THE EFFECT OF PATIENTS' HABITS OF INTERNET USE FOR HEALTH CONSULTATIONS ON THE PHYSICIAN-PATIENT RELATIONSHIP

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ABSTRACT

Objective: *The aim of this study was to determine the patients' habits of Internet use for health consultations and by means of this data to foresee the effect of the Internet on the physician-patient relationship.*

Material and Method: *A questionnaire was given to Group 1 (n=1330, using the Internet for health consultations) and Group 2 (n=1280, not using the Internet for health consultations) patients. Patients were analyzed based on their responses to questions, age, gender and education levels.*

Results: *Patients using the Internet for health consultations are younger (p<0.001), more educated (p<0.001), and mainly male in gender (p=0.028). Patients stated their reason for using the Internet mostly just to get a second opinion (41.1%). 5.1% of patients stated that they rely on the information obtained from the Internet more than their physician.*

Conclusion: *The Internet seems to be an important source of health-related information for patients, but it is not the primary source. The rate of patients who seems to displayed negative behaviors that were likely to adversely affect the physician-patient relationship was small.*

Keywords: *Consumer health information, Internet, physician-patient relationship.* **Nobel Med 2017; 13(1): 16-20**

HASTALARIN SAĞLIK DANIŞMANLIĞI İÇİN İNTERNETİ KULLANMA ALIŞKANLIKLARININ HASTA-HEKİM İLİŞKİSİNE ETKİSİ

ÖZET

Amaç: Bu çalışmanın amacı, hastaların sağlık danışmanlığı için interneti kullanma alışkanlıklarının belirlenmesi ve bu veriler sayesinde internetin hasta-hekim ilişkisine etkisini öngörmektir.

Materyal ve Metot: Grup 1 (n=1280, sağlık danışmanlığı için interneti kullanan) ve Grup 2 (n=1330, sağlık danışmanlığı için interneti kullanmayan) hastalara bir anket verilmiştir. Hastalar sorulara verdikleri yanıtlara, yaş, cinsiyet ve eğitim düzeylerine dayalı olarak analiz edilmiştir.

Bulgular: Sağlık danışmanlığı için interneti kullanan hastalar daha genç (p<0,001), daha eğitimli (p<0,001) ve cinsiyet olarak çoğunlukla erkektir (p=0,028). Hastalar interneti kullanma nedenini çoğunlukla sadece ikinci bir görüş elde etmek için olarak belirtmiştir (% 41,1). Hastaların % 5,1'i internetten elde edilen bilgilere hekimlerinden daha fazla itimat ettiklerini belirtmiştir.

Sonuç: İnternet hastalar için sağlıkla ilgili önemli bir bilgi kaynağı gibi görünmektedir, ancak ana kaynak değildir. Hasta-hekim ilişkisini olumsuz etkileyebilecek davranışlar gösterebilecek hastaların oranı azdır.

Anahtar kelimeler: Tüketici sağlık bilgileri, internet, hasta-hekim ilişkisi. **Nobel Med 2017; 13(1): 16-20**

INTRODUCTION

In the last 20 years, use of the Internet has become widespread all across the world. In a very short time, a great accumulation of information related to the field of healthcare has been made available on the Internet. The ability to access specific information very quickly, economically, easily, and extensively has led this virtual environment to become an important health consultation tool. The number of patients who make appointments with a physician after investigating the possible diseases that may lead to their complaints on the Internet is increasing. Therefore, the Internet has an influence on the physician-patient relationship. However, much health information on the Internet is not scientifically supervised, so it is inevitable that some health information is incorrect or incomplete.[1] Moreover, it may be difficult for non-professionals to analyze medical information correctly. The information obtained from the Internet may cause dissidence between the patient and the physician, particularly in regards to diseases that have controversial treatment options.[2] This situation may lead the patient to believe that the physician has a lack of knowledge, which is likely to disrupt the physician-patient relationship and also has the potential to cause legal problems.

Whether the Internet has strengthened or damaged the physician-patient relationship has become an important subject of current debate.[3-6] In order to clarify this point, the habits and perspectives of the physicians' and the patients' Internet use need to be assessed. The aim of this study was to determine the patients' patterns of Internet use for health consultations and by means of this data to foresee the effect of the Internet on the physician-patient relationship.

MATERIAL AND METHOD

The local ethics committee approved this study (protocol number: KAEK 2012/42), and participants provided informed consent before the evaluation began. This cross sectional study was carried out at two centers: a secondary state hospital and a tertiary research and training hospital. Patients over the age of 18 years were included in the study. Patients were divided into two groups: Group 1, which consisted of people who used the Internet for health problems, and Group 2, which included people who had never used the Internet for health problems. A questionnaire with 10 questions (that required about 5 minutes to answer) and a single question (that took about 1 minute to answer) were given to patients in Group 1 and Group 2, respectively. The instrument piloted before the study by means of an open-ended questionnaire. Closed-ended surveys were created from the most common answers given and these questionnaires were used in this study. After the patients were informed about the survey by the doctor, they were directed to another room and were left alone to answer the questionnaire. Patients were asked to leave the completed survey in a closed box in the same room. No identifying information was requested in the survey. Patients were asked to mark the best single option for each question in the survey. Statistical analyses were performed on the following groups: Patients in Group 1 and Group 2 were compared according to their age, gender, and educational levels. The patients in Group 1 were divided into subgroups according to their age (≤30 years and >30 years), gender, and education level (≤11 years and >11 years) and were compared based on their responses to the questions. Data were analyzed with Statistical Product and Service Solutions (SPSS), PASW (Predictive Analytics Software), Statistics 17 (SPSS Inc. 233 South Wacker Drive, Chicago, IL, US 60606-6412). The Student's t-test and chi-square test were applied to the measurements; $p<0.05$ was considered statistically significant.

Table 1. Comparison of the Group 1 and Group 2 patients according to the age, gender and educational level.

	Unit	Group 1 (n: 1330)	Group 2 (n: 1280)	*p*
Age (year)	mean±SD	30.7 ± 9.6	38.5 ± 13.6	< 0.001[x]
Gender (m/f)	n	688 / 642	607 / 673	0.028[y]
Education (year)	mean±SD	11.5 ± 3.4	7.5 ± 3.6	< 0.001[x]

x: Student's t-test, **y:** chi-square test, **SD:** standard deviation, **M:** male, **F:** female

RESULTS

The response rate was 91% and 88% in Group 1 and Group 2 respectively. The survey results of a total of 2610 patients consisted of 1330 patients (688 male, 642 female) in Group 1 and 1280 patients (607 male, 673 female) in Group 2. A comparison of Group 1 and Group 2 patients according to age, gender, and educational status is presented in Table 1. The questionnaire and the percentages of answers in Group 1 and 2 patients are shown in Table 2 and Table 3, respectively. A comparison of sub-groups according to age, gender, and education level in Group 1 patients (for questions number 9 and 10) is presented in Table 4, Table 5, and Table 6 respectively.

DISCUSSION

The physician's authority over the patient concerning health care is important for the sustainability of a positive physician-patient relationship. The source of authority is the patient's trust in the physician's knowledge and also good communication. Changes

Table 2. The distribution of responses to the questionnaire in Group 1 patients.

Questions	n: 1330	%
1. When do you use the Internet?		
a. Before contacting a doctor	417	31.4
b. After examination	371	27.8
c. In both cases	542	40.8
2. What is the best reason for using the Internet?		
a. Before contacting a doctor	252	19
b. After examination	434	32.6
c. In both cases	547	41.1
d. The information got from the Internet is more accurate	97	7.3
3. In which case Internet is more helpful?		
a. Diagnosing the disease based on my complaints	297	22.3
b. Investigating the disease diagnosed by a doctor	1033	77.7
4. How often do you use the Internet as a health consultant?		
a. Always	248	18.6
b. Frequently	339	25.5
c. Rarely	743	55.9
5. Is the information obtained from physicians compatible with the Internet?		
a. Generally similar	1195	89.8
b. Frequently incompatible with one another	135	10.2
6. Do you trust the information obtained from the Internet?		
a. Yes, I trust	560	42.1
b. No, I doubt	770	57.9
7. Medical information obtained from the Internet:		
a. Is very helpful	239	18
b. Partly it helps	930	69.9
c. Does not help	161	12.1
8. If the information obtained from the Internet conflict with the recommendations of my physician:		
a. I share the information obtained from the Internet with my physician	600	45.1
b. I rely on my physician more than the information obtained from the Internet	662	49.8
c. I rely on the information obtained from the Internet more than my physician	68	5.1
9. Does the information obtained from the Internet cause you to change the doctor's treatment?		
a. Yes	162	12.2
b. No	1168	87.8
10. Have you ever treated yourself using the information obtained from the Internet without consulting a physician?		
a. Yes	174	13.1
b. No	1156	86.9

Table 3. The distribution of responses to the questionnaire in Group 2 patients.

Why don't you use the Internet as a health consultant?	n:1280	%
a. I don't know how to use the Internet	650	50.8
b. I am unable to use the Internet	434	33.9
c. I do not trust the information on the Internet	74	5.8
d. I did not think to use the Internet for this purpose	122	9.5

in the habits and perspectives of patients can affect the physician-patient relationship. Today, the Internet has an undeniable and increasing impact on the patients' perspectives.[7,8] Suziedelyte concluded that searching for health information on the Internet has a positive, relatively large, and statistically significant effect on an individual's demand for health care.[6] Existing studies dealing with this subject have generally investigated the quality of the medical information contained in the websites.[1,9] However, studies showing the patients' perspective, such as this one, are needed in order to foresee the impact of the Internet on the doctor-patient relationship.

Not enough time spent with patients and an inability to establish good communication appears to encourage patients to use the Internet for health consultations. Patients indicated that "it is difficult to communicate with the doctor" and "the time spent with the doctor is limited" for the reason for using the Internet 19% and 32.6% respectively in this study (Question 2). Thus, 51.6% of patients in total seems to be not satisfied with the information obtained from the physician. In a similar study, the proportion of patients who stated that they did not receive enough information from the physician was 58.5%.[10] But different results have also been reported. Xiao *et al*. concluded that diversity of searches and preference of search channels could be significantly affected by communication with doctors; but, communication with doctors was found to have no impact on most of categories of the frequency of the search.[8]

Internet usage patterns are very likely to be affected by social, economic, and cultural factors. In this study, patients who used the Internet for health problems were found to be younger ($p<0.001$), more educated ($p<0.001$), and mainly male in gender ($p=0.028$) compared to patients who did not use the Internet (Table 1). In similar studies, comparable results have been reported in terms of educational level, but different results were found for gender and age.[8-10] Mazer *et al.* concluded that younger emergency department patients were not more likely to use the Internet for medications.[11] Salo *et al.* demonstrated that patients who were more likely to want medical links from health professionals were younger, college educated, and in higher salary ranges.[12] The increase in the level of education was expected to decrease negative behaviors, but the results of this study did not show this. No statistically significant difference was found in terms of age ($p=0.164$), gender ($p=0.999$), and educational level ($p=0.906$) concerning self treatment using the information obtained from the Internet without consulting a physician. The information obtained from the Internet caused women to change the doctor's treatment more frequently than men did

Table 4. Comparison of Group 1 patients according to age.

Questions		≤ 30 years (n: 699)		> 30 years (n: 631)		*p*
		n	%	n	%	
Does the information obtained from the Internet cause you to change the doctor's treatment?	Yes	87	12.4	75	11.9	0.755
	No	612	87.6	556	88.1	
Have you ever treated yourself using the information obtained from the Internet without consulting a physician?	Yes	100	14.3	74	11.7	0.164
	No	599	85.7	557	88.3	

p value is calculated using chi-square test.

Table 5. Comparison of Group 1 patients according to gender.

Questions		Male (n: 688)		Female (n: 642)		*p*
		n	%	n	%	
Does the information obtained from the Internet cause you to change the doctor's treatment?	Yes	98	14.2	64	9.97	0.017*
	No	590	85.8	578	90	
Have you ever treated yourself using the information obtained from the Internet without consulting a physician?	Yes	90	13.1	84	13.1	0.999
	No	598	86.9	558	86.9	

p value is calculated utsing chi-square test, *: Accepted as statistically significant.

Table 6. Comparison of Group 1 patients according to education level.

Questions		≤ 11 years (n: 869)		> 11 years (n: 461)		*p*
		n	%	n	%	
Does the information obtained from the Internet cause you to change the doctor's treatment?	Yes	99	11.4	63	13.7	0.228
	No	770	88.6	398	86.3	
Have you ever treated yourself using the information obtained from the Internet without consulting a physician?	Yes	113	13	61	13.2	0.906
	No	756	87	400	86.8	

p value is calculated using chi-square test.

(p=0.017), but still no statistically significant difference was found in terms of age (p=0.755) and educational level (p=0.228) (Table 4,5,6). Lemire *et al.* concluded that women valued the site content more than men, they trusted its information more, they enjoyed its user-friendliness more, and they considered the site more useful than men.[13] Choosing their own treatment can be interpreted as a personal preference of patients, but it is also likely to adversely affect the physician-patient relationship.

Based on this study results, it seems that patients partially benefit from the information obtained from the Internet and see it as a complementary source of information. Patients indicated that "just to get a second opinion" (41.1%) as the first reason for using the Internet in this study (Question 2). Although the majority of the participants (87.9%) considered the health information obtained from the Internet to be partially or very helpful (Question 7), most of patients (57.9%) were skeptical of the information they obtained from the Internet (Question 6). In addition, 77.7% of patients stated that the Internet was more helpful to investigate their disease after it had been diagnosed by a doctor rather than diagnosing the disease based on their complaints (Question 3). These findings may indicate that the Internet is not the primary source of health-related information. Gremeaux *et al.* also concluded that the Internet is an effective complementary tool that can contribute to improving therapeutic education of patients.[14] In a similar study, it was demonstrated that 89.3% of patients considered their doctors to be the main source for health information.[10] Suziedelyte also concluded that the Internet is found to be a complement to formal health care rather than a substitute for health professional services.[6]

The rate of patients who seems to displayed negative behaviors that were likely to adversely affect the physician-patient relationship was small in this study. 12.2% of patients stated that they might change the doctor's treatment according to the information obtained from the Internet (Question 9). 13.1% of patients stated that they had tried self treatment using information obtained from the Internet without

consulting a physician (Question 10). 7.3% of patients indicated that 'the information got from the Internet is more accurate' for the reason for using the Internet (Question 2). Only 5.1% of patients stated that they rely on the information obtained from the Internet more than their physician if the information obtained from the Internet conflicts with the recommendations of their physician (Question 8). The result of some studies show that trust in online health information will affect users online health information search behaviors.[6,8,14] López *et al.* demonstrated that the majority of Internet reviews of primary care physicians, the patients are positive in nature.[15] The main limitation of this study is that the results are based on patients' perspective. Physicians' perspective to the issue of patients' Internet usage is also important on the physician-patient relationship. McMullan has pointed out that a portion of health professionals feels threatened by the information a patient bring to a visit and may respond defensively.[4] Nwosu *et al.* reported that more health professionals believe that the Internet may damage the doctor-patient relationship rather than strengthen it and lead to unrealistic expectations and a rise in medical litigation.[5] Podichetty *et al.* have demonstrated that 64% of health professionals stated that patients asked for the name of a web site for more information on their condition, but 41% of health professionals do not favor second opinions for patients via the Internet on specific conditions as a valuable resource for patients.[7] In our study, there is no data available concerning physicians' perspective. Also, it is difficult to draw generic conclusions on the doctor-patient relationship that are so sensitive to sociocultural differences and may show regional disparities.

CONCLUSION

Patients using the Internet for health consultations are younger, more educated, and mainly male in gender. The Internet seems to be an important source of health-related information for patients, but it is not the primary source. Age and educational level did not have an effect on self treatment using the information obtained from the Internet without consulting a physician or changing the doctor's treatment due to information obtained from the Internet. The rate of patients who seems to displayed negative behaviors that were likely to adversely affect the physician-patient relationship was small.

*This study was presented as an oral presentation (number 315) at the 35th congress of the Turkish National Otorhinolaryngology and Head & Neck Surgery, November 2-6, 2013, Max Royal Hotel, Antalya, Turkey.

*The authors declare that there are no conflicts of interest.

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DELIVERING DATE: 02 / 10 / 2015 • **ACCEPTED DATE:** 11 / 05 / 2016

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