



Research Article

UTILIZING INTERNET FOR HEALTH AND EDUCATION A DESCRIPTIVE STUDY

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ABSTRACT

Introduction: Internet plays a very important role in the present scenario as many access the same for understanding new information. General usage and information access may depend on the availability and exposure of the individual. So this study aims to determine their Knowledge, Attitude and Practice of Internet Usage for Health and Education.

Methodology: A 24 items, multiple choices, both closed ended and open ended questionnaire was used. It contained questions on awareness, attitude, application and the future of Internet technology. All the post graduate students from 2 dental colleges were included after obtaining their consent and also ethical clearance was obtained from the ethics committee. Significance for statistical tests was predetermined at probability value of 0.05 or less.

Results: A total of 270 subjects participated in the study. An overall 99.3% of the subjects were aware of Internet. A majority of 33.6% preferred Public terminals and 54.9% used weekly; A majority of 42.9% felt that “sometimes” they serve as 1st source of information; A majority of 57.1% use internet to download extra notes to supplement the existing notes; A majority of 71.3% said it is friendly “to an extent”; A majority of (54.5%) said it’s reliable; A majority of (37%) said that it would result in combination problems like postural/musculo-skeletal/social/vision problems and a majority said yes (61.2%) to Edu-Sat as the future tool for enhancing professional knowledge globally.

Conclusion: It is concluded that Internet should act as means of supplement rather than replace traditional methods of learning in dental health care information.

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INTRODUCTION

In the recent decades, computer technology has developed rapidly and has become an important part of the daily lives of many people around the world. Meanwhile, interest in the medium as a communication tool for health-related information is rapidly growing.¹

The internet has huge potential to meet the health information needs and enhance the health literacy of the people and health professionals because of its abundant resources, convenient access, low cost, interactivity, continuing evolution and so on. The proliferation of the medium has, it can be argued, changed the way that people use information to protect their health. To launch global health campaigns and meet the increasingly urgent health information needs of everyone, more and more institutions including governments, academic organizations, medical and educational departments and business corporations have established health information portals, with the result that web based health information gets richer and richer.²⁻³

The World Wide Web doubled its size in the first 6 months of 2000 and by 2005 the number of internet users is likely to pass the one billion mark.⁴ This has, had huge implications for medical practice throughout the world. One estimate suggests that by 2010 more than 30 % of the physician’s time will be spent using information technology tools⁵. But these developments are occurring in the world that many of our colleagues cannot access. The International Labour Organization’s World Employment Report for 2001 noted that barely 6% of the people in the world had ever logged onto the internet and 85-90% of these are in the industrialized countries⁶. And in present scenario there is a complete change in picture where the user mark has crossed more that 5 billion users.

The approach of many teachers and course directors in traditional universities has been to “wait and see” A growing number of enthusiasts, however, have tried to implement new ways of teaching and learning, using or facilitated by, information technology and in many cases integrations of information and communication technology has been used to support changes in teaching and learning methods. The approach of students, whose motivation is usually exams, could also be characterized as “wait and see”. The question is how long to wait and then what to look for. Access to

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computers, at home and on campus and internet access is both important. The issue of students IT literacy, however maybe be even more important. It is often thought that it is only a matter of time until all young students become skillful in the use of computers and IT training is no longer necessary in higher education.⁷

Continued Medical/Dental Education is generally understood to be crucial for the improvement in quality of health care delivery services in the present world. It is for these reasons, International Health Agencies including World Health Organization (WHO) facilitated among other initiatives, the provision and enhanced access to electronic biomedical journals to developing and under developed nations around the world. The Health Internet Access to Research Initiative (HIARI) is one such effort that has the potential to increase access to health information.

Re-register for Health care Professionals every year is mandatory in many countries. And many Regulatory or Licensing Boards of professional health care worker requires evidence that one had attained enough credits in an approved Continued Medical/Dental education. But in most Asian countries, however CME is quite peripherally located in health practice and there is no requirement for external verification and no professional or statutory demand for accreditation of qualifications or competencies. At the time of the study, the authors were unaware of any published reports on CME or continued health profession development in India. But recently the Dental Council of India had gazetted the very necessity of such program for renewal of State Dental Council registration. This was made optional later for unknown reasons.

The past few years have seen rapid advances in information and communication technology and the pervasiveness of the worldwide web in everyday life has important implications for education.⁸

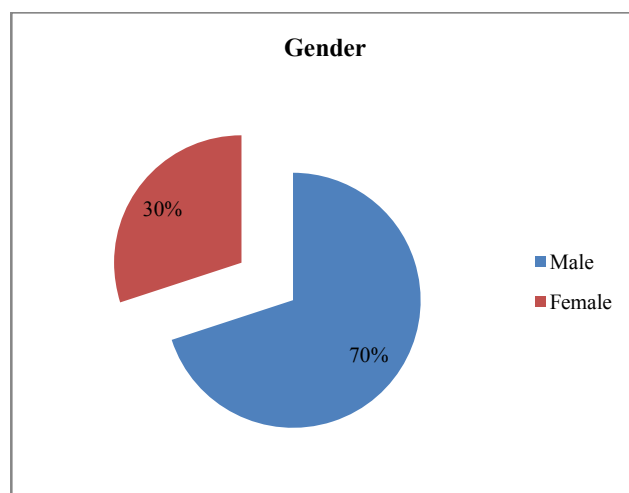
Computer-assisted learning in dental education first emerged in 1971 with its introduction at the University of Kentucky.⁹ Computer-assisted learning use along with advances in information and communication technology is rapidly increasing.¹⁰ Nowadays there is general awareness of the potential benefit of Computer-assisted learning all over the world, including developing countries and many faculties recognize the need to exploit the capabilities of information and communication technology to enhance their educational programs.

The rapid development in computer technology and the wide availability of personal computers together with the internet, email and various medical literatures retrieval applications have changed both the study and practice environment in dentistry, as in other disciplines.¹¹⁻¹³ Electronic learning allows students to work at their own time and pace. This new phase in medical and dental teaching is focused on web based teaching, which comprises communication, interactivity and displaying clinical images. Also it helps in education for patients and dentist, electronic records and data bases, digital imaging, communication between practitioners and colleagues, exposure to new products and developments, marketing dental practices, access to information, live consultations and tele dentistry.^{11, 14-18}

Internet plays a very important role in the present scenario as many access the same for understanding new information. But the access at the institution level and personal level is quite different. General usage and information access may depend on the availability and exposure of the individual. Observations on student's competence with information and communication technology are few and are carried out mostly in countries where informatics is well developed.¹⁹ There have been no studies on these involving dental schools in this part of the region. So this study aims to determine their Knowledge, Attitude and Practice of Internet Usage for Health and Education among Post Graduate students in two dental Colleges in Davangere, South India.

Table 1 shows the awareness of internet among the study population according to Gender

Subjects	Aware of Internet	Not aware of Internet	Total
Male	187 (69.3%)	2 (0.7%)	189 (70%)
Female	81 (30%)	0	81 (30%)
Total	268 (99.3%)	2 (0.7%)	270 (100%)



Graph 1 shows the awareness of internet among the study population according to Gender:

Table 2 shows the Place, Frequency, Reasons, Features most useful, Problems associated and Reliability of health care information among the study subjects

Place	Home	Office/college	Public terminals	Combinations	Others
	32 (11.9%)	61 (22.8%)	90 (33.6%)	85 (31.7%)	0
Frequency	Daily 69 (25.7%)	Weekly 147 (54.9%)	Fortnightly 33 (12.3%)	Monthly 19 (7.1%)	Never 0
Reasons	Subject interest 55 (20.5%)	Personal Interest 145 (54.1%)	Modernization 17 (6.3%)	Demand from others 9 (3.4%)	Combination 42 (15.6%)
Features most useful	Downloading lecture notes 13 (4.9%)	Extra notes to existing notes 153 (57.1%)	Pictures and Animations 67 (25%)	Bulletin boards 9 (3.4%)	Combination 26 (9.7%)
Problems associated	Postural problems 40 (14.9%)	Musculoskeletal 29 (10.8%)	Social issues 18 (6.7%)	Vision problems 82 (30.6%)	Combination 99 (36.9%)
Reliability of health care information	Very reliable 14 (5.25%)	Reliable 146 (54.5%)	Somewhat reliable 62 (23.1%)	Not reliable 46 (17.2%)	Don't know 0

Table 3 shows the Preferences for source of Information; friendliness of using dental websites; Whether Edu-Sat is the future tool and Significance of internet among the study subjects

Preferences for source of Information	Used as 1 st source	Not used as 1 st source	Sometimes	Test of significance between male vs. females
	60 (22.4%)	93 (34.7%)	115 (42.9%)	$X^2= 1.58$ df=2 p>0.07 (NS)
Whether dental websites user friendly	To an extent 191 (71.3%)	Larger extent 75 (28%)	Not user friendly 2 (0.7%)	$X^2= 1.51$ df=1 p>0.07 (NS)
Whether Edu-Sat is the future tool	Yes 164 (61.2%)	No 95 (35.4%)	Yet to think 9 (3.4%)	$X^2= 13.79$ df=2 p<0.05 (S)
Significance of internet	Be removed from college facility 0	Replace lectures and tutorials 20 (7.5%)	Supplement Lectures 248 (92.5%)	NA

METHODOLGY

A descriptive cross sectional survey was conducted among dental students in two Dental Institutions (Bapuji Dental College and Hospital and College of Dental sciences and Hospital) in central part of Karnataka, South India. Prior to the study, official permission was obtained from the concerned authorities. A total of 270 available Post Graduate dental students from 2 dental colleges were included in the study. Informed consent was obtained from each participating post graduate students in the study. The proposed study was reviewed by the Ethical committee of Bapuji Dental College and Hospital, Davangere and necessary clearance was obtained. Prior to the scheduled survey, the investigator visited the respective Department to obtain the permission and fix the date and time. The Post Graduate students were requested to be present on the scheduled date and time for assessment of Utilizing Internet for Health and Education. A 24 items, multiple choices, both closed ended and open ended questionnaire was prepared. It contained questions on awareness, attitude, application and the future of Internet technology. A pilot survey was undertaken to test the feasibility of the study including the assessment of clarity, validity and applicability of the questionnaire. Confidentiality of information was guaranteed for every individual participated in the study. Participants were requested to answer honestly without any discussion with other participants. Data comparison was done by applying statistical tests (Chi-Square test) between groups and Significance for statistical tests was predetermined at probability value of 0.05 or less.

RESULTS

The results of the present study were systematically compiled and analyzed. The results were presented under various parameter considered under the study. Of the total 270 subjects, 70% were males and the rest 30 % were females. An overall 99.3% of the subjects were aware of Internet.

Regarding the place of Internet use, a majority of 33.6% preferred Public terminals, followed by combination (Home/Office/College/Public Terminal) 31.7%; Office/College 22.8% and a least of 11.9% preferred Home for internet use. And regarding frequency of Internet use, an overall majority of 54.9% used weekly, followed by daily use (25.7%); fortnightly 12.3% and a least of 7.1% used monthly.

Regarding the reasons for utilizing internet, Personal interest is the most common reason (54.1%), followed by subject interest with 20.5%; combination 15.6% and a least of 3.4% who use because of others demand. When assessed whether internet serves as 1st source of information, a majority of 42.9% felt that “sometimes” they serve as 1st source of information, followed by 34.7% who felt absolutely no and only 22.4% depend as 1st source of Information.

A majority of 57.1% use internet to download extra notes to supplement the existing notes and 25% look for pictures and animations to explain clinical procedures. And 86.6% feel that pictures available in the internet are better or somewhat better than those available in the text books. And many (43.3%) don’t feel that internet information are comprehensive in nature. 92.2% feel the necessity of text books as a source of information. Use of Internet is very handy round the clock and saves time (70.5%) as they have an easy approach when compared to visit to library.

When assessed whether dental websites are user friendly or not, a majority of 71.3% said it is friendly “to an extent” followed by 28% who expressed “to a larger extent” and a least of 0.7 % expressed it to be “not user friendly”. And only 18.7% had subscription membership to these websites. A majority of 72.4% had used library internet facility in the respective colleges and 74.4% were aware of online journals available in their specialty. Senior faculties (30.7%) were the reason to some extent for their awareness.

Only 9.3 % had used internet to publish articles/reviews to share/contribute to the health care information. Regarding the reliability of information on internet, a majority of (54.5%) said it’s reliable, followed by 23.1% who said somewhat reliable and a least of 5.2% said very reliable.

Regarding the problems associated with internet use, a majority of (37%) said that it would result in combination problems like postural/musculo-skeletal/social/vision problems), followed by 30.6% who reported vision issues; postural problems 14.9%; Musculo-skeletal problems 10.8% and a least of 6.7% who reported social issues with internet use.

When asked about whether Edu-Sat is the future tool for enhancing professional knowledge globally, 61.2% said yes and lastly 91.8% said internet should supplement lectures.

DISCUSSION

Global reports have pictured the facts that the use of computers, information technology and Internet in dental curriculum to be an effective tool for education. And how this is true in a present scenario is question of debate. The present study was conducted to assess the knowledge, attitude and practices of utilizing internet for health and education among post graduates students from two dental colleges in central Karnataka, South India.

Analyzing the computer skills is especially difficult when comparing results over a span of years; what would be a trivial computer task may have required advanced knowledge a few years ago. The overall impression of the present study is that dental students at both these dental colleges in Karnataka seem to have comparable computer skills than that of dental students in other countries. This is because all students in this dental colleges have free and unlimited computer access.¹⁹

Nearly 100 % of the subjects were aware of Internet use. Existing life styles and urge for search for extra knowledge makes a necessity to be aware of the internet technology. Public terminals are easy source of availability and needs no maintenance and the present boom in easy availability from internet providers has still made it easy. And there are increased demands from students for more computers and printers from the dental institutions to assess more freely. (Gupta et.al, 2004)¹⁴

In a country like India, Public computer café are many in number. These outlets offer internet services at affordable prices. And also dental institutions in this part of the region are old and well facilitated with all modern educational system. This justifies the reasons why in our study 33.6% preferred public terminals while 31.7% preferred office/college.

A majority of 54.9% preferred the use of internet use weekly; the academic programs in the post graduate level in this dental university is compact and address all aspects of skills training. Even though there is a need for access of new knowledge, the preferred methods will largely relay on traditional methods which makes the basics very strong. And there is always a scope to improve with time coming by. While 25.7% preferred daily; the commitment to excel and the competitiveness may drive the individual to put in more efforts to do daily.²⁰

Reasons can be plenty in nature to use internet. Personal interest accounts to about 54.1%. Every use of internet may not be directed to improve the academic knowledge and the applications are so wide in the present world that one cannot limit to a topic. To achieve the need based approach depends on the individual's interest and to achieve that one has to have great interest which depends on the aura of the individual. And it was also observed that 20.5% were driven by subject interest. Why this, can be explained by the fact that to have a comprehensive information, textbooks and other traditional approach takes a longer time to achieve while internet search can make the work faster and more reliable in a shorter period of time.^{19, 21}

22.4% used internet as 1st source of information. It is reasoned that it's a good starting point for finding information" (Gupta et.al, 2004)¹⁴ while 37% did not use as internet does not give full information as text books, also they are not 100% reliable, lectures helps in better understanding, students become slacker, may get bored if everything was on the web and need of professionals contact justifies the reason. There have been substantial changes in dental education area over the past two decades. Many dental schools have moved towards problem based learning approach. Implementation of computer supported collaborative learning has driven IT investment and implications in some schools. Hence it is our understanding that the value of available internet resources and of electronic communication in supporting dental learning can no longer be denied. A result of 22.4% reflects the need for improvement in the quality of websites providing dental informatics. Perhaps improved internet availability, improved connection speed and mandatory undergraduate teaching of computers facilities and dental informatics will increase the confidence in the relevance and accuracy of information relevant to dentistry on the internet by the students.¹⁹

Textbooks in reality offers information which are quite outdated in nature and their lack of renewal for newer edition and cost to augment the same makes the system of acquiring

information little slow and the way the present world is having a change demands a quick heal. With this in mind, the students (57.1%) use internet to supplement the extra notes to the existing one which helps them to acquire the new knowledge. And text book offers limited variety of pictures and animations are an impossible. While the internet offers wide options for the same and that justifies why 88.6% preferred internet for pictures and animations. And because of the publication bias and lack of complete information, many (43.3%) would not feel that information available in internet is not comprehensive in nature thus, necessities the need for text books (92.2%) as first source of information. One of the great advantages of internet is allowing students to focus more on managing their own learning and to work at their own time and pace. This justifies why 70.5% feel that use of internet is very handy in nature.^{14, 22}

Newer computer operating systems, new search engines, easy of availability/access has made the use of internet friendly to an extent (71.3%). And regarding the reliability of information, Silberg et.al, has pointed out the existence in incompatibility between freedom of PRESS and accuracy of information. But there are some concerned bodies like CEN-TC 251 i.e. European Standard committee, technical committee on medical education which makes it more meaningful in terms of standards to be followed to make it more reliable. (De Moor G J, 1995) This reduces the publication bias to some extent but on a global scenario there is no one point control which makes the system not so thrust worthy. And in our study only 54.5% felt the information available to be reliable.^{13, 16, 19}

Today access to many of the online journals either need subscription membership or within the framework of economic demand. And very few online journals offer free access to the journals. This should be an invitation for students to motivate for subscription membership but in our study only 18.7% had the membership. We could not find the reasons for the same in our literature search.¹⁷

Majority of the subjects (72.4%) used the internet facilities that are available free of cost in their respective dental institutions. Most of the institutions around the world are well equipped with information technology and the results are similar to the reports of many studies around the globe. Specialty journals are very much preferred (74.4%) as most of the research conducted by the students reflects their subject of interest. And faculties play an important role in creating awareness among the students.¹⁹

In the process of publication of scientific research articles, in the earlier days, the preferred method was to send the hard copies to the respective journals for publications. But with the development and easy availability of information technology, the world witnessed a sudden change in the approach and the whole process was eased. In our study only 9.3% preferred to publish the articles all through the internet medium.

It is well documented in literatures that use on computers for longer duration have resulted in multiple problems like blurred vision, arthritis of finger joints, back ache, stress and Psychological exhaustion. The postural demand to sit for long hours on chairs with poor ergonomics, excessive use of fingers, continuous visualizing the computer monitor for long hours, complexity of work resulting in increased stress and burnout of the work are well documented in reports of many

research works. This needs to be taken seriously by the software institutes to bring in a better working environment. 1819

Regarding the future perceptions on internet, everyone accepted that it should supplement the existing source of information. (Gupta et.al, 2004) And globalization of knowledge makes the applications more significant. The digitalization of most of the textbooks and online availability of journals makes it still more demanding in the coming days.¹⁴Edu-Sat, the future tool of education has convinced everyone its need and demand in the application of future education system. It allows the use of sound, videos and animations to communicate the information. The use of online handouts and lecture notes can be used to support lectures and enable more face-to-face contact with the lecturers through methods such as small group teaching. However, the lack of communication with peers and instructors, the absence of evaluation and the fact that courses appear to be out dated were the most negative aspects encountered in web based learning. One of the first steps that could successfully tackle this problem is to encourage the teaching staff to make available lectures and teaching materials on the web. The students expressed enthusiasm for the idea of putting lectures and teaching materials on the web and asserted that this would not stop them from attending lectures.¹⁹

CONCLUSION

It is concluded that the knowledge, attitude and practices of post graduate students in utilizing internet for health and education is good and it should act as means of supplement rather than replace traditional methods of learning in dental health care information.

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