



The Use of Internet and its Effect on Decision Making Among Urology Patient: Survey Study

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Abstract

Introduction: Internet access is more than 90% in gulf countries, patients more often search the internet for their disease conditions. Very few published literatures regarding frequency sources and their impact on patients' decision. **Methods:** We prepared a questionnaire inquiring about internet use, sources and effect on patient's medical decision in tertiary general hospitals and specialized urology center. **Results:** We received 425 responses to the questionnaire over 3 months period. With 30% response among patients in outpatient department. Mean age was 43 ± 16.3 years, 325 males (76%) and 100 female (24%) responders. 266 (62.6%) patients had college degree and 159 (37.4%) had high school or lower education. 396 patients have internet access (91.6%). 303 (70%) searched for their condition. Google was the most common search tool 299 (69%). 137 (31.8%) patients reported that the internet affected their decision. for medical information 148 (34.9%) patients followed doctors personal pages 144 (33.9%), chose official government websites and 95 (22.4%) used medical websites. **Conclusion:** Internet use is reality, most of the patients in our region utilize it to learn about their diseases. Thirty percent reported it affected their treatment choice.

Keywords: Internet, social media, patients, Knowledge, Online health information.

Introduction

The number of internet users worldwide has increased by 400% from one billion in 2005 to 4.9 billion 2021 [1]. In Kuwait, internet users have increased from 6.7% in 2000 to 99.1% in 2020 [2]. The wide use of the internet has a significant impact on how people obtain health related information and likely on health-related decision-making processes. With the COVID-19 pandemic the use of internet as a health information source has markedly [3]. Internet use as a source of health-related information remains a double-edged sword and the quality of health information available online can vary widely, which in turn put the patients in a conundrum of handling mix of true and misinformation. With internet use, patients can enhance their knowledge, competence, and engagement in health decision-making strategies through access to online health information websites [5]. In addition, Internet use can be particularly helpful for patients who are uncomfortable discussing sensitive topics. It enables them to ask sensitive and challenging questions in a private and comfortable environment without embarrassment or feeling judged. Also, it can reduce the doctor's visits time [6,7]. However, sometime, the accuracy of these information may not be reliable, and it may lead to misinformation and might lead to patients' harm. A study done in 2012 searched in 1300 websites found 28.1% of them have given misleading information. And 28.8% were not medical relevant websites [4].

There are limited studies investigated the use of internet and social media as a health-related information source generally and even fewer if any focused-on urology patients.

Aim of the study

The aim of this cross-sectional study is to investigate the prevalence and effect of internet and social media use for obtaining health-related knowledge and patient's decision among urology patient in Kuwait.

Methodology

This study is a cross sectional study. After Obtaining ethics review board approval. patients attending to the urology outpatient clinics at Jaber Al-Ahmad hospital (general tertiary hospital) and Sabah Al-Ahmad Urology Center (specialized urology center) Kuwait. Were offered a questionnaire regarding their internet use. Study was done through the period September to December 2022.

A total of 425 patients answered the questionnaire and signed informed consent that was included in the questionnaire. The questionnaires were completed on site and collected prior to attending the clinic. Only completed questionnaires were accepted.

Survey instrument, we developed self-reported questionnaire. The questionnaire consisted of two sections and 17 questions. The first section was about the demographic background

of the patients including age, gender, hospital, language preferences, educational background. The second section was aimed to assess the impact of internet use on the knowledge and patient choices, including the preferred websites, they used to search their own condition and if it affect their choice of hospital. The questionnaire takes approximately 5 minutes to complete. The participation was voluntary, and confidentiality and anonymity were ensured throughout the study.

Data were collected tabulated and analyzed using Stata 12.0 software (Stata Corporation, College Station, TX, USA), we used Chi square test and Mann-Whitney test when appropriate and P value < 0.05 as statistically significant results.

The study was conducted after having the ethical approval of no. (2128/2022) from the ethical institution of Ministry of Health, Kuwait

Results

This study was conducted between September and December 2022, after exclusion of incomplete questionnaires a total of 425 questionnaires were available for analysis.

Participants demographics (Table 1). Mean age was 43 ± 16.3, majority of participants were males 325 (76.5%). The education level of the participants, college graduates was the most common group 182 (42.8%) followed by high school graduates 104 (24.5%). Participants who have access to internet was 390 (91.7%). Of them 388 (99.5%) participants report cellular phones as the main device to access the internet.

Survey results (Table 2), 297 (69.9%) participants searched the internet for their condition. Google was the most accessed website 296 (99.6%). 136 (32.1%) Participants reporting that internet affected their decision and 99 (23%) reported that it affected their hospital choice. Patient report that most influential sources of information were doctors personal web pages 145 (48.8%), followed by official governmental websites 142 (44.8%).

We further analyzed the data trying to see various factors affecting patients' choice to search the internet (Table 3). Patient who did search the internet was younger with mean age 41.2 ± 15.4 than patient who did not search the internet 47.2 ± 17.4 and difference was statistically significant with P. value of < 0.001. females were more likely to search the internet for their condition 75 (75%) vs males 228 (69%) however difference was statistically insignificant with P. value of 0.262. The educational level was a determinant factor, with patients having postgraduate studies have the highest likelihood to search for their condition 64 (79%) followed by college graduates 144 (77.8%) followed by high school graduates 66 (61.7%) and least was patient with lower education 29 (49%) and the difference was statistically significant with P value < 0.00. patients attending urology specialized center was more likely to search the internet 163 (75.8%) vs 136 (64.7%) of patients attending general hospital, the difference was statistically significant with P values was 0.15.

Factors associated with internet affecting patient decision (Table 4). Patients reported that internet search affected their decision making was older with mean age of 44.9 ± 16.6 vs 42.2 ± 16.1 in patients reporting no effect however the differences was statistically insignificant with P value of 0.124. Males were more likely to report that internet affected their decision 113 (34%) vs female 25 (25%) and difference was statistically insignificant with P value of 0.11. Education relation to effect of internet with decision making was variable with 37 (30%) patients with postgraduate education reporting that internet search affected their decision followed by patients with high school education 38 (35.5%), then patients with college education 55 (28.7%) and last are patients with lower education 15 (25.5%) the difference was statistically insignificant with P value of 0.37. patients attending urology specialized center were more likely to report that internet affected their decision 84 (39%) vs patient attending general hospital 52 (24.7%) and the difference was statistically significant with P value of 0.001.

Table 1: patients demographics:

Patients age mean ± SD	43 ± 16.2
Gender No. (%)	
Male	325 (76.5%)
Female	100 (23.5)
Hospital No. (%)	
Jaber Al-Ahmad hospital (general tertiary hospital)	210 (49.5%)
Sabah Al-Ahmad Urology Center (specialized urology center)	215 (50.5%)
Education level No. (%)	
Can read and write	58 (13.6%)
High school	104 (24.7%)
College	182 (42.8%)
Postgraduate	81 (19.1%)

Table 2: Survey results

Internet access No. (%)	
Yes	390 (91.8%)
No	35 (8.2%)
Preferred device No. (%)	
Phone	388 (99.5%)
Tablet	2 (.5%)
Use the internet to search medical condition No. (%)	
Yes	303 (71.3%)
No	122 (28.7%)
Preferred source No. (%)	
Google	288 (95%)
Instagram	7 (2.3%)
Twitter	3 (1%)
Other	5 (1.7%)
Most trusted source No. (%)	

Doctors personal page	148 (48.8%)
Official site	144 (47.5%)
Influencers pages	3 (1%)
Other	8 (2.6%)
Did internet search affected your decision No. (%)	
Yes	137 (32.2%)
No	288 (67.8%)

Table 3: Factors affecting internet search.

	Yes	No	P. value
Age Mean ± sd	41.2 ± 15.4	47.3 ± 17.4	0.0001
Gender No. (%)			
Male	228 (70.1%)	92 (29.8%)	0.262
Female	75 (75%)	25 (25%)	
Education level No. (%)			
Can read and write	29 (49.15%)	30 (50.8%)	0.000
High school	66 (61.68%)	41 (38.3%)	
College	144 (77.9%)	41 (22.6%)	
Postgraduate	64 (79%)	17 (21%)	
Hospital No. %			
Urology Center	163 (75.8%)	52 (24.2%)	0.015
General Hospital	136 (64.8%)	74 (35.2%)	

Table 4: Factors associated with internet search affecting decision.

	Yes	No	P. value
Age Mean ± sd	44.9 ± 16.6	42.2 ± 16.1	0.124
Gender No. (%)			
Male	113 (34%)	219 (66%)	0.111
Female	25 (25%)	75 (75%)	
Education level No. (%)			
Can read and write	15 (24.5%)	44 (76.5%)	0.368
High school	38 (35.5%)	69 (64.5%)	
College	55 (29.7%)	130 (70.3%)	
Postgraduate	30 (38.1%)	51 (62.9%)	
Hospital No. %			
Urology Center	84 (39.1%)	131 (60.9%)	0.002
General Hospital	52 (24.8%)	158 (75.2%)	

Discussion

In the area of data where information is a precious commodity, there is real paucity of research covering patient access to information and how internet as the most readily available source is utilized by patients and how it would affect their medical decisions.

In this study we tried to study how often patients utilize the internet for medical knowledge and what are the factors that affect that.

We found in our study that from the 425 urology patients who participated in the survey, 71.6% of them used the internet to search their medical condition and 32.1% (45% of those did search the internet) of them reported that the internet had an impact in their decision.

We found several factors that would make the patients more likely to search the internet. Patients with higher education level were more likely to search for their conditions on the internet. Patients with postgraduate level education had the greatest likelihood of searching for their disease. Patients with postgraduate studies showed the highest rate of internet usage, with 64 cases (79%) engaging in online searches. This was followed by college graduates, with 144 cases (77.8%), and high school graduates, with 66 cases (61.7%). In contrast, patients with lower levels of education displayed the lowest utilization of internet resources, with only 29 cases (49%) conducting online searches. The difference was statistically significant with a P value of < 0.001.

This goes in vein with other researchers' findings. Joseph et al., 2002 found that among the patients using the internet for health

information, 168 (approximately 63%) have an undergraduate degree or higher, while 100 patients (approximately 37%) have less than an undergraduate degree. On the other hand, among the patients not using the internet for health information, 82 (approximately 35%) have an undergraduate degree or higher, while 155 patients (approximately 65%) have less than an undergraduate degree [8]. Gurr et al., 2009 has found that a high proportion of those using internet to obtain information were well educated. He found that 168 (63%) possessed an undergraduate degree or higher, while 100 (37%) had educational attainment below the undergraduate level. Conversely, among patients not utilizing the internet for health information 82 (35%) held an undergraduate degree or higher, while 155 (65%) had educational attainment below the undergraduate level.) [9].

In our study age significantly affected the likelihood of patients searching the internet mean age of patients who accessed the internet was 41.2 years, with a standard deviation of 15.4. This was 6 years younger compared to those who didn't access the internet, whose mean age was 47.3 years with a standard deviation of 17.4 with P. value of < 0.001. This may be due to the fact that younger people are more comfortable using technology and more resourceful in utilizing it.

This finding was reported by other researchers. Simona et al., 2016 investigating the use of the Internet for searching for information on medicines and disease in adult subjects in Northern Italy has found that Use of the internet was highest in the younger ages. They found that the highest prevalence of Internet use for searching health information was observed in the age range of 26 to

35, with 40.0% of users falling within this group. This percentage was significantly higher compared to the age group of 56 years and above, which had a prevalence of 12.3% ($P < .001$)^[10]. Another study done by PH Pennekamp in 2006 assessing to what degree orthopedic patients use the internet as an information platform found that the higher proportion of internet users were the younger age group. They found that of total 402 questionnaires analyzed, the prevalence of internet usage among patients up to the age of 40 was 72%, while among patients over the age of 40, it was 49%. Internet users were found to be significantly younger compared to non-users ($p < 0.001$)^[11].

The quality of -related information that is available online can vary greatly, and patients may not be able to distinguish between reliable and unreliable sources. A study done in 2012 searched in 1300 websites found 28.1% of them have given misleading information. And 28.8 were not medical relevant websites^[4]. Factors include Lack of regulation, Misleading and sensationalized content, and Promotion of unscientific practices. These factors are likely to give people a false sense of knowledge and competency, which might encourage them to disregard proper health care. However. Fortunately, there is more awareness and patients are now more cognizant regarding false information^[13-15]. In our study, the most utilized tool was google with 288 participants (95%) and the most accessed and trusted webpages were doctors' personal web pages with 148 participants (48.8%) as one of the trustful sources for their health conditions information. This may highlight the need for regulations on their content or making disclaimer about which are pure medical information and which are promotional content.

In our study, a notable finding was that patients visiting a urology specialty center reported a significantly higher influence of the internet on their healthcare decisions compared to those who visited a general hospital; 84 (39%) % vs. 52 (24.7%). This difference held statistical significance ($P < 0.001$). The complexity of urological health issues could potentially explain this disparity. In addition, a study done in 2022 by Gan Li et al, found that internet use has a significant positive impact on the elderly population's choice of top-level hospitals for treating common diseases ($\beta = 0.06$, $p < 0.01$)^[16]. This suggests that the internet plays a significant role in shaping patients' preferences for healthcare facilities, particularly in the context of urology.

we acknowledge our study limitations including depending on self-reported questionnaire which may lead to personal bias, that the study was conducted in two specific sites in one country which may not be representative of all urology patients in different locations, and our sample may not be diverse enough to draw conclusions that are applicable to a broader population.

Conclusion

In conclusion, our study found that most of the urology patients would access the internet to search for their condition and that would affect their treatment related decision in nearly half of them. Moreover, greater propensity among younger patients and individuals with higher educational attainment to actively engage in internet usage when seeking information pertaining to their medical condition.

Declaration

Ethics approval and consent to participate

The study was conducted after having the ethical approval of no. (2128/2022) from the ethical institution of Ministry of Health, Kuwait. All participants had to agree to participate in the study where consent was incorporated into the survey as well as indication of the aims of the study and the right of the participant to withdraw at any time without any obligation. However, only completed questionnaires were used in the analysis. Participants' anonymity

was assured where personal information of the participants was not required in this study. No rewards were given for participating in the study.

Data Availability

All data is available upon request from the main author.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Not Applicable

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