THE ROLE OF SOCIAL MEDIA IN MOBILE HEALTH ADOPTION

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Abstract:

Purpose: *This study was carried out to conduct a literature review on the role of social media in mobile heath adoption.*

Design/Methodology/Approach: *The literature review design was adopted for this study. The study reviewed literature on social media in mobile health adoption by conducting a search on 3 electronic databases (Science Direct, Google Scholar and Proquest).*

Findings: *The study highlights the role of evaluating the credibility of information sources and accessing the impact of these technologies in providing authoritative information and in proffering solutions to privacy concerns.*

Implication: *Suggested solutions to challenges in improving the adoption of mobile health in social media context includes increasing digital health literacy skills, addressing privacy concerns and establishing a framework guiding the adoption of mobile health in Nigeria*

Originality/Value: *It is recommended that in the adoption of mobile health technologies in social media context, there is need to establish a framework guiding the adoption of mobile health in the Nigerian context.*

Keywords: *Mobile health, Social Media, Health Anxiety, Information Sources, Health Consciousness.*

Paper type: *Review Paper*

Introduction

Mobile health is defined as the use of mobile and wireless technologies in monitoring a person's health. It involves mobile devices, websites, mobile applications, wearable devices as well as social media (Lupton, 2013). The pivotal role of mobile health has been studied by several researchers thereby empowering consumers to become more involved in health decisions (Jacob, Sezgin, Sanchez-Vazquez, Ivor ,2022; Kontos, Blake, Chou & Prestin, 2014), These decisions have been seen to shape health behaviours of consumers. Access to health information has evolved from doctor consultation advice to active information search on the web and user generated content such as social media, online forums & blogs (Tennant, Stellefson Chaney & Paige, 2015).

Research has shown that social media has empowered individuals in seeking to know more about their health which invariably reduces health anxiety by increasing awareness .Research from the Pew Research Center identifies YouTube and Facebook as the most-widely used online platforms, with a smaller share using Twitter, Pinterest, Instagram and LinkedIn, though major social media platform lie Facebook, Twitter, Instagram, Youtube allow for more flexibility by enabling users access to such platforms on mobile devices.

Similarly specialized social media platforms exists which enable users to share information and health experiences to members of the community which leads to social support to members of the health group.

Furthermore, the role of social media has become an effective tool for diagnosis and effective monitoring and management of sicknesses and diseases as research reveals that majority of adults begin their search for health information on social networking sites (Griffths et al, 2012). Social media is seen to encourage communication among patients by providing emotional and informational support while also serving as a bridge between health professionals and patient communication (Vennik et al, 2014). It is also used to make relevant decisions regarding health issues and managing symptoms and adverse reactions while undergoing treatment for health conditions which invariably empowers patients to make relevant health decisions (Vennik et al., 2014).

The role of social media in health can be categorized into research dissemination, networking, public health, academic teaching amongst others (Hou et al,2020). Social media has been seen to create a healthier lifestyle by improving nutrition, sexual behavior and reducing substance abuse amongst others. In developed countries such as the United States, social media is used by approximately 70% of the health care sector (Hou et al,2020), but in African countries a wide gap still exists in the use of social media in healthcare.

In the study conducted by Moorhead et al (2013) on the systematic review on the use of social media, it was discovered that social media plays a significant role in providing health information on n health issues as well as in the sharing of data on user experiences and discussion of sensitive issues that are highly stigmatized. The benefits of social media are enormous ranging from increases interaction between patients and health professionals, increased availability of informational, social and emotional support which foster positive behavioral changes. This was similar to a research conducted by Smailhodzic Hooijsma, Boonstra & Langley (2016) on the use of social media in healthcare, results revealed from a systematic review that six categories of users engage social media for health support which were identified as emotional support, network support, information support, social comparison and emotional support. These benefits influenced patients on improved self-management which invariably leads to improved interactions between patients and healthcare professionals. However, limitations on the credibility and reliability of information sources continue to remain a major challenge till date and this requires the relevant digital literacy skills necessary in evaluating information sources due to the enormous amount of information available. Similarly, security and privacy issues need to be adequately addressed.

Social media plays a significant role in mobile health and has shown tremendous potential due to the numerous benefits in improving access to health information and promoting healthy lifestyle changes. Social media platform improves group relations through effective knowledge sharing, aids in building online support community groups, promotes healthy lifestyle modifications and a major source of health information by enabling users achieve health goals through the promotion of weight loss programs and avenues that support quitting of smoking and alcohol consumption. The World Health Organization has effectively leveraged on the benefits of social media in the management of Pandemics such as Ebola, Covid-19. Health crises such as HIV/AIDS, diabetes, cancer, cardiovascular diseases, tuberculosis

The South Australian government has adopted the use of Facebook and Twitter in promoting an anti-smoking culture among

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youths and has yielded positive results which can be applied effectively in the Nigerian context in curbing drug abuse. A study by Ikpi & Undelikwo (2020) on the role of social media in promoting health behaviours among students in Nigeria revealed that social media played a significant role in promoting healthy lifestyle changes while a similar study by Oteh et al (2019) on the role of social media in promoting dietary information highlighted on the role of whatsapp and twitter as effective tools in empowering youths on nutrition and dietary information. The study further advocates the need for an increase in awareness on heath uses on social media platform. Similarly, in fostering health promotional exercises in Nigeria necessary in the curbing of pandemics, Ekwueme & Asogwa (2020) examined the role of social media in health promotion in Nigeria providing a case of the 2018 Lassa fever epidemic, results reveal that approximately 74% of users received first story of outbreak via social media with majority of users engaging in heath awareness programs. Users of social media platforms considered such information beneficial in fostering behavioural changes in Nigeria. Similarly, during the covid-19 pandemic, Obi, Ani, Anikwenze and Isini (2020) examined the role of social media during the covid-19 pandemic, the study explored the role of Face book Twitter, Blogs, YouTube and Online newspapers. Results from the study revealed that though social media played a significant role in curbing the pandemic it was also a medium were wrong information was easily circulated and had adverse effects on individuals with low digital health literacy skills. While considering the uptake of the Covid-19 vaccine, a study by Gever et al (2021) showed that social media played a significant role in view of countering fake news on covid-19 vaccine. The study further discovered that individuals that had been previously exposed to fake news via social media platforms reported greater positive perceptions regarding the vaccine when expose to social media counseling sessions. The study further proposes the role of social media counseling in curbing fake news in health promotional exercises in Nigeria. Furthermore, the role of social media was as seen in the prevention of Ebola virus spread in Nigeria. Eilu a & Pettersson (2018) conducted a comparative analysis of Nigeria and Liberia and found that social media was effective in reducing the spread of Ebola in Nigeria by 75%., however, the role of social media was less effective in Liberia.

Apart from its role in curbing pandemics in Nigeria. Social media is also an effective tool in the management of several communicable and non-communicable diseases in Nigeria. In a study by Dulli et al (2020) the role of social media is seen as an effective tool in the support of individuals living with HIV in Nigeria. A support group termed SMART connections focuses on the role of social media in Adherence and Treatment of HIV/AIDS in Nigeria. The results from the study showed that though social media was effective as a form of social support and promoting adherence to treatment, It was less effect in in promoting retention. Also several form of diseases provide effective social support in online community groups where patients share experiences, diagnosis and treatments in bid to support other users experiencing similar health issues.

Types of Social Media Platforms used for health purposes

Social Networking Sites

The role of social networks in health has continued to gain popularity due to convenience and ease of access to health information. Social Networking sites enable users to form groups called communities which focus on health issues. These platforms are also backed by health professionals. Social networking sites share knowledge among members of a

community while maintaining anonymity. Social networking sites also serve as a useful tool in diagnosis of diseases, monitoring of health issues and self-care (Griffiths et al, 2012). Examples of health communities of social networking includes Organized Wisdom, PatientLikeMe. amongst others. These platform enables patients to receive health information from doctors, knowledge sharing amongst patients and health alerts to be received regularly (Goodyear, 2021).This is primarily because the content on majority of social networking sites is tailored to meet the needs of the users as social networking sites have several groups focusing on communicable , non-communicable diseases, promoting behavioural changes in diet, physical activity and several forms of addiction. Hyirn et al (2013) examined the effects of health related social support on Facebook, results revealed that social support constitutes the major reason why people seek information the platform focusing majorly on emotional support. Social Networking sites play a great role in health promotion exercises aimed at reducing tobacco usage among young adults and there is need for promotion of credible websites (Hagg et al, 2018; Hamili et al., 2015). In a systematic review conducted 0on the use of social media for health purposes in developing countries, positive results have resulted from the use of this technology in disease surveillance and mass communication (Hagg et al, 2018)

In Nigeria, Nduka et al, 2014 reported the use of Facebook in the containment of Ebola virus during the pandemic by providing mass awareness and serving as an intervention tool.

Blogs

Blogging is a powerful tool available to people to give a voice to the content which are frequently updated in a chronological order. (Bacigalupe, 2011). One of the important advantages of blogs is enabling users to comment on features which

positions them as a social community where experiences, treatment journeys can be shared. According to Gruzd et al, (2012) sharing of personal experiences and the provision of emotional support are the major reasons patients utilize blogs. The role of blogs has been seen in mental health and in the treatment of non-communicable diseases like cancer (Han et al., 2018). Blogs have also been seen to provide an avenue for sharing experiences and providing emotional support for those living with cancer (Han et al., 2018). Though a huge number of patients focus on providing information on blogs, it is pertinent for this information to be adequately verified (Gruzd et al, 2011). Horter et al (2014) analyzed a blogging site for Tuberculosis called TB & Me and discovered that patients were encouraged to adhere to treatment. It provided social and emotional support to patients by enabling participants to share experiences thereby having a voice

Microblogs (Twitter)

Twitter is a useful tool in managing infectious disease outbreaks globally, the benefits of this has been seen in Ebola outbreak in Africa, Influenza, Dengue outbreaks and Zika virus outbreaks. It serves as a useful tool for early surveillance and in the control of rumors. Similarly, twitter is also useful in sharing health information and personal journeys on treatment and wellness promoting effective network but with a drawback of having a high potential in promoting misinformation

(Griffiths et al, 2012). Twitter has also been seen as a useful tool for health research. The study further showed that twitter is useful in conducting health research in the areas of surveillance, content analysis, engagements, interventions and network analysis. During the Ebola outbreak in Africa, twitter served as a useful tool in disease surveillance and infectious disease monitoring. According to Odlum et al (2015), topics reviewed during the Ebola

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outbreak included prevention education, risk factors and disease threads. However, Oyeyemi et al (2014) reported on several levels of misinformation reported on twitter during the Ebola outbreak and this necessitates the need for adequate health literacy while surfing for health information on the web. Similarly twitter also served as a useful tool for monitoring Zika outbreak in Latin America and Dengue virus in the Phillipines (MCGough et al, 2017).

Online Communities and Media Communities

Online communities or online discussion boards enable users to share experiences and provide informational and emotional support which empowers users in making adequate decisions when confronted with health issues (Yang et al., 2023). Majority of patients join health communities for two major reasons which include access to informational and emotional support. Though some users are seen to focus more on informational support than emotional (Yang et al., 2023). The benefits of these communities are visible in infectious disease surveillance and management, health education, sense of belonging for highly stigmatized infections such as HIV and Mental health (Lui and Wang, 2021). These online communities have been useful in infectious disease prevention, management of disease outbreaks, chronic disease management and fostering behavioural changes. Examples include health specific sites like Patientlikeme.

An extension of online communities are media communities such as Youtube which has become a useful means of proving health education especially during pandemic outbreaks (Basch et al, 2020). YouTube provides a huge volume of health information from health professions, pharmacists and other medical professions. Due to the provision of images and videos, patients are able to gain a better understanding of health issues and make relevant decisions.

Benefits of Social Media in Healthcare

1. Information access

The social media provides free access to health information which enable patients more control over health issues. These information sources is vital for both preventive healthcare and curative healthcare, however, challenges arise when users are unable to evaluate information sources effectively leading to wrong diagnosis and invariably poor health conditions. It is pertinent that information gained from social media platforms be effectively accessed by health professional prior to making health decisions (Jacobs et al, 2016).

2. Social Support

Social media platforms also provide social and emotional support to patients experiencing health issues by providing encouragement and support from patients which similar health experiences

(Snailhodozic et al, 2016). These support enables patients to cope effectively with health challenges. Several individuals experience personal health challenges which they find difficult to share in real life but feel very comfortable relating such challenges anonymously on social media platforms with patients experiencing similar challenges. Patients are able to share symptoms, diagnosis and treatments invariably bridging the digital divide in healthcare globally. Similarly, the role of social media is also seen in fostering behavioural changes. Social media provides support for individuals experiencing mental health challenges such as anxiety, depression and drug and alcohol addictions. It is also seen in the promotion of support in attaining physical fitness and diet goals.

Challenges of Social Media in Healthcare

3. Trust

Research has shown that trust is a major determinant in searching for an information source (Denniss et al, 2022; Xia et al,,2017,; Zhang et al, 2018), trust is required in releasing confidential information in social media. Xiao et al (2017) revealed that trust in a website can affect the frequency of search and information use. However, a pertinent question lies in the consideration of the variables that lead to trust formation in a website. As by Sillence et al (2007) divided trust formation into design factors and content factors. In consideration of the design factors, the website design, interactive features and navigational aids was a major determinant for trust in online health information. Similarly, the simplicity and the information available on the web was also a major determinant for trust. In accessing students' perception of trust in health websites, results by Corritore et al (2012) revealed that trust was dependent on college students' perception of credibility, ease of use and risk assessment. These findings were similar to Rowley, Johnson & Sbaffi (2015) who showed the role of authority, ease of use, recommendation, credibility and verification as a determinant for trust formation in college students.

In social media, trust is vital in the assessment of the credibility of web pages as disclosing of personalized images and personal information in contributing to the online health community is based solely on trust. Hence proper evaluation and high literacy is required by college students in differentiating between credible information and false information. Similar studies by Chen & Sharma (2013) have shown the role of trust in influencing self-disclosure and providing sensitive information on social media.

4. Digital Divide

A digital divide exists between developed and developing countries in technological access. Developing countries experience slow internet connection and poor internet connection, rural communities have not access to technological access. Though the proliferation of smart phones technologies has significantly increased in developing countries, there is need for bandwidth challenges to be addressed to improve internet speed. It is also essential for considerations to be made for rural communities where the dearth of health professionals exist to increase access to these communities.

5. Low Literacy Skills

Several skills are necessary to effectively utilize health information on social media platform. These include basic literacy skills, information literacy skills, technology literacy skills and health literacy skills. Where low literacy levels exist, it becomes difficult for users to effectively evaluate information sources and comprehend the information which may invariably lead to wrong diagnosis and treatment.

6. Health Professional and Patient Communication

Social media has led to communication gap between health professionals and patients as highly skilled health professionals may sometimes feel threatened by the level of information displayed by patients which may lead to challenges in communication. This challenges vary differently in different contexts, while developed countries are encouraged by the level of knowledge displayed by the patients (Smailhodzic *et al.* ,2016), this may not be the case in developing countries. It is important for health professionals in developing countries to understand and embrace the role of technology in healthcare.

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The effect of social media in increasing health anxiety

Though the prevalence of health information on social media has led to an increase in self-diagnosis and self-care, research suggest the association between mobile health and health anxiety (Baumagatner & Hartman, 2011). Health anxiety refers to the ability of an individual to experience fears and worries triggered by body sensations (Asumindon et al,2010). When individuals misinterprets body symptoms or body data provided by mobile health technologies, it results in an increase in health anxiety which is related to the cognitive theory of health (Salkovskis, Rimes, Warwick & Clark, 2003),

Health anxiety ranges from low to high and though low anxiety plays positive roles in early diagnosis, health anxiety is considered harmful to patients (Noyes, 2014). Health anxiety influences individuals negatively affecting both behavioural and mental health behavior. Which includes excessive checking of the body for symptoms, problematic thinking, intensive attention to health issues, constant need for reassurance and avoidance.

In Problematic thinking, individuals are seen to have wrong heightened interpretations of health issues which leads to wrong interpretations of body symptoms. Individuals with higher levels of anxiety have a higher level of interpretation of pain than individuals with lower levels of anxiety. This is because body symptoms interpretations may differ based on levels of anxiety which invariably becomes catastrophic in nature and only fuels further health issues. Another major effect of health anxiety is selective attention to health information where individuals focus only on negative health information and ignore indicators of good health. Jasper & Withoft discovered that individuals experiencing higher levels of anxiety viewed health pictures for a longer period of time and constantly focusing on negative

information leads to increased levels of anxiety.

Another major characteristic of health anxiety is avoidance where individuals deliberately avoid all forms of information on health related topics that reminds them of sickness. Such individuals avoid screening or negative health information with the rationale of being positive, though this strategy offers immediate relief, when health issues are not adequately addressed it may lead to long terms concerns (Anu Sarranenm 2010). Another key characteristic of health anxiety is the need for constant reassurance while seeking for health information. This is usually gotten from health communities and social media platforms, though this reassurance seeks to reduce anxiety there is need for constraint when it becomes excessive.

Though several benefits in the use of mobile health services exists, certain negative effects of health anxiety may hinder the intended usage. According to a study by Wehner (2015) health technologies show great potential in increasing health anxiety in some individuals. This has resulted in excessive monitoring of health issues which results in increased levels of health anxiety. Spencer (2015) states that when individuals result to self-diagnosis, this could result in higher results on anxiety due to wrong diagnosis which could lead to negative consequences on health. Several researchers have also reported of data inaccuracies that exist in the usage of both mobile health apps and wearable devices (Wehner,2015). These inaccuracies are seen to lead to increased levels of health anxieties. Similarly, increased health anxieties could result from online searches, social media community groups as well as mobile applications and wearable devices. This results when individuals give wrong interpretations of bodily symptoms which is subjective in nature, health anxieties could also result from wrong interpretations of health information and wrong interpretation of

health data which could result in high levels of health anxieties.

The Cognitive theory of health anxiety as proposed by Salkovskis, Warwick and Deale (2003) show that health anxieties stems out of negative interpretations of health information causing an increased level of anxiety after searching for information online due to wrong evaluation of health information, misinterpretation of health information due to lower levels of health literacy. There is a need for adequate evaluation of the role of health anxiety in the adoption of mobile health technologies. This implies that individuals who feel increased levels of health anxiety while using mobile health technology may not adopt the technology. Health anxious individuals are more prone to misinterpretation of health information which causes more challenging reactions because they are put at greater risk of complications . This is primarily because of the tendency to overestimate health conditions and invariable result to finding and interpretation of health information that primarily supports their anxieties and worries

Meng, Guo, Peng & Lai (2021) examined the role of technology and health anxiety in users continued adoption of mobile health services, the results from the study showed that health anxiety is closely linked to trust. It suggests that mobile health is strengthen by cognitive trust while weakened by affective trust. However, this finding differed in a study by Baungartner & Hartmann (2011) in the evaluation of health literacy in the use of online health information after conducting a study on 104 Dutch participants, results from the study revealed though health anxiety played a significant role on online health information seeking, the credibility of the online health resource played no significant role in reducing the level of health anxiety. The difference in findings may be based on the channels of health information studied. However, studies by Lagoe & Atkin (2015)

reveals that individuals displayed an increase in usage of online health information when prone to health anxiety.

Conclusion

It is recommended that in the adoption of mobile health technologies in social media context, there is need to establish a framework guiding the adoption of mobile health in the Nigerian context. Mobile health adoption in the social media context can be improved by increasing digital health literacy skills, addressing privacy concerns and establishing a framework guiding the adoption of mobile health in Nigeria.

Though social media empowers users on issues pertaining to health, there is a need for individuals to evaluate information sources critically as negative interpretation of health information have been seen to lead to heightened levels of anxiety. It is pertinent for individuals to become more proactive in the management of health issues through the use of digital health technologies.

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