



Reasons for and predictors of patients' online health information seeking following a medical appointment

Na Li^a, Sharon Orange^b, Richard L Kravitz^{c,d} and Robert A Bell^{a,d,e,*}

^aDepartment of Communication, University of California, Davis, Davis, CA, ^bDepartment of Internal Medicine, University of Southern California, Los Angeles, CA and ^cDivision of General Medicine, Department of Internal Medicine, ^dCenter for Healthcare Policy and Research and ^eDepartment of Public Health Sciences, University of California, Davis, Sacramento, CA, USA.

*Correspondence to Robert A Bell, Department of Communication, University of California, Davis, One Shields Avenue, Davis, CA 95616, USA; E-mail: rabbell@ucdavis.edu

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Abstract

Background. Little is known about patients' online health information seeking after a primary care or specialist medical visit.

Objectives. To examine predictors of patients' post-visit online health information seeking, reasons for seeking information and information sources used.

Methods. Survey of online support group members ($N = 311$) with a recent medical visit. Measures included eHealth literacy, patient-centred communication (PCC), post-visit changes in worry, online health information seeking and reasons for seeking information. Analyses were based on descriptive statistics and logistic regression.

Results. Eighty per cent of patients went online post-visit. The most common source used was others' forum posts (91%). The most common reason was curiosity (68%). Dissatisfaction with the physician's performance motivated information seeking for 40% of respondents. In a multivariate analysis, post-visit online health information seeking was highest among patients who were more eHealth literate [odds ratio (OR) = 1.73 (95% confidence interval (CI): 1.11, 2.71), $P = 0.016$], gave lower PCC ratings to their providers [OR = 0.45 (0.22, 0.90), $P = 0.024$] and experienced increased worry due to the visit [OR = 5.19 (1.36, 19.82), $P = 0.016$]. eHealth literate patients made greater use of specialized medical information (e.g. online medical journal articles) than less literate patients. Primary care physicians were rated as more patient centred than specialists. Visit-induced worry led to greater use of interpersonal channels (e.g. e-mailing other forum members). Patients who saw their doctor as less patient-centred were more likely to go online due to dissatisfaction with doctor performance.

Conclusion. Online support forum members often turn to the Internet for health information following their medical visits. Their information seeking is shaped by patient, relational and visit factors.

Key words: Changes in worry, eHealth literacy, information seeking, Internet, patient-centred communication.

Introduction

Patients often turn to online sources of information before their appointments with a physician (1–4), but little is known about how patients turn to the Internet after such visits. Research

suggests several reasons patients go online following visits, including dissatisfaction with care received (5), low trust in the doctor (6,7), having unanswered questions following the visit

(8) and having unmet needs for emotional support (9). However, empirical evidence in this area is sparse. Achieving greater clarity about when and how patients seek online information post-visit would help practitioners better anticipate patients' informational and emotional needs. Insights from such research can also help physicians to direct their patients to more appropriate online materials.

We built upon prior studies by describing how often patients go online after their medical visits, why they do so and the online resources they utilize. We also examined three potential predictors of online information seeking: 'eHealth literacy', the perceived level of the physician's 'patient-centred communication' (PCC) in the focal visit and visit-induced 'changes in worry'.

The eHealth literacy construct references an individual's capacity to find, understand and use online health information (10). Access and use of such resources presumably require some level of literacy (11). A positive association has been found between eHealth literacy and patients' information seeking before their visits (3). We expected that patients' eHealth literacy would also be positively related to post-visit online information seeking and to utilization of more specialized medical websites.

The patient-centred doctor seeks to elicit, understand and validate the patient's concerns (12). The relationship of PCC to post-visit information seeking has received little attention. A notable exception is Hou and Shim's secondary analysis of Health Information National Trends Survey data (13). Their rather crude PCC measure asked about all health care providers the respondent had seen in the previous year. Respondents who felt their providers had collectively communicated in a less patient-centred manner engaged in more online health information seeking. In contrast, we examined the relationship of patients' perceptions of a single doctor's PCC in a specific visit to their online information seeking thereafter. We expected that patients would have less need to seek information when their doctor was perceived as patient centred. We also examined whether this finding holds for both primary care and specialist physicians. Previous studies have found specialists to be less patient-centred in their interactions with patients (14,15). It is not clear, however, if low specialist PCC shapes patients' post-visit information seeking to the same extent as low primary care physician PCC. Also unexplored is the possibility that levels of patient centredness attributed to the doctor will affect patients' reasons for seeking information after the visit. For example, patients who perceived less patient centredness from the doctor may leave the visit feeling they have incomplete information.

The third predictor of post-visit online information seeking we examined, visit-induced changes in worry, has been investigated in only one study we know of. Not surprising, that investigation found that increases in patients' worry led to more online information seeking (7). What is surprising is that patients who left their visits less worried than before also engaged in more

information seeking. The researchers speculated that reductions in worry leads some patients to seek information to validate reassuring news received from the physician. We sought to replicate this finding and account for it through an assessment of reassured patients' reasons for seeking information.

Methods

Sample and recruitment

A convenience sample was recruited from Daily Strength (DS) (www.dailystrength.org)—a large online support community with >500 health-related forums. Data were collected in the fall of 2012. With a final sample size of $N = 311$, statistical power exceeded 0.99 for detection of a medium effect, defined as a Cohen's d value of 0.50 or greater, when α was set at 0.05 (16). Online support communities represent a vanguard population for studies of health information seeking because members tend to have chronic conditions that elevate their health information needs (17). To be eligible to participate, the respondent had to have visited a primary care or specialist physician within the previous 30 days.

Questionnaire and measures

Upon providing informed consent, the respondent was redirected to a questionnaire that included the following measures: (i) the eight-item eHealth Literacy Scale was used to measure respondents' perceptions of their skills at using the Internet to find, evaluate and use online health information (11). Responses, made on Likert-type scales, were averaged (potential range: 1–5); higher scores indicated higher levels of literacy. (ii) A validated PCC scale was used to measure respondents' perception of their doctor's PCC (18). Responses, made on 15 Likert-type scales, were averaged (potential range: 1–5); higher scores indicated higher levels of PCC. (iii) One question—'How did this medical visit change the amount of your worrying about your health?'—measured changes in worry after the visit. Response options were 'more worried', 'no change', or 'less worried'. (iv) Post-visit online information seeking was assessed with one question asking if the respondent used the Internet after the visit to learn more about their health situation; responses were dichotomized (0 = no/not sure, 1 = yes). (v) Respondents who reported using the Internet were given a checklist of nine types of online information sources (described below) and checked off those sources they used. This list was adapted from published research (3). (vi) Post-visit information seekers were also presented with a list of eight potential reasons (described below) for having done so and checked off the reasons that applied to them. (vii) For control purposes, respondents were asked several questions about the physician, the visit, their health status and their demographics.

Statistical analysis

Descriptive statistics were used to characterize information-seeking behaviours, information sources utilized and reasons for going online. Logistic regression analysis was used to examine the relationships of eHealth literacy, PCC and visit-induced changes in worry with post-visit online information seeking. The binary dependent measure was whether or not the patient reported going online after their visit. The distribution of PCC values exhibited extreme skew uncorrectable with standard transformations. We thus recoded this variable to create a two-category measure: lower PCC (scores of 1–4, $n = 169$, coded as 0) versus higher PCC (scores of >4–5, $n = 142$, coded as 1). The worry variable was represented with a dummy variable for decreased worry following the visit and a second dummy variable representing increased worry; the reference group was comprised of respondents reporting no change in worry. Estimates were adjusted for physician, patient and visit characteristics. These adjustments were also made for the other logistic regressions described below.

The relationship of eHealth literacy to online information sources used was examined with nine logistic regression analyses. In these analyses, eHealth literacy was the predictor variable and each of the nine information sources served as a dependent measure [dichotomously coded as ‘not utilized’ (0) versus ‘utilized’ (1)]. The relationship of changes in worry to information sources used were also assessed with nine logistic regression analyses (one for each information source). Post-visit increases or decreases in worry were represented with two dummy codes. Respondents reporting no change in worry constituted the reference category. The relationship of PCC to eight potential reasons for seeking information following the visit was examined with eight logistic analyses, one for each reason. PCC was the predictor variable in these analyses and each of the eight reasons for going online served as a dependent measure [dichotomously coded as ‘reason not reported’ (0) versus ‘reason reported’ (1)]. The relationship of an increase or a decrease in worry following the visit to reasons for seeking information was examined in this same manner, with the one exception that post-visit change in worry was once again represented with two dummy codes.

Results

Preliminary analyses

Characteristics of the sample ($N = 311$) are described in Table 1. The sample was primarily female and white. Table 2 describes the health status and index visit characteristics of the sample. The alpha reliabilities for the eHealth literacy and PCC scales were 0.93 and 0.97, respectively. Respondents generally evaluated their eHealth literacy as high ($M = 4.20$,

Table 1. Respondent characteristics ($N = 311$)

Demographic characteristic	Frequency	Per cent
Female	263	84.6
White race	289	92.9
Age		
18–29	25	8.0
30–39	45	14.5
40–49	73	23.5
50–59	89	28.6
60–69	66	21.2
≥70	12	3.9
Declined to answer	1	0.3
Education		
High school graduate/or less	72	23.2
Associates or technical degree	83	26.7
Bachelor's degree	96	30.9
Graduate degree	60	19.3
Household income (\$)		
<20 000	36	11.6
20 000–40 000	53	17.0
40 001–60 000	39	12.5
60 001–80 000	33	10.6
80 001–100 000	37	11.9
100 001–120 000	32	10.3
>120 000	38	12.2
Declined to answer	43	13.8
Marital/relational status		
Married	190	61.1
Never married	53	17.0
Widow/widower	13	4.2
Divorced or separated	55	17.7
Nation of residence		
USA	280	90.0
UK	11	3.5
Canada	10	3.2
Other nation	10	3.2

$SD = 0.67$). The visit resulted in less worry for 42.4% of respondents ($n = 132$), no change in worry for 41.8% ($n = 130$) and increased worry for 15.8% ($n = 49$). Respondents tended to agree that the visit physician communicated in a patient-centred manner ($M = 3.83$, $SD = 1.03$), but primary care physicians were rated as significantly more patient centred ($M = 4.01$, $SD = 0.93$) than specialists ($M = 3.73$, $SD = 1.07$) ($t(308) = 2.37$, $P = 0.018$).

Frequency of post-visit online information seeking

Most respondents (80.4%, $n = 250$) reported post-visit online information seeking. Patients of primary care physicians ($n = 117$) and patients of specialists ($n = 193$) did not differ in their use of online health resources after the visit (78.6% versus 81.4%) ($\chi^2(1) = 0.34$, $P = 0.56$).

Table 2. Health status and index visit characteristics (*N* = 311)

	Frequency	Per cent
Respondent health		
General health perception		
Poor	43	13.8
Fair	99	31.8
Good	120	38.6
Very good	44	14.1
Excellent	5	1.6
Health insured	281	90.4
Visit characteristics		
Physician's practice		
Primary care physician	117	37.6
Specialist	193	62.1
Unsure	1	0.3
Time of visit		
In the past 2 days	54	17.4
3–7 days earlier	81	26.0
8–14 days earlier	84	27.0
15–30 days earlier	92	29.6
Number of time seen by doctor (including index visit)		
Once	33	10.6
2–3 times	47	15.1
4–5 times	50	16.1
6–10 times	42	13.5
>10 times	139	44.7
Anticipated future visits with doctor		
I do not expect to see this doctor again	22	7.1
Only 1 or 2 follow up visits	17	5.5
Regular visits for short period of time	23	7.4
Regular visits for long period of time	203	65.3
Unsure	46	14.8

Information sources utilized

The most common sources of online information patients relied upon after their visits, reported by a majority of information seekers, were support forum posts, health and medical association websites and online medical articles (Table 3). Few respondents reported using forum e-mail or chat features, news organizations' websites (e.g. CNN.com), Q & A sites (e.g. Yahoo! Answers) or online 'cyber doctors'.

Reasons for post-visit information seeking

The most common reason for going online post-visit was curiosity, reported by two thirds of respondents, followed by having incomplete information from the doctor and doubts about the quality of care received (Table 4). In total, 39.6% of respondents who went online for health information following their visits indicated that poor physician performance motivated them to do so—namely, the provision of incomplete or inaccurate information and/or poor quality of care (result not presented

Table 3. Sources of health information among respondents who went online following their visits, sorted by frequency of reporting (*N* = 250)

Online information source	Frequency	Per cent
Read posts on an online support forum	228	91.2
Went to a health website	212	84.8
Went to a medical association website	174	69.6
Read an online medical article	172	68.8
Posted on an online support forum	128	51.2
E-mail or chatted with other forum members	61	24.4
Went to a news organization's site	52	20.8
Posted a question on an online Q & A site	30	12.0
Consulted with a doctor online	25	10.0

Table excludes 61 cases in which the respondent reported no post-visit information seeking.

in tabular form). Few patients went online due to the encouragement of their physicians, the physician's staff or family and friends. Embarrassment was rarely given as a reason for post-visit online information seeking.

We also determined if the reasons for going online differed for the patients of primary care and specialist physicians. Patients of specialists were more likely than patients of primary care physicians to go online because they thought they had received incomplete information (34.4% versus 21.7%) ($\chi^2(1) = 4.45, P = 0.035$) or poor quality of care (27.4% versus 15.2%) ($\chi^2(1) = 4.87, P = 0.03$).

Predictors of going online

Post-visit online information seeking was associated with higher levels of eHealth literacy and lower levels of PCC (Table 5). In addition, patients who experienced an increase in their level of worry after the medical visit were more likely to engage in post-visit online information seeking in comparison with the reference group of patients who experienced no change in worry. Patients who reported a decrease in worry did not differ in their levels of online health information seeking from the reference group of patients with no visit-induced change in worry. As noted, primary care physicians were perceived as more patient centred than specialist physicians. In a subsequent analysis, we found that the interaction term for PCC and doctor type was not significant ($P = 0.24$), indicating that lower levels of PCC were associated with more online information seeking regardless of the type of physician seen.

Information sources and eHealth literacy

As predicted, patients with higher eHealth literacy availed themselves of more specialized health information. Among

Table 4. Reasons for seeking online information for the subset of patients who went online following their medical appointment, sorted by frequency of reporting ($N = 250$)

Reason for seeking information	Frequency	Per cent
Curiosity: 'I used the Internet out of curiosity (I enjoy reading about health topics)'.	169	67.6
Incomplete information: 'There was information the doctor should have provided me, but didn't'.	75	30.0
Inadequate quality of care: 'I thought that the care my doctor provided was not as good as it should have been'.	57	22.8
Inaccurate information: 'I thought that my doctor may have said something that is inaccurate.'	36	14.4
Encouragement from physician: 'This doctor encouraged me to use the Internet to learn more about my health'.	32	12.8
Encouragement from family and friends: 'A friend or family member encouraged me to use the Internet to learn more about my health'.	26	10.4
Embarrassment: 'I had a question I could not ask the doctor because I did not want to embarrass myself'.	12	4.8
Encouragement from staff: 'Someone on this doctor's staff (e.g. nurse, assistant) encouraged me to use the Internet to learn more about my health'.	5	2.0

Table 5. Logistic regression analysis of the predictors of post-visit online health information seeking

Model variables	Post-visit online information seeking ^a		
	Adjusted OR ^b	95% CI	<i>P</i>
eHealth literacy	1.73	1.11–2.71	0.016
Perceived patient centredness	0.45	0.22–0.90	0.024
Change in worry following visit			
No change ^c	–	–	–
More worried	5.19	1.36–19.82	0.016
Less worried	1.13	0.57–2.23	0.719

$N = 310$ due to missing age data for one case.

^aBinary dependent measure, coded as 0 = did not go online, 1 = went online.

^bEstimates have been adjusted for specialty of the physician (primary care physician versus other), number of prior visits with the focal physician, time since the focal visit, anticipation of regular follow up visits, health insurance status, patient demographics (sex, age, education) and the patient's general health perception.

^cReference category.

respondents who engaged in post-visit information seeking ($n = 250$), eHealth literacy was significantly and positively associated with reliance on three of the nine sources of online information reported in Table 3: use of a medical association website [adjusted odds ratio (OR) = 2.31 (95% confidence interval (CI): 1.42, 3.75), $P < 0.001$], going to an authoritative health website [adjusted OR = 1.93 (1.09, 3.41), $P = 0.025$] and reading online medical journal articles [adjusted OR = 2.28 (1.42, 3.65), $P < 0.001$].

Information sources and visit-induced worry

Patients who experienced an 'increase' in worry after their visit were more likely than the reference group of patients reporting no change in worry to turn to four sources of online information: posting questions on an online support forum [adjusted

OR = 2.07 (1.02, 4.19), $P = 0.044$], submitting questions to a community Q & A site [adjusted OR = 4.00 (1.61, 9.93), $P = 0.003$], e-mailing or chatting with other forum members [adjusted OR = 3.06 (1.47, 6.36), $P = 0.003$] and consulting with their own or another doctor online [adjusted OR = 3.61 (1.26, 10.33), $P = 0.017$].

Reasons for seeking information and PCC

Those patients who rated their doctor higher on PCC were less likely to attribute their post-visit online information seeking to having received incomplete information [adjusted OR = 0.04 (0.01, 0.11), $P < 0.001$] or inaccurate information from the doctor [adjusted OR = 0.04 (0.01, 0.21), $P < 0.001$]. Higher ratings of PCC were associated with a greater likelihood of attributing such information seeking to curiosity [adjusted OR = 2.57 (1.35, 4.88), $P = 0.004$] and encouragement from the doctor [adjusted OR = 4.86 (1.98, 11.94), $P < 0.001$].

Reasons for seeking information and visit-induced worry

Patients who experienced an increase in worry after their medical visit were more likely than the reference group of individuals who had no change in worry to report going online because they were embarrassed to ask their doctor for needed information [adjusted OR = 6.21 (1.43, 27.01), $P = 0.015$], felt their doctor provided incomplete [adjusted OR = 5.12 (2.48, 10.84), $P < 0.001$] or inaccurate information [adjusted OR = 2.73 (1.05, 7.11), $P = 0.04$] or doubted the quality of the care they had received [adjusted OR = 3.10 (1.45, 6.60), $P = 0.003$]. Patients who experienced an increase in worry following the visit were less likely to identify curiosity as the reason for their post-visit information seeking [adjusted OR = 0.43 (0.21, 0.87), $P = 0.02$].

Patients who left their appointments feeling less worried (i.e. reassured in some way) were less likely than the reference group

of individuals who reported no change in worry to say that they went online for information because the doctor provided incomplete information [adjusted OR = 0.22 (0.11, 0.45), $P < 0.001$], inaccurate information [adjusted OR = 0.22 (0.08, 0.62), $P = 0.004$] or low quality care [adjusted OR = 0.14 (0.06, 0.34), $P < 0.001$]. They were more likely to say that their post-visit online searches were simply motivated by curiosity [adjusted OR = 2.44, (1.30, 4.58), $P = 0.006$].

Discussion

Researchers have given little attention to how patients use the Internet to find information after their medical appointments. Our findings support six conclusions. First, online support group members often turn to the Internet following these visits to learn about their health situation; four of five respondents in this sample did so. Information seeking was high for patients of both primary care and specialist physicians.

Second, respondents exhibited selectivity in the information sources used. Their searches focused on support forum posts from others who were presumably going through similar circumstances, and health websites, including medical association websites. They were also more likely to report searching for medical articles than relying on general news websites. On the other hand, respondents were disinclined to use interpersonal means for acquiring information, such as by sending e-mails or chat requests to other forum members, posting questions on Q & A sites or consulting cyber doctors. These interpersonal sources tended to be used by patients experiencing increased worry following the visit. We speculate that dialogue with others was used to obtain social support and answers to specific questions.

Third, the study provides insights into patients' reasons for seeking information following medical encounters. Two thirds of respondents cited curiosity. Dissatisfaction with a physician has often been assumed to be a primary driver of post-visit information seeking (5). In this study, nearly two fifths of respondents attributed their information seeking to unhappiness with the physician. The relationship between physician dissatisfaction and post-visit online information seeking could be mediated by distrust; alternatively, both dissatisfaction and information seeking could be influenced by a third factor such as personality.

It has been argued that physicians should accept that their patients will go online before and after their appointments and offer guidance on where to find authoritative information (7,19). Our findings suggest that physicians are not yet following this advice. One reason may be that patients are not asking their physicians for explicit direction on where to find health information, possibly out of concern for how the physician would react (20). Nor did we find evidence that post-visit online

information seeking could be attributed to encouragement from family or friends (7).

Fourth, eHealth literacy served as an enabler of post-visit online information seeking, a finding that is consistent with previous research on eHealth literacy and pre-visit information seeking (3). Furthermore, respondents with higher levels of eHealth literacy were more likely to turn to higher quality, specialized sources of health information such as medical association websites, authoritative health websites and online medical journal articles. Seemingly, eHealth literacy affects both the amount and nature of post-visit health information seeking.

Fifth, patients who gave lower ratings of patient centredness to their doctors were more likely to engage in post-visit online information seeking. We believe this is the first study that links perceptions of a specific physician's perceived level of patient centredness in a single visit to the patient's information seeking following that visit. Patients who saw less patient centredness in their doctor were more likely to attribute their post-visit online information seeking to having received incomplete or inaccurate information from the doctor. These patients possibly left their visits feeling poorly informed because their doctors did not elicit their concerns or did not involve them in decisions about the care they received. Furthermore, low PCC prompted patient online information seeking regardless of whether the doctor was a primary care physician or specialist. One might argue that the complex nature of issues addressed in specialty care and the probable belief that the specialist is 'the final authority' might attenuate the effect of low PCC on patients' subsequent information seeking. We found no support for this hypothesis. Patients of primary care and specialist physicians did not differ in their reliance on the Internet post-visit. Specialists' patients, however, were more likely than the patients of primary care physicians to attribute their online information searches to having received incomplete information or questionable care in the focal visit.

Sixth, this study found that post-visit online information seeking was high among those patients who experienced increased worry after their medical visit, replicating a previously reported research finding (7). We could not support the proposition from that study that post-visit online information seeking is also prompted by less worry—that is, by feelings of reassurance. However, patients reporting less worry after their visits were more likely to attribute their online information seeking thereafter to curiosity; the 'less worried' went online because they wanted to, not because they felt they needed to.

This study has limitations. First, ours was a convenience sample of the members of one online support community. It is possible that these findings might not generalize to other online communities or offline support groups. Furthermore, the respondents who participated in this survey were more likely to be female, in relatively poor health, and comfortable with technology than the general patient population. Second, our measures of respondents'

information seeking were based on self-reports, the quality of which is dependent on the accuracy of their recall. Likewise, our measure of the focal physicians' PCC reflected the patient's subjective impressions, which may not correspond with the physician's actual behaviour. Third, our cross-sectional survey design limits our ability to make inferences about causality.

Previous studies have shown that a visit to the doctor is often preceded by online information seeking as patients prepare for their medical appointments. The present study suggests that many patients also turn to the Internet following their visits and do so for a variety of reasons. Post-visit online information seeking appears to be shaped by patient factors, such as eHealth literacy; relational factors, such as the patient's perceptions of the doctor's level of patient centredness and visit outcomes, such as heightened patient anxiety.

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References

1. Andreassen HK, Bujnowska-Fedak MM, Chronaki CE *et al*. European citizens' use of E-health services: a study of seven countries. *BMC Public Health* 2007; **7**: 53.
2. Attfield SJ, Adams A, Blandford A. Patient information needs: pre- and post-consultation. *Health Informatics J* 2006; **12**: 165–77.
3. Hu X, Bell RA, Kravitz RL, Orrange S. The prepared patient: information seeking of online support group members before their medical appointments. *J Health Commun* 2012; **17**: 960–78.
4. McMullan M. Patients using the Internet to obtain health information: how this affects the patient-health professional relationship. *Patient Educ Couns* 2006; **63**: 24–8.
5. Tustin N. The role of patient satisfaction in online health information seeking. *J Health Commun* 2010; **15**: 3–17.
6. Gill PS, Whisnant B. A qualitative assessment of an online support community for ovarian cancer patients. *Patient Relat Outcome Meas* 2012; **3**: 51–8.
7. Bell RA, Hu X, Orrange SE, Kravitz RL. Lingering questions and doubts: online information-seeking of support forum members following their medical visits. *Patient Educ Couns* 2011; **85**: 525–8.
8. Fox S, Rainie L. *Vital Decisions: A PEW Internet Health Report*. Washington, DC, 2002.
9. Lee SY, Hawkins R. Why do patients seek an alternative channel? The effects of unmet needs on patients' health-related Internet use. *J Health Commun* 2010; **15**: 152–66.
10. Norman CD, Skinner HA. eHealth Literacy: Essential Skills for Consumer Health in a Networked World. *J Med Internet Res* 2006; **8**: e9.
11. Norman CD, Skinner HA. eHEALS: The eHealth Literacy Scale. *J Med Internet Res* 2006; **8**: e27.
12. Epstein JB, Street RLJ. *Patient-Centered Communication in Cancer Care: Promoting Healing and Reducing Suffering*. NIH Publication No. 07-6225. Bethesda, MD: National Cancer Institute, 2007.
13. Hou J, Shim M. The role of provider-patient communication and trust in online sources in Internet use for health-related activities. *J Health Commun* 2010; **15** (suppl 3): 186–99.
14. Krupat E, Bell RA, Kravitz RL, Thom D, Azari R. When physicians and patients think alike: patient-centered beliefs and their impact on satisfaction and trust. *J Fam Pract* 2001; **50**: 1057–62.
15. Ruiz-Moral R, Pérez Rodríguez E, PÉruLa de Torres LA, de la Torre J. Physician-patient communication: a study on the observed behaviours of specialty physicians and the ways their patients perceive them. *Patient Educ Couns* 2006; **64**: 242–8.
16. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. Hillsdale, NJ: Lawrence Erlbaum, 1988.
17. Bell RA, Taylor LD, Kravitz RL. Do antidepressant advertisements educate consumers and promote communication between patients with depression and their physicians? *Patient Educ Couns* 2010; **81**: 245–50.
18. Campbell C, Lockyer J, Laidlaw T, Macleod H. Assessment of a matched-pair instrument to examine doctor-patient communication skills in practising doctors. *Med Educ* 2007; **41**: 123–9.
19. Wald HS, Dube CE, Anthony DC. Untangling the Web—the impact of Internet use on health care and the physician-patient relationship. *Patient Educ Couns* 2007; **68**: 218–24.
20. Chung JE. Patient-provider discussion of online health information: results from the 2007 Health Information National Trends Survey (HINTS). *J Health Commun* 2013; **18**: 627–48.