WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH
www.wjpmr.com

THE UTILIZATION OF INTERNET FOR HEALTH INFORMATION AMONG PIONEER MEDICAL STUDENTS IN A NIGERIAN UNIVERSITY

Titus Onyi*[1] and Rebecca Titus[2]

[1]Medical Academic, Department of Public Health/Community Medicine, College of Medical Sciences, Abubakar Tafawa Balewa University, ATBU, Bauchi, Nigeria.
[2]Researcher, Department of Political Science, Ignatius Ajuru University of Education, Port Harcourt, Nigeria.

*Corresponding Author: Titus Onyi
Medical Academic, Department of Public Health/Community Medicine, College of Medical Sciences, Abubakar Tafawa Balewa University, ATBU, Bauchi, Nigeria. Email ID: hardertt@gmail.com, udluv002@gmail.com,

ABSTRACT

Background: The benefits of internet for health information are enormous. These include health and academic needs of medical students. The utilisation of internet for health information had not been researched on the pioneer medical students of Abubakar Tafawa Balewa University, ATBU, Bauchi, Nigeria .The study therefore examined the pattern of internet use for health information among these students. **Objectives**: The study assessed: the frequency of use of internet and internet for health information; the nature of the health information accessed; the search engines and websites accessed for obtaining health information; the perceived helpfulness of internet for health information and the perceived barriers in the use internet for health information. **Method:** Self-designed, 25-item questionnaires were administered to 40 pioneer medical students of ATBU. Data was analysed using SPSS version 23 and Microsoft Excel 2013. **Results:** The response (n=40) was high for daily internet access and for daily internet use for health information. The health information sourced was mostly for academic research and personal health information. Most students perceived the internet as an easy and helpful tool and mostly utilised Google search engine and PubMed website. Poor internet access and internet search skills and costly phones were perceived barriers to internet use for health information. **Conclusion:** The students had good use of internet for health information. However, there are gaps in the optimal use of websites and search engines for health information. Strengthening e-health and improving internet search skills will optimize health information from the internet.

KEYWORDS: Internet, Health Information, Health Education, Medical Students, Utilisation.

1.0 INTRODUCTION

The internet is an effective and efficient 'information super-highway' for global sharing of information. The development of internet has transformed information management globally. This is very relevant in health information in areas of personal health education, medical training, medical records and diagnoses and treatment of diseases. The popularity of internet access for health information is influenced by emerging information and communication technology on health, a phenomenon called e-health.[1] E-health has been developing rapidly from the late 1990s[2] and is very relevant in interactive health communication .Health information includes information for healthy living, preventing and managing diseases, making decisions about health products and health services and making other decisions related to health and health care. It may be in the form of data, text, audio, video, etc.[3] identified three uses of internet for health information: searching directly for health information; participating in support groups/social internet platforms and consulting with health professionals. Health information through the internet has the advantage of being tailored to individual health needs and sometimes to community health needs which may be difficult to access. It removes geographical and physical barriers in accessing health information. Due to the anonymity of the internet, it allows for the access of sensitive and embarrassing health information and reduces stigmatisation of patients.[4,3] The internet provides the convenience for professional online intervention systems with integrated health and medical information on decisional support, questions and answers, and online interaction, a forum for interaction with health professional experts or other system users.[5] Through social media, the internet provides various platforms for patients with identical backgrounds and health concerns to share concerns among themselves and among online support groups for emotional support.[6,7]

The medical students have an enormous academic work load and limited resources in their medical training. There is also increasing number of health problems

among the Nigeria youths, where the students fall. Health access in Nigeria is limited by user-fees, limited health personnel and delays in accessing health care at the health facilities, etc. These make internet as a good choice for accessing health information for its benefits.[8,9,10,11] Some of the studies conducted among Nigerian medical students showed that the internet was used to access health education, health promotion information on disease management for example , reproductive and sexual health, and health research[12,13,14,15,16] concluded that the use of computer and internet in medical education has not been fully utilised among medical students in Ibadan, Nigeria.

The quality of health information accessed through the internet is not always good. With large quantity of web pages, online services and applications related to health,[17] there are concerns over the quality of health information.[18] found that over 70% of health-related websites have poor quality of health information accessed online. Even the attractive design of some websites may give a wrong impression of the quality of the website.[19] These unregulated health websites from internet raise serious concerns on the reliability of health information.[20] This is a particular danger for the students who may lack the skills for verifying the quality of online information.[21] The students therefore need to know if a web page is up to date, the providers of the information, the accuracy of the information, the usability of the resources and security of the resources etc. Questions of who, where, why, when and what information are passed should be addressed to assess the quality of the online health information. Interestingly, various tools and checklists have been developed and validated by various organisations to evaluate health information presented online. Examples of these organisations and criteria for evaluating online health information include:JAMA (Journal of the American Medical Association) scoring system; HON (Health on the Net Foundation) certification and HON seal ; DISERN assessment for quality of health information; The LIDA tool for evaluating the accessibility, usability and reliability of health information on the net and The Flesch Reading Ease Score and the Flesch-Kincaid Grade Level for assessment of web readability, etc.[22] These criteria have not been systematically applied to a broad set of Web pages and conditions. The reliability and validity of many of these evaluations are unknown because many of these systems rely on voluntary self-assessments by Web page developers.[23] There is no consensus quality marker for assessing health information from the internet.[24]

There was the establishment of the medical college of Abubakar Tafawa Balewa University,ATBU, a Nigerian federal university in Bauchi, Nigeria. The university enrolled its pioneer medical students in 2017. These were necessitated by the need to develop education and medicine at the region. The quality of the medical training of these pioneer students is therefore crucial for the mission and vision of the medical college. Hence the health information sought by these students is important in their development. However, studies have not extensively researched the utilisation of internet for health information among students in Nigeria. Furthermore, no such research has been conducted for these pioneer medical students in ATBU, Bauchi .This underscores the need to conduct the present study. The study describes the utilisation of internet for health information among these pioneer medical students. The specific objectives of the study were: frequency of use of internet and internet for health information; the nature of the health information accessed; the search engines, websites and data bases used for accessing health information; the perceived usefulness of internet for health information and the perceived barriers in the use internet for health information.

The data collected provide an insight into the information seeking behaviour of these pioneer medical students on the internet and identify gaps and barriers that need to be addressed so that the students can effectively use the internet for qualitative health information for their personal and research needs, etc.

2.0 METHODS

2.1 The setting
Abubakar Tafawa Balewa University, ATBU, is located in the north- eastern part of Nigeria at the geographical coordinate of 10.3010° N, 9.8237° E. The university was established in 1980 as the Federal University of Technology (FUT), Bauchi, In 1984, under the rationalisation programme of the Federal Government of Nigeria, the University was merged with the Ahmadu Bello University, Zaria and was renamed the Abubakar Tafawa Balewa College, Ahmadu Bello University, (ATBC-ABU). In 1988, it was de-merged from the Ahmadu Bello University and regained its autonomy as an independent university. Currently, the university has to main campuses-Yelawa campus in Bauchi maintown and Gubi campus, located outside in the suburb of Bauchi. ATBU currently has 30 Academic departments, 6 faculties, 8 directorates, 7 centers and a new medical College.It has an undergraduate students' population of about 12,600 including 41pioneer medical students admitted in 2017.[25]

2.2 Study design
The study was a cross-sectional survey that utilised self-designed hand-delivered 25-item questionnaires. Items 1 to 6 obtained demographic data while items 7 to 25 obtained data on the various objectives of the study.

2.3 Population for the Study
The study population consisted of 41 medical students admitted in the 2016/2017 session of ATBU, Bauchi, Nigeria. These were the pioneer medical students of the university.

2.4 Sample and Sampling Technique
40 out of 41 medical students (the target population) were present for the study. These 40 students all participated in the study.

2.5 Research tool
Data were collected using questionnaires. The researchers designed the questionnaire based on themes identified from the review of literature and the objectives of the study. The questionnaires were a combination of Likert-scaled, structured questions and open-ended questions to obtain a wide range of information.

2.6 Validity of research tool
Two university academics, one from Public health department and one from the department of Information and Communication Technology, CT, reviewed the questionnaires for content validity. Modifications were made based on the feedback from the reviewers. After due corrections, the final questionnaires were adopted for the study.

3.0 RESULTS AND DISCUSSION

All the 40 copies of questionnaires that were distributed to the students were returned and were correctly filled. This gave a return rate of 100% was achieved probably because of the small population of the study.

3.1 Socio-demographic profile of respondents
Table 1: Socio-demographic profile of respondents.

SEX		Frequency	Percent	Cumulative Percent
	male	11	27.5	27.5
	female	29	72.5	100.0
	Total	40	100.0	
AGE		Frequency	Percent	Cumulative Percent
	18- 19 years	24	60.0	60.0
	20 - 29 years	16	40.0	100.0
	Total	40	100.0	
MARITAL STATUS		Frequency	Percent	Cumulative Percent
	Single	36	90.0	90.0
	Married	4	10.0	100.0
	Total	40	100.0	

(Researchers' computation using SPSS version 23)

From table 1, there were more female (72.5%) respondents than male (27.5%) respondents. The ages of the respondents ranged from 18 years to 29years. Most (60.0%) respondents were in the age bracket of 18-19 years. Respondents from 20 years to 29years of age were 40.0%.

Majority (90.0%) of respondents were not married while 10.0% were married.

3.2 Frequency of use of internet and internet for health information
The Frequency of use of internet is shown in figure 1. The frequency of use of internet for health information is shown in figure 2 below.
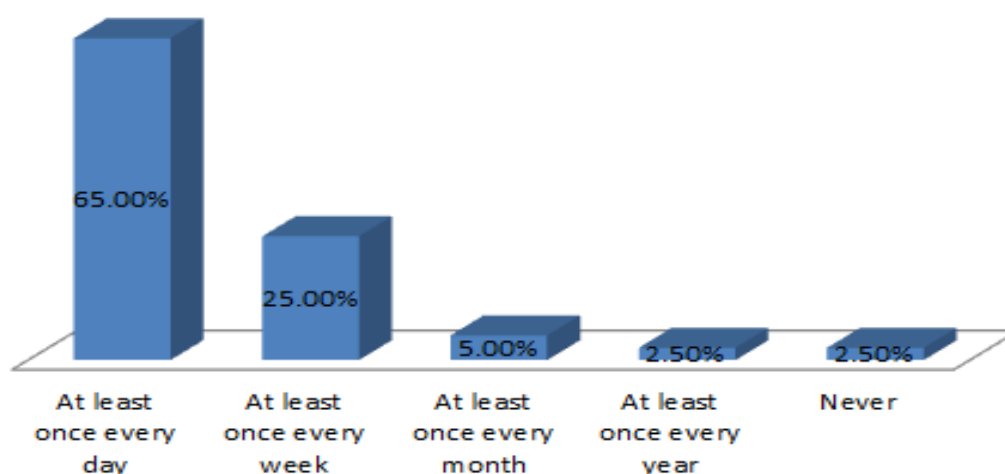

Figure 1: Frequency of use of internet.
(Researchers' computation using SPSS version 23 & Microsoft Excel 2013)

From figure 1, there was a steep successive decline of the use of internet from daily access to non-access. Most (65.0%) of the respondents accessed the internet at least once a day.25.0% accessed internet at least once every week.5.0% of respondents accessed internet at least once a month.2.5% response was for those who accessed internet at least once yearly or never used the internet.
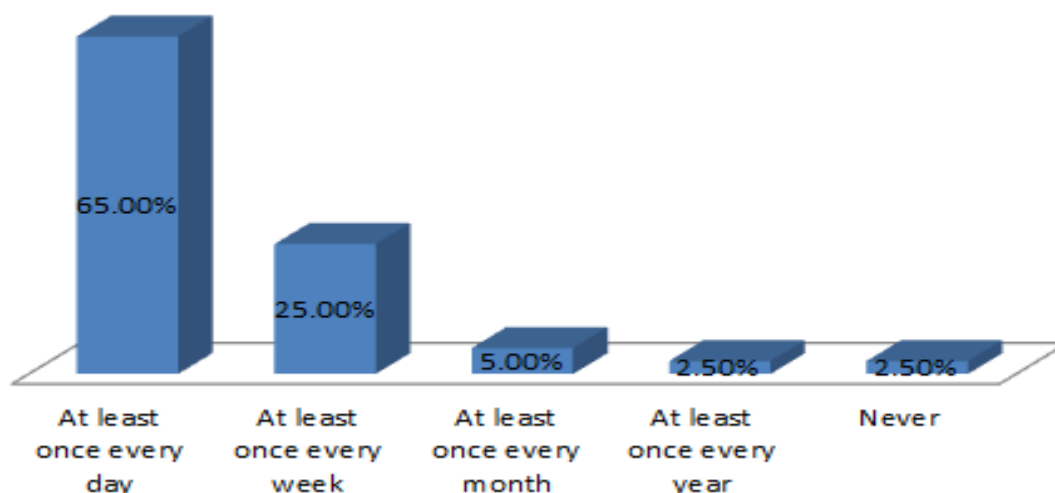

Figure 2: Frequency of use of internet for health information.
(Researchers' computation using SPSS version 23 & Microsoft Excel 2013)

From figure 2,most (50.0%)of respondents accessed the internet for health information at least weekly.2.5% never accessed internet for health and medical information. 25.0%,12.50% and 10.0% response were for at least monthly, daily and yearly internet access for health information respectively.

3.3 The nature of the health information accessed
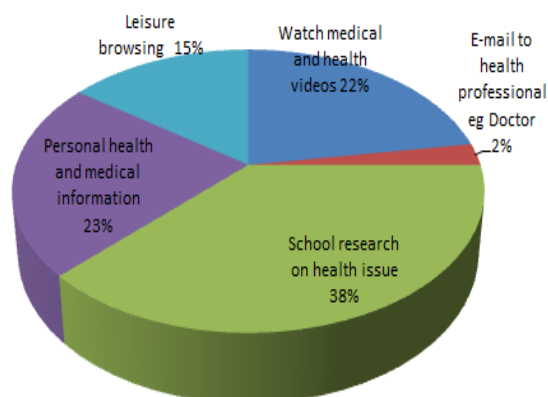The nature of health information accessed through the internet is shown in figure 3 below.

Figure 3: 3D Pie shart showing the nature of the health information accessed.
(Researchers' computation using SPSS version 23 & Microsoft Excel 2013).

From the pie chart above,most (38%)of health information was for school research on health issue. 23% of the health information sought was for personal health and medical information.22% accessed internet to watch medical and health videos. 15% of the health information

was sought for leisure.The least(2%) health information accessed was for e-mail to health professionals.

3.4 The search engines and websites accessed
Figures 4 and 5 show the most frequently accessed search engines, the most frequently accessed websites and the most frequently accessed electronic databases and library respectively.
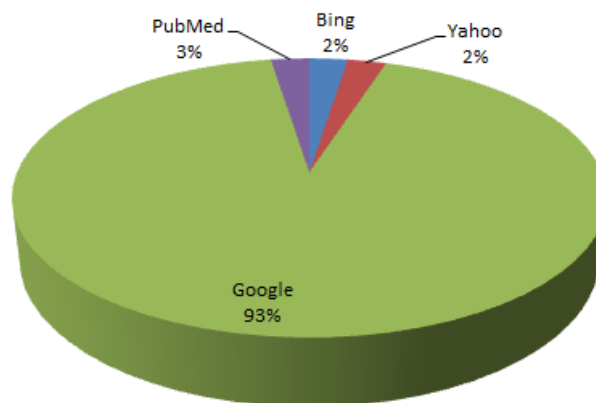

Figure 4: The most frequently accessed search engines.
(Researchers' computation using SPSS version 23 & Microsoft Excel 2013).

From figure 4, the highest response for the most frequently accessed search engines was google(93.0%),followed by a wide margin by PubMed at 3%.Response for Bing and Yahoo was 2% each.
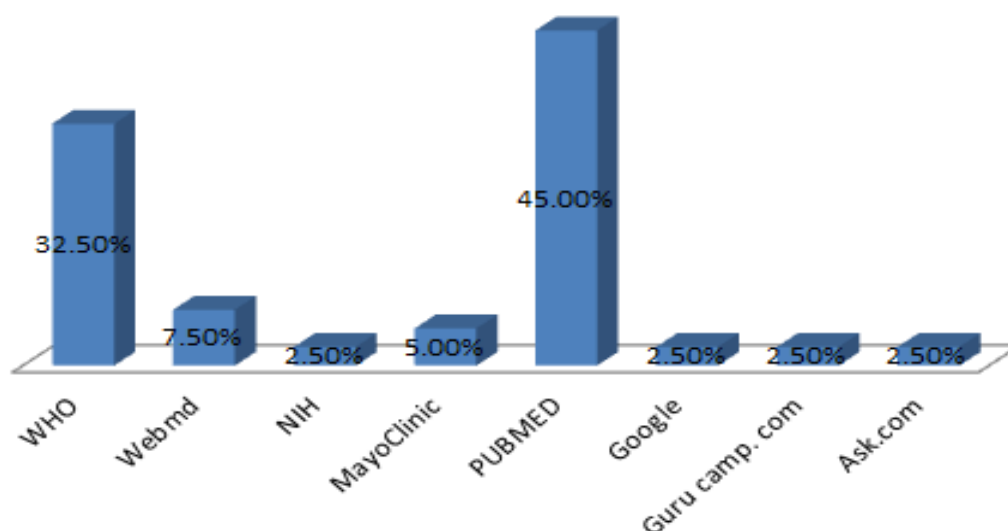
Figure 5: The most frequently accessed websites for health information.
(Researchers' computation using SPSS version 23 & Microsoft Excel 2013).

From figure 5 above,The most frequently accessed website for health information was PubMed(45%),followed closely by WHO (32.5%).Relatively low responses were for Webmd(7.5%) and Mayoclinic(5%)The least response(2.5%) was tied by NIH,Google,Guru camp.com and Ask.com.

3.5 Perceived trust of s health information from the internet
Table 2: Perceived trust of internet health information from the internet.

		Frequency	Percent	Cumulative Percent
Valid	Yes	16	40.0	40.0
	No	24	60.0	100.0
	Total	40	100.0	

(Researchers' computation using SPSS version 23)

From table 2, above,47.2% trusted the health information accessed online while a slight majority(52.8%) did not trust the health information from the internet

3.6 Perceived ease of use of internet for obtaining health information
The data on perceived ease of use of internet for obtaining health information is shown in Table 3 and figure 7 below.

Table 3:Perceived ease of use of internet help for obtaining health information.

N	Valid	40
	Missing	0
Mean		3.75
Median		4.00
Mode		4
Range		4
Minimum		1
Maximum		5

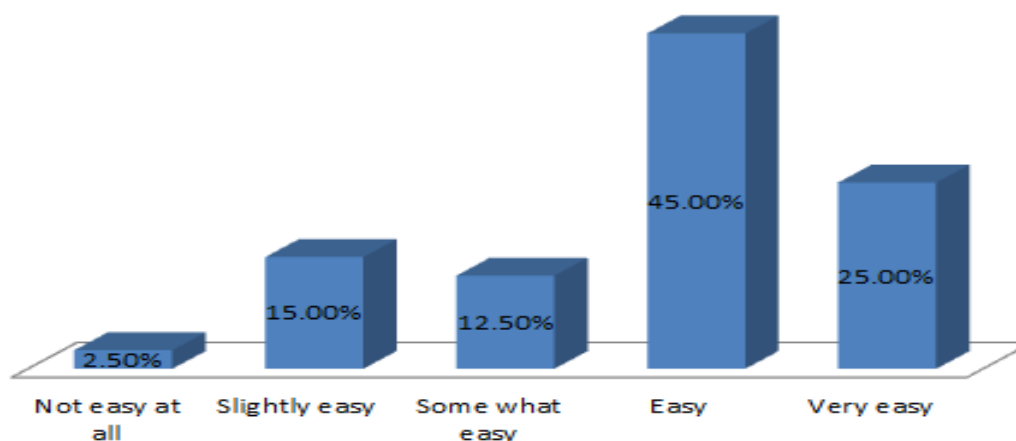(Researchers' computation using SPSS version 23)

Figure 7: Perceived ease of use of internet to obtained health information.
(Researchers' computation using SPSS version 23 & Microsoft Excel 2013).

From figure 7 above ,majority(45.0%)of respondents perceived internet access as an easy tool for obtaining a wide scope of health information.25% perceived internet access as a very easy tool for obtaining wide scope of health information .15% and 12.5% responses reported internet access as slightly easy and somewhat easy respectively for obtaining wide scope of health information .2.5% response perceive internet use for obtaining wide scope of health information as not easy at all.

3.7 Perceived helpfulness of internet for obtaining wide scope of health information.
The data is presented in table 4 and figure 8 below.

Table 4: Statistics of response of perceived helpfulness of internet for obtaining wide scope of health information.

N	Valid	40
	Missing	0
Mean		4.15
Median		4.00
Mode		4
Range		3
Minimum		2
Maximum		5

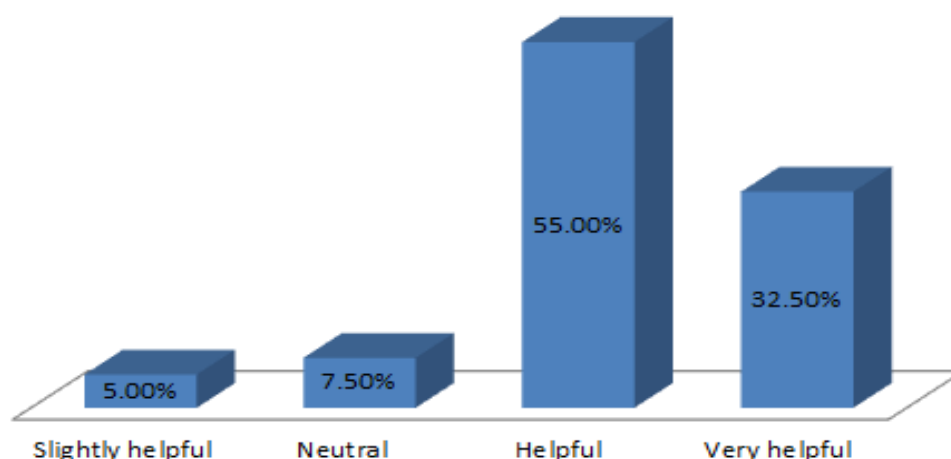(Researchers' computation using SPSS version 23)

Figure 8: Perceived helpfulness of internet for obtaining wide scope of health information. (Researchers' computation using SPSS vs. 23 & Microsoft Excel 2013).

From figure 8 above ,majority(55.0%)of respondents perceived the internet as a helpful tool for obtaining wide scope of health information.The least response(5.5%) reported internet as slightly helpful.Responses for internet as a very helpful tool was 32.5%.There was 7.5% neutral reponse –neither helpful nor unhelpful. The mean response of 4.15 on a Likert scale, as seen in table 4 above,is indicative of an overall very good response of perceived helpfulness of internet for obtaining wide scope of health information.

3.8 Perceived helpfulness of internet for school assignment
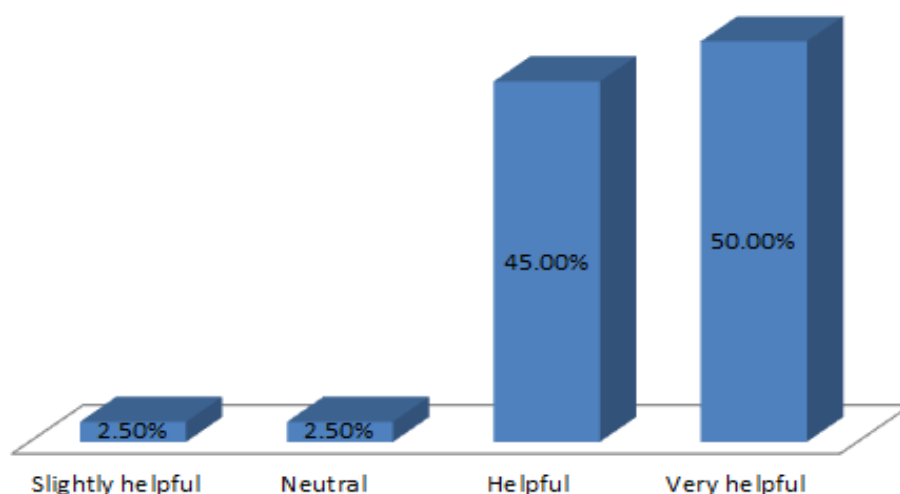The perceived helpfulness of internet for school assignment is presented in figure 9 below.

Figure 9: Perceived helpfulness of internet for school assignment. (Researchers' computation using SPSS vs. 23 & Microsoft Excel 2013).

From figure 9 above, 50% and 45% of respondents perceived the internet as being very helpful and helpful respectively for school assignment. The least response(2.5%) was tied by neutral response and response of internet being slightly helpful

3.9 Perceived barriers to internet access for health information
The perceived barriers to internet access for health information are presented in the subheadings.

3.9.1 Perception of lack of access to internet as a barrier to internet access for health information.
The data is presented in table 5 and figure 10 below.

Table 5: Statistics of lack of access to information hinders obtaining health information.

N	Valid	40
	Missing	0
Mean		3.70
Median		4.00
Mode		5
Range		4
Minimum		1
Maximum		5

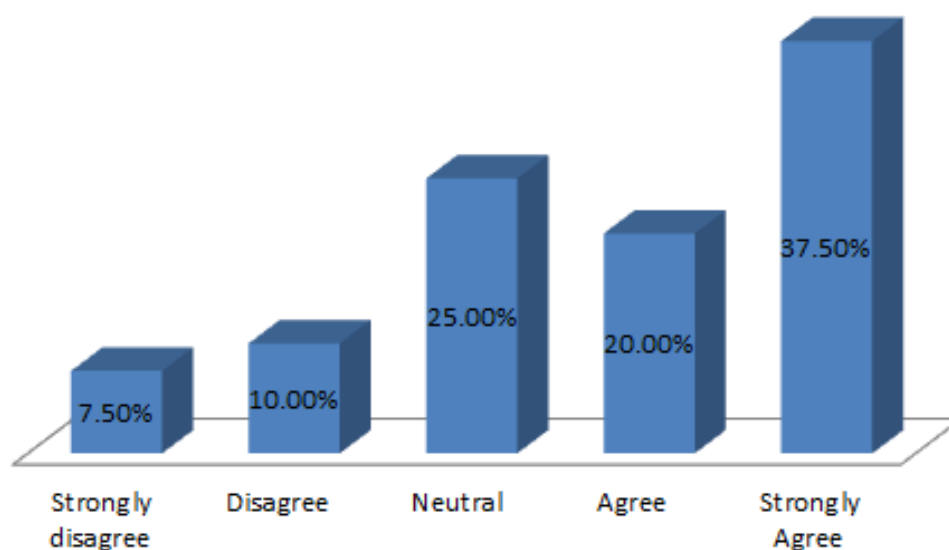(Researchers' computation using SPSS version 23)

Figure 10: Perception of lack of access to internet as a barrier to internet access for health information. (Researchers' computation using SPSS version 23 & Microsoft Excel 2013).

From figure 10 above, the highest and lowest responses were for those who 'strongly agreed'(37.5%) and 'strongly disagreed'(7.5%) respectively.20% and 10% responses were for 'Agree' and 'Disagree' respectively. There was 25% neutral response. The mean response of 3.7 on a Likert scale, as seen in table 5 above, is indicative of an overall good perception of lack of access to internet as a barrier to internet access for health information by the respondents.

3.9.2 Perception of poor knowledge and skills for internet search as barriers in accessing quality health information
The data is presented in table 6 and figure 11 below.

Table 6: Statistics of response to perception of poor knowledge and skills for internet search as barriers in accessing quality health information.

N	Valid	40
	Missing	0
Mean		3.85
Median		4.00
Mode		5
Range		4
Minimum		1
Maximum		5

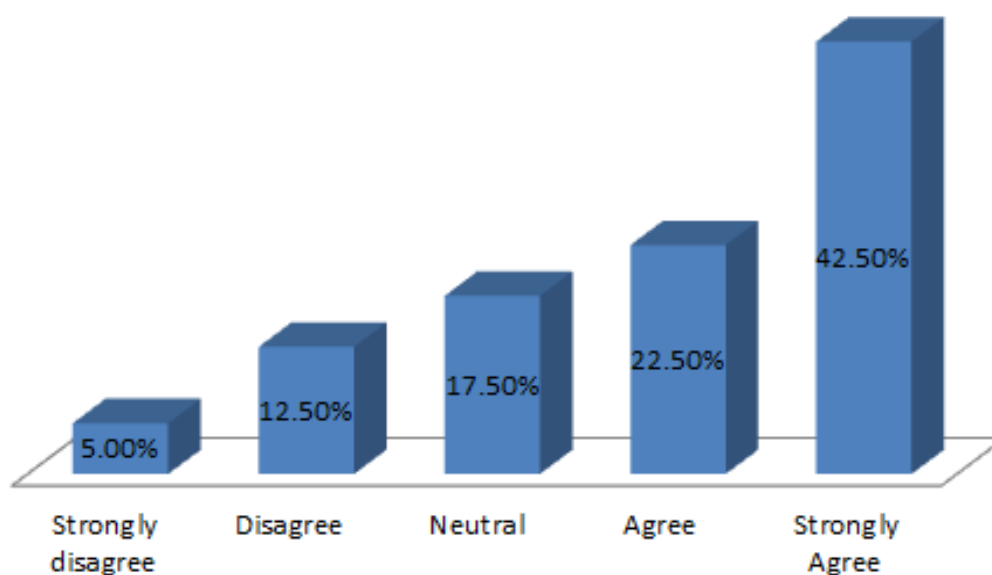(Researchers' computation using SPSS version 23)

Figure 11: Perception of poor knowledge and skills for internet search as barriers in accessing quality health information.
(Researchers' computation using SPSS vs 23 & Microsoft Excel 2013).

There was a gradual increase in response rate from 5%(Strongly Disagree) to 42.5%(Strongly Agree).The mean response of 3.8 on a Likert scale, as seen in table 6 above, is indicative of overall good perception of lack of access to internet as a barrier to obtaining wide scope of health information.

3.9.3 Perception of costly smart phones as a barrier in accessing quality health information.
The data is presented in table 7 and figure 12 below.

Table 7: Statistics of response to perception of costly smart phones as a barrier in accessing quality health information.

N	Valid	40
	Missing	0
Mean		3.48
Median		3.50
Mode		3
Range		4
Minimum		1
Maximum		5

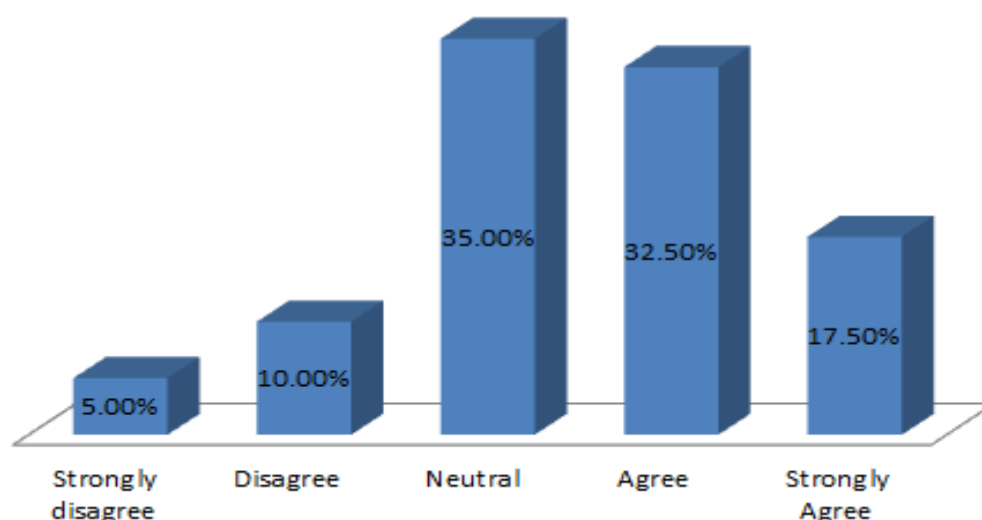(Researchers' computation using SPSS version 23)

Figure 12: Perception of costly smart phones as a barrier in accessing quality health information (Researchers' computation using SPSS version 23 & Microsoft Excel 2013).

From figure 12 above, most (35%) response was neutral. This was followed by 32.5% (response to Agree) Responses for Strongly Disagree, Disagree and Strongly Agree were 5%, 10% and 17.5% respectively. The mean response of 3.48 on a Likert scale, as seen in table 7 above, is indicative of overall good perception of costly

smart phones as a barrier in accessing quality health information.

The study examined the utilization of internet for health information among pioneer medical of Abubakar Tafawa Balewa University, ATBU, Bauchi. The finding was a high rate (69.5%) of daily internet access which is comparable to the 65% obtained in the study by[15] in Nnamdi Azikiwe University, Nnewi, Nigeria. This finding is also comparable to the 63.7% that was obtained by the research of.[27] The rate is however less than the 83.97% obtained by,[3] 97% obtained by[14] in Ife, Oshun State, Nigeria and 90% by[26] in Ife, Oshun State Nigeria.[13] found that as many as 61% respondents preferred internet browsing to reading than printed books. These findings are not surprising, looking at the increasing internet access in developing countries and among university students. This is particularly beneficial in communities with limited health professionals and facilities. The relative affordability and availability of smart phones and wireless networks at the university campuses have probably enhanced the high rate of internet access. More so, some of the students are accustomed to internet use from their secondary schools where Information and Communication Technology, ICT, are being integrated in the mainstream education curriculum.[28]

The daily rate use of internet access for health information was 12.5%.The rate of use of internet for school research on health related issues was 38%. The figure is lower than that obtained from similar studies e.g. 45% in;[27] 62% in[15] and 68% in.[30] This finding underscores the need for educating the medical students on the enormous benefits of the internet for academic research. Personal health and medical information was accessed by 23% of respondents in the study. The finding is similar to the 23% obtained in.[29] It is however much lower than 82% that was obtained in the study conducted by.[15] Internet provides useful personal health information and this may indirectly reduce the use of alternative medicine and provide information on sexual and reproductive health needs, drug reactions etc.[31] However, it is important to warn that the physicians and other health care providers are central in providing health care and health information to patients, preventive care, drug prescription, treatment options, decisions and referrals. In the light of increasing use of internet for health information, the health professionals are readapting to be more informative with current health information to patients and involve them more in clinical decision making.[27] Patients should still go to their health care providers as primary source of health information. This is because decision taken by patients that is based on information from the internet may lead to wrong actions that may be potential suicidal.[23]

Google was the most frequently accessed web search engine with a response of 93.0% followed by other websites with single digits of responses. The finding is similar to the study done by.[14] However, it is not similar to the study conducted by[15] who found that Wikipedia website was the most frequently accessed search engine, ahead of Medscape and PubMed.

The finding is not surprising since Google is the most popular and most famous search engine globally. But the wide margin between the use of Google and other search engines probably indicates the gap in knowledge of other useful search engines that are tailored to health. These include WHO, PubMed and Cochrane.

The most frequently accessed website was PubMed (45.0%) followed by WHO (32.5%).This is an interesting finding since these two websites are credited with quality health information. The figure is higher than 20.8% obtained in the study by.[14] However, the fact that as high as 40% of the respondents trusted all health information accessed online possibly reflects the gap in the extensive knowledge of quality health websites by the medical students. Most health professional websites, whose primary aim is education, rather than for advertisement or other interests, are often associated with quality health information.Sometimes, some of these health sites may be associated with health codes which may be used to identify quality health website .The popular qualitative health websites include WebMD, WHO, NIH and Mayo Clinic, etc. However, there is no consensus quality marker for assessing health information from the internet.[22,23]

The perception of internet as a helpful tool for accessing wide range of health information is shared by majority (55%) of the respondents. A similar number (50%) perceived the internet as a very helpful tool for school assignment. The finding reflects the popularity and benefit of the internet for personal health including sexual health and academic research.[31]

The respondents' perceived barriers to health information through internet were: lack of access to internet (mean response of 3.7 on a Likert scale); poor knowledge and skills for accessing quality health information (with a mean response of 3.85 on a Likert scale) and costly smart phones. (with a mean response of 3.48 on a Likert scale).These findings are related to the study by[15] where 81.3% of respondents reported that lack of internet access was a barrier to obtaining health information. These necessitate training of internet search skills for the students and strengthening of e-health in the university.

There are limitations to the study in terms of quality and scope. The study may have been affected by response bias through false responses, human and computer error in analysis.

5.0 CONCLUSION

This study suggests that the pioneer medical students of ATBU students had a widespread use of internet for

health information. The students had a good knowledge of search engines and heath websites for qualitative health information. The health information that was sought online was mainly for academic research. The most frequently accessed search engine and website were Google and PubMed respectively. The majority of students perceived lack of access to internet and poor knowledge and skills for accessing quality health information as barriers in accessing health information through the internet.

The findings from the study identify gaps in the depth of knowledge of quality websites for health information among the pioneer medical students. There are also gaps in the extensive knowledge of the enormous benefits of internet for a wide range of health information. There is need to strengthen the students' knowledge of use of internet for qualitative health information. There is also a need to strengthen e-health in the university community. These will optimize the utilisation of internet for health information among the medical students

6. REFERENCES

1. Jung M-L, Loria K. Acceptance of Swedish e-Health services. J Multidiscip Healthc. 2010; 3:55–63).
2. Risk A, Petersen C.Health Information on the Internet. JAMA, 2002; 287(20): 2713–2715. Doi:10.1001/jama.287.20.2713.
3. Jadoon NA., Zahid MF, Mansoorulhaq H., Ullah S, Jadoon BA., Raza A., Hussain M., Yaqoob R., Shahzad MA. Evaluation of Internet access and utilization by medical students in Lahore, Pakistan. BMC Med. Inform. Decis. Making BMC Medical Informatics and Decision Making BMC series – 2011. DOI: 10.1186/1472-6947-11-37.
4. Davison KP, Pennebaker JW, Dickerson SS. Who talks? The social psychology of illness support groups. Am Psychol, 2000; 55; 205-217.
5. Oliver MI, Pearson N, Coe N, Gunnell D. Help-seeking behaviour in men and women with common mental health problems: Cross-sectional study. Br J Psychiatry, 2005; 186; 297-301.
6. Wutoh R, Boren SA, Balas EA. E-Learning: A review of Internet-based continuing medical education. Jnl. Contin. Educ. Health. Prof., 2004; 24: 20-30.).
7. Love B, Crook B, Thompson CM, Zaitchik S, Knapp J. Exploring psychosocial support online: A content analysis of messages in an adolescent and young adult cancer community. Cyberpsychol Behav. Soc. Netw, 2012; 15: 555-559.
8. Purcell, GP.; Wilson, P, Delamothe, T. The quality of health information on the internet". BMJ (Clinical research ed.), 2000; 324(7337): 557–558. Doi:10.1136/bmj.324.7337.557.
9. Percheski C, Hargittai E. Health Information-Seeking in the Digital Age. Journal of American College Health, 2011; 59(5): 379-386. DOI: 10.1080/07448481.2010.513406.
10. Adeyoyin, SO, Oyewusi FO. A Survey of the Needs and Utilization of Health Information among Young Adults in Abeokuta, Ogun State, Nigeria. Library Philosophy and Practice(e-journal) [internet]. 2015. Available from: https://digitalcommons.unl.edu/cgi/viewcontent.cgi?referer=http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiE8vun_J3ZAhVRyKQKHegIBGoQFggnMAA&url=http%3A%2F%2Fdigitalcommons.unl.edu%2Fcgi%2Fviewcontent.cgi%3Farticle%3D3471%26context%3Dlibphilprac&usg=AOvVaw1B0tdRMpdhOpJ0hBjaawH1&httpsredir=1&article=3471&context=libphilprac.
11. Mustanski B, Lyons T, Garcia SC. Internet use and sexual health of young men who have sex with men: A mixed-methods study. Archives of Sexual Behavior, 2011; 40(2): 289-300.
12. Okon A. Internet access and use: A study of undergraduate students of three Nigerian Universities. The Electronic Library, 2010; 28(4): 555-567.
13. Edem M, Offre E. Reading and Internet Use Activities of Undergraduate Students of the University of Calabar, Calabar, Nigeria. African Journal of Library, Archives and Information Science, 2010; 20(1). Available from: https://www.ajol.info/index.php/ajlais/article/view/54428.
14. Bankole O.M., Oludayo B. Internet use among undergraduate students of Olabisi Onabanjo University, Ago Iwoye, Nigeria. Library Philosophy And Practice (e-journal). [internet] 2012. Available from: diditalcommons.uni/liphilprac/812.
15. Anyaoku EN., Nwafor-Orizu OE, Oguaka CN. Internet information seeking and use by Medical Students of Nnamdi Azikiwe University, Nigeria. International Journal of Library And Information Science, 2015; 7(8): 148-154. DOI: 10. 5897/IJLIS2015.0604.
16. Ajuwon GA. Internet Accessibility and Use of Online Health Information Resources by Doctors in Training Healthcare Institutions in Nigeria. Library Philosophy and Practice (e-journal).Available from: https://digitalcommons.unl.edu/cgi/viewcontent.cgi?referer=http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjQwIX2ytLYAhWDZlAKHXOMCBcQFggvMAA&url=http%3A%2F%2Fdigitalcommons.unl.edu%2Fcgi%2Fviewcontent.cgi%3Farticle%3D3377%26context%3Dlibphilprac&usg=AOvVaw1rzW_yVFbHerTYxPLgiCNz&httpsredir=1&article=3377&context=libphilprac.
17. Fox S, Jones S.The social Life of Health information. JAMA, 2010; 287(6): 41-44.
18. Eysenbach G, Wyatt J.Using the Internet for Surveys and Health Research. J Med Internet Res, 2002; 4(2): 13. DOI: 10.2196/jmir.4.2.e13.
19. Westerwick A.Effects of Sponsorship, Web Site Design, and Google Ranking on the Credibility of

Online Information. Journal of Computer-Mediated Communication, 2013Jan; 18(2); 80-90.

20. Arunachalam, S.(1998). Assuring quality and relevance of Internet information in the real world. BMJ, 1998; 317(8): 1501-1502.

21. Ward JP, Gordon J, Field MJ, Lehmann. Communication and information technology in medical education. Lancet, 2001 Mar 10; 357(9258); 792-6.

22. Chumber S, Huber J, Ghezzi P. Diabetes Educ. A methodology to analyze the quality of health information on the internet: The example of diabetic neuropathy. Epub, 2015 Feb; 41(1): 95-105. Doi: 10.1177/0145721714560772.

23. Berland GK, Elliott MN, Morales LS, Algazy JI, Kravitz RL, Broder MS, Kanouse DE, Muñoz JA, Puyol JA, Lara M, Watkins KE, Yang H, McGlynn EA. Health information on the Internet: accessibility, quality, and readability in English and Spanish. JAMA, 2001 May 23-30; 285(20): 2612-21. Doi:10.1001/jama.285.20.2612.

24. Jadad AR, Gagliardi A. Rating Health Information on the Internet. JAMA, 1998; 279(8); 611–614. Doi:10.1001/jama.279.8.611.

25. ATBU official website[internet]2017.Available from:https://www.atbu.edu.ng/#/aboutus/atbuhistory

26. Awoleye MO,Slyanbola WO, Oladipupo OF. Adoption assessment of internet usage among undergraduates in Nigeria: a case study approach. Jnl of Technology Management And Innovation, 2008; 7(3): 11-13.

27. Hesse BW, Nelson ED, Kreps GL.,Croyle, R.T Arora, N.K, Rimer, B.K,Viswanath,K.Trust and Sources of Health Information The Impact of the Internet and Its Implications for Health Care Providers: Findings From the First Health Information .National Trends Survey.2005 ;165(22);2618-2624.
Doi:10.1001/archinte.165.22.2618.

28. Cooke FJ, Holmes A. E-mail consultations in international health. Lancet, 2000; 8; 356(9224): 138.

29. Bello IS., Arogundade FA., Sanusi AA., Ezeoma IT, Abioye-Kuteyi EA., Akinsola, A. Knowledge and utilization of Information Technology among health care professionals and students in Ile-Ife, Nigeria: a case study of a university teaching hospital. Journal of medical Internet research, 2004; 6(4): 45. DOI: 10.2196/jmir.6.4.

30. Adomi EE.Overnight internet browsing among cybercafé users in Abraka, Nigeria. The Journal of Community Informatics, 2007; 3(2). Available from:http://ci-journal.net/index.php/ciej/article/v.

31. Sarker AS, Ginn R., Nikfarjam A, O'Connor K, Smith K,Jayaraman S,Upadhaya T, Gonzalez, G. Utilizing social media data for pharmacovigilance: A review. Journal of Biomedical Informatics, 2015; 54: 202–212. Doi:10.1016/j.jbi.2015.02.004.