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Determinants of online health information-seeking behavior: A cross-sectional survey among residents of an urban settlement in Delhi

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Abstract:

Background: In health care, the rapid proliferation of health information on the internet has resulted in more patients turning to the digital media as their first source of health information and acquiring knowledge. The present study was conducted to assess use of the digital medium as a medical information resource in health-related states and to determine their experience and perceptions about the quality and reliability of the information available among the participants.

Methodology: The study was done in an urban settlement of Delhi among adults who use any digital media. A sample of 321 were selected through convenient sampling. The information was collected through a semi-structured, self-administered, pre-tested questionnaire which contained questions on socio-demographic profile, internet usage and awareness about Digital India. Bivariate analysis was done to determine the association between various socio-demographic variables associated with internet usage for health information.

Results: In the present study, 88.2% (283/321) were using the internet for health information through digital media. This study found out that younger age group (18-30 years), literate and higher socioeconomic group (upper middle and above) population were more likely to access health information via digital media which was found out to be statistically significant.

Conclusion: Access to health information through digitization can improve health literacy among the population and help in promoting a preventive aspect to health problems and disease. They can be the building blocks to build "Swasth Bharat (Healthy India)".

Keywords:

Digital India, E health, health literacy, M health

Introduction

Internet plays a pivotal role for securing and amalgamating health-related information. The use of Internet as a source of health information has been rampantly growing since 1990.^[1] Health information *per se* can be obtained from various sources, i.e., websites, apps, forums, social networks, and blogs which were quite popular modes among

users of Internet.^[2,3] In health care, the rapid proliferation of health information on the Internet has resulted in more patients turning to the digital media as their first source of health information and acquiring knowledge on their health conditions before seeking a professional diagnosis.^[4-6] As a consequence, online information can lead to patients being misinformed, a sense of distress, and an increase in the tendency toward self-diagnosis or self-treatment.^[7]

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Internet-informed patients may have more questions and may request additional treatments or medications during consultations. Hence, online health information-seeking behavior can add a new interpretive role to physicians' responsibilities during consultations.^[8-10] The recent proliferation of health information on the Internet has resulted in a shift in the traditional information balance where patients are increasingly equipped with health information related to their conditions, eroding the prior exclusivity of health information among health professionals.^[11,12] At the same time, it has led to an increase in health literacy and awareness among people, examples being, M-diabetes and m cessation for tobacco in this regard. Hence, it increases health literacy but needs careful and judicious use due to unregulated and sometimes incorrect information.

The Government of India is increasingly making sustained efforts to improve online infrastructure and increasing internet connectivity, making the country digitally empowered in the field of technology and health. It is fundamental to assess the behaviors and attitudes of people looking for online health-related information. There is a paucity of studies regarding use of the Internet as a source for health information in India.

Considering this, the present study was conducted to assess use of the Internet as a health information resource and to find determinants for online health information-seeking behavior.

Materials and Methods

This community-based cross-sectional study was conducted among residents of an urban area which was the field practice area of department of community medicine of a tertiary teaching hospital of New Delhi, India. The eligible participants were 18 years' old and above who use Internet through any digital media (mobile/laptop/desktop/tablet). Taking a prevalence of current Internet users as 26% from a previous study conducted by Akerkar and Bichile^[13] and with sample error of 5%, using the formula for proportions calculation, the sample size was calculated to be 321. Convenient sampling technique was employed to enroll the study participants due to feasibilities. The study was conducted from August 2016 to October 2016. The purpose of the study was explained to the eligible participants and they were invited to participate. Written consent was taken prior to the study from each participant. The information was collected through a semi-structured, self-administered, pretested questionnaire which contained questions on sociodemographic profile and reasons for online-seeking behavior for health information. The questionnaire was developed by the investigators themselves and was given to two faculty members of the department to assess for validity. After modifying the questionnaire as per their

suggestions, pretesting of the questionnaire was done, on a similar population, constituting 10% of the study sample, different from the study area to ensure reliability. Necessary corrections were done after pretesting. The results of pretesting were not included in the final analysis. The questionnaire was then used to gather data from the study population.

Statistical analysis

The questionnaires were checked for completeness and data were cleaned for errors and missing values. The corrected data were then entered into Microsoft Excel 2016 after preparing a master chart. Data analysis was done using the IBM Statistical Package for Social Sciences (SPSS), Armonk, NY: IBM Corp; 2016 All the variables were analyzed using descriptive statistics to calculate frequencies, mean, range, etc., Bivariate analysis was done and Chi-square test/Fisher exact test was applied to determine the association between various

Table 1: Distribution of the study participants according to their sociodemographic characteristics (n=321)

Variables	n (%)
Age (in years)	
18-30	133 (41.4)
31-45	138 (43)
>45	50 (15.6)
Sex	
Male	195 (60.7)
Female	126 (39.3)
Education	
Illiterate	3 (0.9)
Primary	4 (1.2)
Middle	7 (2.2)
High school	53 (16.5)
Secondary	37 (11.5)
Graduate	185 (57.9)
Postgraduate or higher	31 (9.7)
Occupation	
Professional	68 (21.2)
Semi-professional	24 (7.5)
Clerical, shop owner, and farmer	33 (10.3)
Skilled	9 (2.8)
Semi-skilled	11 (3.4)
Unskilled	9 (2.8)
Unemployed	167 (52.0)
Socioeconomic status (Revised Kuppuswamy Scale 2015)	
Upper	119 (37.1)
Upper middle	180 (55.8)
Lower middle	19 (6.2)
Upper lower	3 (0.9)
Health insurance	
Government health insurance	179 (55.8)
Private health insurance	97 (30.3)
Not insured	45 (13.9)

sociodemographic variables associated with Internet usage for health information. $P < 0.05$ was considered statistically significant. Appropriate tables were drawn to express the results.

Ethical considerations

The study was conducted within the bounds of the Helsinki Declaration. Permission to conduct the study was taken by the department. Written consent was obtained from all participants prior to their participation in this study.

Results

A total of 321 participants were included in the study. The mean age was 33 ± 3.8 years. There were 60.7% (195) males among the participants. Of the 321 study participants, 67.6% were educated up to graduation and above. More than 93% of them belonged to the upper middle class or upper class as per Revised Kupuswamy scale (2015) [Table 1].

Online health information-seeking behavior

Of 321 study participants, majority (88.2%, 283) were using Internet through laptop, mobile, desktop, and tablet for online health information. Only 55.4% (157) of the Internet users among the study population were surfing the Internet every day for health information and 11.8% (33) of the participants were accessing once a week. Among the daily users (157), 20.6% (32) surfed the Internet more than once a day regarding health-related information.

One seventy-one participants (53.27%) had heard about digital India. Of 171, 116 (67.8%) had knowledge about digitalization in health services. Almost 80.9% (228/283) of the participants thought that it is easy to find the desired health information through the Internet [Table 2].

More than 60% (n) of the participants were interested to find tips about fitness and exercise and diet and nutrition [Table 3]. Less than 25% of the participants searched about sexual and mental health on Internet.

Among Internet users, only 39.9% (113/283) of the participants look up their symptoms on the Internet before a clinical encounter [Table 4].

Two-third (67.1%, 190) of the participants used health information retrieved on the Internet only after verification from health-care provider (HCP), 38 (13.4%) ignored at that time, 43 (15.1%) ignored after verification from HCP, and 12 (4.2%) used the information without verification from HCP.

This study found out that younger age group (18–30 years), literate, and higher socioeconomic group (upper middle

Table 2: Reasons for seeking health information on the Internet among the study population ($n=283$)

Reasons*	Frequency (%)
Easy to find desired information	228 (80.9)
Health information is clear	126 (44.1)
No need to pay for consultation	132 (41.3)
Privacy is maintained	108 (31.1)
As a trusted source	54 (19.1)
Experience from similar illness shared on site	46 (16.2)

*Multiple responses

Table 3: Health-related information searched on the Internet ($n=283$)

Health-related information searched on the Internet*	n (%)
Fitness and exercise	185 (65.4)
Diet and nutrition	171 (60.7)
Medicines and pharmaceuticals	139 (49.2)
Alcohol and other drugs	77 (27.4)
Cancer	68 (24)
Sexual health	66 (23.4)
Heart diseases	63 (22.4)
Mental health	61 (21.5)
Provider, hospital, or health agency	61 (21.5)
Sexually transmitted diseases	48 (17.1)
Tobacco and smoking	44 (15.6)
Illness support groups	19 (6.9)

*Multiple responses

Table 4: Reasons for online search before a clinical encounter ($n=113$)

Reasons for online search before a clinical encounter*	Frequency (%)
To manage illness independently	38 (33.6)
To decide the need for professional help	62 (54.8)
To make own diagnosis	32 (28.3)
To see satisfaction level of other patients	33 (29.2)

*Multiple responses

and above) population were more likely to have online health information-seeking behavior which was found out to be statistically significant [Table 5].

Discussion

The Internet acts as a medium for dissemination of information regarding health and health care. In the present study, 88.2% (283/321) were using the Internet for health information through digital media which is similar to a study done in Brazil and Bangalore^[14] where a high usage of Internet use was observed, i.e., 90% and 99%, respectively. Online health information-seeking behavior was found to be higher in the present study than other studies conducted in Puducherry^[15] where it was 60% and United States of America^[16] where 63% were using the Internet for health information. The difference in usage can be attributed to the increased Internet penetration in the national capital than Puducherry.

Table 5: Association between Internet use for health information and sociodemographic variables (n=321)

Characteristics	Online health information-seeking behavior		P
	Yes (%)	No (%)	
Male	177 (90.8)	18 (9.2)	0.072
Female	106 (84.1)	20 (15.9)	
Age (in years)			
18-30	129 (97)	4 (3)	0.000
31-45	120 (87)	18 (13)	
>45	34 (68)	16 (32)	
Education			
Illiterate	31 (100)	0 (0)	0.001
Primary	170 (91.4)	16 (8.6)	
Middle	31 (83.8)	6 (16.2)	
High school	42 (79.2)	11 (20.8)	
Senior secondary	4 (57.1)	3 (42.9)	
Graduation and above	5 (71.4)	2 (28.6)	
Socioeconomic status			
Upper	116 (97.5)	3 (2.5)	0.000
Upper middle	151 (84.1)	28 (15.6)	
Lower middle	15 (75)	5 (25)	
Upper lower	1 (33.3)	2 (66.7)	

This difference might be due to different geographical distribution and due to differences in awareness about using the Internet. There is a significant association found between younger age (18–30 years) group and online health information-seeking behavior which is similar to Pew Research Center's Internet and American Life Project where 72% young people were online health seekers.^[17-19] This is expected as the younger generation is more likely to use Internet for their needs as compared to their relatively older counterparts. These findings display a positive association between high degree of education and online health information-seeking behavior which is similar to a study done in Europe.^[20,21] Those with higher socioeconomic group were more likely to be online health information seekers than those with a lower socioeconomic group.^[20,21] This may be due to their differences in online information retrieving skills.^[22]

Easy to find desired health information was found to be the most important reason for seeking health information through the Internet among the study participants in our study. To understand the medical jargon or terms, some of the participants search health information on Internet prior to encounter to physician which is similar to a German study.^[23] Although the other reasons given were that there was clarity in the information, maintenance of privacy, and a trusted source, these all factors need to be looked upon with caution. The use of the Internet for health can be a double-edged sword. It can be detrimental when the users look for information from untrusted sites since there has been a flurry of sites which are unregulated and do not always give the true picture.

It was not surprising that more than 60% of Internet users searched about fitness and exercise followed by diet. This can be a useful tool to address the increasing burden of noncommunicable diseases. These diseases have an important dietary component which can be addressed through this medium. There have been many mobile apps launched by the government to increase the motivation people to lead healthy lives. These can be used to spread awareness and provide tailored messages regarding lifestyle modification and dietary adjustments required to control noncommunicable diseases. Alcohol and drugs are also featured in the search list of Internet users. This has been facilitated by the launch of many apps which help to disseminate the harmful effects of addictive substances along with measures which help them to quit. All these measures improve health literacy among the population and help in promoting a preventive aspect to health problems and disease. They can be the building blocks to build "Swasth Bharat (Healthy India)."

The study done in Bangalore showed preference to information on maternal and child health (27%) and nutrition (25%). This could be due to the participation of a higher proportion of females within the study population, which is contradictory to our study. An important observation was about a third of the participants reported that their privacy is maintained. This is particularly the case in case of sexually transmitted infections which also found in a study done in London^[24] where people tend to obtain information regarding these problems which are considered a stigma in society. However, it needs to be ensured that they seek help from trusted sources which give them viable and true information to cope with their problems.

Nearly one-third of the study population look up their symptoms on the Internet before going to the doctor to seek medical advice, which is good, but it should not prompt them to self-diagnosis and self-medication. This was observed in our study population among those seeking doctor's advice.

Limitations

This study was conducted among a small population of an urban settlement which cannot be generalized to the rural population. Online health information-seeking behavior can be more probed for detailed analysis and for better understanding. The study design is cross-sectional which cannot help in establishing a causal relationship.

Conclusion

Higher education and socioeconomic class have better e-skills than low socioeconomic class people. Literacy would help to promote online health information-seeking behavior. It can be summarized that Internet use for

health can have encouraging and beneficial effects in improving health literacy and promoting healthy behaviors, if used in the correct way, as the findings of our study suggest. Correct health information should be conveyed online to disseminate the right knowledge to make a healthy country. It holds great potential in a vast country like India where the penetration of health facilities is limited and the doctor–patient ratio is skewed. Digital health in India can take a leap forward by increased coverage and focused interventions in this ever-growing sector.

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Conflicts of interest

There are no conflicts of interest.

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