

Adoption of Social Media for Health Education Among Female Residents of Karu Local Government Area

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Abstract

Social media is use for health interventions. This study was conducted to investigate the adoption of social media for health education among female residents of Karu Local Government Area. The study was underpinned on the unified theory of acceptance and use of technology supported by the social identity theory (SIT) and social shaping of technology theory. The study employed a survey research design, utilizing a combination of questionnaires and in-depth interviews as data collection tools. A sample size of 384 participants was carefully selected from the target population. Results from the study revealed that female residents of Karu local government adopt social media for health education. Further findings revealed that female residents of Karu to a large extent access and use health education on social media. It was also found that health education accessed by female residents of Karu on social media was beneficial to them and their network of friends and relatives while the health topics frequently accessed are maternal health, female hygiene and early child care. The study conclude that health education accessed on social media platforms Facebook, YouTube, X and other sites like Google and Medical websites can be beneficial for improvement of wellbeing,

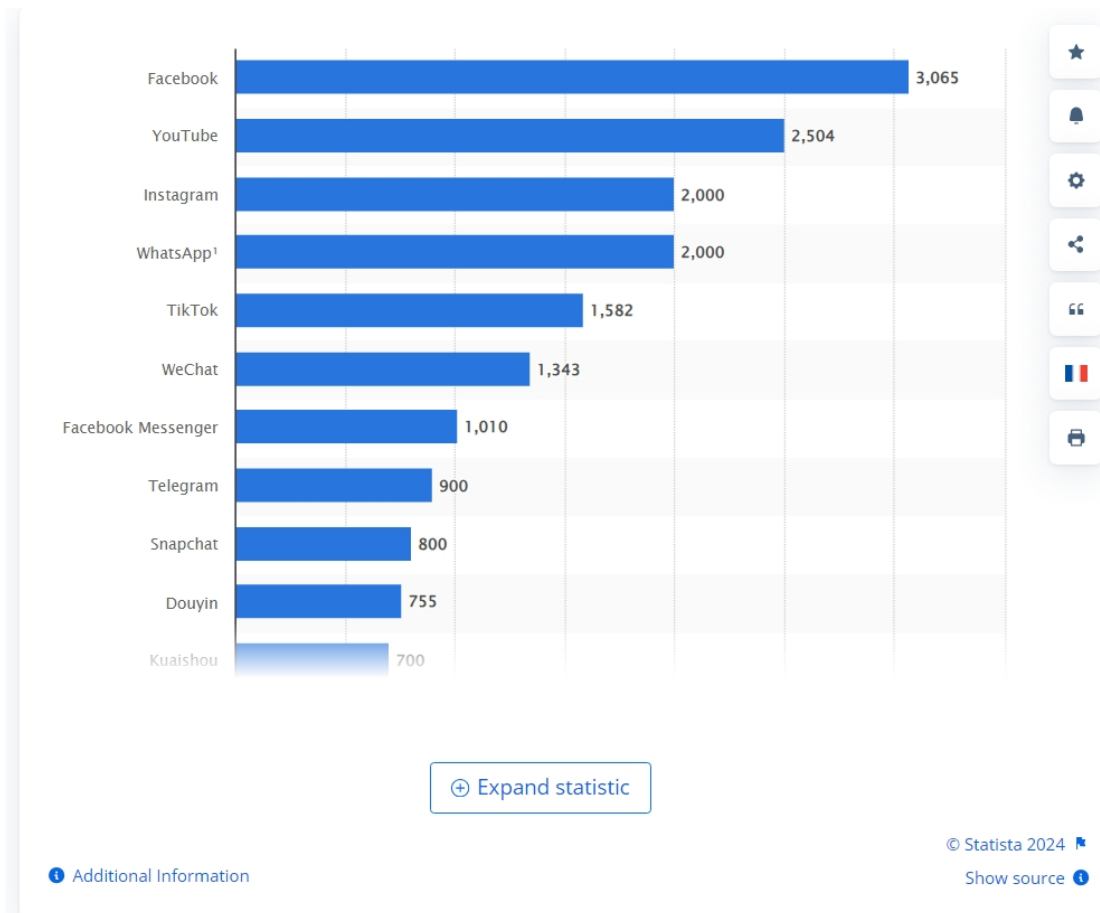
information sharing, and professional development. Promoting health issues awareness, receiving updates, staying in contact with healthcare professionals, and using it for research are other advantages. The study suggests prioritizing the establishment of healthcare facilities in rural areas to minimize the distance between rural populations and accessible healthcare services.

Keywords: Adoption, Social Media, Health Education

INTRODUCTION

Social media encompasses diverse interactive, computer-driven technologies that allow users to generate, share, and exchange information, ideas, career opportunities, and various forms of self-expression within online communities and networks. This includes widely used platforms like Facebook, X (formerly Twitter), Instagram, YouTube, WhatsApp among others. As social media has become a central aspect of daily life, communication patterns have undergone significant transformations.

According to Statista (2024), the social media landscape saw remarkable growth in 2023, with more than three billion active users worldwide. Facebook, the leading platform, became the first social network to surpass one billion registered accounts, while Meta Platforms, its parent company, owns four of the largest social media networks: Facebook (the primary platform), Instagram, WhatsApp, and Facebook Messenger. By the third quarter of 2023, Facebook reported a combined total of four billion monthly active users across its family of products (Statista, 2024). Following Facebook, YouTube ranks as the second most popular social media platform, with 2.562 billion active users in 2024. A visual representation of global usage data for these platforms, as of April 2024, is provided in Figure 1.



Source: Statista, 2024

Social media platforms hold immense potential for advancing public health education for a variety of reasons. Firstly, they facilitate engagement with wide-ranging and diverse audiences, with Facebook, for instance, boasting 1.1 billion monthly active users in 2024 (Statista, 2024). Also, the platforms offer advantages over traditional health communication methods, as messages can be easily shared among personal networks (De Bruyn & Lilien, 2008). Also, social media platforms command robust engagement among the users as well as user's loyalty that is beyond that of traditional media such as Television, radio and newspaper (Davies et al., 2022). Similarly, the platforms encourage creation of user generated content, thus making them vibrant influence in the new communication landscape above static sites like the conventional websites used by organizations and agencies (Thackeray et al., 2018).

A number of studies have established the diverse application of social media platforms in the health sector. Such studies have demonstrated how social media is use in mental health management, healthy behavioral promotion, public health sensitization, and monitoring of

outbreaks such as Covid 19, Cholera, and Lassa fever among others (Abroms, 2019). In the same, vain the current study explore how social media can provide an effective and accessible avenue for effective health promotion among women in Karu Local Government Area of Nasarawa State.

There is no doubt that social media platforms and advancement of technologies such as the emergence of mobile applications have transform the health sector bring access to information and health service to many people even at their door steps. However, the development faced problems including issue of trust and credibility of information as well as adherence to regulations guiding health sector and the society (Etactics, 2021). Another issue observed is that information shared or generated in social media including health related information are often accompany by emotional tones which most times creates panic, misinformation which can cause more harm to the users (Hu, 2022). Specifically Hu (2022) opined that messages shared on social media platforms during outbreaks over has element of fakeness and potential impact users behavior which in many cases contributed to stigmatization and violence.

Furthermore, addictive use of social media has been link to mental health. Issues like "FOMO" (fear of missing out), cyberbullying, and increased stress and anxiety are common among users, especially youth (Pagoto et al., 2016). The anonymity and ease of spreading unverified information can harm relationships and reputations, making it challenging to ensure that medical information shared on these platforms is reliable (Etactics, 2021). Social media's role in disrupting doctor-patient relationships due to concerns over compliance, privacy, and trust further complicates its use for health communication (Al-Balushi, 2020). There is still a gap in research regarding best practices for sharing health related information on social media networks and use.

It is evident that social media is revolutionizing how people interact and communicate (Spector & Kappel, 2012). While health-related engagements on social media may currently lag behind those in other areas, it is expected that social media will eventually reach its full potential in healthcare (Pathipati, 2016). Social media now offers a space where patients and their families can share experiences, research, and insights on medical conditions, bypassing traditional doctor-patient interactions (Randeree, 2009). For instance, in Facebook groups dedicated to diabetes, users often share personal management tips and provide answers to questions about the condition (Randeree, 2009, p.37).

Given the high rate of health challenges in Nigeria, including the 2014 Ebola outbreak that claimed over 11,000 lives across five countries (World Health Organization [WHO], 2015), there is an urgent need for innovative communication strategies to advance public health agendas. Despite widespread advocacy efforts, HIV continues to affect numerous communities, and Africa continues to be the focal point of many global health challenges, including elevated maternal and child mortality rates (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2014; United Nations Children's Fund [UNICEF], 2015).

The rapid expansion of internet and mobile social media in recent years has created new opportunities for individuals and organizations to disseminate health-related information. Social media platforms enable users to quickly connect and exchange information, and with over 3.81 billion active monthly users as of April 2024, there is greater access to health information worldwide (Hardy, 2008; Kind, 2015). While social media's role in medical education remains debated, it has firmly established itself as a key tool in medical conferences and other platforms for knowledge exchange (Wong et al., 2019; Olusanya et al., 2020). The objective of this study is to assess how female residents of Karu Local Government Area engage with social media for health education.

Statement of the Problem

Social media is seen as a social problem however, it has more merit than demerits. There is need to be sure of the authenticity of the news about healthcare on social media. Prior research on social media use for health education has identified consequences such as misinformation and disinformation that victimizes individuals using social media for health-related purposes, particularly within the healthcare system, including patients who rely solely on health information accessed through social media. People are however most likely to find satisfactory benefit from access accurate and verified health education on social media. It encourages their autonomy, for instance, by offering emotional support (Ho et al., 2014) and by supplementing the knowledge given by medical specialists (Rupert et al., 2014).

The platforms can provide significant benefits to healthcare providers by offering a platform to enhance their presence (McCaughey et al., 2014; Williams, 2011). It can foster conversations that improve brand recognition and elevate service quality (Williams, 2011; Li & Bernoff, 2008). The platforms have the potential to impact both patients and the entire players within the healthcare ecosystem. (Hawn, 2001). For example, it creates

opportunity for patients to seek help (Rupert et al., 2014) and expand upon the knowledge they gain through traditional means (Ho et al., 2014), ultimately contributing to increased patient empowerment. Although there are challenges, the advantages of patients using social media outweigh the drawbacks.

In-line with this, researches have been conducted on the application of social media for health education but none of the researches has its focus on females only, another gap is that these researches are not focused on female residents of Karu local government of Nasarawa state, Nigeria. It is against this backdrop that this study evaluates how female residents of Karu local government area use social media to access health education.

Objectives of the Study

The general objective of the study was to assess how female residents of Karu local government area use social media to access health education. However, the specific objectives are to;

1. Identify the social media platforms used by female residents of Karu LGA to access health education,
2. discover the extent to which female residents of Karu LGA use information on health education accessed on social media,
3. ascertain the benefits of using health education accessed on social media by female residents of Karu LGA,
4. identify the some of the health topics accessed on social media by female residents of Karu LGA

Review of Concepts

This subtitle presents review of this related concepts:

Health education.

Health education According to Fennell and Alexander (1993), health services are the part of the health system that provides healthcare services to society. A health system is a complex network of relationships between individuals and institutions that influence health. Effective health service delivery relies heavily on the knowledge, abilities, motivation, and development of those in charge (World Health Organization [WHO], 2010). Furthermore, Khan et al. (2020), postulates that health education and access to it are

based on patient happiness, information quality, and efficiency of the information. Patients may express themselves ambiguously due to confusion and often times patient replies are imprecise, complicating quality evaluations. Evaluating the quality of health education can be challenging due to many criteria, ambiguity, and qualitative considerations.

As postulated by Barnett and Barnett (2009), health education and organizations that provides such information can be public or private, and may be for-profit or non-profit. Organizations can completely engage in an integrated system through contractual ties with financiers, regardless of ownership forms. The system's architecture and government regulation impact the integration, efficiency, and responsiveness of health education. Also, Rhatigan (2020), posits that most nations fund health care services through a combination of government and private spending, as well as external funding. Many countries continue to struggle with health-care funding due to a lack of resources. Securing funds ensures access to health services and protects individuals from paying expensive prices for accessing healthcare and health education particularly on social media.

Literature Review

In this section of the study, the literature related to the study have been reviewed.

Benefit of Social Media in Health Education

The issue of maternal health in South Africa has sparked significant public and media attention. Every year, 4,300 moms in the country die from pregnancy and delivery problems. Annually, 20,000 stillbirths occur, while 23,000 infants die within the first month. Effective health education and prompt interventions can help avoid many of these deaths. MAMA South Africa, an E-Health communication package, was launched in 2013 by health and development partners to raise health awareness and give information. This initiative provides culturally sensitive information to expecting women via mobile phones, SMS messaging in five languages, and MXit, a prominent social media website in the nation. Clients have access to four types of mobile communication channels: interactive websites, text messaging, social networking, and voicemails (Davie, 2013).

The intervention consists of Mom Connect, a mobile application that connects pregnant women and mothers to healthcare workers, as well as an interactive Q&A portal. Pregnant women and moms who registered in the system receive critical health messages on their mobile phones regarding pregnancy and childbirth. Pregnant women receive stage-specific

health information, while mothers living with HIV receive important treatment updates (Lewis, 2014; Cheers, 2015).

The intervention provides real-time updates to clients' medical records, allowing health workers to give appropriate services. The tailored information dissemination campaign has been regarded as an innovative method to customer communication. Providing timely health messaging via mobile devices helps overcome the information gap in antenatal and maternal care.

An assessment observed by Cheers (2015), revealed that messaging services touched over a million women. The mobile health information campaign has improved maternal and child health knowledge among mothers, according to anecdotal comments (Lewis, 2014; Cheers, 2015). The MAMA messaging service is now integrated into the national health messaging architecture for maternal and child health. This integration, one of the few found in our study, improves the durability of the intervention.

Young people dominate Africa's population but often lack adequate sexual and reproductive health (SRH) knowledge, skills, and access to services. Sub-Saharan Africa records the highest adolescent birth rates globally, with an average of 120 per 1,000 births, significantly above the developing world average of 85 (UNICEF, 2014). Less than 15% of women aged 15-19 in the region use condoms, and fewer than 10% use modern contraception methods. Addressing these challenges requires youth mobilization, including leveraging social media platforms (Praekelt, 2012).

Marie Stopes has promoted sexuality education via SMS across Africa for over a decade. Williamson (2013) identified three SMS models—one-to-many, one-to-one, and automated two-way quizzes—integrated with a Sims service locator and mobile voucher programme. However, while large-scale information sharing was achieved, behavior change remained limited, highlighting the barriers to SRH programming that mHealth communication alone cannot address.

In Kenya, the Mobile for Reproductive Health (m4RH) programme, combined with "Text for Change," has engaged and empowered youth on SRH and HIV topics for over a decade (Namirembe & Hoefman, 2012). Similarly, Family Planning Options (FHOK) launched an SMS info line in 2015 to enhance SRH education for young people. E-health initiatives have since expanded to other East African countries, focusing on spreading SRH

knowledge and fostering sensitive discussions. However, their impact on behavior modification remains uncertain due to limited effect evaluations.

Theoretical Framework

Building studies on theoretical frameworks helps to clarify unclear aspects and highlights additional sub-areas that may warrant further exploration.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The study adopted the Unified Theory of Acceptance and Use of Technology (UTAUT), introduced by Venkatesh et al. in 2003 as its framework. The theory holds adoption of any technology is influenced by performance expectancy, effort expectancy, social influence, and facilitating conditions. The current study hinges on performance expectancy and social influence. Performance expectancy means the conviction that adopting a given technology can enhance one's performance in work place while social influence implies that a conviction that other persons especially colleagues and role models are using similar technology can also encourage one to adopt the technology.

Despite practicability of the UTAUT, the theory has a number of critics. Critics argue that the theory's failed to provide a genuine evaluation of its impacts. Hence, concerns arise regarding the theory's potentials to yield insights into technology adoption (Blut et al., 2022; Samartha et al., 2022). Nonetheless, this study views the UTAUT important because it explains the rationale behind people's preferences for a give technology including intentions in health sector or related matters. In light of the current study, female users of social media engage with the public and access health information, while also learning more about social media practices within their field.

Social Identity Theory (SIT)

Another theory the study was framed on the Social Identity Theory (SIT) as propounded by Henri Tajfel in the 1970s (Hogg & Williams, 2000). The basic assumption of the theory is that individuals identify with social groups and categorization, to pursue certain goals or live life. It further argues that individuals concept of life and self-consciousness is a product of how they perceive their group roles. In the era of Social media, this is very common, platforms like Facebook have significantly influence individuals self- identities, and expression. Many people linked up with several virtual groups and communities where they

follow and adopt cultures that also influence their information consumptions including health information.

SIT provides insights into the origins of prejudice and intergroup conflict, linking the matters idea of self-enhancement and group categorization. Over time, the theory shifted focus from self-enhancement to self-verification as the driving force behind identity formation (e.g., Hogg & Williams, 2000), reducing the emphasis on conflict. Some opponents of the theory argue that the theory's shift makes SIT less effective in addressing the psychological roots of conflict, concentrating more on individual identity construction, even though both elements were central to the original theory. Social Identity Theory remains a valuable tool for understanding intergroup communication, aligning with the aims of this study.

METHODOLOGY

The researcher utilized a descriptive survey research design. This design involves examining a group by collecting and analyzing data from a small, representative sample. The focus of the research is to evaluate the attitudes and opinions of individuals regarding the adoption of social media for health education among female resident of karu local government area. The researcher use questionnaire for this evaluation. The population of the study consists of the female residents of Karu Local Government Area in Nasarawa. However, the specific target areas used were Masaka, Luvu, Uke, and Karshi. The population of the Karu as per the National Population Census (2016), is 333,800, with females representing 49.6%, which means a total 106,715 individuals. The researcher used a sample size of 384. This was determined using Keyton's (2015) guidelines calculation, at a 95% confidence level and a 5% margin of error. This ensures that bias is minimized and every individual in the population has an equal chance of being selected for the sample.

Table 1: Keyton’s Guide

POPULATION	SAMPLE SIZE	POPULATION	SAMPLE SIZE
50	44	260	155
75	63	280	169
100	80	300	189
120	92	400	196
130	97	500	217
140	102	1000	278
150	108	1500	306
160	113	2000	322
170	116	3000	341
180	128	4000	351
190	129	5000	357
200	132	10000	370
220	140	50000	381
240	143	100000 and above	384

Source: Keyton J (2015) Communication Research: Asking Questions, Finding Answers (4thed)

Descriptive statistics were employed to analyze the data collected for the study. In this study, data was presented using simple percentages.

RESULTS

Table 2: Frequency which respondent look up for health-related information on social media

Variable	Frequency	Percentage
Always	89	23
Very Often	68	18
Sometimes	82	22
Rarely	65	17
Never	76	20
Total	380	100

Source: Field Survey, 2024

Data in table 2 reveals that most of the respondents are often looking up health related information on the internet, with Always and sometimes drawing more preferred responses. Eighty-nine (89) respondents (23%) indicate that they Always Often look up health related information on social media. Eighty-two (82) respondents (22%) were next, indicating the Sometimes do. Seventy-six (76) respondents (20%) indicated they never look up health related information on social media. Very Often and Rarely had the fewest preferred responses at sixty-eight (68) respondents (28%) and sixty-five (65) respondents (17%) respectively. This implies that 63% of the entire respondents often look up health education on social media platforms.

Table 3: Social media platform are you likely to surf for health education

Variable	Frequency	Percentage
YouTube	85	22
Facebook	118	31
WhatsApp	49	13
X	32	8
Others	92	25
Total	380	100

Source: Field Survey, 2024

Table 3 reveals what social media the respondents surf for health-related information, one hundred eighteen (118) respondents (31%), indicate that they used Facebook. Ninety-two (92) respondents (25%) indicate that they use other social media such as Google, Medical websites etc. Eighty-five (85) respondents (22%) indicated that they use YouTube. Forty-nine (49) respondents (13%) indicated that they use WhatsApp. Thirty-two (32) respondents (8%) utilize the platforms X for health education. This data implies that Google has the highest number of visitors accessing health education by female residents of Karu.

Table 4: Kindly indicate your frequency of accessing health education on social media

Variable	Frequency	Percentage
Always	80	21
Very Often	64	17
Sometimes	100	26
Rarely	39	10
Never	97	26
Total	380	100

Source: Field Survey, 2024

Indicating the frequency of respondents accessing health information on social media, table 4 revealed that eighty (80) respondents (23%) indicate that they always do. Sixty-four (64) respondents (17%) selected Very Often. One hundred (100) respondents (26%) indicate that they sometimes do. Thirty-nine (39) respondents (10%) selected that they rarely do. Ninety-seven (97) respondents (26%) selected the Never option indicated they never use social media to access health related information.

Table 5. Benefits of health education on social media

Variable	Frequency	Percentage
Quick Access	88	23
Cheaper Alternative	52	14
Multiple Sources	98	26
Variety of Healthcare Providers	35	9
Others	90	24
Total	380	100

Source: Field Survey. 2024

Data from Table 5 revealed that eighty-eight (88) 23% of the respondents indicated they have Quick Access to health education on social media. Fifty-two (52) 14% indicated they find health education on social media as a Cheaper Alternative when compared to going to healthcare facilities. Ninety-eight (98) 26% of respondents indicated social media availed them with multiple sources for health-related information. Thirty-five (35) 9% of respondents indicated on social media they have access to multiple healthcare providers

and finally ninety (90) 24% indicated they have other benefits of accessing health education on social media.

The overall information gathered via interviews is presented in this sub section. The plan was to supplement the information gathered via the questionnaire instrument while adhering to the study's objectives. The interview data is presented according to the respondent's answers to the four interview questions that are guided by the research objectives.

DISCUSSION

To find out which social media platforms female residents of Karu use to access health education. Data from table 4.2.3 revealed that 118 (31%) of the respondents indicated that Facebook is their choice of social media platform when accessing health education. 85 (22%) of the respondents indicated they used YouTube to access health education. Also, data generated from the interview indicated that while Facebook is their choice of platform for accessing health education, they are equally invested across other platforms such as X, search engines and websites.

This result is in line with the findings of Campbell et al. (2016), who found that Facebook is one of the popular and least expensive ways to reach a large audience worldwide with medical experts and a large resource bank of health education. The study also demonstrated the use of social media for self-improvement, fostering connections with professionals, healthcare facilities and erasing inaccurate health information.

This result is consistent with a previous study conducted by Almainan et al., (2015). These authors discovered that X was assisting Saudi Arabian women in expanding their understanding and knowledge of medicine, health education and applying it to improve their wellbeing. The adoption of the Unified Theory of Acceptance and Use of Technology (UTAUT) is also justified by the study's findings. The degree to which a person believes that using a system like social media would assist him or her reach increases in wellbeing is explained by the performance expectation part of this hypothesis. Additionally, it was shown that medical professionals discuss government initiatives and health policies on social media which takes the information closer to online subscribers of health education such as female residents of Karu local government.

The second objective of the study was to discover the extent to which female residents of Karu use health education accessed on social media. Data revealed on table 4.2.4 showed that 244 of the total respondents 64% agreed to being frequent users of social media to access health information. Additionally, response from interviewees also found that due to the time spent and the convenience of being with their phones all the time makes them frequent users of health information the access on social media. This data supports the findings of Bou-Karroum et al., (2017), who posited that social media use by patients generally to access health education for their use is quite popular among the people of Saudi Arabia.

This research suggests that people's adoption of social media for health education, particularly among female residents of Karu may be attributed to the regular use of social media by health professionals to disseminate accurate health information. One possible interpretation of this finding is that regular and consistent use of social media to access health education improves patients' wellbeing because their frequent and convenient access to reliable and trustworthy health information.

The third objective of this research was to ascertain the benefits of health education accessed on social media by female residents of Karu. Data from Table 4.2.5 Revealed that eighty-eight (88) 23% of the respondents indicated they have Quick Access to health education on social media. Fifty-two (52) 14% indicated they find health education on social media as a Cheaper Alternative when compared to going to healthcare facilities. Ninety-eight (98) 26% of respondents indicated social media availed them with multiple sources for health-related information. Thirty-five (35) 9% of respondents indicated on social media they have access to multiple healthcare providers and finally ninety (90) 24% indicated they have other benefits of accessing health education on social media. This implies that majority of the respondents (26%) find the availability of multiple sources of health education on social media most beneficial to female residents of Karu.

Also, data from table 4.2.7 revealed that 55% of the total respondents agree that health education on social media is beneficial to them, which corroborates the findings of Lucas et al., (2024) who found out that health education accessed on social media by residents of Jos, Plateau state was beneficial to them and their loved ones because of its easy access and share ability. This finding also justifies the supporting theory social network theory based

on the premise of sharing useful information through a network related individual for their collective benefits.

The fourth objective of the study was to discover the topics in health education that female residents of Karu LGA access on social media. Results shown on table 4.2.8 revealed that mental health, birth control and sexually transmitted infections are among the topics accessed on social media as indicated by 26%, 22% and 19% of the respondents. This finding is also in line with Lucas et al., (2024) whom discovered that popular topics such as birth control, mental health and sexually transmitted infections are frequently checked by middle-aged and adult women. This finding is consistent with that of Pirraglia and Kravitz (2012), who claimed that health education information on social media is frequently accessed through a variety of topics depending on the age of the female.

This suggests that despite the numerous benefits of health education on social media, accessing certain topics related to health education are preferential to various age groups amongst female populations.

CONCLUSION

This study shed light on the Adoption of social media for health education amongst female residents of Karu local government of Nasarawa state in Nigeria, Based on its findings, the study came to the conclusion that health education accessed on social media platforms Facebook, YouTube, X and other sites like Google and Medical websites can be beneficial for improvement of wellbeing, information sharing, and professional development. Promoting health issues awareness, receiving updates, staying in contact with healthcare professionals, and using it for research are other advantages. The study concludes that there are several health related topics that female residents of Karu access on social media, some of which are maternal health, personal hygiene and sexually transmitted diseases.

Recommendations

Based on the findings revealed in the study, the following recommendations are considered useful.

1. Deliberate efforts should be made to encourage groups and organizations that work with the female gender to promote the use of social media amongst them especially when sourcing health related information on social media platforms.
2. The nation's government must also establish the fundamental framework and regulations necessary to encourage and improve the use of social media for health-related purposes, considering the popular use and dependence on social media for health education by its citizens, particularly female residents of Karu local government.
3. Another valid recommendation is that stakeholders in the telecommunications industry must join hands with the regulatory bodies to improve the quality of their data networks while also significantly reducing the cost of data for the Nigerian citizens particularly those residing outside capital cities and urban towns like some of the districts in Karu local government.
4. It is important for healthcare providers to regularly update health education content uploaded through medical websites or health related groups available on social media platforms in order to increase the confidence of reader's particularly female residents of Karu LGA when accessing health education topics for their personal use.
5. Finally, it is the recommendation of the researcher that users of social media for health education, particularly female residents of Karu local government ensure that they fact-check health information they access via social media before sharing on implementing the suggestions they get from such sources.

REFERENCES

- Abroms, L.C, (2019): Public health in the era of social media. *Am J Public Health*. 2019, 109:S130-1. 10.2105/AJPH.2018.304947 10. 15+ Real-World Examples of Social Media HIPAA Violations - Etactics. Etactics Revenue Cycle Softw . (2021)
- Ajibili, D. O. (2017). Awareness and utilization of open access resources in libraries of private universities by postgraduate students in Nigeria, (Doctoral thesis, University of Nigeria, Nsukka, Nigeria).
- Al-Balushi, A. A., (2020) in the era of social media: is it time to establish a code of online ethical conduct for healthcare professionals? *Sultan Qaboos Univ Med J*. 2020, 20:e25-8. 10.18295/squmj.2020.20.01.004

- Brownstein, J. S., Freifeld, C. C., Madoff, L. C., (2009): Digital disease detection - harnessing the Web for public health surveillance. *N Engl J Med.* 2009, 360:2153-5, 2157. 10.1056/NEJMp0900702
- Cain, J., Fox, B. I., (2009). Web 2.0 and pharmacy education. *Am J Pharm Educ*, 2009; 73(7): 120. 3.
- Carter, M., (2014) How Twitter May have helped Nigeria contain ebola. *BMJ* 369: 96946.
- Carter, M., (2014) Medicine and the media: How Twitter may have helped Nigeria contain ebola. *Br Med J.* 2014; 349.
- Cheers, I., (2015) in South Africa, using mobile technology to improve maternal health access.
- Chinese Clinical guidance for covid-19 pneumonia diagnosis and treatment (7th edition), <http://kjfy.meetingchina.org/msite/news/show/cn/3337.html> (accessed 4 October 2023).
- Christakis, N., Fowler, J., (2011) Connected: The amazing power of social networks and how they shape our lives. Harper Press
- Davie, L., (2013) *Mama Puts power in mom's hands*.
- Davies, C. A, Spence, J. C, Vandelanotte, C., Caperchione, C. M., Mummery, W. K., (2012): Meta-analysis of internet-delivered interventions to increase physical activity levels. *Int J Behav Nutr Phys Act.* 2012, 9:52. 10.1186/1479-5868- 9-52
- De Bruyn A., Lilien G. L., (2019): A multi-stage model of word-of-mouth influence through viral marketing. *Int J R*
- Eckler, P., Worsowicz, G., Downey, K., (2008). Improving physician-patient communication. In: Parker JC, Thorson E, eds. *Health Communication in the New Media Landscape*. Springer, 2008; 283-302. 2.
- Facebook's Q2: Monthly Users Up 21% YOY To 1.15B, Dailies Up 27% To 699M, Mobile Monthlies Up 51% To
- Fayoyin, A., (2011) Promoting children's rights through the new media: The Nigerian Experience. *J Comm* 2: 57-65.
- Fayoyin, A., Ngwainmbi, E., (2014) Use and misuse of data in advocacy, media and opinion polls in africa: realities, challenges and opportunities. *Journal of Development and Communication Studies* 3: 528-545.
- George, D. R., Rovniak, L. S., Kraschnewski, J. L., (2013): Dangers and opportunities for social media in medicine. *Clin Obstet Gynecol.* 2013, 56:453-62. 10.1097/GRF.0b013e318297dc38
- Green, K., Girault, P., Wambugu, S., Clement, N., Adams, B., (2014) Reaching men who have sex with men through social media: a pilot intervention. *Digital culture and education* 6: 208-213.
- Hardey, M., (2008): Public health and Web 2.0. *J R Soc Promot Health.* 2008, 128:181-9. 10.1177/1466424008092228
- Hawn, C., Take two aspirin and tweet me in the morning: How twitter, facebook, and other social media are reshaping health care. *Health Aff.* 2009; 28(2):361-8.
- Ho, Y. X., O'Connor, B. H., Mulvaney, S. A (2014). Features of online health communities for adolescents with type 1 diabetes. *West J Nurs Res.* 2014; 36(9):1183-98.

- <https://www.marketwatch.com/story/zoom-microsoftcloud-usage-are-rocketing-during-coronavirus-pandemic-new-data-show-2020-03-30>
- <https://www.socialmediatoday.com/news/digital-datatracking-and-privacy-the-future-implications-of-covid19/575480/>
- https://www.who.int/docs/default-source/coronaviruse/transcripts/who-transcript-emergencies-coronaviruspress-conference-full-13mar2020848c48d2065143bd8-d07a1647c863d6b.pdf?sfvrsn%3D423dd0b04_2
- Hu, N., Sentiment analysis of texts on public health emergencies based on social media data mining. *Comput Math Methods Med.* 2022, 2022:3964473. 10.1155/2022/3964473
- International Planned Parenthood Federation (2015) FHOK Launches SRH SMS Infoline.
- Kind, T., Professional guidelines for social media use: a starting point. *AMA J Ethics.* 2015, 17:441-7. 10.1001/journalofethics.2015.17.5.nlit1-1505
- Ladeiras-Lopes, R., Clarke, S., Vidal-Perez, R., et al. Twitter promotion predicts citation rates of cardiovascular articles: a preliminary analysis from the ESC *Journals Randomized Study. Eur Heart J* 2020; 41(34): 3222–3225. 7. Esicm.tv
- Langer, T., and Bottino, N., on behalf of study group on management of critically ill COVID-19 patients – Niguarda Ca' Granda Hospital & Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico. Managing critically ill with COVID-19 on mechanical ventilation. Graphics by Antonini MV, <https://elso.blog/2020/03/11/covid-19-infographics/>
- Lewis, K., (2014) African moms go digital for better health care.
- Li, C., Bernoff, J., and Groundswell: Winning in a world transformed by social technologies. Harvard Business School Press; 2008.
- McCaughey, D., Baumgardner, C., Gaudes, A., LaRochelle, D., Jiaxin, K., Wu, K. J., Raichura, T., Best practices in social media: Utilizing a value matrix to assess social media's impact on health care. *Soc Sci Comput Rev.* 2014; 32(5):575–89.
- McDonnell, M., (2014) Kim Green from FHI360 Ghana on engaging youth on hiv via social media.
- Namirembe, E., Hoefman, B., (2012) Promoting youth reproductive health through text messaging.
- Obar, J. A., and Wildman, S., Social media definition and the governance challenge: an introduction to the special issue, <https://www.sciencedirect.com/science/article/abs/pii/S0308596115001172?Via%3Dihub>
- Olusanya, O., Day, J., Kirk-Bayley, J., et al. Free open access Med (ical edu)cation for critical care practitioners, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5606351/>(accessed 4 October 2023).
- Oxfam (2015) Using mobile phones for polio prevention in Somalia.
- Pagoto, S., Waring M. E., May C.N., Ding E. Y., Kunz W. H., Hayes R., Oleski J. L., Adapting behavioral interventions for social media delivery. *J Med Internet Res.* 2016, 18:e24. 10.2196/jmir.5086

- Pathipati, A. Social media's role in health care has unmet potential. Available from: <http://www.sacbee.com/opinion/oped/article2609244.html#storylink=cpy>. 16]. 5.
- Praekelt, G., (2012) Using mobile social networks to stimulate srh service and uptake: the case of young africa live.
- Randeree, E., Exploring technology impacts of healthcare 2.0 initiatives. *Telemed J EHealth*, 2009; 15(3): 255–60. 6. Randeree E. Exploring technology impacts of healthcare 2.0 initiatives. *Telemed J EH*
- Rupert, D. J., Moultrie, R. R., Read, J. G., Amoozegar, J. B., Bornkessel, A. S., Donoghue, A. C., Sullivan, H. W., Perceived healthcare provider reactions to patient and caregiver use of online health communities. *Patient Educ Couns*. 2014; 96(3):320–6.
- Sabin, L., Beard, J., Agyarko-Poku, T., Bachman, D. M., Green, K., et al. (2013) Exploring the beliefs, attitudes, and behaviours of msm engaged in substance use and transactional sex in Ghana.
- Spector, N., Kappel, D. M., Guidelines for using electronic and social media: The regulatory perspective. *Online J Issues Nurs*, 2012; 17: 1.
- Statista - The Statistics Portal. Statista. (2022). 2022: <https://www.statista.com/accounts/pa>.
- TechCrunch. (2013). <https://techcrunch.com/2013/07/24/facebookgrowth-2/>.
- Thackeray, R., Neiger, B. L., Hanson, C. L., McKenzie, J. F., Enhancing promotional strategies within social marketing programs: use of Web 2.0 social media. *Health Promot Pract*. 2008, 9:338-43. 10.1177/1524839908325335
- Ugwu, P., (2014) Nigeria uses android app and social media to fight ebola.
- Uys, P., (2009) Africa's second communications revolution. *Global-ict*, number 11. vodacom group.
- Wahba, M., Roudi-Fahimi F., (2012) the need for reproductive health education in schools in egypt. Policy brief.
- WHO and UNICEF (2013) Joint strategic plan for the polio outbreak response in the horn of Africa.
- Williams, J., A new roadmap for healthcare business success. *J Health Finance Manage Assoc*. 2011; 65(5):62–9.
- Williamson, J., (2013) SMS 4 SRH brief: barriers to youth access of sexuality reproductive health information and potential health solution.
- Wong, A., Capel I., and Malbrain M., Social media in critical care: fad or a new standard in medical education? An analysis of international critical care conferences between 2014 and 2017. *J Intensive Care Soc* 2019; 20: 341–346.
- Young, S., (2014) Social media technologies for hiv prevention study retention among men who have sex with men (MSM). *AIDS Behaviour* 18: 1625-1629.
- Young, S., Cumberland W., Lee S. J., Jaganath D., Szekeres G., et al. (2013) Social networking technologies as emerging tools for hiv prevention: *A Cluster Randomised Trial. Ann Intern Med* 159: 318-324.
- Young, S., Jaganath D., (2013) Online social networking for hiv education and prevention: a mixed methods analysis. *Sexual transmission diseases* 40: 162-167.