

USE OF COMPUTER BY HEALTHCARE PROFESSIONALS IN DELHI & NCR REGION

Ms. Usha Jeswar¹, Dr Anju Lata Rai²

¹PhD student, Shri Jagdishprasad Jhabarmal Tibrewala University, Jhunjhunu, Rajasthan.

²Assistant Professor, School of Medical Sciences, Sharda University, Gr. Noida, UP.

ABSTRACT

There has been a rapid expansion of computer use in medicine recently in India. The reasons are availability of high speed and wireless connections, decreasing cost, demands for increased quality of care & documentation, and improving medical education. The city Delhi and nearby regions are considered to be advanced in areas of Information Technology (IT). However, the computer literacy level among healthcare professionals & students in this region is still unknown. To evaluate this, a pilot survey was conducted by means of a questionnaire titled, 'Use of computer by healthcare professionals in Delhi & NCR region'.

A total of 370 medical/dental students and healthcare professionals were surveyed. Disproportionate stratified random sampling was used for the study. Majority of students were found to have good skills with regard to computer & Internet usage. However, they were found not to use computer for studies but for social networking. Google and Yahoo seemed to be their favorite search engines and Facebook and Orkut were the favorite social networking sites. The healthcare professionals used computers to access online journals, study materials, and for research and for communication. They also used computer for clinical purposes.

The study concluded that although majority of medical students have basic grasp of computers and internet, they lacked advanced computer skills. There is a strong need for healthcare professionals to learn a lot more about computers. A proactive approach by the medical & dental councils will initiate greater application of Information Technology in the healthcare industry in India.

Keywords: Computer, internet, healthcare

INTRODUCTION

A computer has become an essential commodity in every hospital. Everything is computerized today, from open heart surgeries to X rays to various clinical tests. Everything is carried out efficiently and effectively by the computer. There are many advantages of computers that make it a must have by every medical professional.

Computers in the Medical Office

There are various uses of computer in medical field as it plays a vital role in every medical office. It contributes a lot to the hospital administration where all the administrative processes are computerized. For example, staff records, recording incoming and outgoing time of the staff, the holiday records of the staff, etc. It is difficult to keep track of such things manually but with the help of computers, the task is simplified and is less time consuming. In most of the offices, accounting is also computerized that helps you keep the daily record of the financial transactions of the office. It

also reduces the chances of money related frauds as all the data is stored properly that can be used for future reference. There are a lot of other types of use of computers in the medical field. Computer also helps in recording the names and contact details of the doctors and associated people. It is useful when it comes to recording the medical history of the patient, such as, previous treatments, tests, diagnosis, and symptoms, etc. Such information comes handy for the doctor in case of emergencies and when a new treatment is to be designed. The patients can also avail to computer counseling with the help of computers. Today, the bills are computer generated and hence, the chances of miscalculation are less. Apart from this, to avail the online transaction facilities computer is essential.

Use of Computers in Medicine

Use of computers in the medical field is also associated with the research and inventions in health sector. Various research studies are carried out with the help of various applications in the computer. For example, studying certain cells, micro organisms, bacteria, etc., is easily possible with computer. It helps you save all the related information that you can refer to, whenever required. One can also create electronic presentations of certain diseases or treatments that are useful to understand by the junior or trainee doctors so that they can prepare themselves for small and uncomplicated operations by taking guidance from senior doctors via web conferencing. In seminars and paper presentations on the health related topics, computerized presentations create more impact on the audience. It also helps the audience understand the issues well. With the help of computer networking, doctors across the world can communicate with each other about new inventions and unique health conditions, etc. All the countries are conducting research studies and this information can be mutually shared by the medical fraternity with the help of computers and internet technology. The computer makes the world smaller and brings people together. Health-related Web sites are among the most visited sites on the Internet, and their use may change the patient-provider relationship (Sturm, 2001).

Uses of Computers in Hospitals

Computers are widely used in all the hospitals for numerous purposes apart from administration, accounting, billing, and appointments. It literally helps doctors in performing various surgeries, especially laparoscopic surgeries are possible because of computers where doctors insert the medical tools and small camera and conduct an operation with the help of computers and monitors. Many high tech surgical machines and instruments are endowed with small computer systems so that every surgical process is recorded and monitored to avoid complications. Many clinical imaging processes are conducted and examined with the help of computers, such as X ray and CT scan, etc. Computers also play a vital role in conducting various clinical and biological laboratory tests in hospitals that help in correct diagnosis of the disease. Many critical patients who's heart rate, pulse rate, and brain readings, etc., need be recorded and monitored continuously, are observed through computers. It's virtually impossible for humans to note down every movement of the internal organs of the patients but computers do it with ease.

Importance of computers in medicine has grown so much that many patients who need to be provided with life support system are also governed by the special computerized system only. Such is the impact of computers on a medical practice.

Thus, in our fast developing world, the emerging need of computer knowledge has made an impact in every field, including the medical world. There is rampant use of computer technology in patient management, education, conference and many other tenets of the health-care industry. . The use of computer technology in medical education, research, treatment, and many other areas has increased in the healthcare industry, making its use by professionals almost mandatory. Healthcare professionals need to be well versed with this technology. Although the computers have now been adopted, adapted and absorbed in almost all the areas in India's healthcare, little is known about the computer literacy level among healthcare professionals. To evaluate this, a survey was conducted by means of a questionnaire entitled, 'The use of computer by healthcare professionals in Delhi & NCR region'.

This study is one of the first of its kind in Delhi & nearby regions and it aims to identify the degree to which computers have impacted the healthcare industry. Use of computers in health care will enhance decision-making, management planning and medical research, which will eventually improve the quality of patient care.

MATERIAL AND METHODS

This cross-sectional descriptive study was conducted from Jan. 2011 to August 2011 at Medical and Dental colleges of Delhi and Greater Noida. The subjects to be surveyed were divided into two main groups:

Group I--- Students (Undergraduate and Post graduate)

Group II--- Health care professionals (Clinicians, Teachers)

A printed questionnaire sought information regarding the extent of computer usage in the field of medicine. Questionnaires were distributed to faculty in their respective departments and to students in their classrooms.

For Students the data was analyzed using the following parameters:

1. Proficiency in basic software program such as word-processing, power point, database, spreadsheet, e-mail and Internet.
2. Technical and advanced computer knowledge
3. To identify the type(s) of search engine used for Internet and the purpose for which it was used (news, conference, research, and chat).

For Health care professionals the data was analyzed using the following parameters:

1. Basic knowledge of computer & internet.
2. Use in teaching and presentations
3. Use of computer assisted instruments & procedures e.g. in laparoscopic surgeries, microscopes, X-rays and CT scans.
4. Use in recording and monitoring various observations e.g. heart rate, pulse rate, and brain readings.

The questionnaire was designed to be simple and easy to understand. In order to make the respondents comfortable with the questions, general questions, related to computers, were asked first. The personnel details were left to the end, as it was felt that any weariness on the part of the respondents was unlikely to affect these answers.

The respondents were given a choice of answers and were only expected to mark the answers with a tick or a cross. Using this method it was expected that the questionnaire would produce a high response rate. The scaling technique that was used was 'LIKERT SCALE' in order to decrease the number of mixed responses. This would also ensure that the resulting data would truly reflect the objectivity of the questionnaire. The language used in the questionnaire was English. The answers that were generated from the questionnaires were fed into MS-Excel spreadsheet program.

Total sample size was 370.

Students (medical and dental) =200(100 each)

Healthcare professionals = (120 medical, 50 dental).

RESULTS

TABLE I:- Internet usage among UG medical/dental students (in percentage)

Q.no	Questions	None	Poor	Fair	Avg	Good	Exc.
I.	E-mail/chatting	15.5	4.5	17	19.5	36	7.5
II.	Updating knowledge	9	1.5	18.5	23.5	20	17.5

TABLE II: Technical and advanced computer knowledge of UG medical /dental students (in percentage)

A

Q.no	Question	None	Poor	Average	Good	Excellent
I.	Online searching/ downloading information from CD's	20	29	21	20.5	9.5
II.	Indexing / classifying information using internet	14.5	34	16	6	3.5
III.	Installing software	21	35.5	17	8	5
IV.	Trouble shooting hardware/ software problem	62.5	22	8.5	5	2

B

Mode of Use	Professor	Associate professor	Assistant professor	Tutor / resident
Teaching	14	20	48	18
Updating knowledge	26	14	32	28
E-mail/chatting	2	8	30	60
Research	26	36	38	6
Maintaining records	20	25	35	20

Table III- Search engine percentage

Search engines	Professor	Associate professor	Assistant professor	Tutor / resident
Google	8	22	38	32
facebook	0	10	20	70
Yahoo	2	8	35	55

Table IV- Technical and advanced computer knowledge of Group II (in percentage)

A---ONLINE SEARCHING AND DOWNLOADING FROM CD (percentage)

	Professor	Associate professor	Assistant professor	Tutor / resident
poor	35.5	30	20.5	14
average	46.5	40	30.5	44.5
good	13	15.5	42	22
excellent	0	12	40	48

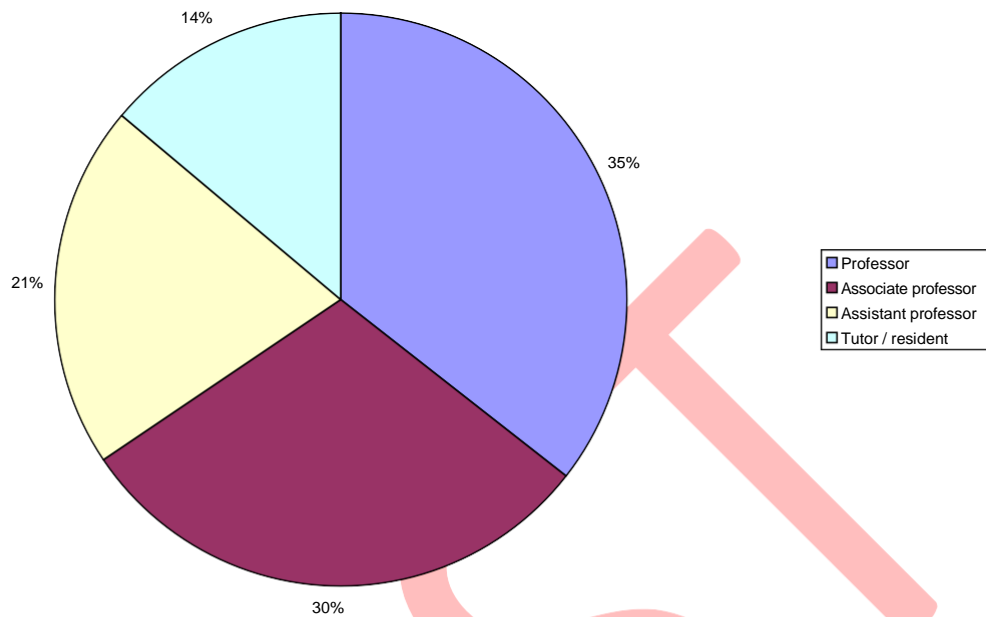
B---SETTING DATABASES AND MANAGING DATA (percentage)

	Professor	Associate professor	Assistant professor	Tutor / resident
poor	42.5	28	22.5	7
average	12	26	34.5	27.5
good	8	15	38	39
excellent	3	10	42	45

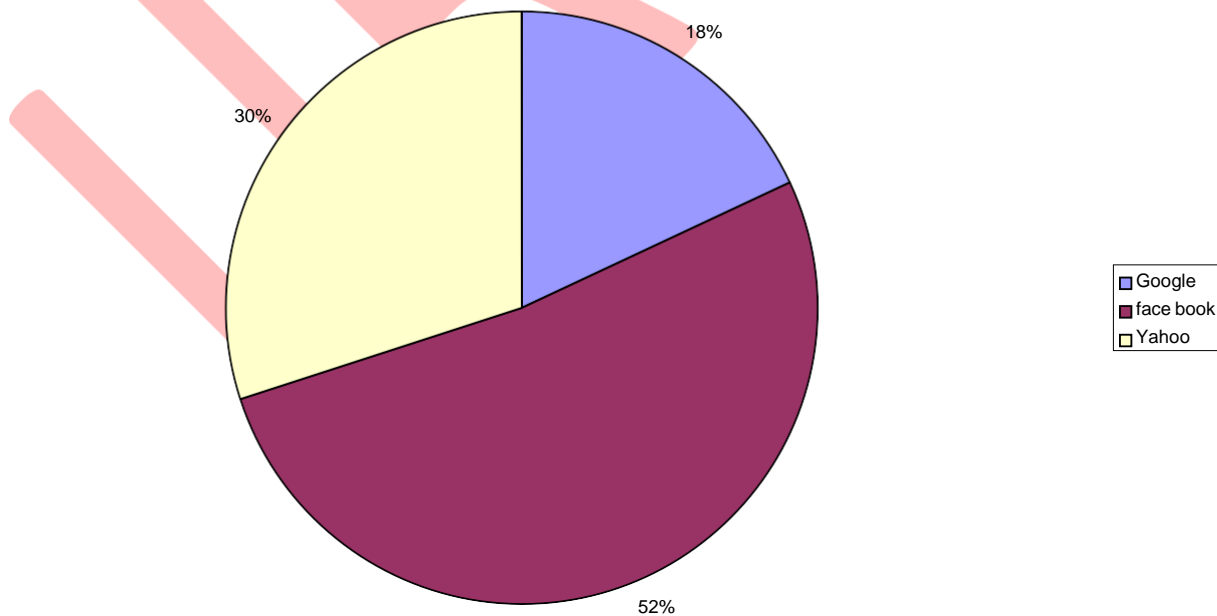
C---INSTALLING SOFTWARE (percentage)

	Professor	Associate professor	Assistant professor	Tutor / resident
poor	28	27	39	6
average	20	25	45	10
good	17	20	44	19
excellent	10	22	34	44

Online searching and downloading from CD rated as poor



Search engines/Website used by Undergraduate students



DISCUSSION

With advancement of science and technology in the usage of computers has also increased but still much more is required in the field of healthcare. The study conducted in Delhi & NCR found that while computer use was high at the Medical & Dental institutions, computers were being used by administrative staff for writing official letters, accounting, billing, and appointments, staff records etc. rather than being used by health care professionals for academic & clinical purposes. Comparing the advanced computer knowledge of senior faculty i.e. professors and associate professors with junior (younger) faculty (assistant professors/tutors) it was found that 65% of the seniors were rated as poor.

While most respondents in Group II had some computer knowledge, more than three quarters had no formal computer training. A similar study by Trivedi and Joshi (2008) in Gujarat had almost similar results. A 2004 study by Banga and Padda found that more than 95 percent of health professionals surveyed desired formal training. In our study only 40 % of faculty members were eager to learn computers the reasons were that they have their junior staff to help them.

The faculty used computers to access online journals, teaching materials, and research as well as for communication through e-mail and other tools, which is aligned with the findings of Asemi (2005) and Ajuwon (2004). According to Parekh et al (2004) two-thirds of the respondents used the Internet for healthcare-related purposes and a similar percentage thought that the Internet has affected their practice of medicine positively. In our study the senior faculty in group II had similar thoughts but for the residents it was merely a tool for entertainment.

The respondents in group I showed that most of the students used computer for email, chatting and social networking compared to for the academic purpose. The results were quite similar to Inamdar & Rotti(2004) whose study group included undergraduate and post graduate students. The websites used by group I were facebook followed by yahoo and google

It can be concluded that a formal computer training and its importance in medicine should be made compulsory in all the leading medical and dental colleges of India, as it is a time saving important tool. It should be the duty of senior health care professionals to make their juniors as well as their students use internet for health care purpose.

REFERENCES

Ajuwon G.A. (2004). Use of computer and the Internet in a Nigerian teaching hospital. *Journal of Hospital Librarianship* 4:73-88.

Asemi A. (2005). Information searching habits of Internet users: A case study on the Medical Sciences University of Isfahan, Iran. *Webology* 2(1), article 10.
<http://www.webology.ir/2005/v2nl/a10.html>

Banga K., Padda A.S. (2004). A study of knowledge attitude and practices of faculty members of Govt. Medical College, Amritsar regarding the use of computers. *Indian Journal of Medical Informatics* 1(2).<http://www.iami.org.in/journal1/knowledge.asp>

Gupta S.P. *Statistical Methods*. Sultan Chand and Sons. 1991. 18.1-18.30

Inamdar S. C., & Rotti S.B. (2004). Computer use among medical students in an institution in Southern India. *National Medical Journal of India* 17(1):8-10.

Parekh S.G., Nazarian, D.G., Lim, C.K. (2004). Adoption of information technology by physicians. *Clinical Orthopaedics and Related Research* 421:107-11.

Sturm R. (2001). Datapoints: The Role of Computer Use in Different Medical Specialties. *Psychiatr Serv* 52:443

Trivedi M., Joshi A. (2008). Computer and Internet Use by Health Care Professionals in a Rural Medical College in India. *Library Philosophy and Practice* (August), 1-4.

White C., Sheedy V., Lawrence N. (2002). Patterns of computer usage among medical practitioners in rural and remote Queensland. *Aust. J. Rural Health* 10, 137-146

