

## Original Research Article

# Survey of Internet Use as a Source of Health-Related Information in Qassim Province, Saudi Arabia

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### Abstract

**Purpose:** To estimate the proportion of patients in Qassim Province, Saudi Arabia, who use the Internet to search for health-related information, determine barriers to Internet use, and investigate the relationship between Internet use and socio-demographic variables.

**Methods:** A total of 377 questionnaires were distributed to five main hospitals in Qassim Province (Saudi Arabia). The patients were randomly selected to complete the survey when they arrived to fill their pharmacy prescription. The survey was explained to the patients, and they were given the option to participate or decline.

**Results:** Fifteen percent of the respondents used the Internet as a source of health-related information, especially disease-specific information (97.7 %). Thirty percent used the Internet after a recommendation from their health-care provider. The highest proportions of respondents indicated that lack of training and the cost of Internet access were major barriers to Internet use. There was a significant association between Internet use and education level ( $p = 0.002$ ).

**Conclusion:** Compared with published data for Qassim City, Saudi Arabia, Internet use to obtain health-related information is relatively low in the Qassim Province, Saudi Arabia. Lack of training is the most common barrier.

**Keywords:** Health information, Barriers, Internet use, Patient and internet, Saudi Arabia

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## INTRODUCTION

The accessibility of the Internet and the variety of information on the World Wide Web has expanded the availability of health-related information, including in the Middle East [1]. Patients with life-threatening diseases often turn to the Internet for medical information [2]. Searching for health information or a desire to obtain health information depends on the health status of the person, including the fear of becoming ill or a desire to avoid becoming ill [3]. Searching for health-related information is one of the chief reasons that patients go online. Quantitative surveys [4] and qualitative research

[5] provide evidence of the significance of online searches as a source of health information and as an activity that affects health, relationships with doctors, a patient's lifestyle, and how treatment is located [6-8]. Several factors may contribute to choosing the Internet as a source of health-related information. People who adopt and use this communication technology are typically younger, better educated, and have higher incomes [9]. Another factor that affects the degree of Internet use is experience. The more experienced individual is more likely to use the Internet [10].

This study aimed to determine the proportion of patients who use the Internet to search for health-related information in Qassim Province, Saudi Arabia, and to identify barriers to using the Internet for this purpose. We also investigated the effect of socio-demographic variables on Internet use.

## EXPERIMENTAL

A four-part survey (n=377) was distributed to five hospitals in the Qassim Province, Saudi Arabia, each of which was a major hospital in the region. The first part of the survey was designed to collect demographic characteristics of the respondents. It included questions on gender, nationality, age, employment level and status, family income, and marital status. The second part included four questions about using the Internet to obtain health-related information. The third part of questionnaire included seven statements regarding the most crucial barriers to Internet use. The fourth part of the survey asked the respondents to write any additional comments. Study approval was obtained from the Buraidah Central Hospital (Qassim Province, Saudi Arabia), main pharmacy.

The target study population was patients who used the Internet and visited Ministry of Health (MOH) hospitals in the Qassim Province, Saudi Arabia. These hospitals included Buraidah Central Hospital, King Fahad Specialists Hospital, Maternity and Children's Hospital, all located in Buraidah, King Saud Hospital (Unaizah) and (5) Albukairyah General Hospital (Albukairyah). A stratified random sample of eligible inpatients and outpatients was selected at each hospital. The random sampling was selected from patients visiting to receive their pharmacy prescription. All patients were asked to complete the questionnaire. Patients that consented were given the survey and a cover letter that explained how to complete the questions.

### Statistical analysis

Questionnaire items were developed after a literature review. Input by experts was used during the development of the final draft to ensure readability and ease of completion. Survey validation consisted of a pilot study using 25 patients who were not included in the main study. Statistical Package for Social Science (SPSS, IBM, Armonk, NY, USA) software was used for the data analysis. The descriptive data analysis included the estimation of frequencies, proportions, means, standard deviations, and Chi-square tests for association. Results were

considered to be statistically significant at  $p < 0.05$ .

## RESULTS

Eighty-six percent (325/377) of the surveys were completed. The mean age of the respondents was  $33 \pm 11.5$  years. A high percent (38 %) were > 35 years of age, and greater than one-half were male (59.7 %). The majority (62.5 %) of respondents were married, and only 2.8 % were of non-Saudi nationality. Twenty percent of patients < 25 years of age, 48.8 % between 25 and 35 years of age and 31.1 % > 35 years of age used the Internet for health purposes. Sixty-three percent were university students or graduates, 29 % were high school graduates, and the remainder did not complete high school. About one-half of the respondents (53.5 %) were employed. Monthly income was < 3000 SR for 15 %, 3000 to 6000 SR for 40.6 %, and >6000 SR for 44 % of the respondents.

Fifteen percent of the respondents had obtained health-related information from the Internet. Thirty percent who had used the Internet did so after a recommendation from their health-care provider, but it had not been recommended as a resource to 70 % of the respondents who used it. Fifty percent of those who used the Internet also received health-related information from other patients and 23 % received it from television or radio. Fifteen percent reported receiving health information from newspapers.

The highest proportions of patients that used the Internet were searching for disease-related (97.7 %) and for medication-related (52 %) information. Some patients (34 %) used the Internet to obtain a second opinion while others (13.6 %) used it to find information about health-care facilities. Only 4.5 % used it to obtain information about healthcare staff. Analysis of the frequency-of-use results revealed that in the 3 months before completing the survey, 88.6 % and 11.4 % performed health-related searches 1 to 5 times and 6 to 8 times, respectively. No patient reported conducting health-related Internet searches > 10 times.

### Barriers to internet use

The highest proportions of respondents indicated that lack of training and cost of Internet access were the major barriers to Internet use (Table 1). The inability to read and write English, mistrust of health information on the Internet, and not having a computer were additional barriers.

**Table 1:** Barriers to Internet use

Statement	Agree	Neutral	Disagree
Don't have a computer	59 %	3 %	38 %
Don't have training on Internet use	82 %	3 %	15 %
Afraid about my privacy	25 %	12 %	62 %
Don't have time	32 %	14 %	54 %
The cost of Internet access	73 %	7 %	20 %
Inability to read and write English	66 %	7 %	27 %
Mistrust of health information on the Internet	59 %	5 %	36 %

### Relationship between internet use and socio-demographic variables

There were no associations between Internet use for health-related purposes and age ( $p=0.142$ ), sex ( $p=0.7$ ), marital status ( $p=0.5$ ), employment status ( $p=0.1$ ), or monthly income ( $p=0.4$ ). There was, however, a statistically significant association between Internet use and education level ( $p = 0.002$ ).

### DISCUSSION

The topic of patient use of the Internet to obtain health-related information is currently of great interest worldwide. The growth in Internet availability in Saudi Arabia has been accompanied by an expansion in the number of medical and other health-related websites, which in turn has increased the use of the Internet as a source for health-related information. This access to information may help patients to better manage their illnesses and to make informed choices. Understanding the barriers to Internet use will help to eliminate them in the future.

In this study, 15 % of the respondents used the Internet for health-related information. Other studies have reported estimates of 50 % to 75 % [11-13]. The population in Saudi Arabia uses the Internet very modestly compared with other populations. Fifteen percent of those who used the Internet had received information about their health status from other patients. This finding is consistent with the result of another survey conducted in Saudi Arabia in 2006, which indicated that 36 % of patients receive information about their illness from other patients [14]. Healthcare providers should consider the effect that information from other patients may have on patient compliance and treatment outcomes.

Seventy percent of the patients did not receive any recommendations about Internet use from their healthcare providers. Healthcare staff may not be familiar enough with the Internet to

recommend websites. However, a 2012 poll by Cyber Dialogue found that 70 % of patients want their physicians to recommend websites, but only 4 % receive any recommendations [11]. Physicians should discuss this issue with their patients to avoid potential misuse of website information.

Among patients who used the Internet, 97.7 % searched for disease-related information and 52 % searched for medication-related information. Schwartz *et al* reported similar results from a USA study. Respondents searched for disease-specific information 79 % of the time, followed by medication information (53 % of searches), and information about nutrition and exercise [15]. Our patients were more interested in searching for disease-related information than the patients in the Schwartz *et al* study. However, the proportion of patients who used the Internet in our study was much lower than the proportion in their study.

A high proportion of patients (88.6 %) in this study used the Internet for health-related objectives 1 to 5 times in the previous 3 months. This result is similar to the result reported by a nationwide Harris poll in the USA in 2012, which found that respondents searched for health-related information online an average of 3.3 times per month [11].

Eighty-two percent considered lack of training to be a major barrier to Internet use, vs. 19 % reported in Europe [16]. The cost of Internet access was another major barrier. A previous survey in Saudi Arabia reported that the cost of access is considered to be a barrier by a much lower proportion (31.8 %) of participants [17]. We found no significant relationships between Internet use and age, sex, nationality, employment status, or monthly income. There was a significant relationship between Internet use and education level, which was consistent with results for a US population [18]. Education level might increase patient awareness and allow

them to seek further information or might improve computer use skills.

### Limitations of the study

The major limitation of this study was that the study population consisted of individuals who had been diagnosed with an illness, so the results may not be representative of the general (i.e., healthy) population. However, information from this population is valuable because individuals who are ill have the most incentive to search online for health-related information. Further work will determine whether their Internet use represents the Internet use the general population in Saudi Arabia.

### CONCLUSION

Internet use for health purposes by patients in Qassim Province, Saudi Arabia is low compared with other countries. The real effect of this difference is unknown. The Ministry of Health in Saudi Arabia should plan and implement a nationwide program to educate patients about computer and Internet use. The program should include a strategy to overcome barriers to Internet access and increase awareness of the websites that have the highest quality information.

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