

## **Original Research Article**

### **Computer and Internet Usage Trends among Undergraduate Medical Students**

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**Abstract:** The use of computer and information technology is on an escalation. The internet has brought profound changes in the health care delivery systems but little is known about its use among medical students in India. The present study was conducted to estimate the purpose of internet usage among undergraduate medical students and to assess the need for incorporating computer education in medical curriculum. A cross-sectional, questionnaire-based study was conducted among '300' undergraduate medical students of Sardar Patel Medical College, Bikaner during April to June 2014. A semi-structured questionnaire was used for collecting information. Chi-square test was employed to determine the difference in internet utilization by gender. About half of respondents possessed a personal computer. The main use of the internet was for communication among male students, whereas female students used it mainly to get general information ( $p= 0.0001$ ). The internet was found to be the most preferred medium for getting required information among both the genders. Majority of respondents cited slow internet speed as the major deterrent to using internet. To enable optimum utilization of digital resources by the students, training in computing skills and the availability of requisite facilities are required.

**Keywords:** Internet, computer, medical students, medical education, information technology.

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#### **INTRODUCTION**

With the rapid developments in modern science and technology, the information technology has altered and continues to alter the way we live, learn, teach and interact with each other [1]. The internet, one of the important scientific developments in the medical field, is being proved as an appropriate pedagogic instrument for learning at all levels. Over the last decade there has been considerable advancement in the use of technology in both medical education and the delivery of healthcare [2].

The availability of internet-based information resources has revolutionized the medical practice with the increasing use of telemedicine and evidence based medicine [3]. The internet can serve as an important learning tool in medical education, especially for students from developing countries helping them to keep abreast of ever expanding knowledge bridging the gap resulting from scarcity of resources [4].

According to the guidelines of the World Federation for Medical Education (WFME), the use of computers as well as access to the internet and, in particular, the world wide web should be integrated into the medical curriculum in order to enhance quality of care and keep knowledge updated [5, 6].

Although computer technologies are now widely used in medicine, little is known about its use among medical students in Indian subcontinent. Therefore, the present study was conducted to know the pattern of internet use and identify the training needs of medical graduates.

#### **MATERIALS AND METHODS**

A cross-sectional, questionnaire-based study was carried out between April and June 2014 among '300' undergraduate medical students of Sardar Patel Medical College, Bikaner, Rajasthan (India).

The study was approved by the Institutional Ethics Committee of S.P. Medical College, Bikaner. Verbal informed consent was taken from each participant.

A self-administered, pre-designed and pre-tested questionnaire was used to elicit information regarding demographic profile and pattern of computer and internet utilization. The data was collected during weekly lectures. All the questionnaires were checked for completeness and consistency and incompletely filled questionnaires were excluded. The data was analyzed with the Microsoft Excel Program. Chi-square test was employed to determine the difference in

internet access and utilization by gender. A p value less than 0.05 was considered statistically significant.

## RESULTS

The demographic profile of the study participants is presented in Table 1. Majority of the

students belonged to 18-20 years age group. Among them 145 (48.3%) were male and 155 (51.7%) were female.

The pattern of computer and internet utilization is presented in Table 2.

**Table 1: Baseline characteristics of study population (N=300)**

Characteristics	Number	Percentage (%)
1. Age group (yrs)		
18-20	158	52.7
21-23	138	46
≥24	4	1.3
2. Gender		
Male	145	48.3
Female	155	51.7

**Table 2: Pattern of computer and internet use among undergraduate medical students**

Computer & Internet utilization pattern	Male (N=145)	Female (N=155)	Chi-Square	p value
1. Do you have your own computer?				
(a) Yes	78	80	0.069	0.793
(b) No	67	75		
2. What is the purpose for using internet?				
(a) To get general information	26	46	22.8	0.0001*
(b) For research work/medical literature search	16	37		
(c) For entertainment	32	33		
(d) For communication	71	39		
3. Place where you use computer?				
(a) Home	96	119	4.58	0.274
(b) College	25	20		
(c) Cybercafé	07	06		
(d) Others	17	10		
4. Preferred medium forgetting required information				
(a) Textbooks	58	60	1.227	0.541
(b) Journals/library	06	11		
(c) Internet	81	84		
5. Reasons for preferring Internet?				
(a) Time saving	1916	3.367	0.186	
(b) To get latest knowledge	71	64		
(c) Easy accessibility	55	75		
6. Difficulties faced during searching information on internet?				
(a) Time consuming	14	09	3.768	0.387
(b) Slow internet speed	107	125		
(c) Required information not accessible	13	15		
(d) Lack of searching skills	11	06		
7. Which search engine you use mostly?				
(a) Google	140	150	0.046	0.830
(b) Others	05	05		
8. How much time you spend with computer in a week?				
(a) < 3hrs/week	41	55	1.473	0.225
(b) ≥3hrs/week	104	100		
9. Should computer use be encouraged in teaching institutions				
(a) Yes	124	132	0.006	0.939
(b) No	21	23		

It was observed that about half (52.7%) of the respondents possessed a personal computer. The main use of the internet was for communication among the male students, whereas the female students used it mainly to get general information ( $p=0.0001$ ).

Most of the participants preferred to use internet at home. The preferred medium for getting required information among both the male and female students was internet (55%) followed by textbooks (39.3%).

The reasons for preferring internet over other medium were found different between male and female students. Majority of the male students (48.9%) preferred it because of getting latest knowledge while female students (48.3%) preferred it due to easy accessibility.

Majority of the participants cited slow internet speed as the major deterrent to using internet. Google was the most popular search engine among the participants. Majority of the respondents accessed internet for more than three hours per week and also advocated the use of the same in the teaching institutions.

## DISCUSSION

The evolution and development of internet has fundamentally transformed the patient management practices of health care professionals. By providing access to latest evidence, internet can serve as an important learning tool in medical education. The present study is an attempt to determine the pattern of internet access and utilization among undergraduate medical students.

### Purpose of computer/internet use

In the current study, majority of the male students (48.9%) used computer for communication, whereas most of the female students (29.7%) used it to get general information. This was found to be statistically significant ( $p=0.0001$ )

A study conducted in Jammu (India) revealed that 52% undergraduates used computer for entertainment and 80% postgraduates used it for thesis and research work [5]. Similarly, Maroof KA and Co-workers showed that the main use of the internet was for communication and entertainment and that only about one-fifths of the respondents used it for searching literature [6].

### Place of computer/internet use

In the present study, majority of the students used computer at home (71.7%). These findings are in agreement with the results of another study conducted at Ludhiana (India), where majority of the students were found to use computer at home [7].

### Preferred medium for getting required information

The preferred medium for getting required information among both male and female students in the present study was the internet (55%) followed by textbooks (39.3%). These findings are quite different from the study conducted by Sharma *et al* [5].

### Commonly accessed sites

In the current study, Google was found to be the most commonly accessed website. Pubmed and other journal sites were accessed by only 3.3% of the students which is in concurrence with studies conducted in India and Sudan which also showed that a small percentage of the medical students accessed Pubmed [8, 9].

### Perception of students regarding computer assisted teaching

Majority of the students (85.3%) advocated the use of computer assisted teaching. This finding is in agreement with the study done in Jammu (India)[5]. Similarly, the results of a study conducted in medical schools in Nigeria showed that 83% of the students wanted computer education to be included in their medical school curriculum [10].

## CONCLUSION

To conclude, although the study subjects are experienced with use of internet, there is not proper utilization of internet as a learning tool in medical education. To enable optimum utilization of digital resources by the students, training in computing skills and the availability of requisite facilities are required. The students should be trained to extract valuable information from the special medical websites and encouraged to check the authenticity of the medical information which will be helpful in promoting evidence based learning.

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