

## Research Article

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## Internet Usage among Doctors in South India

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### Abstract

Internet has become one of the important parts of daily life. In healthcare it provides abundant information related to drugs, diseases, symptoms, therapeutic procedures, journal articles and so on. Internet has a number of advantages such as, it is cost effective when compared to print information, provides information on a click, provides access to latest evidence anytime and anywhere. There are few studies conducted in India regarding Internet usage, but most of these studies are conducted on medical students not on doctors. The present study was undertaken to know the trend of Internet usage among doctors. The participants were divided according to academic grade, from professors to tutors. The highest users for medical information were Assistant professor/Senior resident (80%), followed by associate professors (71.7%). For general as well as medical purpose, Assistant professor/Senior resident used the Internet daily. PubMed was the most commonly used website by Assistant professor/Senior resident (81.9%), followed by Tutor/junior resident (79.5%). Most common barrier was lack of time for using Internet among all the staff, followed by not reliable information. Majority of the doctors had access to internet and were using it for both medical and general purpose reasons. It was observed that there is under utilization internet resources for medical purpose. Increase in awareness, training in computer and Internet skills, availability of requisite facilities are required for better utilization of the internet by doctors. This will be helpful for promoting and practicing evidence based learning.

**Keywords:** Internet use, Computer, Medical Informatics, Doctors

### Introduction

Internet has revolutionized almost each and every field including healthcare. According to Internet World Stats, the number of Internet users worldwide is 2,405,518,376, covering about 34.2% of the total world population in the year 2012.<sup>1</sup> India ranks third among the Internet users.<sup>2</sup> Internet has made substantial changes in the health care systems worldwide, ranging from education and training to diagnosis and patient management.<sup>3</sup> The advantages of Internet are, it is cost effective when compared to print information, provides instant access to latest evidence anytime and anywhere, particularly useful for developing countries to keep up with the ever expanding knowledge.

The applications of Internet in the field of medicine and healthcare are many. Internet helps in practice of evidence based medicine by providing up to date information. Manage patients in remote areas by interacting with colleagues. It also promotes research and learning by providing access to medical and other online databases

(PubMed/ MEDLINE, Cochrane Database, Scopus). Internet has become an important part of daily life for both academic and recreational purposes.<sup>4, 5</sup> There are few studies conducted in India regarding Internet usage, but most of these studies are conducted on medical students not on doctors.

The present study was undertaken with the following objectives

- 1) To determine the purposes of Internet use
- 2) To assess the level and pattern of use of Internet among doctors.
- 3) To identify the problems in using and searching the Internet

### **Material and Methods**

This was a cross-sectional questionnaire-based study conducted in two medical colleges in south India, in September 2012. Participants were explained the purpose of study and were requested to complete and return the

questionnaire immediately. The participants were told that the data being collected was confidential, anonymous and will be used for research purpose only and their participation was voluntary. Prior approval was taken from the Institutional Ethics Committee to conduct the study. Verbal consent was taken from all the participants. The returned questionnaires were checked for completeness and consistency. The questionnaire elicited information about demographic profile of students and pattern of Internet access and utilization.

The questions consisted of details regarding knowledge of computers and Internet, duration of Internet and computer use, type of work performed, barriers and difficulties faced while using the Internet. More than one answer was allowed in some questions. All the questions were open ended and space was provided for additional information. The questionnaire was pre-tested in junior faculty and was suitably modified before administering to the respondents. The selected respondents were those who have completed MBBS and the academic cadre was from tutors to professors. The information was recorded and analyzed using Microsoft Excel (2007 version).

### **Results**

A total of 411 participants were given questionnaire, out of which 395 completed the questionnaire. The participants were divided according to the academic cadre and their demographic characteristics are shown in table 1.

**Table 1:** Demographic data of participants

Academic post (number)	Age (in years) (mean)	Male: Female	Experience with Internet Use	
			Yes	No
Professor (66)	56.4	39:27	51 (77.2%)	15 (22.7%)
Associate professor (92)	44.7	51:41	78 (84.7%)	14 (15.2%)
AP /SR (105)	35.4	51:54	96 (91.4%)	9 (8.57%)
Tutor/junior resident (132)	27.2	69:63	112 (84.8%)	20 (15.1%)

AP/SR= Assistant professor/Senior resident

The purpose of using Internet is shown in table 2. The highest users for medical information were Assistant professor/Senior resident (80%), followed by associate professors.

**Table 2:** Purpose of using the Internet

Academic post (number)	Medical information	Email	General	Entertainment	Others*
Professor (66)	32 (48.48%)	36 (54.5%)	23 (24.8%)	29 (43.9%)	19 (28.7%)
Associate professor (92)	66 (71.7%)	72 (78.2%)	37 (40.2%)	41 (44.5%)	27 (29.3%)
AP /SR (105)	84 (80%)	69 (65.7%)	61 (58%)	66 (62.8%)	52 (49.5%)
Tutor/junior resident (132)	69 (52.2%)	82 (62.1%)	78 (58%)	87 (65.9%)	74 (56%)

AP/SR= Assistant professor/Senior resident \*Shopping, Banking, Railway and Bus reservation

The frequency of Internet use among different academic staff is shown in table 3. For general as well as medical purpose, Assistant professor/Senior resident used the Internet daily.

**Table 3:** Frequency of Internet use (>1hr duration)

Purpose	Prof (66)	Asso prof (92)	AP /SR (105)	Tutor/JR (132)
<b>Internet use for General purpose</b>				
Every day	30 (45.4%)	54 (58.6%)	63 (60%)	86 (65.1%)
Two to three times a week	18 (27.2%)	22 (23.9%)	27 (25.7%)	22 (16.6%)
Once a week	9 (13.6%)	11 (11.9%)	7 (6.6%)	12 (9%)
Once a month	7 (10.6%)	5 (5.4%)	5 (4.6%)	7 (5.3%)
Once in a couple of months	2 (3%)	4 (4.3%)	3 (2.8%)	5 (3.7%)

**Internet use for  
Medical purpose**

Every day	36 (54.5%)	59 (64.1%)	77 (73.3%)	95 (71.9%)
Two to three times a week	14 (21.2)	27 (29.3%)	14 (13.3%)	19 (14.3%)
Once a week	7 (10.6%)	3 (3.2%)	4 (3.8%)	14 (10.6)
Once a month	5 (7.5%)	4 (4.3%)	5 (4.6%)	2 (1.5%)
Once in a couple of months	4 (6%)	3 (3.2%)	5 (4.6%)	2 (1.5%)

Prof= Professor, Asso prof= Associate professor, AP/SR= Assistant professor/Senior resident

Tutor/JR= Tutor/junior resident

The most common websites searched for medical information is shown in table 4. PubMed was the most commonly used website by Assistant professor/Senior resident (81.9%), followed by Tutor/junior resident (79.5%).

**Table 4:** Websites searched for medical information

Academic post (number)	PubMed	Google	Cochrane	Elsevier	Others*
Professor (66)	39 (59%)	31 (46.1%)	22 (33.3%)	21 (40%)	14 (21.2%)
Associate professor (92)	68 (71.7%)	41 (44.5%)	22 (23.9%)	40 (43.4%)	32 (34.7%)
AP /SR (105)	86 (81.9%)	68 (64.7%)	63 (60%)	54 (51.4%)	45 (42.8%)

AP/SR= Assistant professor/Senior resident

The various barriers for using the Internet is shown in table 5. Most common barrier was lack of time for using Internet among all the staff, followed by not reliable information.

**Table 5:** Barriers for Internet usage

Reason	Prof (66)	Asso prof (92)	AP /SR (105)	Tutor/JR (132)
Lack of time	30 (45.4%)	54 (58.6%)	63 (60%)	86 (65.1%)
Information not reliable	39 (59%)	48 (52.1%)	54 (51.4%)	68 (51.5%)
Lack of skills	22 (33.3%)	42 (45.6%)	27 (25.7%)	54 (40.9%)
Cost	18 (27.2%)	24 (26%)	22 (20.9%)	33 (25%)
Slow internet speed	9 (13.6%)	15 (16.3%)	14 (13.3%)	21 (15.9%)

Prof= Professor

Asso prof= Associate professor

## Discussion

Advances occurring in the field of information and communication technology have revolutionized the way people think and work.<sup>6</sup> At present, Internet is making substantial contribution to research<sup>7</sup>, patient care<sup>8, 9</sup> education<sup>10</sup> and dissemination<sup>11, 12</sup> of healthcare information. Although recently number of studies have been conducted on use of Internet in healthcare professions, but these studies are done mainly on students not on doctors.<sup>13-18</sup>

Experience with Internet use was more than 70% in all the staff, highest being among Assistant professor/Senior resident (91.4%). All of the respondents irrespective of academic post reported using Internet on a daily basis (>40%). This is an encouraging sign and staff has a strong base to utilize information technology in medical profession. The highest use of Internet was among the Assistant professor/Senior resident (80%) followed by associate professor (71.7%). Every day use for medical purpose was more than general purpose among all the doctors (table 3). Lack of time was the common reason while using the Internet in all the staff except professors.

Professors felt that the information was not reliable on the Internet (table 5).

The most common searched website for medical information was PubMed followed by Google (table 4). The use of other medical websites such as Cochrane and Elsevier was more among Assistant professor/Senior resident than that of professors and associate professors. But many of the doctors had no knowledge about other medical websites such as Medical world search, WebMD, EBM online, UptoDate and Medknow publications. The reason might be that most of these sites are subscription based and lack of knowledge.

Internet is a cost effective medium which provides access to recent advances in health information, anytime and anywhere. Doctors should be educated to make effective use of the Internet technology. Studies have shown that online resources are not only as effective as paper based resources in answering clinical queries but are also time efficient.<sup>19</sup> By using Internet medical professionals can improve the quality of care, enhance the use of evidence-based treatments and update the clinical knowledge.<sup>20, 21</sup>

Although Internet has number of advantages, it has limitations. Users need to have basic skills to critically analyze the data and verify its accuracy, reliability and validity. Another important problem is the lack of quality control, because large amounts of data are available and there are no specific criteria available to determine the quality. This is especially important given the finding that health information seekers from general public rarely check whether the information is updated and source can be identified and is reliable.<sup>22</sup> Internet users should check the information quality by authors and institute information, publishing authority, website in which it is published, whether the information is sponsored by a third party with a potential conflict of interest.

A systematic review<sup>23</sup> conducted on Internet usage among doctors; found that doctors use Internet for email and search journals and databases, but there is a very wide range of activities. The barriers to Internet use were lack of time, workload and cost, too much information, liability issues and lack of skills. The review concluded that more and consistent research on Internet usage especially in developing countries is required.

#### **Limitations of the study**

The limitation of the present study is that we used doctors from only two medical colleges and sample size was small. Future studies should be done with large sample size which ideally should include doctor's from various medical colleges in a particular region.

#### **Conclusion**

Majority of the doctors, especially the young doctors are able to use Internet, both for personal and academic reasons, but are not utilizing it properly as an educational tool. It is recommended that doctors should be made aware of the importance of Internet in medical education. Doctors should be trained to extract and check the authenticity of information from the Internet. This will be helpful in promoting evidence based learning. There is a need to introduce a short course in computer and Internet use starting from the undergraduate level.

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#### **Conflict of interest**

None

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