



INTERNET BASED INFORMATION USAGE AMONG PRACTICING DENTISTS IN JODHPUR CITY, RAJASTHAN

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ABSTRACT

Aim : The aim of the study was to assess the Internet based information usage by the practicing dentists in Jodhpur city, Rajasthan

Methodology: it was a cross sectional survey conducted for a period of three month. A questionnaire was developed to obtain information about the use of internet by the dentists in Jodhpur city. The questionnaire was distributed to dentists by contacting them personally and It took 10-15 minutes to complete the questionnaire. The returned questionnaire was coded and used for statistical analysis.

Result: Majority of the dentists were assessing internet both at home as well as clinic. it was found that 70.3% of dentists utilized internet for educating themselves whereas only 38.1% search for research works. only few 9.3% study subjects had received formal training in search strategies. 55.1% dentists preferred to browse search engines (Google, Bing etc.) rather than specific database.

Conclusion: Accessibility, affordability and fast access to information were found to be the major causes which make internet to be preferable over printed material to gain information. Most of the MDS dentists were found to use medical and dental databases, BDS dentists were found unaware of such database and their use

KEYWORDS :

INTRODUCTION

Internet has proven to be a mine of incredible amount of information in relation to various fields. It has collection of facts and data of oldest to the latest era. The internet seems to be everywhere and everything seems to be on it. It was estimated in 2010 that approximately 2 billion people worldwide have access to internet, representing around 29% of world's population.

The enormous information available on internet is being utilized by various professionals including dental and medical professionals to exalt their knowledge. Internet has handed over relevant up to date information instantly at the point of care in a user friendly manner. It is not only speedy but also affordable, offering clinicians the information at their fingertip.² The virtue of internet based health resources and databases is that it does not discriminate between people in terms of providing access to understanding of disease and care issues and does not allow geography as any hindrance.³

It provides an easy way of accessing the proficiency of specialist, clinicians and academicians of all over the world.⁴ Many videos related to the dental clinical procedures such as root canal treatment, impression recording, tooth preparation, cavity preparation etc., are available on internet which can be accessed free of cost. The dental/medical databases such as EBSCOhost, PubMed, Science direct, and MEDLINE provide scientific literature. These databases are known for their authenticity and can be accessed after subscription. Few other databases such as PubMed Central do not require subscription. The awareness about the accessibility and affordability of these databases and thus their usage varies between the dentists. This information helps the dentist in clarify his or his colleagues query. Each day we are immersed with information about new procedure, investigation, equipment or products. Our want to stay up with the latest is frequently tinged with question about the claims of predominance of these new medicines or items. The problem arises in making a decision when something new is superior to present clinical management approach. Finding the time to attain knowledge and make these decisions often seem like next to impossible. In such situations the desire to keep up to date with new advances can be fulfilled by internet.⁵

The emergency management guidelines available online can help deal with a medical or dental emergency in the office in situations of unavailability of specialist or emergency care.

The clinicians can talk about the clinical problems via video conferencing⁶, social media such as blogs, LinkedIn, Twitter, Wikipedia, and Facebook, which offers appropriate platform for mutually active information dissemination.⁷

Internet is also being utilized by the patients to gather information concerning various diseases. From the perspective of many specialists, attainment of interim based information by the patients helps in patient motivation, because the patient who has desired to know about the treatment is more likely to approach treatment in a positive and 'complaint way'.⁸ However, according to Chesnutt and Reynolds, many dentists believed that information gained from the internet has led to patients demanding inappropriate care.

On the quality of information available on Internet *Jim Blair* said that Internet has increased the quantity of information available without necessarily enhancing the quality.

Even on credible websites, information may not always be current or accurate as anyone can create information that is on the internet.¹¹

As internet has become an essential part of life and many professionals are using internet to improve their skills, knowledge and for entertainment. Thus this study aims to explore the access of internet to the practicing dentists, time spent by the dentists for surfing internet, purpose of Internet usage, employment of internet based information by them in clinical practice, access to the scientific dental and medical database, trust over the internet based information, reasons for using or not using internet for obtaining information related to clinical practice.

AIM:

The aim of the study was to assess the Internet based information usage by the practicing dentists in Jodhpur city, Rajasthan

OBJECTIVES

1. To estimate the time spent by practicing dentist on surfing internet.
2. To have knowledge about the various purposes for which dentists obtain information from the internet.
3. To assess the type of information trusted by practicing dentists.
4. To evaluate the reasons to use internet for obtaining information.

MATERIALS & METHODS

The information on internet based information usage was collected through a cross sectional survey. The ethical clearance was obtained by the Institutional ethical board.

This study was conducted from October 2018 to December 2018. It was conducted in two parts. First part consisted of designing, development and pilot testing of questionnaire based on construct validity, content validity and pre-testing of questionnaire on a group of 10 dentists selected by purposive sampling technique. Second part consisted of collection of information by implementing the questionnaire.

A questionnaire was developed to obtain information about the use of internet by the dentists in Jodhpur city and to assess the utilization of internet based information in the clinical practice. The questionnaire was developed based on review of literature. Few questions were having multiple responses. The questionnaire consisted of 16 closed type of questions. To know the views of clinicians about the internet use, two open ended questions were included towards the end of the questionnaire.

The questionnaire elicited information about the age and gender of the dentist, highest qualification, institutional attachment and the type and duration of practice, use of health information from search engines and databases for clinical procedures, criteria to trust information available on internet, the reason for using internet to obtain information related to clinical practice. The questionnaire was pre tested on a convenience sample of 10 dentists. The feedback was obtained on the overall acceptability of the questionnaire in terms of length and language clarity. Based on the feedback the corrections were made in the questionnaire. The face validity of the corrected questionnaire was assessed by administering it to 10 dentists who were excluded from the final study. The Gutmann-split half value of 0.84 indicated the good reliability of the questionnaire.

Study population consisted of BDS (Bachelor of Dental Surgery) and MDS (Master of Dental Surgery) dentists practicing in Jodhpur city. Study included dentists indulge in general practice as well as those concerned with specialty practice. Practicing dentists who were working as academicians in various dental colleges of Jodhpur were also included. The survey was limited to the voluntarily participating dentists.

A provisional list of dentists practicing in the Jodhpur city was prepared by procuring information from the list of dental clinics in Jodhpur available on internet and by obtaining information from the various dentists. The information about the 207 practicing dentists was acquired. Out of 207 dentists 140 could be contacted. Out of those contacted, 118 (response rate 84.2%) dentists responded for the survey. The remaining 22 dentists refused to participate owing to time constraints. The questionnaire was distributed to dentists by contacting them personally. The objective was explained to the participants and written informed consent was obtained. It took 10-15 minutes to complete the questionnaire. The investigator was always present to clarify the doubts of the respondent.

Completed questionnaires were coded and statistical analysis was done using Statistical package for the social sciences (IBM SPSS Statistics 20.0). The level of significance for all tests was set at $p < 0.05$. Chi-square test was employed to assess the association of age groups, gender, institutional qualification, institutional attachment, duration of practice and type of practice with usage of internet based information in clinical practice.

RESULTS

The present study was conducted to assess the internet based information usage by the practicing dentist in Jodhpur city, Rajasthan. The pattern of internet usage was analysed based on the age, gender, type of practice, duration of practice and institutional attachment of the dentist. The distribution of the study subjects within various categories has been presented in the table 1.

Majority of the dentists were assessing internet both at home as well as clinic. Internet is being used by 77.1% on daily basis. On an average 44.9% of the dentists spent less than 5 hours per week on internet. The most commonly utilized aspect of internet (96.6%) was email. A significant association existed between the use of chat rooms and age (p value = 0.007). Maximum utilization of chat rooms was reported by dentist up to 30 years of age where 29.7% dentists used chat rooms. The utilization of blogs showed significant association with the duration of practice (p value= 0.05). Blogs was most commonly utilized aspect by dentists practicing for less than 2 years of duration. Nearly 39.1% dentists practicing for less than 2 years duration reported use of blogs.

On analysing the results for purpose of internet usage it was found that 70.3% of dentists utilized internet for educating themselves whereas only 38.1% search for research works.

Even though internet was used by almost all the dentists, only few 9.3% study subjects had received formal training in search strategies. 55.1% dentists preferred to browse search engines (Google, Bing etc.) rather than specific database. The use of search engine and subscription database showed significant association with the type of practice. The usage of both the search engine and subscription database was significantly more in dentists indulged in specialty practice. Seventy eight per cent dentists practicing their specialty and 32.9% dentists practicing general dentistry reported use of dental/medical database within past few days.

The most frequently assessed database was found to be PubMed central. A large proportion (85.6%) of the dentists agreed that internet can be a valuable source of information for the patients and 94.1% believed that it helps in updating their knowledge. Internet was being preferred over printed material such as books and printed journal by 73% of the dentists. The reason was ease of access through internet at any place and at any point of time.

Table 1: Distribution of study subjects into various categories.

		Number of subjects	Percentage	Total
Age	Up to 30 years	43	36.4	118
	31-40 years	49	41.5	
	41-50 years	16	13.6	
	More than 50 years	10	8.4	
Gender	Male	67	56.8	118
	Female	51	43.2	
Highest qualification	BDS	76	64.4	118
	MDS	42	35.6	
Institutional attachment	Yes	66	55.9	118
	No	52	44.1	
Duration of practice	Less than 2 years	23	19.5	118
	2-5 years	41	34.7	
	6-10 years	29	24.6	
	More than 10 years	25	21.2	
Type of practice	General	85	72.0	118
	Specialty	14	11.9	
	Both	19	16.1	

Table 2- Description of usage of Internet in relation to clinical practice.

		Frequency (%)
To find out how a clinical procedure is carried out	Yes always	24 (20.3)
	Yes for few clinical procedure	81 (68.6)
	No	13 (11.1)
for most current diagnostic test or therapy for a disease condition	Yes	67 (56.8)
	No	51 (43.2)
Use of internet	When the treatment plan is not known	54 (48.5)
	To solve the Query	25 (21.2)
	To clarify the doubts of colleague	46 (39.0)
	If any dental emergency arise	24 (20.3)

	To educate the people using online material	46 (39.0)
	To know the differential diagnosis	51 (43.2)
Discussion of clinical problem on message board on internet	Yes	34 (28.8)
	No	84 (71.2)
Follow the guidelines available online	Yes for all treatment procedures	10 (8.5)
	Yes for some treatment procedures	63 (53.4)
	No	43 (36.4)
Willingness to take web based CDE courses	Yes	40 (33.9)
	No	39 (33.1)
	Not know	39 (33.1)

Table 3: Description of factors related to trust over Internet based information

		Frequency (%)
trust quality of general information on internet	Yes	90 (76.3)
	No	24 (20.3)
	Never obtained information	4 (3.4)
internet based information trusted by practicing dentists	No criteria	5 (4.2)
	Published in any scientific journal.	91 (77%)
	Issued by governmental regulatory body.	44 (37.3)
	Mentioned in any institutional guidelines.	19 (10.1)
	Any blog or forum providing evidence	26 (22.0)
	Published in any medical or dental database	36 (33.1)

DISCUSSION

In the present study various attributes related to the information in the clinical practice have been assessed. The study BDS and MDS practicing dentists of Jodhpur city, Rajasthan. The information was collected with the help of a self-administered questionnaire; which was distributed to the dentists through personal contact. Email surveys conducted amongst health professional reported a very low response rate.¹² Muhumuza R et al.¹³ reported the response rate of 53.4% on conducting all surveys amongst dental practitioners Carlos Flores-Mir reported a response rate of 28% on conducting a survey amongst Canadian dentists in which the questionnaire were sent through mails.¹⁴ The response rate in the present study was 84.2% which was higher than mail or email surveys.

In Jodhpur city 100% of the participating dentists were found to have Internet access either at home or workplace or both. In 2008 Manhas R et al., also reported that 91.1% of dentists in an institution in Punjab had access to internet.¹⁵ in developed countries like USA, the 98% of the healthcare professionals were reported to have internet access.¹⁶

A significant association existed between the age and use of internet for entertainment. The use of chat rooms was found to be significantly more in dentists up to 30 Years of age. This finding was similar to the finding of Henry et al., where use of social media was found to be more in the dentist less than 45 years of age.¹¹

The results showed that only 38.1% of the dentists surf Internet for research. A significantly more MDS dentists were found to search research work on internet. This difference between MDS and BDS dentists could be due to the curriculum of MDS which involves research work and thus make the MDS dentists always keen of new research work and this could also be the reason for use of dental/medical database more by MDS as compared to BDS. Also the online databases (e.g. PubMed, Cochrane, REDLINE) are key tools in the search of best evidence for clinical practice. Less use of dental database by BDS also indicate less evidence based practice by them as compare to MDS.

Less than half (42.5%) of the dentists reported that they have never searched any medical/dental database and 55.1% dentists use search engines such as Google, you tube to obtain required information. This is quite concerning as much credence cannot be given to the content of information recovered from Internet. However, it is matter of

satisfaction that 77.1% dentists trust information given in online journals, 33.1% trust information given on governmental site and only 22% trust information given on blogs and forums. BDS constituted a significant proportion of dentists who trust information provided on blogs and forum. In the present study, 77.1% of the dentists trust the information given in the internet based journals, whereas the number of dentists reading electronic journals was 45% in Canada.¹⁴

It was observed that only 8.5% dentists follow practice guidelines for all Procedures which are available online, however 53.4% follow these guidelines for some procedures. However, these guidelines should be followed as these can promote consistency of care within an acceptable framework of variation.¹⁷

Attendance at the continuing dental as a component of education was considered as a component of the professional development In a study done by Best H A and Messer B, the Australian dentist reported that indirect Cost of travel, accommodation and distance travel time are sum of the important factors determining their decision to attend the CDE course 2° f the 4,111c on these factors, web based CDE courses can be good alternatives. In the Focusing 33.9% of the dentists showed their well to take web based CDE present study courses.¹⁷

Majority (73.7%) of the dentists accepted that they prefer internet over printed material to obtain information related to clinical practice. The reason for the preference for internet could be the ease of access and availability of vast amount of information at a single place. The availability of Internet on mobile phones has made its access easy. This was similar to the finding of Koehler et al., they found that health care professionals generally preferred to use technology (especially internet) rather than traditional means (textbooks) as a means of information and 67% of the health care professionals believed that Internet sites will replace non-electronic resources within next 10years.¹⁹

Only 9.3% of the study subjects reported to have received formal training in search strategies. Similarly Manhas R et al., found that in Punjab state of India also the necessary skills required to use internet by dentists was acquired through trial and error method.¹⁵

On comparing internet usage of practicing dentists with the dentists not associated with institute, it was found that the former group search internet more for education and research. This can be because of availability of dental and medical database in the institute.

Less number of dentists associated with institute used to refer internet in case of medical emergency in clinical Practice. This may be because dentists working in a more exposure to medical emergencies and thus more practical have more practical knowledge about their management. Similarly, more BDS dentist refer internet in case of medical emergencies as Compared to MDS.

On assessing the reason for using the internet as a source of information in clinical practice. It was found that almost all the dentists found it easy to access internet for obtaining information. Internet was reported to be cheap. Maximum dentist said that interact a vast amount of information can be obtained in a single click and it helps in updating them with the latest technology being used in other parts of world.

Despite the best efforts the total number of practicing dentists in Jodhpur cannot be obtained. Information about only 207 dentists could be retrieved and only 140 could be contacted. This demands the need for regulatory system, where all the practicing dentists should register so that authentic information about the practicing dentists in the city can be obtained.

In this study use of Wikipedia as a source of information has not been assessed. The information pertaining to the proportion of practicing dentists population, utilizing any aspect of Internet had been collected but the reason for a particular behaviour had not been assessed. There is a need of the study to analyse the cause underlying any response.

CONCLUSION

Internet seems to be valuable source of information to the dentists with almost, every dentist having access to internet either at home or office or both. A significant association exists between the educational qualification of the dentists and their purpose of internet usage.

More BDS than MDS dentists reported use of internet to know about the clinical procedure. Most of the dentists do not prefer to discuss clinical problem on message board. Where most of the MDS dentists were found to use medical and dental databases, BDS dentists were found unaware of such database and their use.

Accessibility, affordability and fast access to information were found to be the major causes which make internet to be preferable over printed material to gain information.

**Proforma
Internet Based information usage by Practicing Dentists in Jodhpur City**

S.no:
 Date:.....
 Gender: Male/Female
 Qualification: BDS/MDS
 Institutional Attachment: Yes/No
 Duration of Practice:years
 Type of Practice: General/ Specialty/ Both

1. Do you access internet at home or Clinic

- 1) Yes
- 2) No

2. How many hour a week do you spent on internet

- 1) Less than 5 hour
- 2) 5–10 hour
- 3) More than 10 hour

3. Reason for using Internet

- 1) Surf Internet for entertainment
- 2) Surf internet for education
- 3) Surf Internet for research

4. Do you use internet to find out how a clinical procedure is carried out

- 1) Yes, always
- 2) Yes, for few procedures
- 3) No

5. Do you use internet for most current diagnostic test or therapy for a disease condition

- 1) Yes
- 2) No

Do you use internet

S.no	Question	Yes	No
1)	When treatment plan is not known		
2)	To solve patient query.		
3)	To clarify doubts of colleague		
4)	If any dental emergency arise		
5)	To educate patient using online material		
6)	To know differential diagnosis		

7. Discussion of clinical problem On "message board" on Internet

- 1) Yes
- 2) No

8. Do you ever Search database

- 1) Yes
- 2) No

9. Do you have formal training in searchstrategies?

- 1) Yes
- 2) No

10. Do you follow practice guidelines

- 1) Yes for all
- 2) Yes for some
- 3) No

11. Do you Willing to take web based CDE courses

- 1) Yes
- 2) No
- 3) Not aware

12. Do you think Internet is valuable source of information for patients

- 1) Yes
- 2) No

13. Do you think Internet helps in updating knowledge

- 4) Yes
- 5) No

14. Do you trust quality of general information on internet

- 1) Yes
- 2) No
- 3) Never obtained information

15. Which type of Internet based information do you trust

- 1) No criteria
- 2) Published in any scientific journal
- 3) Issued by any government/regulatory body
- 4) Mentioned in any institutional guideline
- 5) Any blog or forum providing evidence
- 6) Published in any medical/dental database
- 7) don't trust

16. Do you Prefer Internet over printed material

- 1) Yes
- 2) No

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