

Original Article

Internet Use for Health-Related Information Among Patients Seen in A General Out-Patient Clinic in A Tertiary Hospital, South-South Nigeria

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ABSTRACT

The unlimited access and availability of free information provided by the internet has resulted in the frequent search for health information by patients to obtain first opinion on health issues ahead of encounter with the doctor. The study assessed the prevalence of the use of internet to seek for health information and to determine the association between the online search for health information and sociodemographic characteristics of patients. It was a cross sectional study conducted at the Family Medicine Clinic of Delta State University Teaching Hospital, Oghara, Nigeria. Participants were recruited using systematic random sampling method. An interviewer administered questionnaire was used to obtain data. Data was analyzed using Statistical Product and Service Solution version 22 (IBM, Chicago). The level of significance of analysis was set at $p < 0.05$ and ethical approval was obtained. Participants recruited were aged 18 years and above. The mean age was 43.42 ± 15.33 , with 54.2% within the age range of 18 to 44 years. There were more females (60.0%) than males (40.0%). The prevalence of internet use to seek health information was 44.9%, 75.2% searched for disease related information and 93.0% used Google search engine. There was statistically significant association between the use of internet for health information and age, marital status, place of residence, level of education and the presence of chronic illness. The study showed an increase in the use of internet for health information and recommend the need for stakeholders to focus on repositioning the healthcare information dissemination channels.

Keywords: Health-related information, Internet use, Nigeria, Prevalence.

INTRODUCTION

Globally, the fast rise in the availability of health information on the internet and increased use of smartphones has resulted to more people seeking the internet as their first source of health information instead of health care professionals.¹ The convenient, unlimited access and availability of free health information provided by the internet has resulted in the frequent search for health information to obtain first opinion on health issues and to fill the gaps

outside of clinical encounter or in anticipation of or in response to consulting a doctor.² This has allowed patients to have unlimited access and interpretation of information about disease ahead of their encounter with the doctor.³ In 2022, the number of internet users globally was about 4.95 billion, consisting of about 65% of the of the world population.⁴ Also, in 2022, Nigeria had about 84 million internet users and this is projected to increase to 117 million by the year 2027.⁵ As a result there is an increasing interest in the consequence of these

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changes in behaviour on health outcomes and possible effect on the health care professional and patient relationship.¹

This global network provides a myriad of information relating to health, ranging from pharmacies and clinics search engines, through expert advice, discussion forums, patients and professionals, blogs, virtual support groups, symptom checkers and ending with websites devoted to specific health-related issues, diseases and drugs.^{4,6} Health information regarding specific diseases are the most sought for in the internet.⁷ However, information on healthy lifestyle, alternative medicine and the functioning of the medical care system are also sought for from the internet by people.^{4,6} The presence of a significant association between socioeconomic characteristics of online health information seekers and health information seeking behaviour on the internet have been reported.^{4,7} The young, females and well educated people have been found to seek the internet more often for information about illness and health.^{6,8} Nolke *et al* in a survey carried out in Germany found that people from middle and upper socioeconomic class, females and being married or in a stable relationship search the internet more often for health information.⁷

In the past, people depended on traditional sources of health information such as doctors, mass media, health books and journals, however, with the recent advances in information technology, the internet has been identified as an important source of health information with significant effect on health-related behaviour, healthcare decisions and outcome.⁹ Health information can be readily accessed from the various online sources, leading to increase in the desire to seek health information by individuals, communities and nations.¹⁰ Previous researches reported that online health information seekers were better informed, had more appropriate and efficient use of health care services with more participatory patient-physician relationship and improved decision making resulting in better health outcomes.^{2, 4,7} However, there is increasing concern that the instant sharing of health information from the numerous internet sources ranging from evidence-

based and peer-reviewed study to personal opinions and anecdotes and the absence of verification, assessment of the accuracy and credibility of these shared health information may have harmful effects on a person's health.^{2,9,11-13} Internet health information seekers are faced with significant challenge in appraising and selecting the source to use and most importantly, determining the credibility and trustworthiness of these sources of information.⁹ Inappropriate evaluation and selection of online health information may lead to anxiety, confusion, increased health concerns, unacceptable health behaviour like self-diagnosis, request for unnecessary or inappropriate diagnostic investigations and treatment.² It may also result in misunderstanding of the information presented to them leading to wrong diagnosis and misguided self-treatment instead of visiting a doctor and commercial biases that can pose a threat to people's health due to over-consumption, dangerous products and medicinal interactions.¹¹⁻¹³ A study in Nigeria noted that 69% of persons sought health information using search engines/social media platforms, 71% believed their health status improved as a result of information gotten from social media and 67% said it helped them make specific referrals to doctors/hospitals.¹⁴ They often used social media for medical consultations and online information provided by physicians.¹⁴ Most of them used the online information to decide to start medications/treatment without asking a doctor and about half of them verify information with a doctor or other healthcare professionals.¹⁴ The study showed an increase in the dependence on social media for health information and recommended the need for stakeholders to focus on repositioning the healthcare information dissemination channels.¹⁴

In spite of the digital health trend, it is said that patients still value healthcare professionals' advice, as majority who search the internet for health information ask questions of their physicians about what they found in the internet.^{2, 4,15} Physicians are considered as final authority with regards to health information.¹⁵ A survey conducted in the United Kingdom reported an increase in the use of online health information for self-diagnosis and 21% of

General practitioners had experienced patients presenting information obtained online. ¹With the growing digitalization of everyday life and healthcare, the study aimed to assess the prevalence of the use of internet to seek for health information and to determine the association between the online search for health information and sociodemographic characteristics of patients seen in a general out-patient clinic in a tertiary hospital in South-South region of Nigeria.

MATERIALS AND METHODS

It was a hospital based cross sectional study carried out at the Family Medicine Clinic of Delta State University Teaching Hospital (DELSUTH), Oghara, Nigeria from September to November, 2023.

Study Setting

DELSUTH, Oghara is a renowned 180-bed ultra-modern teaching hospital with many clinical specialties, situated in Oghara, Ethiope West Local Government Area of Delta State, South-South Nigeria. It is one of the two tertiary health institutions providing healthcare service to Delta indigenes and its adjoining states. It provides primary, secondary and tertiary care to the populace.

Study Population

Adult patients (age 18 years and above) attending the Family Medicine Clinic in Delta State University Teaching Hospital, Oghara. Clinical records of the Family medicine clinic reported that a total of 5,023 adult patients attended the Family Medicine clinic in the year 2022.

Inclusion Criteria

Adults aged 18 years and above willing to participate in the study with the ability to give informed consent.

Exclusion Criteria

Critically ill patients and patients unwilling to participate.

Sample size determination and sampling method

The sample size was determined using a single population proportion formula, $n = z^2 pq/d^2$, ¹⁶ using z as 95% of confidence level, d as 5% margin of error and p was the estimated proportion with the attribute of interest which was 24.8% obtained from a

previous study ¹⁷ and n the minimum sample size was 287. Since the number of patients seen in the clinic in the previous year was less than 10,000 (5023), the sample size was adjusted by the formula; $nf = n/(1 + n/N)$ ¹⁶, where, n was the desired sample size when the population is more than 10,000 which was 287, and N was population of patients aged 18 years old and above (5023). Thus, nf was the desired sample size when the population is less than 10,000, calculated to be 272. Therefore, the minimum sample size was 272.

The study participants were recruited using systematic random sampling method. Using $K = N/n$, ¹⁶ where K was the sampling interval, N was the sampling frame (5023 patients aged 18 years and above were seen in 12 months, then 1256 patients were seen in 3 months)

and n was 272. A sampling interval of 5 was obtained. The first subject was selected by simple random and every 5th participants was selected by systematic random sampling until the required sample size was met.

Data Collection Method

A pretested interviewer administered questionnaire was used for data collection. The questionnaire was adopted from a previous study, ¹⁸ and consists of sociodemographic characteristics, questions related to the place where patients seek health information, ever used the internet to search for health information, the type of information searched for and reasons for searching the internet for information.

Data analysis

Data was entered into excel spreadsheet and coded into the Statistical Product and Service Solution (SPSS) version 22 (IBM, Chicago) for analysis. Demographic variables and categorical variables were presented using frequency tables as appropriate while test of associations were analyzed using the Chi square test to identify factors associated with online search for health information. Continuous variables such as age were presented using means and standard deviation. Analysis was conducted and presented in line with the study objectives. Statistical significance was evaluated at

$p < 0.05$ at the 95% confidence interval.

Ethical consideration

Approval was obtained from the Research and Ethics Committee of Delta State University Teaching Hospital, Oghara. Informed consent was obtained from all the participants before data collection. All information were treated confidentially and participants could withdraw at any point without prejudice to their future care.

RESULTS

A total of two hundred and seventy-two participants were recruited in the study, one hundred and twenty-four were excluded as they never used the internet to look up health information and forty-seven had incomplete data.

The sociodemographic characteristics of the participants was shown in Table 1. The mean age of participants was 43.42 ± 15.33 , with half (54.2%) within the age range of 18 to 44 years old. There were more females (60.0%) than males (40.0%), majority of the participants were married (66.7%) and nearly half (46.2%) had tertiary education.

One hundred and one (44.9%) of the participants had utilized the internet to search for health information, of which three-quarter (75.2%) used the internet to search for disease related information and majority (93.0%) searched for health information from Google. (Table 2)

A little above half (54.5%) sought health information before visiting the doctor while about one-third (38.6%) sought health information online both before and after visiting the doctor. Also, the reason why majority search the internet for health information was to decide if they need to visit the doctor or not. (Table 3)

Participants within the age group of 18 to 44 years, singles, divorced, residing in the urban area, absence of chronic illness and having tertiary education utilized the internet to search for health information more. There was statistically significant association between utilization of internet for health information and age, marital status, place of residence, level of education and the absence of chronic illness. (Table 4)

Table 1: Sociodemographic characteristics of participants.

Variable	Frequency	Percentage (%)
Age		
<18	1	0.4
18 - 44	122	54.2
45 - 64	74	32.9
≥ 65	28	12.4
Mean age	43.42±15.33	
Gender		
Male	90	40.0
Female	135	60.0
Marital Status		
Married	100	66.7
Single	52	23.1
Divorced	1	0.4
Widowed	22	9.8
Religion		
Christian	216	96.0
Islam	5	2.2
Traditionalist	2	0.9
Others	2	0.9
Educational Level		
None	9	4.0
Primary	41	18.2
Secondary	71	31.6
Tertiary	104	46.2
Presence of Chronic Illness		
Yes	80	35.6
No	145	64.4
Place of residence		
Urban	175	77.8
Rural	50	22.2

Table 2: The distribution of participants according to internet use and the type of health related information obtained from the internet.

Variable	Frequency	Percentage(%)
Ever used the internet to search for health information? (n=225)		
Yes	101	44.9
No	124	55.1
What type of information did you search for? (n=101)		
Disease related information	76	75.2
Complementary & alternative medicine	4	4.0
Lifestyle & behavioural changes	17	16.8
Health services and insurance	4	4.0
Where do you usually search for information? (n=101)		
Google	94	93.0
Facebook	2	2.0
WhatsApp	2	2.0
Blogs	1	1.0
YouTube	1	1.0
Medical websites	1	1.0

Table 3: Participants' reasons for using the internet to obtain health related information.

Variable	Frequency	Percentage(%)
When do you usually seek health information? (n=101)		
Before visiting a doctor	55	54.5
After visiting a doctor	7	6.9
Both before and after seeing a doctor	39	38.6
What are the reasons for searching the internet for information? (n=101)		
To decide if I need to see a doctor	91	90.1
To treat myself	10	9.9

Table 4: Socio-demographic factors associated with online source of health information

Variable	Use of internet to source for health information		X ²	p-value
	Yes	No		
Age				
<18	1 (100.0)	0 (0.0)	29.912	<0.001
18 – 44	74 (60.7)	48 (39.3)		
45 – 64	21 (28.4)	53 (71.60)		
≥ 65	5 (17.9)	23 (82.1)		
Gender				
Male	47 (52.2)	43 (47.8)	3.261	0.071
Female	54 (40.0)	81 (60.0)		
Tribe				
Urhobo	52 (40.3)	77 (59.7)	11.541	0.042
Isoko	12 (60.0)	8 (40.0)		
Itskeri	1 (14.3)	6 (85.7)		
Ijaw	4 (50.0)	4 (50.0)		
Ibo	12 (75.0)	4 (25.0)		
Others	20 (44.4)	25 (55.6)		
Marital Status				
Married	57 (38.0)	93 (62.0)	34.361	<0.001
Single	40 (76.9)	12 (23.1)		
Divorced	1 (100.0)	0 (0.0)		
Widowed	3 (13.6)	19 (86.4)		
Place of residence				
Urban	88 (50.3)	87 (49.7)	9.271	0.002
Rural	13 (26.0)	37 (74.0)		
Religion				
Christian	97 (44.9)	119 (55.1)	Fisher's exact test	1.000
Islam	2 (40.0)	3 (60.0)		
Traditionalist	1 (50.0)	1 (50.0)		
Others	1 (50.0)	1 (50.0)		
Educational Level				
None	0 (0.0)	9 (100.0)	80.859	<0.001
Primary	1 (2.4)	40 (97.6)		
Secondary	22 (31.0)	49 (69.0)		
Tertiary	78 (75.0)	26 (25.0)		
Presence of chronic illness				
Yes	26 (32.5)	54 (67.5)	7.702	0.006
No	75 (51.7)	70 (48.3)		

DISCUSSION

The study revealed that 44.9% of participants utilized the internet to search for health information. Similar findings were reported in previous studies.^{8, 19} In contrast, a higher proportion of internet use for health information was reported by Abaya *et al* in Abuja, Nigeria, Adegbihero-Iwariet *al* in Ekiti, Nigeria and Ali *et al* in Bahrain.^{18,20,21} The proportion of internet use in this study is commendable and it

reveals the growing interest in the use of internet as a channel of communication for health related information. Almost all participants who search the internet for health information utilized Google search engine. This finding was consistent with previous studies.^{8,21} This may be due to the fact that access to this search engine is usually free and convenient to use.²¹ However, Abaya *et al* in Nigeria and Ali *et al* in Bahrain reported that social media and educational websites were most used for online

health information search.^{18,20}

Also, the study found out that participants used the internet to search for different health related topics with disease specific information including symptoms, investigations and medications being the most searched. This finding aligns with reports from previous studies globally as well as in Nigeria.^{18,21,22} In contrast, Ghweeba *et al* reported that health information related to nutrition was the most sought online.²³ This finding may suggest that the internet exposes the users to a wide range of knowledge and information with regards to health and diseases that could play a pivotal role in influencing the patient-physician interactions and patients' health decision making.²⁰ The high use of the internet to search for disease specific information may be due to the increased desire of people to preserve and improve their health status.²² It may also be due to provision of inadequate information about diseases by healthcare professionals to patients during consultation as over one-third of participants searched the internet for health information both before and after visiting a physician. As such, the internet serves as a channel that provides more information to help them understand their illnesses better.²² More than half visited the physician after online health information search. A similar finding was reported by Van riel *et al*.⁶ This finding indicates that the increase in the use of the internet to access health related information did not change the basic health-related habits of consulting a doctor.²² Rather, it may result in increase in awareness among people with high level of health literacy which may make them realize the inadequacy of online information in relation to their health and as such emphasize the importance of health care services provided by health care institutions.²² In addition, this may explain why about two-thirds of participants discussed with their doctor the information obtained from the internet. Scott *et al* reported that although most of the patients searched the internet for health information, they still visited the emergency department as they noted that information from the doctor was easier to understand and more trustworthy and also needed the advice of the doctor to make health decisions.²⁴ There is need for

physicians to recognize and accept the fact that there are other sources from which patients obtain health information. Physicians can play a crucial role in online health navigation by discussing and interpreting online health information and basically filtering search-engine findings, thus functioning as an ultimate referent.^{2, 4} To effectively do this physician must have an open attitude and develop proper communication skills to respond to this knowledge when presented to them during consultation by patients. Good communication skills will enable the physician guide and counsel patients to search for health information from trusted and reliable websites.²¹ The lack of recognition of this may impact negatively on the patient-physician relationship and can result in patient dissatisfaction.²¹

Furthermore, the use of internet for health-related purposes was found to be influenced by age, marital status, place of residence, level of education and the presence of chronic disease. Participants within 18 – 44 years were found to use the internet for health related purposes more than those who were older. Similar findings were reported in previous studies.^{20, 24} This may be because the younger people are more familiar with internet use and have better internet skills.²³ Singles were found to use the internet more than those who were married. However, Nolke *et al* reported that married persons searched the internet more often for health information than do singles.⁷ Highest use of internet for health related purposes was observed in participants with tertiary education and those who reside in urban areas. This may be related to the positive association found between high education and health literacy.⁷ Regarding health literacy, the World Health Organization (WHO) says that both cognitive and social skills are required to access, understand and use health information effectively to promote good health.⁷ To be able to access and use the internet for health information, an individual requires the internet skill (E-skill) which consists of the ability to navigate through the world wide web (media-related skills) and knowing how to use various search strategies (information-related skills).⁷ These skills often times are possessed by those who have high education and

so may explain the reason why they use the internet more for health information search.

Also, those without chronic diseases were found to use the internet more than those with chronic diseases. Bilgin *et al* and Nolke *et al* reported similar finding.^{7, 22} However, Ghweeba *et al* reported that those with chronic diseases sought the internet more for health related information.²³ The reason for this discrepancy though not clear but may be argued that both used online health information differently; healthy participants focused on improving their lifestyle while those with chronic illness sought to improve their current health status.²³ Also, the decision to seek for online health information is determined not only by the mere presence of disease but most importantly by self-perceived health risk.⁷

Another possible reason those with chronic diseases did not use the internet more could be that they were under medical supervision with regular follow-ups and so had no need to seek health related information online.²²

CONCLUSION

The study showed a significant level of internet use to obtain health-related information which was mostly disease related. Also, the use of internet for health-related purposes was found to be influenced by age, marital status, place of residence, level of education and the presence of chronic disease.

Recommendations

There is need for physicians to recognize and accept the fact that there are other sources from which patients obtain health information. Thus, physicians must have an open attitude and develop good communication skills that will enable the physician guide and counsel patients to search for health information from trusted and reliable updated evidence-based websites. This would enable patients to preserve their health and well-being leading to improved quality of life. In addition, physicians and medical students should be educated and trained on how to handle the emerging digital challenges relating to health information.

Also, the Ministry of health and other stakeholders in the health sector should promote e-health through the

design of responsive websites, platforms and applications for accessing accurate and reliable health related information.

Limitation: It is a point prevalence study that cannot establish causality.

Conflict of Interest: None.

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