people talking about health but were not particularly so in modifying behaviours. To enhance online health campaigns for students, there is the need to enhance engagement, increase trust, make persuasive messages stronger, and incorporate interactive features.

Table 4. Respondents' Popular Health Beliefs

Statement	SA (4)	A (3)	D (2)	SD (1)	Total	Mean
Germs do not harm Africans	3	7	54	304	368	1.21
Prayer is more potent than medication	27	24	216	101	368	1.94
Mental ill-health is caused by evil spirits/fetish people.	96	114	143	15	368	2.79
Rest, sleep, relaxation are fundamental to mental health.	88	173	100	7	368	2.93
Condoms are safe to protect against sexually transmitted infections (STIs)	91	77	109	91	368	2.46
Something must kill a human/person	78	206	55	29	368	2.90
Mosquito nets/repellents protect against malaria.	133	107	100	28	368	2.94

Source: Survey data, 2025. Keys: SA - Strongly Agree, A - Agree, D - Disagree, SD - Strongly Disagree

The results in Table 4 above indicate that the belief that germs do not harm Africans is incorrect with a very low WMS of 1.21. This implies that most of the respondents did not agree with this myth. The belief that prayers are stronger than medicines also had a low mean score of 1.94. This indicates that although some believed in prayers, the majority believed in medicine as being essential for health. The belief that evil spirits cause mental problems had a moderate mean score of 2.79. This reveals that some of the students held misconceptions about mental problems despite disagreement. However, the belief about resting, relaxation, and sleeping for mental health had a high mean score of 2.93. This suggests that the students were conscious about their mental well-being. Regarding sexual health, belief in using condoms for protection against STIs had a moderate mean score of 2.46. This indicates mixed views since some believe in their effectiveness, while others doubted or were influenced by a carefree culture. The belief that something must kill a person had a high score of 2.90, revealing that many accepted this fatalistic mindset, which could influence health-seeking behaviours negatively. Lastly, mosquito nets and repellents were perceived as best for preventing malaria with a high score of 2.94. This suggests strong awareness of the malaria prevention method among students. The findings show that despite strong awareness of modern health practices, some traditional and cultural beliefs remain prevalent especially about mental health and fatalistic attitude to life. This implies that continuous health awareness campaigns and education programmes were needed to address myths and misconceptions and enhance health behaviours.

Table 5. Thematic Analysis of Interviews on Digital Health Campaigns

Issues Raised	Identified Themes	Supporting Quotes From Respondents	Interpretation
Typical interactions with digital health campaigns	Frequent exposure on social media, health apps, and websites.	"I see them a lot on Instagram and Facebook." / "I also use mobile health apps like MyFitnessPal."	Most students encounter digital health campaigns on social media and health apps, making these key platforms for health messaging.
Credibility and relevance of digital health campaigns	Mixed trust in information; preference for official sources	"Some campaigns seem reliable, but others feel like ads." / "I prefer websites like WHO or NCDC."	While some students trust digital campaigns, many still verify health information from recognised organisations.
Example of changed health behaviour.	Adoption of healthier habits like exercise, better diet, regular screening.	"A campaign on diabetes made me reduce my sugar intake." / "I started jogging after seeing a fitness challenge online."	Digital health campaigns can influence behaviour change when the message is relatable and motivating.
Influence on health beliefs.	Increased awareness of personal risks; stronger preventive mindset.	"I never thought much about hypertension until I saw a campaign about young people getting it."	Campaigns can shape beliefs by highlighting personal risk and the importance of preventive actions.

Source: Survey data, 2025.

In Table 5, the responses reveal that students often come across digital health campaigns on social media and health apps, making these platforms crucial for public health communication. However, trust in the information varies, with some preferring to verify details from reliable sources. The findings suggest that for campaigns to be more effective, they should partner with trusted health organisations to enhance credibility. Another key insight is that students are more likely to adopt health behaviours when they feel personally connected to the message. Campaigns that focus on real-life stories and relatable health risks tend to influence beliefs and actions more effectively.

13. Discussion of Findings

Research Question 1: What is the level of exposure to digital health campaigns among students in tertiary institutions in Akwa Ibom State?

From the findings in Tables 4.1 and 4.5 above, it could be seen that tertiary institution students in Akwa Ibom State had a relatively high level of exposure to digital health campaigns. Item 1, "Have you ever heard about digital health campaigns"? had the highest Weighted Mean Score of 2.96, meaning the students were aware of them. Item 2, which dealt with encountering these campaigns through social media channels, came next with a score of 2.89, thus establishing the social media as a major source of health messages. Item 3 asked the student if they had watched or listened to digital health messages in the previous three months and received a mean score of 2.85, meaning that there was exposure but it was not too common for everyone. Item 4 asked students to rate how exposed and informed they felt with a mean score of 2.83, meaning students felt somewhat exposed, but not everybody felt deeply informed or involved. Lastly, Item 5 recorded the lowest mean score of 2.65, revealing that many did not recall specific or new campaigns. Generally, the results gave a fair level of exposure but there are opportunities for better awareness, closer contact, and greater student engagement with digital health campaigns. The above findings aligned with the results of Udoudom, George and Igiri (2023), who found that university students in Nigeria primarily accessed health information through digital platforms, especially social media. Their study revealed that social media campaigns significantly influenced students' knowledge and attitudes towards health issues, reinforcing the argument that digital platforms were the dominant source of health communication among young people.

Research Question 2: What are the perceptions of students in tertiary institutions in Akwa Ibom State toward digital health communication campaigns?

The data in Tables 4.2 and 4.5 provide the answer to this research question. The data show that students in tertiary institutions in Akwa Ibom State had a positive perception of digital health communication campaigns as indicated by a Weighted Mean Score of 3.23. About 59.2% of the students reported that they would be willing to follow health advice after it has been provided in digital channels. The campaigns were deemed both relevant and informative with an

overall weighted mean score of 2.90.The highest-rated item was, "The campaigns address health issues that are important to me as a student," with a Mean Score of 3.36, showing that many students felt the messages were meaningful to their lives. However, the campaigns failed with respect to engagement with participants, as the statement, "Digital health campaigns are engaging and appealing to young people" had the lowest score of 2.57.This means that although students trusted the information and saw its value, they did not often find the way it is presented interesting enough. The Health Belief Model (HBM) suggests that perceived benefits and engagement influence behaviour change. If students do not find digital health campaigns appealing, they may not feel motivated to take action. Therefore, campaign designers must incorporate interactive content, relatable storytelling, and engaging visuals to improve student interest and participation.

Research Question 3: What are the practices of health behaviours informed by information from digital platforms among students in tertiary institutions in Akwa Ibom State?

The data in Tables 4.3 and 4.5 supply the answer to this research question. The data show that students in tertiary institutions in Akwa Ibom State actively engaged in discussions about digital health content, especially with friends and family, as shown by the highest Weighted Mean Score of 3.17. Digital health campaigns also helped students understand unhealthy behaviours better, with a mean score of 3.09. However, actual behaviour change was low, with only a moderate adoption level recorded (WMS = 2.91). The lowest score (2.24) was for the statement “I regularly obtain advice from digital health platforms,” showing that many students did not put the advice into practice. Similarly, the use of digital health tools such as mobile health apps scored 2.44, indicating low active participation in digital health issues. Students showed more trust in reliable digital sources (WMS = 2.97), but the belief that “Health risks align with my personal beliefs” received a low score of 2.48, suggesting that personal and cultural views may make it hard for students to fully accept or act on digital health advice. This supports previous studies, such as Okunade, Adejimi, Adekanye, Allsop, Adelabu, Thomas-Ogodo, & Berek (2024), which found that while digital health campaigns raise awareness, personal and cultural beliefs can serve as barriers to actual behaviour change. Similarly, a study by Alcaraz, Vereen and Burnham (2020) in Western universities found that students responded more positively to digital health campaigns when they aligned with their existing beliefs and values.

Research Question 4: What is the influence of digital health communication campaigns on the formation and reinforcement of health belief systems among students?

The data in Tables 4.4 and 4.5 indicate the answer to this research question. The data reveal that digital health communication campaigns have positively shaped students’ health beliefs in tertiary institutions in Akwa Ibom State by promoting awareness and reducing false information. Most students rejected harmful myths, such as the belief that, “germs do not harm Africans” (WMS = 1.21) and that, “prayer is more powerful than medicine” (WMS = 1.94), showing a strong shift towards scientific thinking. However, some traditional and cultural beliefs persisted, such as the idea that, “mental ill-health is caused by evil spirits” (WMS = 2.79) and “something must kill a man” (WMS = 2.90), suggesting that cultural views still influenced how students see health risks. On the positive side, campaigns helped students understand unhealthy behaviours better, as seen in the highest mean score of 3.09. Students also showed a fair level of trust in health advice from reliable digital platforms (WMS = 2.97). Yet, the lower score of 2.48 for “Health risks align with my personal beliefs” reveals that some students struggle to accept digital messages when they clash with personal or cultural beliefs. The in-depth interview findings further support these observations, showing that digital health campaigns helped students recognise personal health risks and adopt a stronger preventive tendency. This finding aligns with the study by Eka, Onwurah, Ngozi & Emeagui (2020) in Nigerian universities, who found that students were more likely to change their health beliefs when campaigns used relatable storytelling and real-life examples.

14. Conclusion

Digital health communication campaigns played a significant role in influencing the health beliefs of students in tertiary institutions in Akwa Ibom State. These campaigns made the students more knowledgeable concerning the various health issues, and inspired them to change their lifestyle (practices) towards a healthy one. Students would internalise the digital information about health that they were receiving, and thus replace their daily habits with healthier ones, such as eating, exercising more regularly, and engaging in further preventive actions. Although the campaigns affected the way students behaved, they often did not know whether they could talk about their health beliefs in groups. While some students had kept their health choices to themselves, others were reluctant to publicly debate on their health beliefs without fear of cultural or social imperatives.

The findings from this study show that digital health communication efforts increased students’ knowledge of health topics and altered their health beliefs. However, engagement in the use of digital health apps - mobile health applications in particular - was quite low. This was largely due to students preferring to spend time on online entertainment platforms for games, music and social media, instead of using tools that are meant for health issues. Also, students complained that mobile health apps were occasionally confusing or that they were not sure whether the information was accurate. In order to be more effective, digital health campaigns should become more interactive and user-friendly and should appeal to the cultural and belief systems of their target populations. By allowing open health conversations, students may feel freer and more confident to include digital health tools as common parts of their regular lives.

15. Recommendations

The study recommends that:

• health campaign organisers and public health agencies should make greater use of social media platforms to share digital health campaigns, since most students in Akwa Ibom State come across health messages through these channels;

• health campaign developers and content creators should design digital health messages in more fun, creative, and youth-friendly ways to better engage students in tertiary institutions in Akwa Ibom State;

• health educators and digital campaign planners should create simple and clear messages that show how students can easily apply health advice in their daily lives;

• health campaign designers and content creators should develop messages that respect and reflect students' cultural beliefs while clearly explaining the facts about health. They should use friendly language and trusted voices, such as local influencers or respected health workers, to correct myths, misconceptions, conspiracy theories, and mis(dis)information without causing offence.

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