Institutional Level Barriers Restricting The Utilization Of Digital Technology For Searching Online Health Information Among University Students In Pakistan

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ABSTRACT

This study aimed to investigate the institutional barriers restricting digital health literacy among on-campus university students in public sector universities in Punjab. Focus group discussions (FGDs) were conducted with the male and the female students in three public sector universities with the help of semi structured discussion guide as [1]a tool for data collection. The study participants were selected using purposive sampling technique. To analyze data, thematic analysis technique was employed. The study explored various institutional barriers against the use of digital health literacy among students in Pakistani universities including poor internet connectivity, inadequate technical support and limited availability of ICT resources. It was found that the speed of internet is a major concern to access the online health information despite availability of computer labs. Along with limited availability of ICT resources, inadequate technical support for operating the ICTs is another barrier that restricts the access to digital health information. University students in Pakistan are not inclined towards the usage of online health knowledge. In order to promote digital health literacy among students, the universities should be well-equipped with latest digital devices and technical training.

Keywords: Digital health literacy, university students, institutional barriers.

INTRODUCTION

In the fast-changing world, the use of digital technologies has played a central role in uplifting the organizational efficiencies in both the developed and the developing countries. Interestingly, digital knowledge and technology produced by a country has become one of the important indicators of that county's development (Malik et al., 2017). The recent scholarly studies have pointed out the advantages of using these digital technologies in health sector as well to make structural changes that can benefit the general masses (Muscat DM et al., 2020).

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Lately, the global epidemics such as coronavirus have threatened the safety of the entire world. This emergency situation has emphasized the increasing need of health related knowledge in terms of positive health outcomes (Quinn et al., 2017). Because of global travelling the patients nowadays carry viruses from one place to another (Lewis A et al., 2018) and thus spreading the diseases globally; only solution to tackle these epidemics is to have knowledge about the diseases (David PM et al., 2019). On the other hand, the online resources, websites, different T.V. channels and the digital resources are offering vast amount of health related information at a single click. Using such kind of information can be beneficial at both the micro and the macro levels in terms of dealing with newly emerging health challenges (Conard S. 2019).

In the current technologically advanced world, both the patients and the doctors expect exchanging health related information by the means of modern digital technologies. The growing knowledge has already depicted the effectiveness of digital tools in promotion of health systems and services (Shahzad F et al, 2018). Academic explorations have also concluded the effectiveness of digital health in terms of its cost effectiveness, budget friendliness (St. Jean B et al., 2017), promotion of health knowledge (Kim H et al., 2017) and support for medics and para-medical staff (Senecal C et al., 2018).

Despite the advantages of online health related knowledge, the general members of societies, especially in the developing countries, tend to have an inadequate inclination towards using digital sources to search for health information (Nemec PB et al., 2017). The scholarly studies have revealed various obstacles to promotion of digital health literacy such as deficiency of knowledge (St. Jean B et al., 2017), lack of curiosity (Shen C et al., 2019), and limited resources (Cutilli CC et al., 2018) etc. Both structural and individual level impediments are investigated in the previous studies. However, there is a lack of evidence concerning institutional barriers related to digital health literacy among highly educated individuals of universities. The present research intends to examine these institutional level barriers that become a challenge to the successful usage of digital technologies for searching health related material.

METHODOLOGY

Using qualitative research approach, the researchers carried out focus group discussions (FGDs) with the students from three public sector universities in Punjab i.e. University of the Punjab Lahore, Bahauddin Zakariya University Multan and Pir Mehr Ali Shah Arid Agriculture University Rawalpindi. In total, twelve FGDs were conducted with the students in order to know their views about digital health literacy. Four FGDs were carried out in each university; two separate FGDs with each of the male and the female students (table 1). Each group consisted of six to eight members. In total, 110 students participated in the FGDs. For the convenience of the study participants, FGDs were conducted within their university premises.

The participants for the FGDs were selected employing purposive sampling technique. Only the students from senior classes having spent at least one year in the university and having basic computer literacy were selected. Additionally, representation was given to all the disciplines offered in every university in order to ensure diversity of the sample.

Table 1: No of FGDs conducted in various universities

No.	University	Gender		Total
		Male	Female	
1.	University of the Punjab, Lahore	2	2	4

2.	Bahauddin Zakariya University, Multan	2	2	4
3.	Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi	2	2	4
	Total	6	6	12

A semi-structured discussion guide was designed comprising of various questions on the institutional barriers relating to digital health literacy. During the FGD sessions, the first author as a moderator facilitated the data collection process by encouraging a vigorous discussion through his neutral attitude, vigilance, motivational probing and careful wording. Additionally, a note taker and an observer assisted the moderator. FGDs were recorded on a digital audio recorder. Before starting the FGDs, the topic was introduced to the study participants and photocopied discussion guides were also distributed among them.

This study was approved by the institutional ethics committee at University of the Punjab, Lahore. In order to further ensure ethical standards, written informed consent was obtained from the study participants. Privacy of the study participants and the confidentially of the data was also taken in consideration during the data collection and analysis. To analyze the qualitative data, thematic analysis technique was used. First of all, to get familiar with the data, the recorded interviews were transcribed by writing the statements used by the study participants. Then the major codes, both deductive and inductive, and sub codes were extracted from the sentences and phrases of the discussion in FGDs. After that, unified patterns were identified in the potentially relevant codes to develop a single theme. Finally, the themes were defined, interpreted and analyzed.

RESULTS

This study found insufficient technical resources in the universities as the core barriers that include poor internet connectivity, inadequate technical support and limited availability of ICT resources.

Table 2: Sample demographic characteristics (N = 110)

Characteristics	Frequency
Gender Male Female	 52 58
Age 18 to 22 23 to 25 26 and above	 66 26 18
Education level BS (Hons.) MA/M.Sc. MPhil/PhD	 45 38 27
Permanent place of residence Rural Urban	 61 49
Personal laptop Yes No	 57 53
Personal smart phone Yes	 68

No	42

Poor Internet Connectivity

While there is availability of a computer lab in every department to deal with the technical issues, poor internet connection is a major concern to access the online health information. Internet connections are usually available only in the premises of computer lab. During the FGDs conducted at University of the Punjab Lahore, one of the female students mentioned that: "when I go out of the range of computer lab, I lose internet connections". The students mentioned that all of them cannot afford to buy mobile internet package to ensure constant availability of internet. They prefer using free WiFi connections available in the premises of hostel or department. Similarly, many students do not have their personal laptops or smart phone to access internet. Once asked about the lab hours for each class and the internet connectivity inside lab, it was informed that the first priority of the students during the limited lab hours was to complete the class assignments. They told that during lab timings students do not get time to access other information. One the other hand, many students mentioned about the low internet speed in the computer lab as well. One of the male students at Bahauddin Zakariya University Multan opined that: "browsing health related information is not a priority when internet connections are low or not constantly available. In this situation, I first go through the material required for completing my assignments and then I visit my facebook instead". It was furthermore informed that, during the peak working hours, the internet connectivity problem becomes severe. One of the students at Pir Mehr Ali Shah Arid Agriculture University Rawalpindi told that "I do not get time for searching health online. I usually come in lab early in the morning so that I can at least complete my classwork. During day time, there are severe internet connectivity problems". The study participants mentioned that they face internet connectivity problems in the hostels as well; some of them mentioned that "internet connectivity is poorer in hostels; it works better in the department". The study found that, in Pakistan, the educational institutions are over-populated while the technical resources are limited. Such gap results in increased frustration among the users. An overwhelming majority of the study participants highlighted that they are well aware of the advantages of online health resources but the availability of internet and the speed to access information usually serves as a hindrance. A female student at University of the Punjab Lahore added that "Fluctuating speed of the internet on-campus makes the searching process uninteresting and irritating. So I avoid browsing health related topics".

Table 3: Themes, codes and nature of codes

Themes	Major codes	Nature of codes
Poor internet connectivity	Poor internet speed	Deductive
	Internet available in the premises of computer lab only	Inductive
	Work hours in lab are limited	Inductive
	Computer labs are over-crowded	Inductive
	Fluctuating internet availability	Inductive
	All students cannot afford to buy mobile internet packages	Inductive
Inadequate technical support	ICTs, hard to use	Deductive
	Technical guidance is always required	Deductive

	Poor knowledge affects digital health literacy	Deductive
	Technical instructor are not always available	Inductive
	No timely maintenance of devices	Inductive
	Required software are not installed	Inductive
	No guidance to use online health services	Deductive
	No guidance from staff at university health center	Inductive
Limited availability of ICT resources	Scarcity of ICT resources	Deductive
	Problem of accessibility	Deductive
	Gap between the users and available resources	Inductive
	No alternative for power crisis	Inductive

Inadequate Technical Support

The students mentioned that ICTs are not user friendly always and technical support is required to handle such equipment. Adequate knowledge of the ICTs through prosper guidance can promote the online surfing of health related information. They elaborated that technical support for operating the ICTs can enhance their health literacy and its effective use. Educational institutions in Pakistan usually do not have such technical support relating to the usage of ICTs. A study participant at Bahauddin Zakariya University Multan mentioned that "most of the time, when I face some problem on my PC, laptop or mobile, the instructor of my department is not able to help to operate a modern-day device". The study participants also highlighted that the technical problems that they face are not solved timely because technical staff is mostly overburdened or uses delayed tactics. During FDGs conducted at Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, one of the study participants mentioned that: "few days back, I wanted to read about the symptoms of corona but my PC in computer lab was not connected to internet. I requested technical instructor to help. He told to login to some other PC and other PCs were already occupied by students". The study participants opined that the lab technicians were unskilled and not able to install even the most frequently used software.

The study participants mentioned that they are well aware of the availability of online health services but they lack technical guidance to use them. Furthermore, during the FGDs conducted at University of the Punjab Lahore, a few of the participants highlighted that the paramedic staff at university health center is not capable of guiding students about the effective use of digital health literacy. One of the students said that: "at university health center, we do not have any technical facility or guidance available to access online health services. Staff at health center is not educated enough to guide students or highlight its importance."

Limited Availability of ICT Resources

Developing countries are technologically deprived as compare to developed countries. Pakistani universities are over-burdened, while there is a serious scarcity of ICT resources available. As previously mentioned, every Pakistani student cannot afford to have a personal laptop or a smart phone to access the health information online. Though the departments have computer labs, those are not well equipped. Availability of computer is lesser than the strength

of students and as a result at times students cannot complete their classwork. During the FGDs conducted at Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, a female student mentioned that: "in the last class, I keep sitting idle in the lab; there was no computer to work. A computer is not available for every student in our lab". Another participant in the same FGD added that "I usually wait for my turn to practice a lesson or share desktop with other students, as there are lesser computers in the lab than the students". The majority of study participants stressed that "during electricity crisis, computer labs have no substitute. There should be certain rechargeable items e.g. laptops etc." The participants from two different universities shared that "the class timings and the lab timings are same. When we get free from classes, the computer labs are closed". Having informed about all these challenges, the majority of the students considered that the trends of benefiting from online health can only be encouraged by addressing the challenges of the limited availability of ICT resources.

DISCUSSION

The present study was interested to investigate the institutional barriers against the effective use of digital health information among university students. The study evaluated the issues and attempted to develop a deeper understanding of the major institutional challenges in this regard. This research found that the universities in Pakistan are usually less resourceful in terms of providing the ICT resources in the computer labs of the departments (Conard S. et al., 2019). The students are generally overloaded with the syllabus related activities in the semester system. While the internet connectivity is usually poor, the students prioritize to use internet for their academic work instead of using it for online health information (Shahzad F et al. 2018). The students' responses are validated by the already existing literature (Conard S. et al., 2019) that suggests that poor internet speed makes the research process slow and boring. This situation restricts the students to surf diverse online topics including health. The discussion with students explored that the internet speed problem becomes more severe during the busy working hours when many students are using the service.

This research complements the existing researches by explaining that the universities are not successful in providing the appropriate technical support to the students (Ganapathy K et al. 2016). Inadequate technical support related to ICTs makes the learning process slower (Ramírez AS et al., 2019). The students are usually not that efficient to solve certain technical problems without help (Shin SY et al. 2019). The study found that some university labs do not have a technical instructor. This study furthermore explored that sometimes technical advisors use delayed tactics in solving the students' issues.

Previous researches have already found a positive association between the availability of technological resources and the effectiveness of health related digital information (Zhang X et al., 2017). Similarly, the present study showed that the availability of technological equipment is one of the major berries against effective use of digital health information (Conard S. et al., 2019). The majority of public sector universities have a serious shortage of technical equipment (Kim H et al., 2017) that quite often results into decreased level of online health searching.

The study asserts that to uplift the use of health related digital information among students, institutional attention is required. In the global digital world, the online health education has achieved a significant focus of attention. Such online health education is dependent upon institutional facilitation. Positive involvement of institutions can promote the societal tendency towards online health education (Shen C et al., 2019).

CONCLUSION

This study concludes that the on-campus university students in Pakistan are not inclined towards the usage of online health knowledge. Universities are generally less resourceful and efficient in providing technical guidance, ICT resources and proper internet connectivity that negatively influence the effective use of health related digital information among students. In order to promote digital health literacy, the universities should be well-equipped with latest digital devices and technical support.

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