

Original Article

Using Computer and Internet for Medical Literature Searching Among Medical Students in Hadramout University, Yemen

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Abstract:

Background: Some researchers have observed that medical students used computer and internet for nonmedical purposes. Is this the case among medical students in a newly established medical college of Hadramout University in Yemen?

Objectives: To assess the knowledge and usage of computer and internet among medical students of Hadramout University, find out the medical applications for which they use internet, and the factors that encourage the students to use computer and internet, with an emphasis on gender variations.

Methods: In a cross-sectional study, data were collected from 102 randomly selected students from second to sixth year at the academic year 2005/2006 by using structured questionnaire of 23 items.

Results: Seventy four students have computer at home (73%), 77 students use internet for general purposes (76.2%) and lesser use internet for educational and research purposes, with significant gender variations. The students opined that accessibility of internet in the college (84.2%) and training about online searching (74.3%) were the most expected factors to improve using of internet for medical research.

Conclusion: Incorporating online search of medical literature in curriculum planning is essential to improve the student skills in research.

Key Words: Internet, Medical student, Hadramout

Introduction:

Online computer use is widespread and growing in the world. The Internet facilitates, classifies and enables the exchange of information, knowledge and news. The information can vary from local news to business or education developments to health. Moreover the use of modern computer and internet technology will result in more effective medical education.¹

In this study it was hypothesized that if a country needs to develop medical students as future doctors who meet the requirements of globalization, then it shall provide for accessing the internet much often to visit medical sites, obtain evidence-based data in the medical field, and to develop their skills in searching and using medical literature with easy access. Ascencio et al supported the hypothesis that residents should learn how to use the Internet effectively for searching medical resources.²

Using internet for medical literature search among medical students in the least developed countries (like Yemen) may face many constraints like ownership of computers, availability and accessibility of computers at home and/or at the educational institutions, training opportunities in the academic institution or other personal factors regarding interest in health research.

It has been observed that medical students used computer and internet for nonmedical purposes.^{3, 4} This study was designed to assess the knowledge and usage of computer and internet among medical students in a newly established medical college of Hadramout University in Yemen, attempting to find the medical applications for which they use internet, and what factors encourage students for use of computer and internet with an emphasis on gender variations.

This study will also give clues to the decision makers and curriculum planners in Hadramout University about the requirements to improve students' knowledge and skills in using computer and internet for research.

Subjects and Methods:

Setting: The study was done in the College of Medicine, Hadramout University in Mukalla city (At Eastern Yemen). The college was established in 1997. In the academic year 2005/2006, a total of 447 students were studying in six levels.

Study population and sample: Students of the first year were not included in the study, but all students from second to sixth year in the academic year 2005/2006 were included in the study. This comprised of 340 students and out of them 30% were selected as a sample size, giving a total of 102 students. The sample were selected

randomly as stratified proportional to the number of students in each year, and then to the male/female ratio in each year.

Design and data collection: This cross-sectional study was designed to collect data concerning knowledge and use of computer and internet among Hadramout University medical students during April 2006. Data were collected by using structured questionnaire of 23 items; the questionnaire was prepared, discussed in a peer of academic staff of Hadramout University college of medicine, reliability tested by using SPSS computer program version 9, the calculated alpha cornback was 62,68%.

The returned questionnaires were checked for completeness of data, and then entered to computer by using SPSS program version 9 and data analysis was done by using descriptive and inferential statistical methods: frequency, percentage, mean, standard deviation, t-test and chi square test. For multivariate analysis, logistic regression was used with a probability level of 0.05 as criteria for entry and a level of 0.10 for removal.

Results:

Out the 102 questionnaires posted, a total of 101 questionnaires returned with a full response (response rate of 99%, while one male student from the sixth year didn't returned the questionnaire). Of the 101 respondents, Fifty five were male students (54%) while 46 were female students (46%). The mean age of the students in the sample was 22.96 years (SD=1.92), ranging from 18 to 29 years. Among them, 100 students except one female student knew how to use computer and 74 students had computer at home (73%). While 90 students knew how to use internet (89%), 77 students used internet for general purposes (76.2%) with lesser number using the internet for educational and research purposes (62.4% for searching medical books, 51.9% for searching medical journals and only 5% for professional use of HINARI and 5.9% for using PubMed). By logistic regression, it was found that sex of the student and using PowerPoint properly were significant predictor factors for the general use of internet ($P<0.04$, $P<0.03$ respectively); sex and general use of internet were significant predictors to using of internet for searching medical text book ($P<0.03$) while online search for medical journals was not predicted by independent factors.

Regarding opinions of medical students toward factors expected to enhance use of internet for medical research, accessibility of internet in the college (84.2%) and training about online searching (74.3%) were the most expected factors while female opinions had a significant high mean score regarding personal interest in health research than males ($P<0.04$).

Table No.1: Uses of computer programs among medical students of Hadramout University

Item	Male (n=55)	Female (n=46)	Total(N=101) No (%)	P-value
Use Word program properly	51	42	93 (92.1%)	0.538
Use Excel program properly	28	21	49 (48.5%)	0.372
Use PowerPoint program properly	31	22	53 (52.5%)	0.256
Use SPSS program for statistical analysis	1	2	3 (3%)	0.433

Table No.2: Internet Usage for general purpose and for medical literature searching among medical students of Hadramout University:

Item	Male (n=55)	Female (n=46)	Total (N=101) No(%)	P-value
Use internet in general	49	28	77 (76.2%)	0.001*
Search medical textbooks in internet	43	20	63 (62.4%)	0.000*
Search published medical journals in internet	34	18	52 (51.5%)	0.019*
Search for medical journals by using HINARI	3	2	5 (5%)	0.585
Search for medical journals by using PubMed	4	2	6 (5.9)	0.428

* Significant at 0.05 level of significance by using chi square test, DF=1

Table No.3: Results of the logistic regression regarding factors behind use of internet for general purpose and for medical literature searching

Dependent variable	Independent variables (predictors)	OR	CI 95%	P-value
General use of internet	Sex	4.861	1.103 – 21.421*	0.037*
	Using PowerPoint properly	6.815	1.265 – 36.711*	0.026*
Using internet for searching medical textbook	Sex	3.397	1.201 – 9.610*	0.021*
	Using PowerPoint properly	0.675	0.183 – 2.490	0.555
	General use internet	6.726	1.471 – 30.750	0.014*
Using internet for searching published medical journals	Sex	2.172	0.826 – 5.715	0.116
	Using PowerPoint properly	0.477	0.141 – 1.610	0.233
	General use of internet	1.465	0.365 – 5.870	0.590

*Significant

Table No. 4: Opinions of medical students toward factors expected to enhance use of internet in medical research

	Strongly agree	Agree	Natural	Disagree	Strongly disagree
Available computer at home	70 (69.3%)	27 (26.7%)	3 (3%)	1 (1%)	0 (0%)
Accessible internet in the college	85 (84.2%)	13 (12.8%)	3 (3%)	0 (0%)	0 (0%)
Accessible internet at hospital	38 (37.6%)	30 (29.7%)	25 (24.8%)	8 (7.9%)	0 (0%)
Training about internet use in searching medical articles	75 (74.3%)	22 (21.8%)	4 (4%)	0 (0%)	0 (0%)
Training regarding statistical programs	31 (30.7%)	48 (47.5%)	15 (14.9%)	7 (6.9%)	0 (0%)
College library	57 (56.4%)	22 (21.8%)	15 (14.9%)	7 (6.9%)	0 (0%)
The current educational program	36 (35.6%)	42 (41.6%)	18 (17.8%)	5 (5%)	0 (0%)
Interest in health research	42 (41.6%)	44 (43.6%)	13 (12.9%)	2 (2%)	0 (0%)

Table No 5: Comparison of mean score (SD) of opinions of male versus female medical students toward factors expected to enhance use of internet for research

Factors	Mean score(SD) of male students (n=55)	Mean score(SD) of female students (n=46)	P-value
Available computer at home	4.58 (0.69)	4.72 (0.46)	0.23
Accessible internet in the college	4.80 (0.45)	4.83 (0.49)	0.78
Accessible internet at hospital	3.96 (1.05)	3.98 (0.88)	0.94
Training about internet use in searching medical articles	4.64 (0.59)	4.78 (0.47)	0.16
Training regarding statistical programs	4.02 (0.83)	4.02 (0.91)	0.98
College library	4.44 (0.86)	4.09 (1.05)	0.07
The current educational program	4.04 (0.92)	4.13 (0.78)	0.57
Interest in health research	4.11 (0.83)	4.41 (0.62)	0.03*

* Significant

Discussion:

Only a few studies have been done regarding the use of computer and internet among undergraduate medical students in Saudi Arabia¹, Nigeria^{5, 6}, USA⁷, Denmark⁸, Turkey⁹, and rarely described the professional use of internet for medical research.^{5,7}

In our study, all but one students had some knowledge and skills about computer and most of them (73%) had access to computer at home and had skills of internet use (76.2%); the results consistent with other studies.^{1,3,4,5}

While uses of computer or internet for general purposes were high (92.1% & 76.2% respectively), professional uses of computers for PowerPoint presentation or statistical analysis were low (52.5% & 3% respectively) and also internet uses for searching medical journals (51.5%) or using HINARI (5%) or PubMed (5.9%) were very low. Mansoor (2002)¹ reported that only 15% of medical students at King Abdul Aziz University in Saudi Arabia used computer for professional purposes and 21% for academic purposes. In Nigeria; only 23% of final medical students used internet for medical research.⁵

Gender, Professional knowledge of computer (PowerPoint) and uses of internet were the most important determinants for online medical research as per the results obtained from the logistic regression after adjusting for other variables; similar results were obtained by Bulgiba & Noran in Malaya.⁹

Gender variations among medical undergraduates with male superiority regarding uses and attitudes toward computer and internet were reported in many studies^{4,8,9}; even in postgraduate students, male superiority was found.^{2,10}

It was clear from the opinions of students regarding factors that are expected to enhance uses of internet in medical research that training and access to internet in the college could improve the skills of students in medical research and this was strongly agreed by both males

and females. Female students gave significant high mean score for personal interest in research than males and this may partly explain why most of the students use internet for non-medical purposes.

Conclusion:

Despite the knowledge and skills of medical students in computer and internet use being good, their use of this technology for medical research was poor, as found in other universities of the world. Incorporating the use of online search of medical literature in curriculum planning is essential to improve the student skills in research.

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