



The use of internet as a source of oral health information among dental patients in Bangalore-City – A questionnaire study

Internet as source of information on oral health

Language: English

Authors:

Prof. Dr. Naganandini. S., MDS, Head of the Department, Dr. Rekha Rao, Post graduate student, The Oxford Dental College, Department of Public Health Dentistry, Bommanahalli, Karnataka, India

Date/Event/Venue:

4th-6th November 2012

XVI National Conference of Indian Association of Public Health Dentistry
Bangalore, India

Poster Award

Best Paper of the Session

Introduction

Internet is a global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail. (1)

The Internet was originally proposed in 1989 and first implemented in 1990, since then there has been remarkable global expansion, particularly of the World Wide Web, with a doubling period of approximately 5 months. Those aged between 19 and 50 yr were most frequently on-line and the commonest reason for using the Internet was for communication like email and chat and dissemination of knowledge. (2)

The internet is considered to be a significant source of health information for the general public and in particular for those with chronic illnesses, with more than 70,000 websites providing health information. It allows increased access to medical and dental information and can be used for patient self education, enabling patients to confirm the information given by their practitioner and to gather additional information. It is also seen as a means for patients to seek support and advice both from other patients and from health care professionals³ Very little is known about use of internet to access information on oral health. One study suggested that impact of internet on dentistry is on whole positive, but there is a long way to go before its potential benefits are realized in full.

While there is a considerable body of research on the impact of the Internet as it relates to medicine in general, there is little evidence about how the Internet is impacting dentistry and how it is used by dental patients as a source of information on oral health. (4)

Hence aim of the study is to determine the use of internet as a source of information on oral health among dental patients of Silicon city, Bangalore, India.

Material and Methods

A descriptive study was conducted to assess the use of internet to access oral health related information by dental patients in Bangalore city.

Study population:

Participants for the study were recruited from those dental patients attending the outpatient department of Government institutions and hospital, Employees State Insurance scheme, defence hospitals, railway hospitals, Private institutions and hospitals, Private clinics, corporate hospitals in Bangalore city.

Study sample:

The sample size was determined using the N Masters software, considering the prevalence of use of internet as 23% (pilot study) with alpha error of 5% and power of 80%, relative precision of Sample is derived from the formula:

$$n = z^2 pq / r^2$$

Where $z = 1.96$

$p = 0.23$ (prevalence) $q = 0.77$ (1-p)

$r = 0.0345$ (relative precision)

The sample size determined was 572.

Sampling method:

Multi stage sampling technique was employed; the geographical area of Bangalore city was divided into zones viz north, south, east and west. (According to BBMP ZONE division). From the public sector ESI hospitals, Defence hospitals, Railway hospitals, Government College and hospitals were included. From the Private sector Private Colleges and hospitals, corporate hospitals & Dental clinics were included.

Subsequently all the units of sampling in the divided geographical area were listed alphabetically and selected using simple random technique. Depending on the average weekly cases seen at each centre, proportion probability sampling technique was used to select the individual respondent subjects for the study. 10% of the weekly OPD at each centre samples were taken.

Inclusion criteria:

- 1) Patients using internet
- 2) Patients attending outpatient department of dental colleges, private clinic & private hospitals, government institutions in Bangalore city
- 3) Patients who are aged 18 years and above

Exclusion criteria:

- 1) Patients with intellectual impairment or reading difficulty were excluded
- 2) Patients not willing to participate in the study

Sampling tools:

Questionnaire:

General participants details were recorded, these included age, gender, educational qualification, occupation, income and lastly the reasons for attending the dental clinic. Questions related to participant's use of internet to access any oral health related information, use of internet as a source of information on oral health and questions assessing the effects of oral health related information on patient's oral hygiene practice were included.

The content validity was assessed by a panel of six experts of dental educators. The purpose was to depict those items with a high degree of agreement among experts. Aiken's V was used to quantify the concordance between experts for each item. The Aiken's V values thus obtained were 0.97.

In order to assess reliability of questions to determine the usage of internet resources for oral health related information, split half technique was used and Cronbach's alpha was calculated. The correlations between the items ranged from 0.55 to 0.67.

Study procedure:

Permission was obtained from the principals of all the private colleges and hospitals, Head's of institution of government institution and hospitals, corporate hospitals, private clinics selected for the study in Bangalore city. Patients who agreed to participate in the study provided informed consent and completed self reported questionnaire as they awaited their appointment at the outpatient clinic.

The data was collected from the patients attending outpatient department of hospitals in private and public sector by using a specially prepared proforma.

The investigator introduced herself to all the patients in the OPD and appraised them about the study. For patients who had doubts oral instructions were given. All the patients confirmed their use of internet. After the completion of questionnaire interviewer acknowledged the patients and assured about their confidentiality.

Results

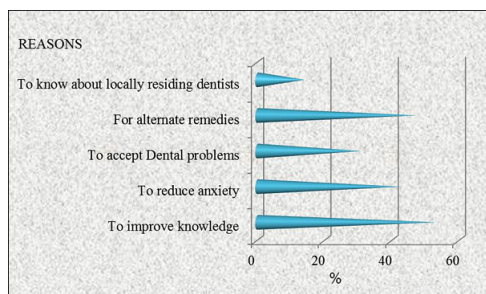


Fig. 1: Reasons for seeking information on oral health on the internet

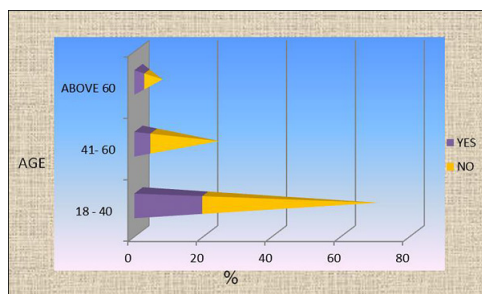


Fig. 2: Distribution of the study population according to use of internet for oral health related information in relation to age

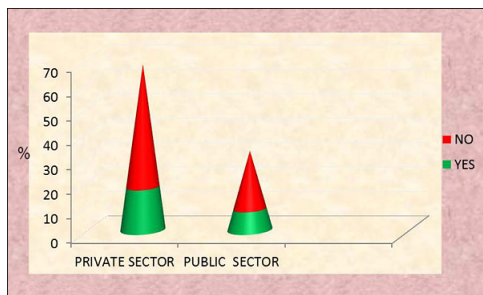


Fig. 3: Distribution of the study population according to use of internet in relation to healthcare delivery

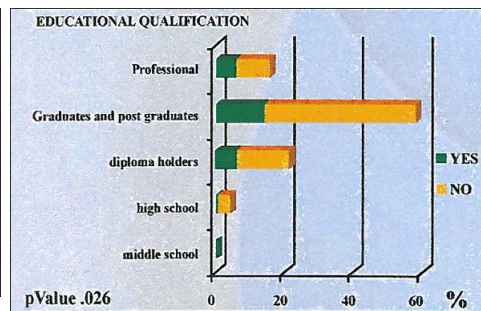


Fig. 4: Distribution of study population according to use of internet in relation to educational qualification

Use of internet as a source of information on oral health	Number	%
A – Were respondents able to find answers to their queries		
a) Yes	133	88.66
b) No	17	11.33
B – After obtaining the information whether they discussed with their dentist		
a) Yes	99	66
b) No	51	34
C – Type of oral health related information for which internet was used		
a) Specific disease / conditions	80	53.33
b) For medications	70	46.66
c) For preventive measures	57	38
d) Alternative therapies	47	31.33

Tab. 1: Distribution of the study population according to use of internet as a source of information on oral health

Discussion

Although India's internet penetration rate of less than 10 percent is low by global standards, the country is nonetheless home to tens of millions of users and has become an important leader in the high-tech industry. The spread of information and communication technologies (ICTs) began accelerating in India with the liberalization of the telecommunications sector as part of the New Economic Policy in July 1991. (4)

As said above, the results of different surveys varied about the prevalence of internet use among Indians, we decided to use to prevalence rate of internet use from the pilot study. If the patients used internet for general information, then their usage of internet for health and oral health related information also rise substantially, hence patients using the internet was one of the inclusion criteria in the study.

In the present study we had a look at the use of internet by diverse group of dental patients as resource for procuring information on oral health, and we found that, out of the 572 respondents using internet, nearly one fourth of the patients reported using internet for information on oral health, which was almost same as to study conducted by Riordain et al (2).

Of the patients surveyed who had researched for information on oral health online, over 50 % reported it for improving their knowledge about a condition or procedure, this is similar to study conducted by Riordain et al.

A significantly higher number of patients from 18 - 40 yrs age - group used internet as source of information on oral health as compared to patients above 40 years of age. The reason for this could be relatively higher access of internet among younger people like at work place and through cybercafés.

Significantly higher number of respondents in private sector used internet as a source of information on oral health compared to that of the respondents in the government sector, the reason being that in India a higher number of private clinics and hospitals are established, especially in the urban areas as compared to the government hospitals and that the patients attending the private clinics and hospitals are from higher socio economic status compared to the patients attending the government institutions⁵.

A significantly higher number of graduates, post graduates, professionals and diploma holders used internet as source of information on oral health as compared to high school and middle school certificate holders. Education acts as a barrier for accessing internet and this could be reason for the above mentioned differences⁶.

The lack of awareness on the authentic websites on oral health has prompted the widespread use of the information available on the net which is more non - evidence based rather than on the sound scientific knowledge. So it is important that patients discuss the information obtained online with their dentists and confirm the accuracy of the content. Patients can also take guidance of the dentists to search on more evidence based information online⁷

Concerns over the quality and accuracy of the information on the net are yet other issues to be considered. If the patients are to improve and maintain their oral health by self support of internet, then they must have access to high quality and appropriate information. (8,9)

This is possible only if the patients are guided by us to authentic website where in reliable information is posted and in a manner that is easy to understand by patients.

The patients can be made aware of the quality of information online through educating them by asking them to consider the content provider's qualifications like; are the author's qualification stated clearly?, does the author have a dental or medical degree?

By asking patients to assess the validity of the science available on the net like; are the study results current and does the research provide the most up to date facts available?, Is the argument or conclusion supported by sound scientific evidence, or is it just an unsubstantiated theory?¹⁰

References

1. M.M. Gordon, H. A. Capell and R. Madhok. The use of the Internet as a resource for health information among patients attending a rheumatology clinic. *Rheumatology (Oxford)*.2002 Dec: 41(12):1402-1405.
2. R. Ni Riordain and C.McCreary. Dental patients' use of the internet. *British Dental Journal* 2009;207:583-586.
3. Kendra L. Schwartz Thomas Roe, Justin Northrup, James Meza, Raouf Seifeldin, and Anne Victoria Neale. Family Medicine Patients' Use of the Internet for Health Information: A MetroNet Study. *JABFM*. 2006 Jan-Feb: 19(1): 39-45.
4. Report on internet penetration in India. July 2006.
5. Hu J, Luo E, Song E, Xu X, Tan H, Zhao Y, Wang Y, Li Z. Patients\' attitudes towards online dental information and a web-based virtual reality program for clinical dentistry: a pilot investigation in China. *Int J Med Inform*. 2009 Mar;78(3):208-215.
6. Aydin U, Ozturk M, Kirbiyik S. Prevalence of internet usage and access to health information among dental school outpatients. *Telemed J E Health*. 2004 Winter:10 (4):444-8.
7. Khechine Hager, Pascot Daniel, Pierre Premont. Use of health-related information from the Internet by English-speaking patients. *Health Informatics Journal*. 2008 Mar: 14 (1):17-28.
8. Mead N, Varnam R, Rogers A, Roland M. What predicts patients' interest in the Internet as a health resource in primary care in England? *J Health Serv Res Policy*. 2003 Jan: 8(1):33-9.
9. Anderson J.G, Rainey M.R, Eysenbach. G. The Impact of Cyber Healthcare on the Physician-Patient Relationship. *Journal of Medical Systems*. 2003 Feb: 27 (1): 67-84.
10. ADA Division of Communications; ADA Council on Scientific Affairs. Surfing for substance; evaluating oral health information on the internet. *JADA*. 2006 May: 137 (5): 692.

This Poster was submitted by [Dr. Naganandini. S.](#)

Correspondence address:

[Dr. Naganandini. S.](#)

The Oxford Dental College, Department of Public Health Dentistry
Bommanahalli, Bangalore-98
Karnataka
India

THE USE OF INTERNET AS A SOURCE OF ORAL HEALTH INFORMATION AMONG DENTAL PATIENTS IN BANGALORE CITY - A QUESTIONNAIRE STUDY

INTRODUCTION:

Between 2000 and 2006, internet usage worldwide has almost tripled and a current population penetration of over 20% exists. Internet allows increased access to medical and dental information and can be used for patient self-education. Furthermore, now and in the future, the Internet with its practice based websites, constitute a central forum for communication between practitioners and their patients. (1)

OBJECTIVES:

1. To determine the use of internet, as a source of oral health information, among dental patients in Bangalore city.
2. To investigate the reasons for seeking online information on oral health conditions and procedures.
3. To evaluate the type of information patients seek on oral health and to assess the effects of oral health related information from internet on patient's oral hygiene practice.

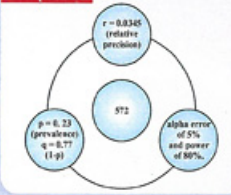


MATERIAL AND METHODS

Source of Data

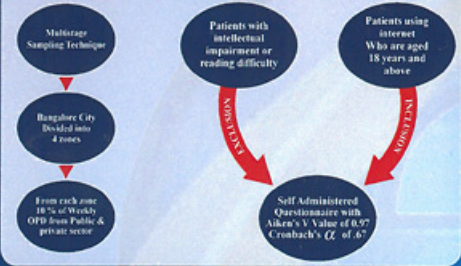
- PUBLIC SECTOR**
- a. Government college & hospital
 - b. ISH
 - c. REFERENCE
 - d. RAILWAYS
- PRIVATE SECTOR**
- a. Private practitioners
 - b. Corporate hospitals
 - c. Private colleges and hospitals

Sample Size



SAMPLING METHOD

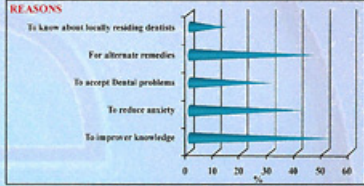
SAMPLING TOOL



RESULTS

The study included 367 (64.7%) male subjects and 205 (35.8%) female subjects. Out of 572 respondents using internet, 150 (26.2%) used internet for information on oral health.

Fig. 1 Reason for seeking information on oral health on the internet (OBJECTIVE 1)



RESULTS

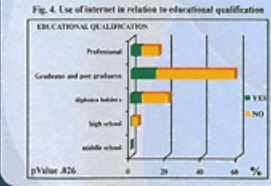
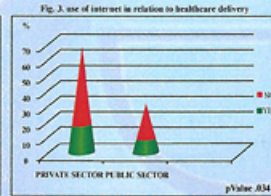
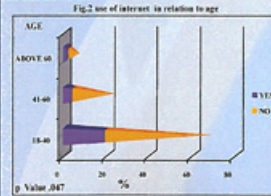


Table - 1 (Objective 2 & 3)

Type of oral health related information for which internet was used	%
a) Specific disease / conditions	53.33%
b) For medications	46.66%
c) For preventive measures	38%
d) Alternative therapies	33.33%

Were changes made in the participants behaviour after receiving information	%
a) Yes	81.37%
b) No	18.67%

DISCUSSION

In the present study prevalence of use of internet for information on oral health was lower as compared to previous studies; the reason for this difference is that the internet penetration in India is less than 5%. (2)

OBJECTIVE 1: Patients from younger age - group quoted that the most common reason for seeking information on oral health on the net was to improve their knowledge on dental problems and to reduce anxiety about dental problems and the least common reason was to know about the locally residing dentists or the service providers. The most common reason for seeking information on oral health online by patients above 60 years was to know about the alternate remedies. These differences in different age groups could be related to dental problems occurring in a particular age group. (3)

OBJECTIVE 2: Younger age group researched more often online as relatively higher access of internet among younger people like at work place and through cybercafe. (Fig. 2)

HEALTH CARE DELIVERY: Higher number of respondents in private sector used internet as a source of information on oral health, as patients attending the private clinics and hospitals are from higher socio economic status compared to the patients attending the government institutions. (Fig. 3)

EDUCATIONAL QUALIFICATION: Graduates, post graduates, professionals and diploma holders used net more often as source of information on oral health as compared to high school and middle school certificate holders as education acts as a barrier for accessing internet and this might influence the net usage as well. (Fig. 4)

OBJECTIVE 3: The most common type of information researched online by patients of 18 - 40 years age group was for specific disease/ conditions and the least common reason was alternative therapies. The reason for such an answer could be that patients from younger age group are more interested in understanding specific dental condition/ disease, its etiology and pathogenesis rather than finding alternative remedies to control the disease.

OBJECTIVE 4: In the present study nearly 90% of the patients said that information online changed the way they think about their oral health which is very high as compared to study conducted by Iverson et al. More than 80 % of the patients made changes in their oral hygiene practices which were high as compared to study by Iverson et al. The reason for this huge difference could be that a relatively lesser number of the participants involved in the study conducted by Iverson et al. (1)

CONCLUSION

Patients from younger age group, private sector and higher educational qualification used net as source of oral health information. Internet use among patients clearly leads to an increase in the knowledge regarding oral health and brings about changes in oral health behavior of the patients.

RECOMMENDATIONS

There are concerns about the quality of information on oral health online.

- a. The patients can be made aware of the quality of information online through educating them by asking them to consider the content provider's qualifications like: are the author's qualifications stated clearly?, does the author have a dental or medical degree?
- b. By asking patients to assess the validity of the science available on the net like: are the study results current and does the research provide the most up to date facts available?, Is the argument or conclusion supported by sound scientific evidence, or is it just an unsubstantiated theory?
- c. It is important that the organizations such the Indian Association of Public Health Dentistry, Indian Dental Association understand need for promoting oral health through internet. These organizations can be very eminent in promoting oral health through internet by providing evidence based and reliable information on their websites which is exclusively for patients.



REFERENCES

1. I. G. Chestnut and K. Reynolds, Perceptions of how the Internet has impacted on dentistry. British Dental Journal volume 206 no. 3 Feb 11 2006.
2. R. Ni Riordan and C. McCreey, Dental patients' use of the internet. British Dental Journal 2009;207:583- 586.



Dr. Rishu II M.D.S., Gueded by : Dr. Nagarajendri, S. Prad. & B.D.O. The Oxford Dental College