



Internet and its Impact on the Patient-Physician Relationship Patient Visiting Various Dental Clinics in Northern India

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INTRODUCTION: Readily available health-related information over the internet has led to increased patient awareness, and this might be a possible factor straining the patient-physician relationship.

AIM: To assess the impact of the internet on the patient-physician relationship amongst patient visiting various dental clinics in Northern India.

MATERIALS AND METHODS: Of the 600 pre-tested online questionnaires distributed, a total of 456 (response rate 76%) adequately filled questionnaires were analysed for the impact of internet on the patient-physician relationship. Responses were subsequently tabulated and analysed using SPSS Version 21.0. Statistical significance was kept as $p \leq 0.05$.

RESULTS: A statistically significant difference ($p = .04$) was seen amongst males and females regarding their internet usage with a higher proportion of health information being sought by males. Most internet users (66.6%) followed their physician's advice before they began using the internet with behavioural changes seen mostly in the 18-30 years age group (75.64%), yet only 14.38% of them informing their physician about such changes.

CONCLUSION: It is important that people be advised about the potential risks of believing in sources from the internet with physicians also being advised to spend more quality time with their patients to alleviate them of their fears and doubts.

KEYWORDS: Internet, Information, Health

INTRODUCTION

The generation of today is heavily dependent on the internet for information needs which has propelled India to second spot in terms of internet users after China and with 560 million active users. Furthermore, statistics reveal that nearly three fourths of India's online population is under 35 years of age.¹

Before the advent of internet, patients relied heavily on their physicians for health based information and treatment modalities. But now, with easy access to information available on the web, patients are getting more knowledgeable regarding their health and at times, question the attending doctors about procedures and alternate options. In India, there were an estimated 72% of people who acknowledged the fact that they surfed the internet looking for health-related information out of which, a whopping 95% of the population found the information available on the internet serving their purpose.²

Searching for health-related information on the internet by patients has quite a few advantages for them. It helps them increase their knowledge,

competence, and engagement in health maintenance and decision-making, whilst also providing an opportunity to investigate difficult or embarrassing questions with comfort and privacy.^{3,5} Patients also appreciate the freedom afforded by ready access to online health related sites, articles or resources, which reduces the time and commitment for office-based physician consultations. Also, the Internet provides space (anonymous, if required) to majority of patients who finding themselves in similar medical situations/conditions, and hence, helps in generating a strong, highly accessible base of care, as well as to understand and to provide support to individuals with similar issues related to their health.⁵

Hence, this study tries to assess the impact of internet on health related behaviours of patients and its impact on the physician-patient relationship amongst patients visiting various dental clinics in Northern India.

MATERIAL AND METHODS

Data was collected from the questionnaire adopted by Iverson SA et al.⁶ After adapting the questionnaire



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according to the Indian population, the questionnaire was Pre- tested it on 50 people for its content and criterion validity. After making minor adjustments, the Questionnaire was distributed online to as many patients visiting various dental clinics Northern India who gave a written consent to be a part of the study. Dentists having clinics in Northern India were contacted, asked to participate in the study and their patients were asked to fill the questionnaire through the Quick Response (QR) code of the clinic posted in their clinic. The patients' consent to participate in the study (inclusion criteria) was implied when they clicked on the "next" button to answer the questionnaire and they had complete freedom either to decline or answer the questionnaire. Access to data was only to the principal investigator and no personal details (e-mail id, phone number, name etc.) were asked. Responses were sought from only those patients who had had basic access to internet, were aged 18 and above, surfed the internet for at least 4 hours per week and could speak English fluently (inclusion criteria) and a submission was only considered when the "submit" button was clicked at the end of the questionnaire (inclusion criteria). Among total submissions, if a dentist failed to answer ≥ 1 question, it was excluded from the analysis. (Figure 1)

Data was analysed using SPSS version 21.0.⁷ Descriptive statistics was applied and the Chi- square test was done to find out associations among different age groups.

RESULTS

A total of 456 adequately filled questionnaires were identified from the 600 questionnaires distributed, leading to a response rate of 76%. The responses were subsequently tabulated and analyzed.

Demographic data of study population (Table 1)

The study comprised of 51.3% males and 48.7% females respectively divided amongst different age groups. Most of the people (37.9%) visiting the college were 30-45 years of age. The majority of the population (73.2%) visited the dental college themselves as compared to just 17.69% of the people who accompanied someone for their treatment.

Responses of the various age groups to the questions asked in the survey (Table 2)

There were a total of 400 (87.7%) internet users, majority (45.5%) of them belonged to 18-30 years age

group while the least (7.2) belonged to the age group of

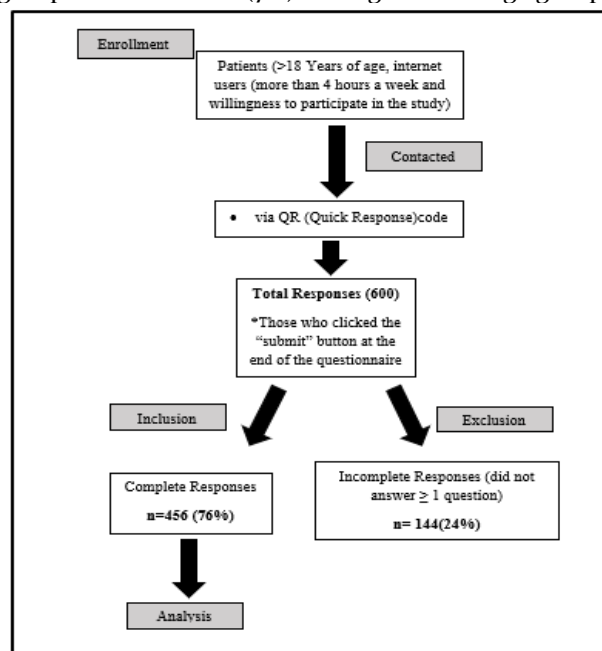


Figure 1. Study Protocol

≥ 61 years of age. Of the 12.3% of non internet users, most of them belonged to the age group of ≥ 61 years (42.9%). When enquired whether the internet users were able to find answers to their health related questions online, a total of 121 (30.3%) and 171 (42.8%) of the users replied "yes" and "somewhat" respectively, whereas 108 (26.9%) people were unable to find answers to their health related questions. A statistically significant difference was seen among all age groups who answered "yes" to a particular question ($p=0.01$).

The third question, which selected information on whether respondents experienced changes in thinking about health as a result of online information, the age group of 18-30 years replied in the affirmative which was significant when compared to other age groups ($p=0.03$).

Behavioral changes due to online information was seen most in the 18-30 years age group (30.0%), but only 15.9% of them informed their physician about such changes. The same trend was seen among the age group of 45-60 years where 41.1% of the respondents did not inform their physicians about such behavioral changes. No statistical significance was observed among the age groups, respectively. When it came to discussing online

Characteristic	AGE GROUP (n,%)				Total (n,%)
	18-30	30-45	45-60	≥60	
Gender					
• Male	12(41.4)	99(57.2)	54(42.2)	69(54.8)	234(51.3)
• Female	17(58.6)	74(42.8)	74(57.8)	57(45.2)	222(48.7)
Total	29(6.4)	173(37.9)	128(28.1)	126(27.6)	456 (100)
Reason for visit					
• For own treatment	16(55.2)	135(78)	99(77.3)	84(66.6)	334(73.2)
• Accompanying Someone	13(44.8)	38(22)	29(22.7)	42(33.4)	122(26.8)
Total	29(6.4)	173(37.9)	128(28.1)	126(27.6)	456 (100)

Table 1. Demographic data of the Study Population

health information, only the respondents between age groups of 46-60 years (41.1%) believed that their physician was willing to discuss online information with them. The difference in opinion among other age groups did not show any statistical significance.

Most internet users (10.6%) followed their physician's advice before they began using the internet. While only 9.8% followed their physician's advice "most of the time." No statistical significance was seen among the different age groups.

Amongst non-internet users (n =56) the main reason was that most of them did not trust internet information (30.6%).

DISCUSSION

In an effort to assess the impact of internet on the patient- physician relationship, it was found that a total of 57.35% of the study population belonged to the "internet users" group who surfed the internet for most of their basic needs and out of these "internet users", a total of 67.4% of the population were able to find answers to their health questions online.

Males made up a slightly higher proportion compared to females seeking health information from the internet. This was in contradiction to various studies where a higher response rate was seen amongst women who sought more health related information when compared to males.^{6,8,9,10}

This study found that internet usage decreased as age increases, and this was found to be in agreement to various studies.^{6,8,9,10,11,12} It was also noted that although

a higher percentage of internet users were amongst the age group of 18-30 years, the possibility of their main use of the internet could be limited to socialising and entertainment, whereas older age groups specifically focus their internet usage on seeking health related information which was in agreement with this study.¹³

This study also revealed that only 30% of the respondents were willing to discuss online information with their physicians. This is in line with studies conducted by Ahmad FL et al. and Chestnutt IG et al. who also reported low willingness of patients to discuss information with their physicians.^{14,15} Contrary to such results, Giveon et al. and Nili T et al. reported a positive attitude of respondents in discussing such information with their physicians^{16,17}. It might be speculated that factors which can influence patient- physician communication are the fear and anxiety levels of the patient, excessive work burden of the physician, the inherent fear of litigation by the patient, a possible fear of physical or verbal abuse coupled with unrealistic expectations lead the patient to seek help from easily available online health related information privately and securely.¹⁸

Majority of the non- internet users(56.2%) did not search the internet for health related information as they thought that they were already adequately informed. This study also did not aim to investigate their source of information which could range from reading medical magazines to believing in the hear-say of their peers and/or getting knowledge from people/ family members getting treatment for similar conditions. 1.5% of the population were "uncomfortable" with the internet, which could be due to inability to keep pace

QUESTIONS	AGE GROUP (IN YEARS)				
	18-30	31-45	46-60	≥61	Total
Internet users	182(45.5)	122(30.5)	67(16.8)	29(7.2)	400(100)
_ I am able to find answers to my health questions online					
-Yes	55(45.4)	26(21.5)	25(20.6)	15(12.5)	121(100)*
-Somewhat	82(47.9)	51(29.8)	29(16.9)	9(5.4)	171(100)
-No	45(41.6)	45(41.6)	13(12.0)	5(4.8)	108(100)
_ I have experienced changes in my thinking about health as a result of online information					
-Yes	103(39.2)	98(37.3)	43(16.3)	19(7.2)	263(100)
-No	79(57.6)	24(17.5)	24(17.5)	10(7.4)	137(100)
I made behavioural changes as a result of online information					
-Yes	45(30)	55(36.6)	39(26.0)	11(7.4)	150(100)*
-No	137(54.8)	67(26.8)	28(11.2)	18(7.2)	250(100)
I informed my physician about these behavioral changes					
-Yes	10(15.9)	39(61.9)	9(14.3)	5(7.9)	63(100)
-No	172(51.0)	83(24.6)	58(17.2)	24(7.2)	337(100)
I believe my physician is willing to discuss online information with me					
-Yes	22(25.3)	41(41.1)	15(17.2)	9(16.4)	87(100)
-No	160(51.1)	81(25.9)	52(16.6)	20(6.4)	313(100)
I followed physician's advice before I began using the Internet					
-Always	3(6.9)	12(27.9)	25(58.1)	11(7.1)	43(100)
-Most of the time	15(38.4)	10(25.6)	13(33.3)	2(2.7)	39(100)
-If advise made sense	20(41.6)	15(31.3)	11(22.9)	6(4.2)	48(100)
-Made up own mind	37(41.6)	31(34.8)	15(16.8)	7(6.8)	89(100)
-Seldom	107(59.1)	54(29.8)	3(1.7)	17(9.4)	181(100)
Non-internet users, N (%)	8 (14.3)	9 (16.1)	15(26.8)	24(42.8)	56 (12.3)
Reasons given for not using the Internet to locate information about health online					
-Already adequately informed	2(18.2)	1(9.1)	2(18.2)	6(54.5)	11(100)
-Use other resources	1(1)	2(20)	3(30)	4(40)	10(100)
-No internet access	2(28.6)	1(14.2)	2(28.6)	2(28.6)	7(100)
-Uncomfortable with internet	1(9.1)	2(18.2)	2(18.2)	6(54.5)	11(100)
-Do not trust internet information	2(11.8)	3(17.6)	6(35.3)	6(35.3)	17(100)
Total	8(14.3)	8(14.3)	15(28.5)	24(42.9)	56(100)

Table 2. Responses of The Various Age Groups to The Questions Asked in The Survey

with evolving technology and which could be solved in due course of time depending upon the individual's interest to learn. A minute percentage (5.4%) of the respondents did not trust the information on the internet.

Certain authors have stated that the availability of health information on the internet is generally beneficial for the patients^{19,20}. This is in contradiction to certain authors who rationalise that the

interpretation of medical based information requires an acquired skill which patients often lack. The widespread availability of such information through the worldwide web, may fulfil the patients' search for knowledge, but they may fail to recognise that certain important information might be missing or they might fail to acknowledge the biased content of the information they obtain.²¹ Failure to recognise non-evidence-based material by patients with a potential

for misinterpretation of some of the medical information might lead to serious health concerns.²²

LIMITATIONS

This study is prone to certain limitations which are:

1. The self-reported nature of data leads might have led to social desirability bias, recall bias or respondent bias.
2. It is possible that patients using the internet filled out the surveys more than those not using the internet.
3. Like this study, majority of the studies assessing the impact of internet on patient-physician relationship collected information at once (cross-sectional in nature). But mostly, physician-patient relationships are mostly long term which involve multiple visits, and this may limit the generalizability the results.²³

CONCLUSION

With the ever changing patterns of internet usage, it is important that patients be advised pertaining to the misleading nature of information present on the internet. It is equally important that physicians work towards elimination of barriers that might hamper an effective communication with their patients. With today's younger generation being short on time and having instant internet access on the go, it is important that they, in particular, be made aware of the potential harm any misleading information can create on their health and unnecessarily add to the global burden of disease.

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