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ORIGINAL ARTICLE

A study of internet searches for medical information in dermatology patients: The patient–physician relationship

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Abstract

Background: The use of the Internet to search for medical information is considered by some physicians as an invasion of their medical domain and a reflection of a lack of trust in their advice and recommendations.

Objective: The main objective of this study was to estimate the amount of medical information gathered from the Internet and to establish whether these online searches reflect a lower degree of patient satisfaction.

Patients and methods: A survey was conducted among 175 patients seen at the melanoma and psoriasis units of San Cecilio University Hospital in Granada, Spain between May 2010 and December 2011.

Results: Online searches for medical information were performed by 44.4% of patients who returned correctly completed questionnaires. The main reasons given for these searches were to complement appropriate information provided by the physician (67.3%) and to gather information before consultation with the physician (36.5%). Variables associated with the search for medical information on the Internet in the multivariate analysis were a higher educational level, a higher score on two items in the Need for Cognition Scale, and consultation of mass media other than the Internet.

Limitations: Studies with larger numbers of patients and other diseases, however, are required to confirm these results.

Conclusions: The search for medical information is a widespread reality among patients with psoriasis and melanoma and it is not associated with a poor relationship with the physician.

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Dermatologists can play a beneficial role by recommending trustworthy Internet sites during the patient's visit and by promoting the development of pages by scientific societies to provide high-quality information.

PALABRAS CLAVE
Psoriasis;
Melanoma;
Información médica;
Internet

Estudio sobre la búsqueda de información médicaen internet en pacientes de dermatología: relación médico-paciente

Resumen

Antecedentes: La búsqueda de información médica en Internet es considerada por algunos médicos como una invasión y falta de confianza en su valor como profesional.
Objetivo: El principal objetivo es estimar la cantidad de información médica proveniente de Internet, y establecer si la búsqueda de información médica en Internet implica un menor grado de satisfacción por parte del paciente.
Pacientes y métodos: Fueron incluidos 175 pacientes provenientes de las unidades de melanoma y psoriasis del Hospital Clínico San Cecilio, Granada (España) de mayo de 2010 a diciembre de 2011.
Resultados: La búsqueda de información médica en Internet fue realizada por el 44,4% de los pacientes. La principal razón fue complementar la adecuada información aportada por el médico (67,3%) y obtener información antes de la consulta con el médico (36,5%). Las variables asociadas en el análisis multivariante con la búsqueda de información médica en Internet fueron un alto nivel educativo, alta puntuación en la escala «Necesidad de conocimiento» «NFC1 y NFC2» y consultar otros *mass media* distintos de Internet.
Limitaciones: Son necesarios estudios con mayor número de pacientes y otras enfermedades dermatológicas para confirmar los resultados.
Conclusiones: La búsqueda de información médica es una realidad muy extendida entre los pacientes con psoriasis y melanoma, y no está asociada con una peor relación con el médico. Los dermatólogos pueden desempeñar un papel beneficioso a 2 niveles: recomendando páginas de interés y promoviendo el desarrollo de páginas por sociedades científicas con el fin de proporcionar información de alta calidad.

Introduction

According to a study by Fox,[1] searching for medical information is the third most popular use of the Internet, following e-mail and online product searches. This growth has been paralleled by an expansion in the use of the Internet to meet health-related information needs.[2,3]

Searches for online medical information have generated a feeling of distrust among a substantial number of physicians, who consider that it is an invasion of their medical domain and indicates a lack of trust in their recommendations.[4]

The objectives of this study were to estimate the amount of medical information gathered from the Internet, to determine the profile of dermatology patients who use the Internet for this purpose, and to establish whether online searches for medical information are associated with a lower degree of patient satisfaction with the patient–physician relationship.

Materials and methods

Sample selection

Participants were recruited from among patients seen at the melanoma and psoriasis units at San Cecilio University Hospital in Granada, Spain between May 2010 and December 2011. Patients aged over 18 years old with a diagnosis of melanoma other than melanoma in situ or of psoriasis (history of a body surface area score of $\geq$5 or involvement of an anatomic region that causes particular concern among patient, i.e., face, hands, or genitals) were considered eligible for participation.

A random number generator was used to select 175 patients from a list of patients who met the selection criteria ordered by date of visit. These randomly selected patients were informed by telephone that they would receive a questionnaire to be completed anonymously and voluntarily.

Exclusion criteria

Apart from patients with melanoma in situ, we also excluded all patients who, despite having answered and returned the questionnaire, were suspected of giving systematized responses (e.g., the same score in all items, or systematic or regular alternations in answers), or who gave clearly contradictory answers to inter-related questions or answered fewer than 70% of the items. No significant differences in results were observed in the sensitivity analyses of data from the excluded and nonexcluded questionnaires.

Data collection

Data were gathered on age group (≤59 vs >59 years), sex, educational level (no schooling/primary or secondary education/university), and access to Internet at home (yes vs no). Based on the hypothesis that searches for medical information may be influenced by intellectual factors, we included two questions from the Need for Cognition Scale: Need for Cognition 1 (NFC1, ''I would prefer complex to simple problems'') and NFC2 (''It's enough for me that something gets the job done; I don't care how or why it works'').[5,6] These questions measure the tendency for an individual to engage in and enjoy thinking. Respondents rated their level of agreement with these statements on a Likert scale ranging from 1 (minimum agreement) to 5 (maximum agreement).

Another section of the questionnaire investigated sources of information related to the patient's disease, namely, frequency of consultations and credibility given to the information source, rated on another 5-point Likert scale, where 1 indicated no consultations or no credibility, and 5 indicated very frequent consultations or maximum credibility. Sources of information were classified into three groups: healthcare professionals (family physicians, dermatologists, nurses, pharmacists), relatives/acquaintances, and communication media (Internet, magazines, books).

Patient views of the physician–patient relationship were examined through questions evaluating the reputation of the medical department, communication with the medical team, and level of trust in and satisfaction with their physician. Each item was rated on a 5-point Likert scale ranging from 1 (minimum degree of agreement) to 5 (maximum degree of agreement).

Finally, we investigated the type of websites used by patients who searched for medical information online (general medicine, disease-specific sites, associations, agencies and institutions, online support groups and forums, private centers), the aspects of the disease in which the patients were interested (prognosis, causes, symptoms, new advances, and treatment), and the reasons behind their searches (to get information prior to the visit with their physician, to complement sufficient or insufficient information from the physician during the visit, to check the appropriateness of the diagnosis or treatment, or to find an alternative diagnosis or treatment). The patients scored the credibility of the websites consulted from 1 (no credibility) to 5 (maximum credibility).

Statistical analysis

A descriptive statistical analysis was conducted for the general characteristics of the study participants. Qualitative variables were analyzed with the χ^2 test or the Fisher exact test when at least 1 cell had an expected count of less than 5. Binary logistic regression models (Wald method) were used to measure the association between Internet searches for medical information and other factors. A P value of .05 or less was considered significant. SPSS 17.0 was used for the data analyses. For the statistical analysis, answers to qualitative variables were reclassified. The frequency with which patients consulted different sources of information was reclassified as never or infrequently (1–2) or quite frequently to very frequently (3–5); credibility of information was reclassified as low (1–2), moderate (3), or high (4–5); and patients' agreement with statements regarding their relationship with their physician were reclassified as complete or partial disagreement (1–3) or agreement (4–5).

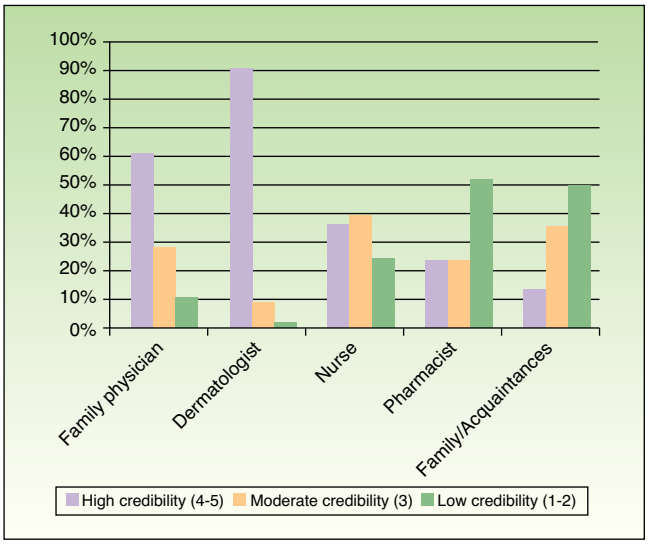

Figure 1 Credibility of sources of information (health professionals and family/acquaintances). Dermatologists were given a high credibility rating by 89.7% of those who consulted a dermatologist and a low credibility rating by 0%. Family physicians received the second-best credibility rating, with 61.2% of patients given them a high rating.

Results

Of the 175 patients with melanoma and psoriasis who received the questionnaire, 125 responded (response rate, 71.4%). Eight questionnaires were excluded and therefore the final study sample included 117 patients. Table 1 shows their sociodemographic characteristics. Of these patients, 44.4% searched for medical information on the Internet, and no significant differences were found between patients with psoriasis and those with melanoma (52.5% vs 40.26%, $P = .206$). The only significant difference found in terms of sociodemographic profile was for age, which was significantly higher in the melanoma group (45.1 vs 53.7 years, $P = .002$).

Dermatologists were the leading source of information and were consulted with a medium-to-high frequency by 88.89% of the melanoma and psoriasis patients surveyed. The Internet was the most popular source of information consulted (Table 2). The most consulted sources (dermatologists and Internet) were also those rated with the greatest credibility (Figs. 1 and 2). No significant differences were observed between patients in the psoriasis and melanoma groups (data not shown).

The most frequently visited websites were disease-specific websites, followed by sites with general medicine content and online support/forum sites. Disease-specific websites received the highest credibility rating (Table 3).

Table 1 Characteristics of the 117 dermatology patients who completed a survey about Internet searches for medical information.

	No. (%) of patients with psoriasis or melanoma	No. (%) of patients with psoriasis	No. (%) of patients with melanoma	*P* value
Sex				
Female	71 (60.68)	24 (60.00)	47 (61.04)	.913
Male	46 (39.32)	16 (40.00)	30 (38.96)	
Age, y				
18–29	9 (7.69)	5 (12.50)	4 (5.20)	.015
30–44	30 (25.64)	16 (40.00)	14 (18.20)	
45–59	46 (39.32)	13 (32.50)	33 (42.90)	
>59	32 (28.21)	6 (15.00)	26 (33.80)	
Median	50.75	45.13	53.70	.002
Educational level				
No schooling	14 (11.96)	1 (2.50)	13 (16.88)	.110
Primary education	54 (46.15)	19 (47.50)	35 (45.45)	
Secondary education	29 (24.79)	13 (32.50)	16 (20.78)	
University education	20 (17.10)	7 (17.50)	13 (16.88)	
Internet at home	75 (64.10)	30 (75.00)	45 (58.44)	.101
Searches for medical information on the Internet	52 (44.44)	21 (52.50)	31 (40.26)	.206
Total patients, no.	117	40	77	

Again, no significant differences were observed between melanoma and psoriasis patients.

The aspects of the disease of most interest to patients with melanoma in their Internet searches were prognosis (80.6% of patients searching for information), causes (77.4%), and symptoms (74.2%). Patients with psoriasis were most interested in new advances (90.50%), causes (57.1%), and treatment (52.4%).

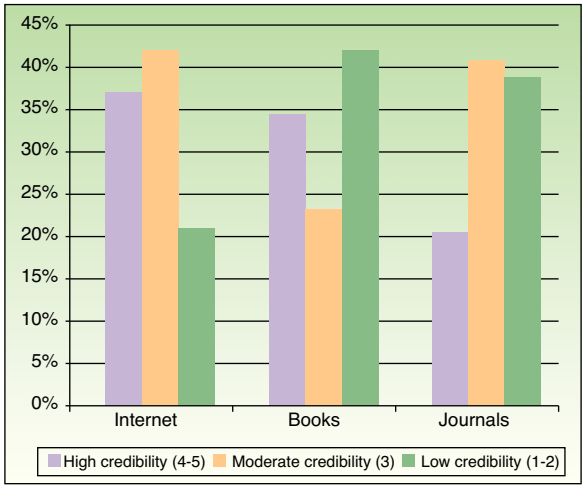

Figure 2 Credibility of information in the mass media. The Internet was rated as the most credible source of information in the mass media, with a high and a moderate credibility rating given by 37.7% and 41.9% of those who used this medium, respectively.

The main reasons given for using the Internet to search for medical information were to complement adequate information provided by the physician (67.3%) and to get information before consultation with the physician (36.5%). Few patients gave reasons with negative implications for the physician, such as a lack of information during the visit (7.7%), verification that the diagnosis or treatment was correct (21.1%), or search for an alternative diagnosis or treatment (0%).

In the bivariate analysis, the factors associated with Internet searches for medical information were age ($P < .001$; OR, 0.243; 95% CI, 0.112–0.530), with a lower probability of Internet searches in patients aged over 59 years; access to Internet at home ($P < .001$; OR, 7.750; 95% CI, 2.883–20.830); educational level ($P < .001$; OR, 10.894; 95% CI, 4.576–25.939), with a higher probability of Internet searches among those with more education; NC1 ($P < .001$; OR, 4.667; 95% CI, 2.063–10.558), with a higher probability of Internet searches among those with a preference for complex mental problems; NC2 ($P < .001$, OR, 0.178; 95% CI, 0.066–0.477), with a higher probability of Internet searches among those who did not agree with the statement ''It's enough for me that something gets the job done; I don't care how or why it works''; and use of media other than Internet ($P < .001$; OR, 7.500; 95% CI, 3.277–17.164), with

Table 2 Frequency of consultation of sources of information in patients with melanoma and psoriasis quantified by a score of 1–2 (never or infrequently) or 3–5 (quite frequently to very frequently).

Sources of consultation	% (no.) of patients
Family physician	
Never or infrequently	51.3 (60)
Quite frequently to very frequently	48.7 (57)
Dermatologist	
Never or infrequently	11.1 (13)
Quite frequently to very frequently	88.9 (104)
Nurse	
Never or infrequently	76.9 (90)
Frequently to very frequently	23.1 (27)
Pharmacist	
Never or infrequently	82.9 (97)
Quite frequently to very frequently	17.1 (20)
Family/acquaintances	
Never or infrequently	68.4 (80)
Frequently to very frequently	31.6 (37)
Magazines	
Never or infrequently	76.9 (90)
Quite frequently to very frequently	23.1 (27)
Books	
Never or infrequently	78.6 (92)
Quite frequently to very frequently	21.4 (25)
Internet	
Never or infrequently	58.1 (68)
Quite frequently to very frequently	41.9 (49)

a higher probability of Internet searches among those who search regularly for information in different communication media.

The physician–patient relationship was evaluated positively in different dimensions (reputation of medical team, communication, confidence in and satisfaction with the physician) (Table 4), with no significant differences observed between psoriasis and melanoma patients. Compared with patients who did not use the Internet to search for medical information, those that used online searches agreed more often with the statements ''The reputation of the medical team is better than in other hospitals'' ($P = .036$; OR, 2.459; 95% CI, 1.047–5.775) and ''I trust the recommendations of my medical team'' ($P = .049$; OR, 1.867; 95% CI, 1.571–2.218).

Multivariate analysis

The variables associated with searches for medical information on the Internet were educational level, NFC1, NFC2, and consultation of mass media other than the Internet. Consulting other communication media and educational level had the greatest influence on the likelihood of using the Internet to find information (odds ratios [OR] of 8.93 and 7.98, respectively). Preference for complex mental problems (NFC1) also increased the odds of performing an Internet search (OR, 3.14). Those with a preference for results over reasons (NFC2) were less likely to use the Internet to look for information (OR, 0.234).

Discussion

Of the 117 patients who completed the survey correctly, 44.4% sought medical information on the Internet, which was the main communication medium used for searches. The main factors associated with online searches were educational level, consultation of other sources of information, and disagreement with the statement ''It's enough for me that something gets the job done; I don't care how or why it works''. We found no association between dissatisfaction with the physician–patient relationship and use of the Internet as a source of information. Dermatologists and general physicians were the most frequently consulted and trusted sources of information.

Predisposing factors for the search for online medical information

Ready access to the Internet at home was a predisposing factor for searches for online medical information, as previously reported.[7,8] Fox[9] suggested that having a chronic or disabling disease also predisposes patients to searches of this type. The present study included patients with melanoma or psoriasis, selected for their high mortality and morbidity, respectively. We found no significant differences in Internet search activities between these patient groups, but online searches would probably be less common among patients with diseases that have a lesser impact.

Table 3 Websites visited by patients with psoriasis or melanoma seeking medical information on the Internet and level of credibility given to sites.

Websites	% of visitors among patients who search for medical information online	% of visitors who gave the site maximum credibility (4–5)
General medicine	50.0	42.3
Disease-specific	80.8	69.0
Associations	42.3	36.4
Agencies and institutions	42.3	54.5
Online support and forums	63.5	45.5
Private centers	25.0	38.5

Table 4 Patient views of the patient–physician relationship according to statements scored on a 5-point Likert scale.

Reputation of medical team	No. (%) of overall patients	No. (%) of non-internet users	No (%) of internet users	*P* value
''The medical team always fulfill its obligations''				
Disagree completely or partly (1–3)	18 (15.4)	9 (7.7)	9 (7.7)	.606
Agree (4–5)	99 (84.6)	56 (47.8)	43 (36.7)	
''The reputation of the medical team is better than in other hospitals''				
Disagree completely or partly (1–2)	34 (29.1)	24 (20.5)	10 (8.5)	.036
Agree (4–5)	83 (70.9)	41 (35.0)	42 (35.8)	
Communication with physician				
''The information received from the physician is complete''				
Disagree completely or partly (1–3)	25 (21.4)	12 (10.2)	13 (11.1)	.391
Agree (4–5)	92 (78.6)	53 (45.2)	39 (33.3)	
''The doctor answers your questions''				
Disagree completely or partly (1–3)	17 (14.5)	10 (8.5)	7 (6.0)	.769
Agree (4–5)	100 (85.5)	55 (47.0)	45 (38.5)	
Trust in medical services				
''I trust the recommendations of my medical team''				
Disagree completely or partly (1–3)	5 (4.27)	5 (4.3)	0 (0)	.049
Agree (4–5)	112 (95.73)	60 (51.3)	52 (44.4)	
''The medical team has enough experience to treat me''				
Disagree completely or partly (1–3)	35 (25.6)	20 (17.1)	15 (12.8)	.821
Agree (4–5)	82 (74.4)	45 (38.5)	37 (31.6)	
Satisfaction with medical services				
''I am satisfied with the medical services provided''				
Disagree completely or partly (1–3)	15 (12.8)	9 (7.7)	6 (5.1)	.711
Agree (4–5)	102 (87.2)	56 (47.9)	46 (39.3)	
''If needed to, I would come back to the same medical team''				
Disagree completely or partly (1–3)	7 (1.3)	5 (4.3)	2 (1.7)	.321
Agree (4–5)	110 (97.4)	60 (51.3)	50 (42.7)	
''I think I made a good decision when I went to the medical team''				
Disagree completely or partly (1–3)	1 (1.3)	5 (4.3)	2 (1.7)	.321
Agreement (4–5)	72 (93.5)	60 (51.3)	50 (42.7)	

Age was associated with Internet searches in the bivariate but not multivariate analysis and will probably become less influential over the years, as the younger Internet-savvy generations grow older.

Educational level was also significantly associated with Internet searches for medical information, in both the bivariate and multivariate analyses, confirming previous reports.[10–12] With regard to the intellectual motivation behind such searches, patients with a preference for more complex mental problems and for results over reasons were more likely to investigate their disease on the Internet.

Internet searches as a complementary not replacement information-gathering strategy

In contrast with previous studies in this area,[13] one of the main aims of the present study was to determine whether use of the Internet reflected patient dissatisfaction with their relationship with their physician. This does not appear to be the case, as the dermatologist was the most important source of information, both quantitatively and qualitatively. Our findings in this respect coincide with those of with Chen and Siu,[14] who found physicians to be the main source of information for patients with cancer. In the present study, opinions of dermatologists did not differ significantly between patients who searched for medical information on the Internet and those who did not. We even observed a significant association between online search activities and agreement with the following statements: ''The reputation of the medical team is better than in other hospitals'' and ''I trust the recommendations of my medical team''. In other words, the use of the Internet to search for medical information was not significantly greater among patients who gave their physicians a lower rating. There actually even appeared to be a trend for greater search activity among those who rated their medical team more highly, although statistical significance was not reached for the other statements. Rains[15] observed that information obtained from web searches was more likely to be perceived as useful by those who trusted their physician and less likely to be perceived as such by those who did not.

The most visited websites in our series were disease-specific sites or sites that offered online support, indicating that the motivation behind these searches was to find a meeting point for patients and relatives as well as to obtain targeted information. The degree of empathy that people with a similar experience of a disease can bring to patients cannot usually be provided by a dermatologist. Websites of this kind can offer support, experiences, and behavior models, fomenting participation and exerting a community function among patients.[16] The importance of these sites for patients strongly suggests that the Internet complements the more formal function of the physician during patient visits.

Physician awareness of patients' use of the Internet may be beneficial

Despite the widespread use of the Internet detected in our study, a few patients (19.2%) talked to their physician about the information they had found online. It would seem desirable for physicians to have an open attitude, allowing patients to ask any questions they consider necessary and to speak naturally about the Internet. By accepting the Internet as a natural societal phenomenon, physicians could fulfill an important role as counselors.[17] One of the major concerns about cybermedicine is the quality of Internet sites, which can contain incorrect and unsubstantiated data,[18,19] in addition to the possibility that patients could make erroneous interpretations of information, with negative consequences for their health.[20] Hence, the dermatologist could help by both recommending pages of interest during the patient's visit and promoting the development of pages with high-quality information by scientific societies.

New studies with larger number of patients with other dermatological conditions are necessary to confirm our findings.

In conclusion, the search for medical information is a widespread reality among patients with psoriasis and melanoma. It is associated with intellectual factors and not with a poor relationship with the physician. The Internet should therefore be regarded as a complementary means of information, whose limitations can be minimized by the physician taking an active role in resolving doubts raised by patients and by scientific societies publishing web pages that offer high-quality information for patients.

Ethical responsibilities

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this investigation.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors must have obtained the informed consent of the patients and/or subjects mentioned in the article. The author for correspondence must be in possession of this document.

Conflict of interest

The authors declare that they have no conflict of interest.

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