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Original Article

The pattern of online health information-seeking behavior before and during the COVID-19: An online cross-sectional survey among Nigerians

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ABSTRACT

Objectives: To evaluate alterations in the behavioral pattern of people looking for health information online in Nigeria.

Material and Methods: Using a Google form that included a consent form and a data collection tool, 206 internet users participated in this online descriptive cross-sectional survey. From April 22 through May 31, 2022, the Google form's link was shared on social media with all eligible participants. Descriptive statistics of frequency and percentage were used to summarize the data, which was represented as a bar chart.

Results: Respondents within the age range of 20-29 years (82.5%) predominated in the study and were mostly Male (63.1%). The proportion of persons with internet access had gone up slightly from 98.5% to 99.5%, but internet usage remained the same (99% Vs 99%), however, a decrease in the frequency of using the internet always (56.3% Vs 48.5%) was observed. During COVID-19, there was a rise in the percentage of people obtaining health information online (87.4% vs. 96.6%).

Conclusion: Albeit a slight decrease in using the internet during the COVID-19 era, however, there was an increase in online seeking behavior.

Keywords: Online health-seeking behavior, COVID-19, Nigeria

INTRODUCTION

Many people have died as a result of the COVID-19 infection, which has also impacted daily life. As of June 30, 2022, over 500 million people were infected, with death records totaling 6,357,058 globally. In Nigeria, 256,958 cases and approximately 3,144 deaths had been reported as of the same reference date.[1] Information sources assist individuals during a public health emergency by educating them, assisting them in taking preventative action, easing their anxiety, and assisting them in becoming more aware of the problem.[2] Because of the restrictions imposed by the World Health Organization and governments to curtail the spread, people had to rely heavily on media sources to get health information about the virus.

Any knowledge that can help a person make decisions about their health and maintain it is considered health information.[3] The process of looking for and utilizing any information in a way that satisfies an individual's need is known as health information-seeking behavior, which is a type of personal health promotion. A variety of advantages come from seeking out health information, and it also contributes to closing the knowledge gap between social groups.[4] Seeking information can occur unconsciously, passively, or actively, but it is always purposeful to meet the desired goal or personal need.[5] From passive observation through passive searching to active searching and continuing searches, the extent of information-seeking behavior might vary.[6] Riordain and McCreary[7] showed that the reason individuals sought health information online was to improve knowledge about their condition, reduce fear and anxiety as well as find alternative remedies and treatment options.

In the past, people learnt about health issues by going to the library, talking to a doctor, or confiding in close friends. Since then, a new situation has arisen as a result of the rapid evolution and expansion of technology.[8] Online resources are becoming the method of choice for finding health information because of their comprehensiveness, easiness,

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accessibility, cost, and privacy.[9] Despite these increasing benefits, the internet's information quality fluctuates, and the anonymity of content publishers alongside poor monitoring of the web content all contribute to a large pool of misleading and inaccurate information.[10] Although these factors pose a challenge in seeking health information online, there is however a shift in people becoming more knowledgeable and capable of managing their own health, which favors looking for health information online. Most people looking for health information online do so actively and passively,[3] to retrieve health information from the internet to gain knowledge to promote better personal health and facilitate decision-making. Among the most popular theoretical models in health promotion, Social Cognitive Theory,[11] establish a structure that can be used to interpret the results of individuals after getting information online. This theory explains that an individual's self-efficacy in searching and finding quality health care information is connected to the anticipated outcomes after retrieval. In simple terms, self-efficacy is a powerful predictor of the outcomes you would anticipate seeing in regards to a person's online health-seeking behavior. The model developed by Brown, Skelly, and Chew-Graham also shows that people's online health retrieval is frequently influenced by their health attitudes, past experiences, and other background circumstances.[12]

Consumers of online health information can be of sick persons, their families or even people who want to pursue a good health lifestyle.[13] Online health resources can provide information on various diseases' symptoms, diagnosis, and treatments, as well as general diet, weight-loss, and wellness advice.[14] This is why seeking information online has become a global trend. Studies were been conducted globally on individuals' online health information-seeking behavior. According to a survey in 2020, there had been a 21% rise between 2010 in the proportion of Europeans between the ages of 16 and 74 who used the Internet to search information.[15] According to a research conducted in the USA, 61.2% of people looked for health information online in 2008; and by 2017, that number had risen to 74.4%.[16]

In Nigeria, several studies have been conducted across different groups on the frequency of information-seeking behavior for health online. A study among university undergraduate students in Nigeria showed a positive result for more than half of the participants.[17] Furthermore, Latunji and Akinyemi[18] studied the determinants of health-seeking behavior among civil servants in Ibadan in the South-Western part of Nigeria, with an appropriate high result among the targeted population. Another health-seeking behavior that targeted the pregnant women at the University College Hospital Ibadan also discovered increased online health-seeking behavior.[19] However, all these studies mentioned above were conducted before the COVID-19 hit. Very few studies reported the nature of online health information-seeking behavior during the pandemic. A study in India revealed that the pandemic increased the online health-seeking behavior for certain diseases such as hypertension, lung disease, and cardiovascular diseases.[20]

There is currently a shortage of information on whether the COVID-19 pandemic has changed how people seek information online. Therefore, this study sets to check if there is a change in the behavioral habit when looking for health information online among Nigerians.

MATERIAL AND METHODS

Design and population of the study

The study was a descriptive, cross-sectional survey aimed at determining the trends in health information seeking behavior online among Nigerians during and after COVID-19 lockdown.

Sample size calculation and sampling procedure

The sample size was calculated using the Cochran's formula[21] where *P* was set at 83.2% as estimated by the previous study.[22] Therefore, a minimum of 240 (10% non-response rate added) respondents are required. Convenient and snowball sampling techniques were used to recruit the participants.

Instrument

We used a self-administered questionnaire, which comprises two sections and takes approximately 10 min to complete. The first part collects socio-demographic data such as age, gender, suffering from chronic condition, having a relative or friend with chronic condition. The second section assessed the pattern of online health information seeking behavior before and during COVID-19 lockdown using an adapted questionnaire. We adapted the instrument from Adegbilero-Iwari *et al.*[22] and Esmaeilzadeh *et al.*[23] Test retest reliability of 0.93 was obtained using a 2 weeks intervals pilot testing. The instrument was piloted among 15 potential participants to respond without informing them that they will retake the survey in order to avoid recall bias, however only 11 responded. Two weeks later, the same link was shared to the 11 people that responded but only 9 people retook the survey. We didn't include these 11 responses in the main analysis and the respondents were also excluded in the main study.

Method of data collection

We obtained an ethical approval from University of Osun Teaching Hospital research ethics review committee with protocol number UTH/EC/2022/03/579. Data collection commenced April 22 and ended May 31, 2022. An online questionnaire was utilized for this study since the study cut across every part of the country. We sought for the participant's informed consent via the google form link sent and the purpose of the study was explained to them. The link to the online questionnaire (Google form) was shared through a social media platform (Whatsapp).

Analysis of data

SPSS version 20 was used to summarize the data using a descriptive statistic of bar chart, frequency and percentage.

RESULTS

Two hundred and forty participants were proposed to fill the questionnaire however, 206 filled the instrument and were all considered for analysis giving rise to a response rate of 86%.

Demography of the participant

[Table 1] showed that, majority of the participants 170 (82.5%) were within 20–29 years of age. With regards to gender, Male participants 130 (63.1%) predominate in the study. Of ethnic origin of the participants, Yoruba 105 (51%) were the dominant followed by Hausa 57 (27.7%). Almost all of the participants 189 (91.7%) possessed a tertiary level of education and are mostly single 171 (83%). With regards to the occupation of the participants, majority were unemployed 57 (27.7%), followed by civil servants (health workers) 46 (22.3%) and self-employed 42 (20.4%). Almost all of the participants were in middle 169 (82%) socio-economic class. Only 7, (3.4%) were having chronic condition and about one-third 56 (27.2%) of the participants were having relatives with chronic disease. Fourteen (6.8%) of the participants tested positive to COVID-19.

Table 1: Participant's details.

Variables	Frequency	Percentage
Age (years)		
Below 20	1	0.5
20–29	170	82.5
30–39	27	13.1
40–49	7	3.4
Above 50	1	0.5
Sex		
Male	130	63.1
Female	76	36.9
Ethnicity		
Yoruba	105	51.0
Igbo	21	10.2
Hausa	57	27.7
Others	23	11.2
Educational level		
Secondary school	2	1.0
Tertiary	189	91.7
Others	6	2.9
Marital status		
Married	29	14.1
Single	171	83.0
Engaged	6	2.9
Occupation		
Civil servant (health worker)	46	22.3
Civil servant (non-health worker)	9	4.4
Self-employed	42	20.4
Unemployed	57	27.7
Employed in a private organization	33	16
Socio-economic status		
Low	36	17.5
Middle	169	82.0
High	1	0.5
Presence of a chronic health condition		
Yes	7	3.4
No	199	96.6
Friends/Relatives with chronic condition		
Yes	56	27.2
No	150	72.8
Tested positive to COVID-19		
Yes	192	93.2
No	14	6.8

Pattern of use of internet for health information seeking before and during COVID-19

Though there was slight increase in access to internet before and during COVID-19 (98.5% vs. (99.5%), the internet usage remain the same (99% vs. 99%). However, there was decrease in the frequency of usage of the internet always before and during COVID_19 (56.3% vs. 48.5%) as can be seen in [Table 2].

[Table 2] showed that an increase in online health seeking behavior during COVID-19 (87.4% vs. 96.6%). The frequency of seeking online health information everyday also increase during COVID-19 (19.9% vs. 33.5%). Spending more time on health information websites has also increased; either in the range of 2–5 h (17% vs. 27.7%) and >5 h (10.7% vs. 12.6%). The information is mostly sought for self and someone else both before and during COVID-19 (49% vs. 57.8%). Utilization of sources of online health information has also increased; Google (86% vs. 87.9%), Journal (34.5% vs. 36.9%), YouTube (30.6% vs. 35.9%). The impact of the sought information (a lot) has also increased during the pandemic (76.2% vs. 82%).

Reason for seeking an online health information before and during COVID-19

[Figure 1] showed that the motives for diagnosing a health problem, and getting general health information through seeking online health information has virtually remain the same (31.6% vs. 31.1%) and (64.1 vs. 66%) respectively. While seeking information on available treatment options has reduced (43.7% vs. 38.8%), searching to gain information about infection/COVID-19 has increased (60.7% vs. 65.5%).

DISCUSSION

This study aimed at investigating the changes in the trends in the use of internet as a means of seeking health information amongst Nigerians. The rate of using internet sources to look up health information has allegedly been increasing due to

Table 2: Pattern of Internet use for health information seeking before and during COVID-19.

Variables	Before COVID-19 *n* (%)	During COVID-19 *n* (%)
Access to the Internet		
Yes	203 (98.5)	205 (99.5)
No	3 (1.5)	1 (0.5)
Utilization of the Internet		
Yes	204 (99.0)	204 (99.0)
No	2 (1.0)	2 (1.0)
Frequency of use		
Never	1 (0.5)	2 (1.0)
Occasionally	12 (5.8)	20 (9.7)
Sometimes	18 (8.7)	23 (11.2)
Often	59 (28.6)	61 (29.6)
Always	116 (56.3)	100 (48.5)
Use the Internet for health information		
Yes	180 (87.4)	199 (96.6)
No	26 (12.6)	7 (3.4)
Frequency of seeking health information online		
Never	12 (5.8)	10 (4.9)
Once a year	7 (3.4)	4 (1.9)
Once a month	21 (10.2)	15 (7.3)
Once a week	29 (14.1)	14 (6.8)
Several times a month	32 (15.5)	21 (10.2)
Several times a week	64 (31.1)	73 (35.4)
Everyday	41 (19.9)	69 (33.5)
Average time spent on health information web pages (hour/week)		
<2 h	117 (56.8)	104 (50.5)
2–5 h	35 (17)	57 (27.7)
More than 5 h	22 (10.7)	26 (12.6)
Not applicable	32 (15.5)	10 (4.9)
Online health information is sought for		
Self	69 (33.5)	59 (28.6)
Someone else	16 (7.8)	13 (7.3)
Both	101 (49.0)	119 (57.8)
Not applicable	20 (9.8)	15 (7.3)
Sources of Online Health Information*		
Google	179 (86)	181 (87.9)
Journal	71 (34.5)	76 (36.9)
Youtube	63 (30.6)	73 (35.4)
Facebook, Whatsapp	60 (29.1)	74 (35.9)
Others	28 (13.6)	35 (17)
Impact of the sourced information		
Not applicable	5 (2.4)	5 (2.4)
Not at all	2 (1.0)	0
Only a little	13 (6.3)	14 (6.8)
Somehow	29 (14.1)	16 (7.8)
A lot	157 (76.2)	169 (82)

*Multiple response, *n*: Frequency

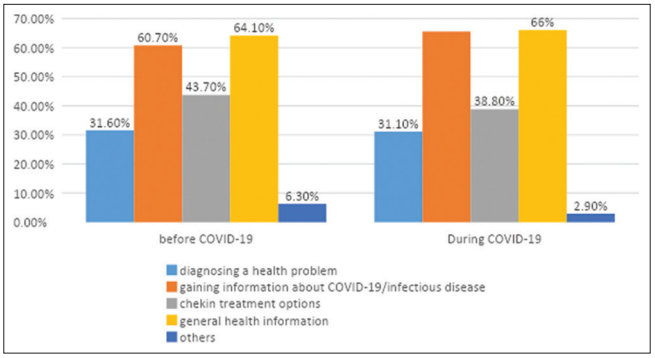

Figure 1: Reason for seeking an online health information before and during COVID-19

the spread of information and advances in communication technologies.[24] Online sources for health information are increasingly popular due to a variety of factors, including their accessibility and scope, ease of search, accessibility that is affordable, interaction, and anonymity, among many others.[25] Getting information about health has many advantages, including closing knowledge gaps and teaching others outside of the medical field. It is worthy of note that, demographics of individuals such as age, gender, disability status, employment status and other determinants of health such as education had been found to have correlation with healthier populations.[14]

This study also established some discrepancies between the health information-seeking behavior and risk perceptions across age differences as youth are predominant in online health information seeking behavior when compared with the elderly population. Gender discrepancy as a factor that discriminates the quality of e-health information perception was also found in our study as male participants were more than females. This discrepancy in the gender distribution was in contrary to the earlier study which revealed that female gender perceived e-health information quality higher than the male[26] and by another study from Bidmon and Terlutter[27] who found higher frequency of using health forums and blogs for women in comparison with men. Also, notable is that, internet was an important source of information. However, the discrepancies highlighted in our study, were similar both before and during the pandemic.

Although, high income individuals are more prone to be online health information seekers,[24] the outcome of our study also reiterates the fact that the majority of the participants fall within the middle-class socio-economic status. This is understandable when we consider the proliferation of hand-held devices in addition to the cost implication of buying mobile data to gain access to the internet which are widely available and affordable to people falling into this socio-economic status.

Confirming our result, earlier studies have shown the popularity of online health seeking behavior. For instance,

the internet was one of the primary information sources in 2004 and is expected to have a big impact on healthcare communication in the future.[28] Also, the internet was deemed to be the second-most popular source for finding health-related information.[29] Similar to our results, earlier studies reported that most of the health information seekers believed that, the information they get online influence their health.[21,25] About three-quarter of users of health information thought that the information they had acquired online had either a minor or major impact on them in terms of the decisions they made regarding their medical care, their approach to maintaining their overall health, and the way they perceived health-related issues.[24] Also, considering the pattern of internet use before and during COVID-19, there is no any significant difference in questions that has to do with their use of internet, a slight difference in their access to internet, beneficiary of the information sought. However, there was a rise in the frequency of seeking health information and the number of hours in a week spent while accessing health information online. This finding was in consonance with the result of Maon *et al.*[24] reported that over more than half of the information seekers search at least once in a weekly with more than who search several times in a day.[24]

In our study, Google was the predominant source of online health information both before and during COVID-19 and Facebook/WhatsApp being the least source. More so, the impact of the sought information stepped up during the pandemic. This finding supports a study conducted in the US on the habits of US individuals seeking health information, which discovered that a higher proportion of US adults turn to the Internet as their first resource.[30] Another study found that while 15% of online users tended to search on specialist health information websites, 83% of health information consumers used general search engines such as Google and Yahoo to look up health information.[24]

Participants in this study seek health information online mainly for general health information before and during COVID-19. The second reason was to gain information about COVID-19/infectious disease while the least reason for seeking information online was for the diagnosis following other reasons not captured in this study. However, when comparing the reason for online health-seeking information before and during the COVID-19, diagnosing health problem and getting general health information had almost the same result as (31.6% vs. 31.1%) and (64.1 vs. 66%), respectively.

In spite of the important findings in this study, few limitations were observed. Methodologically, this was a survey study and thus indicated that causality cannot be assumed and was self-reported. Self-reported data may not accurately reflect the circumstances, viewpoints, or actions of all consumers of health information. Although a wide range of populations were studied, certain important and specific populations were covered.

CONCLUSION

Conclusively, during COVID-19, there was an increase in the behavior of seeking health information online to about 10%. It was noted that the participants' responses were based on how well they understood the investigators' queries. Even though questions were posed in simple terms and language participants understand, their understanding may influence responses, especially those who are not formally educated. Although participants may favor the extreme or moderate response style, particularly on a questionnaire's rating scale, response distortion can also be a limitation of this finding.

It is recommended that future research should carefully plan and investigate how people seek out health information online from a different angle. Although the study sample size was considerably high, however, a larger sample is also recommended, as this would have given a more certain estimation of the health information-seeking behavior among Nigerians. It is important to explore other ways to improve skill and health literacy to reduce information access disparities, especially for people from lower socioeconomic classes who cannot afford internet-enabled gadgets.

Governments should work to put effective health information management into place to support the positive expansion of online platforms for accessing health information and to ensure its security and accuracy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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