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Abstract

Given the wide-ranging influence of the internet on people in this digital age and the extensive reliance of young people on internet-enabled mobile devices, our study aimed to assess the pattern of online health information seeking behavior among undergraduate students in a Nigerian private university. Employing the cross-sectional survey design and purposive sampling technique, three hundred and four (304) undergraduates took part in the study. A semi-structured questionnaire was used to collect information on the socio-demographic characteristics, participant's use of the internet, online health information seeking behaviour and use of online health information. The results showed that the mean age of 20.01±2.34 years whereby the age range of the respondents was from 15 to 29 years. Also, most of the students were active users of the internet as 94.1% used the internet daily while 83.2% used the internet for health purpose. Topmost among the reasons given for usage and non-usage of the internet for health information included convenience (74.3%) and unreliability (10.5%) respectively. Majorly (67.1%) of the respondents sought online health information using the Google search engine. Skin conditions (62.5%) and sexual/reproductive health (59.9%) were the most searched topics. Also, most (51%) used online health information as a basis for lifestyle change while only 38% consulted health professionals after obtaining online information. In conclusion, the internet has assumed a very important role in the lives of undergraduate students in Nigeria, more so in the area of seeking for health information. There is therefore an urgent need to promote information literacy tailored towards online health information among undergraduate students in particular and young people in general. There is a need for

practitioners in the Nigerian health sector to take an active position in regulating and ensuring the availability of health-related information, especially that which is related to locally common health conditions.

Keywords: Online health information, information seeking behaviour, internet, undergraduate students, Nigeria

Introduction

Online health information seeking is becoming widespread practice especially among young people or the millennial and Generation Z who rely on the Internet for most of their daily lives. Young people represent the most active Internet users among all ages who use the platform regularly for information seeking and communication [1, 2]. This may not be unconnected with the prominent role of such Information and communication technology (ICT) tool as the Internet in the modern society also known as digital age. The Internet is being perceived as the most important tool of the 21st century and a vital technological development [3], thus making the reliance of modern human on its services ubiquitous. The Internet, being a form of computer network, the largest and the mother of all networks at that, allows computers to interact and communicate with one another such that the information resources in diverse computers are accessible on geographically diverse other computers. This has led to the derivation of the word "Online".

Online, according to Merriam-Webster Web dictionary means "connected to, served by, or available through a system and especially a computer or telecommunications system (such as the Internet)" [4]. In Wikipedia, online is reported to mean a state of connectivity on the Internet [5]. Almost every aspect of human endeavor has been moved to the Internet such that there are now online version of virtually everything ranging from online learning (e-learning), online market (e-commerce), online health (e-medicine), online library (e-library or virtual library), online banking (e-banking) and many others. Ditto, salient activities such as sources of information and search for them have become predominantly online affairs. This has significantly impacted on information seeking and use such that this generation of information seekers and users have been termed "Google generation" [6, 7].

Health information seeking has not been left out of this evolving reality. This has turned the attention of researchers to specifically understand, through empirical studies, the online health information seeking behavior of different populations. [8] conducted an exploratory study on the online health information seeking behavior in Hong Kong. Although, his study showed that health information surfing was not so prevalent among his study population at the time as he reported that 44% were the actual health surfers, it showed that most of the surfers were higher educated young people aged 20-29 years old. Reporting on the kind of information sources they used, he found that 78% consulted professional health websites which over 60% indicated to be useful.

Related studies have been conducted in Nigeria. [9] attempted to study assess the link between online health information seeking and health decision-making of undergraduate students of the University of Ibadan. [3] compared internet accessibility and use of online health information resources by students of a tertiary health institution in Ibadan, southern Nigeria. Surveying the students of Kaduna State University in northern Nigeria, [10] studied the health information seeking behavior of undergraduates. While their findings have been very varied based on their objectives they converged on the importance of the subject matter. [9] reported similar sets of health information sought as [10]. These are nutrition, fitness/exercise, HIV/AIDS, malaria, mental health, menstrual pain, and sexual/reproductive among others. Although, more than half of [9]'s respondents reported taking decision to see a physician or traditional healer or do self-medication, 72% of them alluded that online health information are accurate and credible.

[11's] work highlighted the demerits and merits of online health information seeking among non-medical students. While they found that rapidity (98.5%) and ease (95.5%) of access to information were the major benefits, information reliability (78.2%) and language barrier, that is, non-availability of health content in Arabic (60.5%) constituted the major setbacks to their use. This is in relation to the report that "correlates of online health information-seeking behavior and form confidence varied by nativity" [12] who also indicated the need of computer literacy for foreign-born Latinos in America so as to carry them along as online health information gains more popularity. [13] analyzed the health information seeking behavior database of US adults for four consecutive cycles (2011-2014) and found no disparity between ethnicity and health information seeking behavior.

However, the rising popularity of online health contents and growing reliance on them by young people cannot be overemphasized [14]. This is viz-a-viz the continued growth in mobile internet access through smartphones thus bridging the once much talked about digital divide while guaranteeing improved access to health information at users' finger tips. Not minding the numerous advantages, this could also serve as a cheap trigger to seeking health information from unregulated informal sources and self-medication with adverse consequences depending on context and nature of health or disease conditions. According to [9], this may have serious implications for wellbeing and health outcomes, especially in social contexts where health system performance is poor and self-medication is common. This thus explains the interest of researchers on online health information sources and their use by people.

Relatedly, studies have shown that most undergraduates in the 21st century around the world have been found to have "a great deal of flair for internet use and quite a number of them spend an average of over 2 hours per day online" [14]. This group of people have been found to be significantly curious about many things, which include health-related issues. With this development comes higher exposure to different kinds of information, including those relating to health and disease conditions [15]. This may heighten the inherent dangers of self-care practices (ability to purchase prescribed drugs without a prescription sheet from a qualified physician) which has been reported to be a popular practice among undergraduates in Nigeria [16, 17] and lowered the odds for drugs abuse as it was reported for antibiotics [16, 18].

It is thus important to understand the patterns of online health information seeking behavior of university undergraduate especially those in an enclosed but all-inclusive university environment as Afe Babalola University where students rarely have access to the larger community during school sessions. It is believed that the insights gained will help stakeholders regulate online health information as well as address prevailing health information needs or challenges among young people in Nigeria.

General Objectives

The general objective of the paper is to identify the pattern of online health information seeking behavior among undergraduates in Afe Babalola University, Ado-Ekiti, Nigeria.

Specific Objectives:

The study also seeks:

1. To identify the use of internet for online health information seeking among undergraduates in Afe Babalola University.
2. To identify online health information seeking behavior among undergraduates in Afe Babalola University

Research Questions

1. Do Afe Babalola University undergraduates use the internet to seek for health information?
2. What are the factors that influence online health information seeking behaviour of undergraduate students of Afe Babalola University, Ado-Ekiti?
3. What are the sources of online health information of undergraduate students of Afe Babalola University, Ado-Ekiti?
4. What are the reasons for choosing online health information sources?
5. What are the criteria for assessing online health information sources?
6. What are the health subjects and health information sought for by Afe Babalola Uniersity students?
7. How do the students use online health information?
8. To what extent do the health conditions of the students improve with online health information?

Review of literature

Online Health Seeking Behavior

It is no longer news that information seeking has shifted from traditional means such as printed media or direct communications with "experts" to a digital format [19]. Online health information seeking has its benefits and shortcomings. Parts of the benefits include timeliness and availability of a broad range of information on specific and different health and disease conditions. Through this process, health information becomes readily available in a way that patients' knowledge becomes widened and relevant for more participation in therapeutic relationships [20]. It could also promote the making of more informed decisions and compliance with medications. Specifically,

Online health information seeking has become increasingly important as it offers, unlike the traditional physician–patient relationship, instant answers and access to a huge range of resources created and shared by both experts and lay people [21, 22]. Guaranteeing user anonymity, online health information also enables users to inquire about uncomfortable and sensitive issues in complete privacy [23] and balances the power struggle between patients and healthcare professionals [23, 24, 25].

Notwithstanding these benefits, online health information also poses concerns, as it raises debates about the quality, trustworthiness, and applicability of the enormous volume of health information among different social categories [26]. Also, making health decisions based on information of uncertain quality can lead to damaging consequences, such as hindered treatment [27] and severe health anxiety [28].

In a study done, the process of online health information seeking were separated into four main components, namely, establishing an information need, identifying and accessing information sources, examining and evaluating information, and interpreting (using) information [29].

Information need refers to the fact that information seekers could be motivated by a specific health problem [29] which, in turn, would result in three distinct search purposes: factual (for seeking well-defined information), exploratory (for queries without definite answers), and personal experience (for searches based on prior personal experiences [29]). Identifying sources of health information is the step taking place after users realize the presence of an information need and intend to fill a knowledge gap [30]. The third step is judging and evaluating the health information, which represents the process of assessing the relevance of the information itself [31]. The final step involves the actual use of the health information to fulfill the initial information need [32]. Therefore, it is important to contextualize the information-seeking process, depending on the channels used to gather health information to assess whether this aspect could also influence the information-seeking process.

A study among college students in the United States showed that the use of the Internet among students is rising [33]. Specifically, the study showed that more than 70% of the respondents had used online health information, and more than 40% reported using it frequently. This increase is similar to findings among students in Thailand [34]. In both studies, about 70% of the students with access to online health information sought information on general health, disease treatment, and nutrition. Reasons for using the Internet include easy access and availability of updated information. Another related study showed that more than 66% of the students use the Internet to

search for health information on a specific illness, social health fitness, and nutrition information [35].

2.9 Effects of Internet on Health Behaviors

Health-related websites have the potential to powerfully influence the attitudes and behavior of consumers. However, despite the many texts available on health and the internet, not much is known about how much patients actually use the internet to look up health information in their daily lives [36]. The internet moderately improved users' health-related knowledge and attitudes but seldom changed their health-related abilities and activities [37].

Access to reliable disease information online has been linked to reduced anxiety, increased feelings of self- efficacy, and decreases in utilization of ambulatory care. Studies report that internet health information seekers are more likely to have health concerns; adult seekers are more likely to rate themselves as having poor health status and adolescent seekers are more likely to demonstrate clinical impairment or depressive symptomatology compared to non-seekers [38].

However, some have drawn attention to the dangers of patients using the internet for health information. For example, some raise the potential for misdiagnosis and exploitation [39, 40]. Others suggest that internet use can erode patients' faith in the authority of health-care practitioners. In response to such concerns, health-care providers have established classificatory systems for evaluating the scientific worth of web information [41, 42]. Almost half (48%) of health information seekers indicate that their findings help them to take better care of themselves. Two-thirds (67%) of adults also report that Internet health information has increased their understanding of health issues [42].

Research Methodology

Description of Study Area

The study was conducted in Afe Babalola University, Ado Ekiti, Ekiti state. It is located at Km 8.5 Afe Babalola way, Ado Ekiti. The prestigious university's main campus sits on 130 hectares of land at an altitude of over 1500 feet above sea level. It is the only private university in Ekiti State and is fully residential for students. It was established in the year 2009. The university has five undergraduate colleges (Sciences, Law, Engineering, Medical and Health Sciences and Social and

Management Sciences) and a postgraduate college. The university has about 1,255 administrative and academic staff and a student population of about 9,500.

Study Design and Sampling

This study used a cross-sectional design to investigate the pattern of online health information seeking behaviour among undergraduate students of Afe Babalola University, Ado Ekiti, Ekiti State.

The study population comprised of only undergraduate students across all the Colleges except for the College of Medicine and Health Sciences. This is in line with the study protocol whereby inclusion and exclusion criteria were set. By the study protocol for inclusion, only students from departments with inadequate health knowledge and information were included in the study. The sample included all consenting undergraduates across all the Colleges except for the college of Medicine and Health Sciences. However, Students from departments with adequate health-related information such as Medicine, Nursing, Medical Laboratory Science, Anatomy, Biochemistry, Physiology, Pharmacy, and other related departments within the College of Medicine and Health Sciences were excluded in the study. The study purposively focused on recruiting students at all levels across the remaining Colleges included in the study.

In order to get a representative proportion of the study population, the sample size was determined using the Fischer's method as follows:

$$n = \frac{Z^2 pq}{d^2}$$

Where:

n = minimum desired sample size

Z = the standard normal deviate, usually set at 1.96 which corresponds to the 95% confidence level

p = prevalence of online health seeking behavior gotten from a previous study done (67%)

q = Complimentary probability = 1 - p

d = degree of accuracy desired, usually set at 0.05

$$n = \frac{(1.96 \times 1.96) \times 0.67 \times (1-0.67)}{0.05^2}$$

n = 339.75 = 340

Since the target population of the undergraduates at Afe Babalola University is less than 10,000, sample size adjustment was done using the formula;

$$n_f = \frac{n}{1+\frac{n-1}{N}}$$

n_f = desired sample size when the population is <10,000

n = desired sample size when population is >10,000

N= estimate of the population size

$$n_f = \frac{340}{1+\frac{340-1}{9500}}$$

$$= \frac{340}{1.036} = 328.19$$

Using a non-response rate of 10%

$n_t = (n_f \times \text{non-response}) + n_f$

$n_t = (328.19 \times \text{non-response}) + 328.19$

n_t is the sample size after factoring in non-response

$n_t = (328.19 \times 10\%) + 328.19$

= 32.819 + 328.19

= 361.009 respondents

Therefore, minimum sample size obtained was approximately 361 respondents.

Study Instrument, Data Collection and Analysis

The instrument used for data collection was a semi-structured and validated questionnaire. The researchers designed the questionnaire based on themes identified during the extensive review of literature. The face and content validity were achieved using Kappa agreement for test-retest (Coefficient 0.7-1).

The questionnaire contained a combination of close-ended multiple-choice and in some cases provided respondents with the opportunity for free expression. The questionnaire was grouped under four different headings. Section A - demographic and background information of respondents. Section B sought information on participant's use of internet. Section C focused on the students' online health information seeking behavior. Section D focused on the effects and use of health information obtained by respondents using the internet.

The questionnaire were administered online with the aid of Google Form and sent to the participants through the Class WhatsApp platform for administration. The class representatives were first taken through the questionnaire to ensure familiarity and ease of handling. The questionnaire was filled appropriately by 304 respondents out of 361 calculated sample size. This gave a response rate of 84.2%.

The data collected for the study were first of all checked for errors, cleaned and then analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Data analysis was done using descriptive and inferential techniques. Descriptive statistics of the data were presented in frequencies, percentages, means and standard deviation, using bar charts and tables.

Results

Table 1 Socio-Demographic Characteristics of Respondents

Variable	Frequency (n=304)	Percent
Age (years)		
<19	141	46.4
20-24	150	49.3
25-29	13	4.3
Mean±SD	20.01+2.34	100.0
Range	15-29	
Sex		
Female	210	69.1
Male	94	30.9
College		
Engineering	33	10.9

Law	78	25.7
Sciences	30	9.9
Social & Management Sciences	163	53.6
Level		
100	37	12.2
200	55	18.1
300	78	25.7
400	88	28.9
500	46	15.1
Religion		
Christianity	262	86.2
Islam	40	13.2
Atheism	2	0.7
Ethnicity		
Yoruba	117	38.5
Igbo	65	21.4
Hausa	14	4.6
Others	108	35.5
Father's occupation		
Academic	5	1.6
Civil/Public servant	60	19.7
Health worker	18	5.9
Professional	114	37.5
Retiree	16	5.3
Self-employed	89	29.3
Unemployed	2	0.7
Mother's occupation		
Academic	25	8.2
Civil/Public servant	56	18.4
Health worker	29	9.5
Professional	45	14.8

Retiree	8	2.6
Self-employed	138	45.4
Unemployed	3	1
Monthly allowance in Nigeria Naira		
Less than 10,000	17	5.6
10,000 - 20,000	38	12.5
21,000 - 30,000	75	24.7
32,000 and above	174	57.2
Have health insurance coverage		
No	223	73.4
Yes	81	26.6
Have chronic health condition		
No	273	89.8
Yes	31	10.2
Number of chronic condition		
1	24	7.9
2	5	1.6
3	2	0.7
None	273	89.8
Friends/Relatives with chronic condition		
No	170	55.9
Yes	134	44.1
No of visits to the physician in the last 6 months		
0	142	46.7
1 - 3	144	47.4
4 - 6	17	5.6
7 and above	1	0.3

Health status rating		
Excellent	110	36.2
Fair	37	12.2
Good	157	51.6

Socio-Demographic Characteristics of Respondents

Table 1 shows the socio-demographic characteristics of the respondents. The ages of the respondents ranged from 15 to 29 years with a mean age of 20.01±2.34 years. Females (69.1%) were more represented compared to males (30.9%), giving a male to female ratio of 0.4:1. The respondents were predominantly from the college of social and management sciences (53.6%), in 400 level (28.9%), Christians (86.2%) and of the Yoruba ethnic group (38.5%). Most of the respondents had professionals (37.5%) as fathers and self-employed (45.4%) as mothers. Also, majority of them (57.4%) had a monthly allowance of 32,000 naira and above. With respect to their clinical history, a large proportion (73.4%) did not have any health insurance coverage and had visited the physician about one to three times in the last six months (47.4%). Majority (7.9%) of those with chronic condition (10.2%) had only one chronic condition. More than half of the respondents had neither friends nor relatives with chronic condition (55.9%) and rated their health status as "good" (51.6%).

Table 2: Respondents' Use of the Internet

Variable	Frequency (n=304)	Percent
Have access to the internet		
No	8	2.6
Yes	296	97.4
Use the internet		
No	1	0.3
Yes	303	99.7
Frequency of use		
Daily	286	94.1
Never	1	0.3
Once or twice a week	4	1.3

Up to 5 times a week	13	4.3
Quantity of data used in a month		
1.5GB and above	288	94.7
Less than 500MB	3	1
Up to 1GB	10	3.3
Up to 750MB	3	1
Found health information online in the past		
No	25	8.2
Yes	279	91.8

Respondents' Use of the Internet

Table 2 displays respondents' use of the internet. A large percentage of the respondents had access to the internet (97.4%), used the internet daily (94.1%), utilized a data quantity of 1.5GB and above (94.7%) and had found health information online in the past (91.8%). Surprisingly, one (0.3%) respondents claimed not to use the internet.

Table 3: Respondents' Use of the Internet for Health Information

Variable	Frequency (n=304)	Percent
Use the internet for health information		
No	51	16.8
Yes	253	83.2
Frequency of seeking health information online		
Every few months	83	27.3
Everyday	23	7.6
Once a month	40	13.2
Once a week	24	7.9
Once a year	31	10.2
Several times a month	59	19.4
Several times a week	44	14.5
Average time spent on health information web pages (hour/week)		

2 - 5 hours	30	9.9
Less than 2 hours	270	88.8
More than 5 hours	4	1.3
Online health information is sought for		
Self	86	28.3
Someone else	7	2.3
Both	211	69.4

Respondents' Online Health Information Seeking Behaviour

Respondents' Use of the Internet for Health Information

The respondents' use of the internet for health information is displayed in Table 3. Most (83.2%) of the students use the internet for health information. When asked how often they sought for health information online, many (27.3%) of the students said every few months followed by those (19.4%) who said several times in a month. In a week, most of them (88.8%) spent less than two hours on health information web pages. A large proportion of the students (69.4%) sought for health information for both themselves and others while a few (28.3%) sought health information solely for themselves.

Table 4 Reasons for Usage and Non-usage of the Internet for Health Information

Variable	Frequency	Percent
Usage (Multiple responses)		
Anonymous, private and confidential	145	47.7
Cheap	92	30.3
Convenient	226	74.3
Easy to communicate with peers	32	10.5
Easy to find information	216	71.1
Less embarrassing than talking to a professional	83	27.3
Peer Pressure	2	0.66
Unsatisfactory attention at hospital	36	11.8
Vast amount of valuable information available	185	60.9

Non-usage		
Exaggeration of symptoms	1	0.3
Always visit a doctor	2	0.6
Incompetence to search for and use internet information	10	3.3
Never get sick	1	0.3
Not interested in searching	3	1
Not needful	2	0.6
Unreliability	32	10.5

Reasons for Usage and Non-usage of the Internet for Health Information

Table 4 displays respondents' reasons for using the internet for health information or otherwise. The most frequently cited reason by respondents for using the internet for health information was convenience (74.3%) while unreliability (10.5%) was the most mentioned reason for not using the internet for health information. Besides convenience, the results also showed that the students used the internet for online health information because of ease of finding information (71.1%), availability of vast amount of valuable information (60.9%), and guarantee for anonymity, privacy and confidentiality (47.7%). By the result, it can also be inferred that the students did not see reasons not to use the internet for health information search except for the few 10.5% that indicated unreliability of such information.

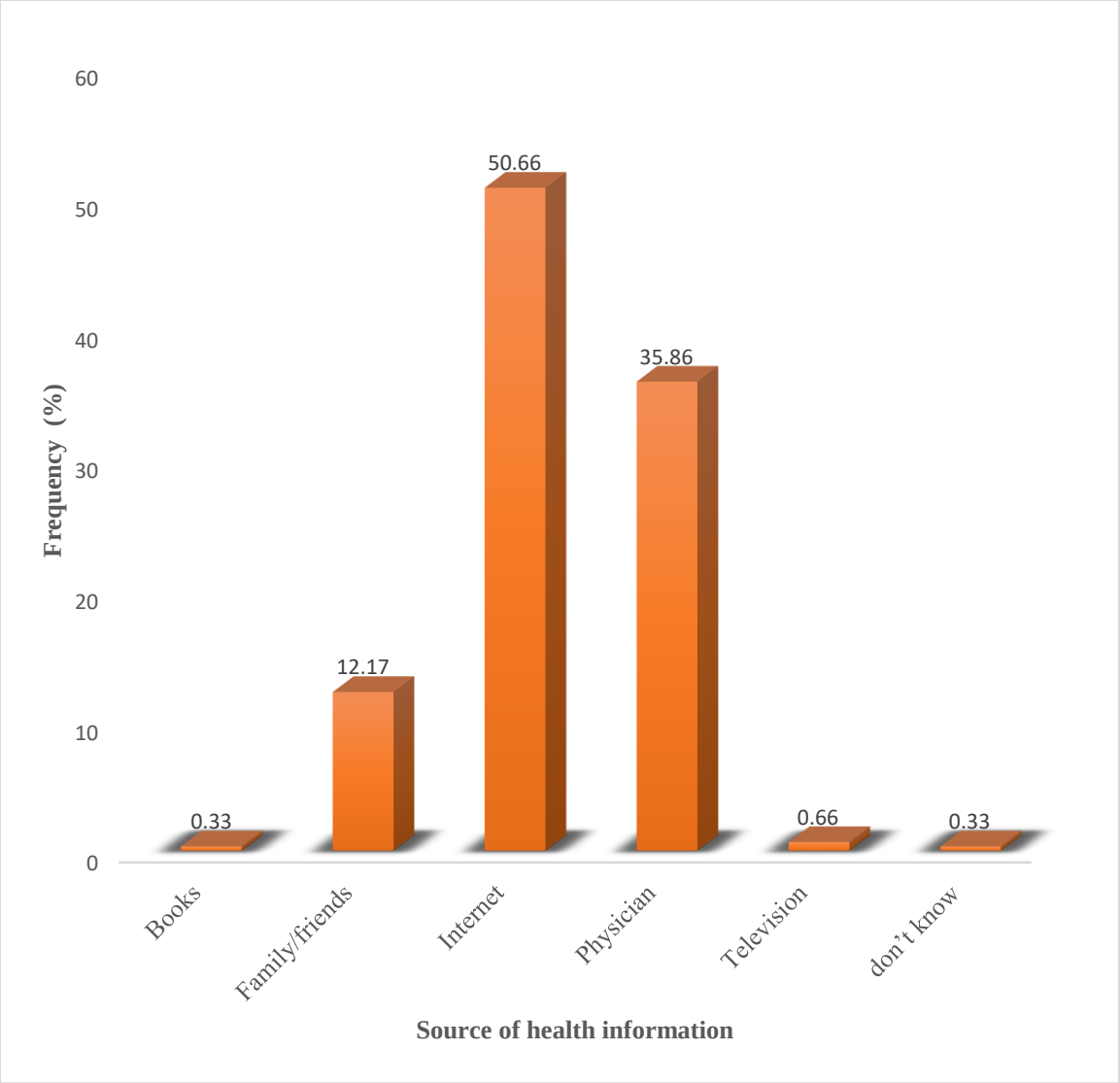

Figure 1: Respondents' Main Source of Health Information

Respondents' Main Source of Health Information

As displayed in Figure 1, the respondents' main source of health information is the internet (50.66%) followed by the physician (35.86%). Other sources such as television (0.66%) and books (0.33%) were scarcely utilized.

Table 5: Respondents' Sources of Online Health Information (Multiple Responses)

Sources of Online Health information	Frequency	Percent
Blogs	64	21.1
Commercial sites	8	2.6
Google search engine	204	67.1
Health portal and medical encyclopedia	109	35.9
Internet forums and message boards	24	7.9
News sites	41	13.5
Non-profit Organisation	12	3.9
No special preferences	47	15.5
Online encyclopedia	96	31.6
Q&A sites (e.g. Yahoo! Answers)	48	15.8
Scientific Societies	21	6.9
Social media (e.g. Facebook, Twitter)	99	32.6
Video-sharing sites (e.g. You Tube)	70	23
Websites recommended by search engines	70	23
Websites related to Ministry of Health or Universities	52	17.1

Respondents' Sources of Online Health Information (Multiple Responses)

Respondents were asked about their sources of online health information and were at liberty to give multiple responses. As shown in Table 5, several sources of online health information were utilized by the student; topmost among them was the Google search engine (67.1%) followed by health portal and medical encyclopedia (35.9%) and Social media (32.6%). The least utilized source was commercial sites (2.6%). However, 15.5% of them had no special preferences.

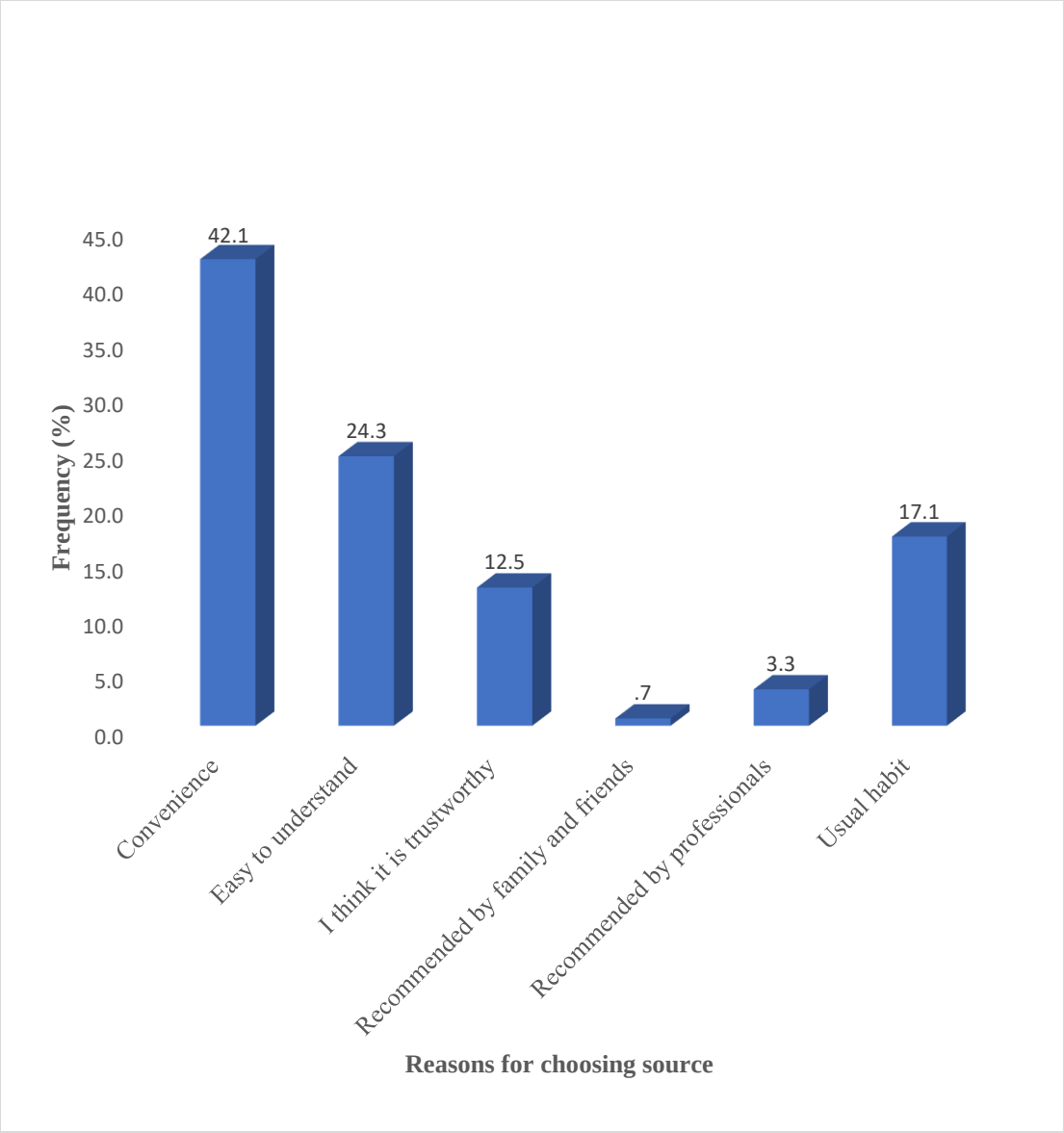

Figure 2: Reason for choosing Sources of Online Health Information

Reason for choosing Sources of Online Health Information

As shown in Figure 2 above, varying reasons were given by respondents for choosing an online health information source or the other. The commonest reason given was convenience (42.1%) followed by ease of understanding (24.3%). The rarely mentioned reason by respondents was 'recommended by family and friends' (0.7%).

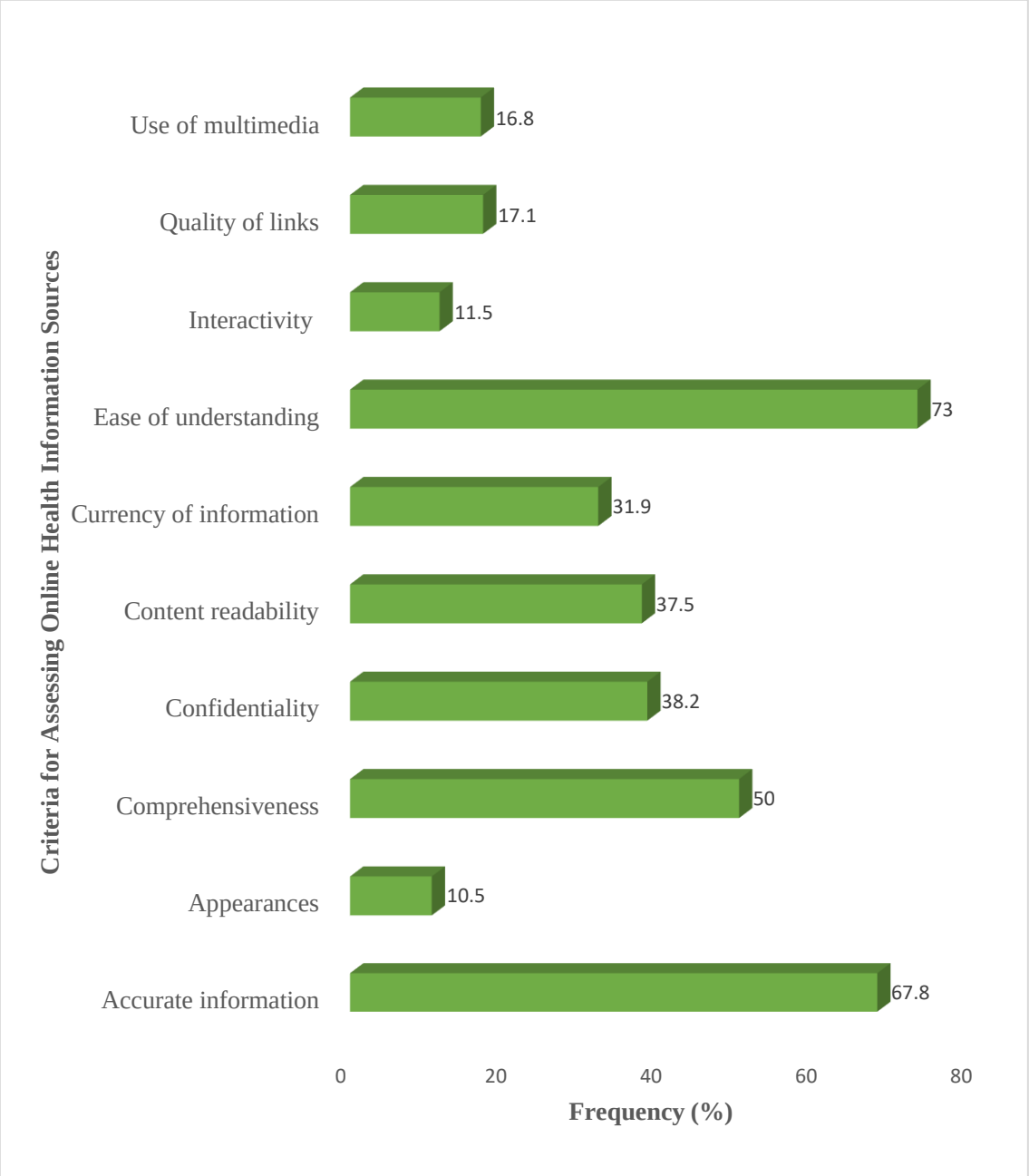

Figure 3: Criteria for Assessing Online Health Information Sources

Criteria for Assessing Online Health Information Sources (Multiple responses)

Respondents were also asked about the criteria they took into consideration for assessing online health information sources. As displayed in Figure 3, ease of understanding of information (73%) was the most important criterion followed by accuracy of information (67.8%), comprehensiveness (50%), confidentiality (38.2%) and content readability (37.5%) among others. The least important

criteria were appearances (10.5%) and interactivity (11.5%).

Table 6: Health Subjects and Information Sought Online by Respondents (Multiple Responses)

Health Subjects	Frequency	Percent
Accidents and injuries	72	23.7
Emergencies	63	20.7
Mental health	135	44.4
Narcotics and alcohol (alcohol or drug rehabilitation)	49	16.1
Physical activity (sports, fitness etc.)	134	44.1
Respiratory health	105	34.5
Sexual health	182	59.9
Skin condition	190	62.5
All of the above	24	7.89
Health Information		
Alternative medicine	54	17.8
Disease condition	147	48.4
Health insurance	13	4.3
Healthy behaviour	106	34.9
Medication	137	45.1
Service info	25	8.2
Symptoms	276	90.8
Test and investigations	67	22
Treatment	190	62.5
Vitamins and supplements	81	26.6

Health Subjects and Information Sought Online by Respondents

During the survey, respondents were asked about the health subjects they had sought on the internet out of curiosity and other relevant health information they had sought online. The respondents could give multiple responses. As shown in Table 6 above, the health subject and health

information that was most sought for was skin condition (62.5%) and symptoms (90.8%), respectively. While, a minority sought online for health subjects on narcotics and alcohol (16.1%) and information on health insurance (4.3%), a fewer set of respondents (7.89%) went in search of all the listed health subjects.

Table 7: Use of Online Health Information by Respondents

Use of Online Health Information (Decision-making)	Frequency	Percent
Change lifestyle (Started exercising, Stopped smoking, etc.)	154	51
Changing medication without discussing with professional	22	7.2
Confide in a friend for suggestion	44	14
Discussing health issues with health professional	117	38
Making, cancelling, or changing appointment with the doctor	37	12
Self-medication/patent medicine vendor	72	24
Did not take any step	65	21

Use of Online Health Information by Respondents

Table 7 highlights how respondents have used online health information to make varying decisions concerning their health. Majority of the respondents reported that they used the online health information obtained as a basis for lifestyle change (51%) followed by those who preferred to discuss health issues with health professional (38%) and embarked on self-medication or visit patent medicine vendor (24%). Very few respondents use online health information to change medication without discussing with professional (7.2%) and some did not take any further step (21%) based on the online health information obtained.

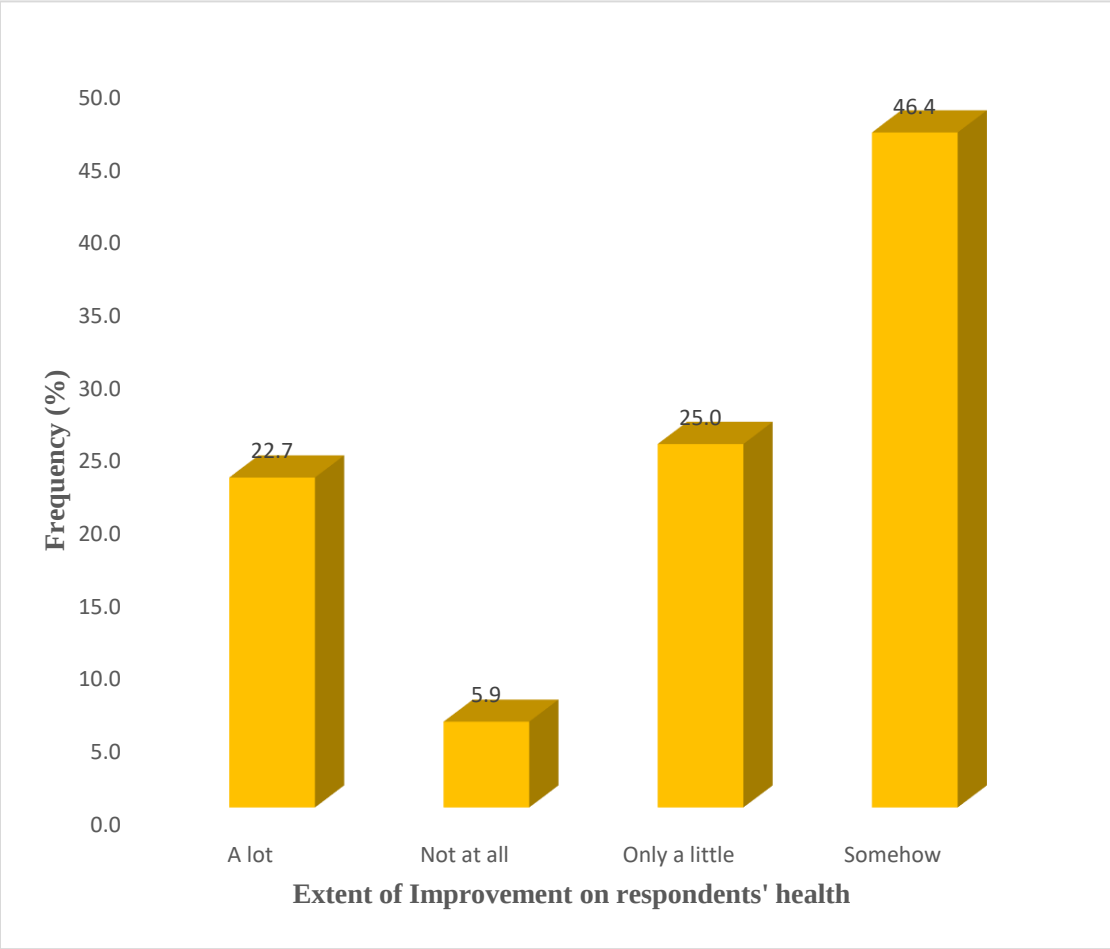

Figure 4: Extent of improvement on respondent's health condition

Extent of improvement on respondent's health condition

Figure 4 shows self-reported improvement on respondent's health condition by using online health information. A greater percentage of the respondents acknowledged that their health condition had "improved somehow" (46.4%) followed by those whose health status had improved "only a little" (25%). However, 22.7% of the respondents reported their health conditions improved quite "a lot".

Discussion

According to this study, less than one-third of the respondents (26.6%) have health insurance coverage. This result is similar to previous studies done in Nigeria [43, 44, 45]. This is worrisome as it shows that health insurance coverage is still low among students in Nigeria. This problem may be attributed to lack of proper orientation of the students on the objectives and benefits of the scheme. The number of visits to the physician in the last six months were considerably high as more than half (53.3%) of the students had visited the physician at least once. This can be attributed to easy access to physicians as the school has a tertiary hospital domiciled within the campus. This finding agrees with previous studies carried out [46, 14].

Also, results from this study revealed that a large percentage of the university students use the internet (97.4%). This can be explained by the ease of access made possible by android, IOS, and Microsoft powered smart phones and other hand-held devices which are widely available. Earlier studies had found an extensive use of the internet among adolescents and young adults including university students [31, 9, 47, 48]. However, this may not be an actual representation of internet access among university students in Nigeria [9, 47].

Furthermore, this study indicated that the internet is the main source of health information (50.7%) for the students. This result compares with other studies globally, including a study done in Northern Africa on 'predictors of online health seeking behaviour among young adults' which showed that the internet was the main source of health information [49]. This survey revealed that about 83.2% of the sampled university students used the internet for health information.

This finding aligns with a survey carried out in Italy which showed that 65% and 60% of young Italian females and males (between 18–29 years) respectively used the internet for health-related purposes [50]. It also confirms a study in the United States on health information seeking behaviour among US adults that found that a greater percentage of US adults use the Internet as the first place they go for health information [24].

The main reasons cited by participants for using the internet for health information were convenience (74.3%) and ease of finding vast amount of information (60.9%). This may be linked to easy access to smart phones. Previous studies identified availability of information and privacy as the main reasons for using the internet for health information amongst young adults [1, 9]. On the

other hand, respondents declared unreliability (10.5%) as the reason for not using the internet for health information. This reason as well as high cost of internet has been identified in an earlier study as the main reason for non-usage of the internet for health information [51].

A large number of the respondents used the Google search engine (67.1%) followed by health portal and medical encyclopedia (35.9%) amongst others as sources of online health information seeking. This is also consistent with previous findings [1, 52] that have underscored search engines as an easy means of searching online health information as these search engines are usually free and convenient.

The wealth of online health information sources available to the public has raised numerous concerns about how accurate the information on such platforms is as well as the possibility of harm as a result of inaccurate information [53, 54]. Criteria for assessing which websites and platforms to use to gain access to health information varied from accuracy, currency of information, comprehensiveness, ease of understanding, confidentiality, interactivity and quality of links to use of multimedia and appearances. This study showed that ease of understanding of information (73%) followed by accuracy of information (67.8%) were the most important criteria for assessing online health information sources amongst the respondents. Previous studies have highlighted credibility of the websites and ease of understanding as important criteria for assessing online health information sources [53, 55].

It is noteworthy that the respondents in this study sought online health information for different health conditions. The search for information on skin condition (62%), sexual health (60%) and mental health (44%) were dominant. The situation is similar to other findings [55, 11]. Largely, the search for information on sexual/reproductive health is understandable as the respondents are in their reproductive ages (15-24 years). The reliance on the internet for sexual and reproductive health information shows a need for regulation as the availability of sexual and reproductive health information with on the internet cannot be a substitute for seeking help from health facilities.

Furthermore, a significant dimension of the findings in this study is the use of information sought to make a decision. This study indicated that about 51% of the students who use the internet for health purpose reported having had their lifestyle or health behaviour change after their contact with online information. It is possible that the changes in question reflect improved healthy lifestyles (e.g., good eating habit, adequate exercise, reducing alcohol intake, and smoking). A

greater percentage (46.5%) of the respondents acknowledged that their health condition had improved somehow, while 25% and 22.7% of the respondents reported that their health condition improved only a little and a lot, respectively as a result of the information gotten online.

Conclusion and Recommendation

This study reveals that Afe Babalola University students are active users of the Internet, including its use for seeking health information both for themselves and important others.

There is a need for practitioners in the Nigerian health sector to take an active position in regulating and ensuring the availability of health-related information, especially that which is related to locally common health conditions.

Moreover, it is also necessary to promote e-health through design of responsive websites and sources as a viable platform for accessing health interventions and healthcare in the country. This would, among other benefits, provide quick, accessible, and affordable access to healthcare and health information. It is envisaged that the integration of technology in healthcare, by promoting internet-based access to healthcare especially among university students and other qualified groups in the population, will go a long way to address problems of access and quality in healthcare delivery in the country. However, it would be equally prudent to be aware of online safety issues for students and other users of internet for health-based information.

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