Published in final edited form as:

J Cancer Educ. 2015 March ; 30(1): 12–19. doi:10.1007/s13187-014-0701-3.

Health information seeking on behalf of others: Characteristics of ‘surrogate seekers’

Sarah L. Cutrona, MD, MPH,

Assistant Professor of Medicine, University of Massachusetts Medical School, 377 Plantation St, Biotech 4, Suite 315, Worcester, MA 01605, Tel: 508-856-3086, Fax: 508-856-5024

Kathleen M. Mazor, EdD,

Professor of Medicine, University of Massachusetts Medical School, Meyers Primary Care Institute (Assistant Director), 630 Plantation Street, Worcester, MA, USA 01605, Tel: 508-523-6628

Sana N. Vieux, MPH,

Program Associate, Research Integration and Evaluation program, Patient-Centered Outcomes Research Institute (PCORI)

Tana M. Luger, PhD, MPH,

Postdoctoral Research Fellow, Center for Healthcare Organization and Implementation Research, Edith Nourse Rogers Memorial Veterans Hospital, 200 Springs Road, Bedford, MA 01730, Tel: 781-687-2642

Julie E. Volkman, PhD, and

Research Health Scientist, ENR Memorial Hospital, U.S. Department of Veterans Affairs, Bedford, MA, USA

Lila J. Finney Rutten, PhD, MPH

Associate Scientific Director for the Population Health Science Program, Mayo Clinic, Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery, 200 First Street SW, Rochester, MN, USA 55905, Tel: 507-293-2341

Sarah L. Cutrona: Sarah.cutrona@umassmemorial.org; Kathleen M. Mazor: Kathleen.Mazor@umassmed.edu; Sana N. Vieux: svieux@pcori.org; Tana M. Luger: Tana.Luger2@va.gov; Julie E. Volkman: Julie.Volkman@va.gov; Lila J. Finney Rutten: Rutten.lila@mayo.edu

Abstract

Understanding the behaviors of surrogate-seekers (those who seek health information for others) may guide efforts to improve health information transmission. We used 2011–2012 data from the Health Information National Trends Survey to describe behaviors of online surrogate-seekers. Respondents were asked about use of the Internet for surrogate-seeking over the prior 12 months. Data were weighted to calculate population estimates. Two-thirds (66.6%) reported surrogate-seeking. Compared to those who sought health information online for only themselves, surrogate-seekers were more likely to live in households with others (weighted percent 89.4% vs. 82.5% of self-seekers; $p < 0.05$); no significant differences in sex, race, income or education were observed.

Conflict of Interest: The authors declare that they have no conflict of interest.

Surrogate-seekers were more likely to report activities requiring user-generated content: email communication with healthcare providers; visits to social networking sites to read and share about medical topics and participation in online health support groups. On multivariate analysis, those who had looked online for healthcare providers were more likely to be surrogate-seekers (OR 1.67, 95% CI 1.08–2.59). In addition to seeking health information, surrogate-seekers create and pass along communications that may influence medical care decisions. Research is needed to identify ways to facilitate transmission of accurate health information.

Keywords

Internet; Health information seeking; Social network; Peer group; Caregiver

Introduction

During the last two decades, the availability of health and medical information through an increasing variety of sources, most notably the Internet, has created unprecedented opportunities for patients to engage in health information seeking [1]. There are important benefits to health information seeking, including improved quality of life, greater satisfaction with medical decision making, enhanced patient engagement, and improved communication with caregivers [2, 3].

While the benefits to seeking health information online are increasingly recognized, they remain elusive for some populations. Lack of Internet access and difficulty with the technology due to physical, cognitive or psychological limitations disproportionately affects the elderly and those with lower income and educational level [4–6]. Additionally, at times of emotional distress, previously savvy patients may find themselves unable to perform Internet searches for crucial health information.

For those unable to search the Internet on their own behalf, a friend or family member with Internet access and with sufficient technological skill can play a critical role, identifying, transmitting and translating health information [7, 8]. This behavior could have important public health implications, enhancing dissemination of information to populations who might otherwise be unable to access and act upon this information. According to a recent Pew Internet poll [9], half of Internet users who go online for health information performed their most recent search on behalf of someone else (39% sought information related to someone else's health or medical situation, an additional 15% looked both on their own and on someone else's behalf). This behavior has been termed "surrogate-seeking" [10] or lay information intermediary behavior [7, 11] and has been defined as "those who seek information in a non-professional or informal capacity on behalf (or because) of others without necessarily being asked to do so" [11].

Characteristics such as educational level or past Internet experience may impact how likely surrogate-seekers are to find and transmit trustworthy health information. To date, few studies have investigated characteristics of people who seek online health information on behalf of others and little is known about whether surrogate-seekers are more likely to engage in specific online behaviors such as use of online support groups or social networks

to locate needed information or pass information on to others. We use national data to identify those characteristics which differentiate surrogate-seekers from those who seek information only for themselves, examining sociodemographics, past online experiences, confidence in search outcomes and use of social networks for health information seeking purposes.

Methods

Data Collection and Response Rates

Data for our analyses were from the Health Information National Trends Survey (HINTS), a national survey of the U.S. adult population that assesses knowledge, attitudes, and behavior related to health communication and related outcomes [12]. Data for HINTS 2011–2012 were collected from October 2011 to February 2012 (n=3959) through mailed questionnaires. The sample design for HINTS 2011–2012 [13] was a two-stage, stratified sample wherein addresses were selected from a comprehensive national residential file from the United States Postal Service, and individual respondents were selected per each sampled household. The final response rate was 36.7% [14]. Details on sampling strategies and survey design have been previously published [14].

Measures

Sociodemographic Variables—The following sociodemographic variables were included in our analyses: sex (male, female), age (18–34, 35–49, 50–64, 65–74, and 75+ years), race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic/Latino, and non-Hispanic “other”), annual household income (less than \$35K, \$35K to less than \$75K, and \$75K or more), education (less than high school, high school graduate, some college, and college graduate), born in the U.S. (yes, no), confidence in speaking English (completely or very comfortable, somewhat, a little, or not at all), marital status (married or living as married, not married), household status (live alone, live with others), and health insurance status (insured, not insured).

Online Surrogate-seeking Behavior—Online surrogate-seeking behavior in the past 12 months was our main outcome of interest. Each respondent was asked “Do you ever go online to access the Internet or World Wide Web, or to send and receive email?” Those who responded affirmatively were asked a series of questions about their online information seeking behavior during the past 12 months, including whether they had used the Internet to look for health or medical information for themselves or for someone else. Those who had not looked online for health information were excluded from our analyses. For our analyses, responses to these questions were combined to create the following information seeking categories: (a) sought information for self only (‘self-seekers’) and (b) sought information on behalf of someone else (‘surrogate-seekers’). Those in the surrogate-seeking category included people who had sought information only on behalf of another person as well as those who sought both for themselves and for another person.

Use of the Internet for the following health-related behaviors and specific information seeking efforts was also assessed: “Looked for information about quitting smoking”,

“Bought medicine or vitamins”, “Participated in an online support group for people with a similar health or medical issue”, “Used email or the Internet to communicate with a doctor or doctor’s office”, “Used a website to help you with your diet, weight, or physical activity”, “Looked for a healthcare provider”, “Downloaded health-related information to a mobile device”, “Visited a social networking site to read and share about medical topics”, “Wrote in an on-line diary or blog about any type of health topic”, and “Kept track of personal health information”. Responses for each were coded as yes/no.

Health Information Seeking and Sources—To assess health information seeking, respondents were asked “The most recent time you looked for information about health or medical topics, where did you go first?” Responses were coded as printed materials, family or friends, Internet, healthcare provider, and other sources.

Information Seeking Experiences—Respondents were asked whether they agreed or disagreed with the following statements: “It took a lot of effort to get the information you needed”, “You felt frustrated during your search for the information”, “You were concerned about the quality of the information”, “The information you found was hard to understand”. All respondents were also asked to rate their degree of confidence in their ability to obtain necessary health or medical information on a scale ranging from “completely confident” to “not confident at all”. For this analysis, responses were dichotomized into two categories: completely or very confident and somewhat, a little, or not at all confident.

Attention to Information Sources and Source Preference—Respondents were asked to rate on a 4-point scale, ranging from “None” to “A lot,” the extent to which they pay attention to health or medical information from the following 7 sources: online newspapers, print newspapers, health magazines or newsletters, the Internet, radio, television news programs, and national or cable television news programs. Responses were dichotomized into a lot vs. all other responses, and then summed to create a composite variable ranging from 0–7, where higher scores indicate greater attention to health or medical information from multiple sources. Each respondent was also asked about their information source preferences with the following question: “Imagine that you had a strong need to get information about health or medical topics. Where would you go first?” Responses were coded as printed materials, family or friends, Internet, healthcare provider, and other.

Data Analyses

Analysis of the complex survey data was conducted using SUDAAN version 10.0.1 [15]. All data were weighted to provide representative estimates of the adult US population. For our analysis of online surrogate-seeking behavior in the past 12 months, we conducted cross-tabulation and Chi square statistics to evaluate the relationship between online information seeking for others and for self only with sociodemographic characteristics and online information seeking behaviors and experiences. Two multivariable logistic regression analyses were conducted to examine independent associations of sociodemographic factors with online surrogate- and self-seeking. In Model A, we included age, race/ethnicity, sex, education, income, and household status. We did not include marital status in this model due

to its correlation with household status. A second multivariate model (Model B) was run with the same variables as Model A and with those health information seeking behaviors and experiences variables found to be significant on bivariate analysis.

Results

Online Surrogate-seeking Behavior

Among the 2171 respondents who reported using the Internet to seek health or medical information in the previous 12 months (Table 1), 66.6% (n=1461) had acted as a surrogate seeker, searching for health or medical information on behalf of someone else. Adults aged 35–64 were more likely to report surrogate-seeking behavior and less likely to report seeking solely for themselves (59.1% of surrogate-seekers were aged 35–64 compared to 49.7% of self-seekers; $p=.002$). Sex, race, education and income were not significantly associated with surrogate-seeking behavior on either bivariate or multivariate analysis; however, those living with others were significantly more likely to report seeking information online for someone else (Table 1).

Online surrogate-seekers and self-seekers showed no significant differences in how they perceived their experience of information seeking (Table 2). There was no difference in the percent of respondents who reported expending a lot of effort to get the necessary information (34.8% of surrogate-seekers vs. 31.9% of self-seekers; $p=0.43$), feeling frustrated by their search (32.4% of surrogate-seekers vs 28.3%; $p = 0.30$), being concerned about the quality of information obtained (56.4% vs. 51.6%; $p=0.32$), or having trouble understanding the information that they found (25.1% vs 26.6%; $p=0.65$). Surrogate-seekers and self-seekers were also equally confident that they could get advice or information about health or medical topics, if needed (64.3% of surrogate-seekers vs 65.9%; $p=0.70$).

Surrogate-seekers were significantly more likely to engage in online health activities that required user-generated content, i.e. activities that included creating and sending an online message (Table 3). Surrogate-seekers were more likely to report communicating with a doctor or doctor's office via email or the Internet (24.3% of surrogate-seekers vs. 14.3% of self-seekers; $p<0.01$), participating in an online support group (6.8% vs. 2.9%; $p=0.01$) and visiting a social networking site to read and share about medical topics (19.7% vs. 13.7%; $p=0.03$). They were also more likely to look online for a healthcare provider (48.3% of surrogate-seekers vs 32.2%; $p<0.01$), track personal health information online (24.8% vs 14.8%; $p<0.01$) and download health-related information to a mobile electronic device (15.5% vs 9.9%; $p=0.04$).

A multivariable logistic regression model controlling for sociodemographic characteristics found those who lived in households with others had a 2.06 (95%CI: 1.41–3.01) times greater odds of being a surrogate seeker. There was no significant association with race, sex, educational level or income. The association between surrogate-seeking and living with others remained significant (OR: 1.95; 95% CI: 1.30–2.95) when variables representing health information seeking behaviors were added to the model. Online searchers for a healthcare provider had a 1.67 (95% CI 1.08–2.59) times greater odds of being surrogate-seekers.

Discussion

Two-thirds of Internet health information seekers reported that in the preceding year they sought information on behalf of another person. Those who sought information for others were more likely to act as content creators for online health information, exchanging emails with healthcare providers and discussing medical topics in Internet-based social networks and support groups. They were also more likely to pay attention to health information from multiple sources.

Our study builds on previous research [9, 10, 16], highlighting the widespread nature of online surrogate health information seeking. Additionally, our findings add to the literature by providing a deeper understanding of the role played by surrogate-seekers in online health information exchange. Surrogate seekers gather and filter information from a variety of sources, create online content and act as providers and recipients of online social support.

Our findings from this nationwide survey provide an update to national figures reported over the past ten years. In a study of Internet health information users conducted in 2003, 75% of respondents nationwide reported using the Internet in the prior 12 months to learn about a health problem belonging to a loved one [16]. Recent studies focus on surrogate-seeking activity among Internet health information users during the respondent's most recent online search, potentially underestimating the prevalence of online surrogate-seeking behavior [10]. Data from the Pew Internet Study in 2008 showed that 56% of online health information seekers reported that during their most recent search, they were seeking health information on behalf of others [10]. These numbers remained largely stable (54%) on a 2012 Pew Internet poll [9]. Prevalence rates derived from other populations show more variation [7, 17], due in part to sample selection.

We found that respondents living in households with other people were more likely to report online surrogate-seeking behavior, but we did not find significant associations with sex, race, income level or educational level. Although digital access has been shown to be more challenging for some racial minority groups and for people with lower income and educational levels [18–22], our findings are consistent with previous studies showing that, once online, members of these groups were just as likely to seek health information on behalf of others [10]. Surrogate-seekers in our study were more likely to use online resources to find a health care provider, a finding that builds on previous work documenting the greater likelihood that surrogate-seekers seek information about hospitals and medical facilities [10].

Further research is needed to better understand the beneficiaries of surrogate health information searches and the ways in which they benefit. There are clear public health implications to understanding how information is transmitted to individuals for whom it would otherwise be out of reach. The quality of the initial search and the fidelity with which information is transmitted may affect whether information that is passed along ultimately impacts health and medical care decisions.

One-third of surrogate-seekers in our study reported frustration and felt it took a lot of effort to find needed information; 56% were concerned about the quality of the online information.

The quality of initial surrogate searches may be enhanced by ensuring access to appropriate search terms and sites, an action that can be taken by those working with patients and with members of their social network. Printed or electronic information about a patient's medical condition that can be accessed from home and passed on to others can provide an accurate starting point for a search. Healthcare providers can recommend reputable websites and help identify sites whose content specifically addresses the needs of those supporting or caring for patients (for instance sites offering content tailored to the needs of those in a supportive role). As electronic health record (EHR) use continues to evolve, additional solutions present themselves. Printed clinical summaries distributed at the end of office visits (or via electronic patient portal communications) could use automated data from the medical record to generate referrals to relevant and trusted Internet information; this information could then be reviewed by patients or surrogates. Surrogate access to EHR-based patient portals (through a separate password) can also facilitate access to accurate information for Internet searches.

In many cases, a surrogate-seeker carrying out a high-quality search for health information must then accurately transmit this information before it can have a positive impact on a healthcare decision. We have defined our study population as those who have used the Internet to search for health information in the past year. Since everyone included in this population has accessed the Internet, our study draws on a slightly more educated and higher income population (since lack of Internet access and difficulty with technology disproportionately affect those of lower income and lower education) [4–6]. Interestingly, one-quarter of our respondents (25.1% of surrogate seekers and 26.6% of those seeking for themselves only) still reported that the information they found was hard to understand, indicating that errors may occur when information is passed along. Fidelity of information transfer can be supported via several mechanisms. Website content should use easily comprehensible language and highlight key information (for example, through bulleted or boxed key concepts). Formats that allow all or part of the key information to be electronically forwarded and easily printed are also important.

Limitations of our study include the fact that this study uses self-report data and uses a cross-sectional design, introducing the possibility for recall bias. If respondents forgot that they sought information on behalf of others over the preceding year, we may have obtained an overly conservative estimate of the prevalence of surrogate-seeking behavior. Though the HINTS study has a low response rate, this rate is comparable to other national surveys.

Surrogate health information seeking is a widespread activity across all socioeconomic levels. Surrogate-seekers face additional challenges as interpreters and translators of online information. Whether they are printing out a webpage for a friend, emailing a doctor on behalf of a family member or passing along medical experiences to an online forum, surrogate-seekers' ability to accurately understand online information may impact the medical care received by members of their social network. Further research is needed to identify methods for supporting surrogate-seekers of health information as they in turn support those on whose behalf they search.

References

1. Viswanath K. Science and society: The communications revolution and cancer control. *Nature Reviews: Cancer*. 2005; 5(10):828–835.
2. Arora NK, Johnson P, Gustafson DH, McTavish F, Hawkins RP, Pingree S. Barriers to information access, perceived health competence, and psychosocial health outcomes: Test of a mediation model in a breast cancer sample. *Patient Education & Counseling*. 2002; 47(1):37–46. [PubMed: 12023099]
3. Rutten LJ, Arora NK, Bakos AD, Aziz N, Rowland J. Information needs and sources of information among cancer patients: a systematic review of research (1980–2003). *Patient Education & Counseling*. 2005; 57(3):250–261. [PubMed: 15893206]
4. Smith, A. Pew Research Center. [Accessed June 3, 2014] Older Adults and Technology Use. Apr. 2014 Available at: <http://www.pewinternet.org/2014/04/03/older-adults-and-technology-use/>
5. Remillard ML, Mazor KM, Cutrona SL, Gurwitz JH, Tjia J. Systematic Review of the Use of Online Questionnaires among the Geriatric Population. *Journal of the American Geriatric Society. J Am Geriatr Soc*. 2014 Apr; 62(4):696–705.
6. Zickuhr, K.; Madden, M. [Accessed June 3, 2014] Older adults and Internet use [on-line]. Jun 6. 2012 Available at: http://www.pewinternet.org/files/old-media/Files/Reports/2012/PIP_Older_adults_and_internet_use.pdf
7. Abrahamson JA, Fisher KE, Turner AG, Durrance JC, Turner TC. Lay information mediary behavior uncovered: exploring how nonprofessionals seek health information for themselves and others online. *Journal of the Medical Library Association*. 2008; 96(4):310–323. [PubMed: 18974809]
8. Ferguson T. Online patient-helpers and physicians working together: A new partnership for high quality health care. *BMJ*. 2000; 321(7269):1129–1132. [PubMed: 11061737]
9. Fox, S.; Duggan, M. Health online. Pew Internet & American Life Project; 2013. http://pewinternet.org/~media/Files/Reports/PIP_HealthOnline.pdf [Accessed 04 December 2013]
10. Sadasivam RS, Kinney RL, Lemon SC, Shimada SL, Allison JJ, Houston TK. Internet health information seeking is a team sport: Analysis of the Pew Internet Survey. *International Journal of Medical Informatics*. 2012; 82(3):193–200.10.1016/j.ijmedinf.2012.09.008 [PubMed: 23149121]
11. Abrahamson JA, Fisher KE. ‘What’s past is prologue’: Towards a general model of lay information mediary behaviour. *Information Research*. 2007; 12(4) paper colis15. <http://InformationR.net/ir/12-4/colis/colis15.html>.
12. Nelson DE, Kreps GL, Hesse BW, Croyle RT, Willis G, Arora NK. The Health Information National Trends Survey (HINTS): Development, design, and dissemination. *Journal of Health Communication*. 2004; 9(5):443–460. discussion 481–444. [PubMed: 15513791]
13. Health Information National Trends Survey (HINTS). [Accessed 14 November 2012] 2012. <http://hints.cancer.gov/Default.aspx>
14. Finney Rutten L, Davis T, Beckjord EB, Blake K, Moser RP, Hesse BW. Picking up the pace: Changes in method and frame for the Health Information National Trends Survey (2011 – 2014). *Journal of Health Communication*. 2012; 17(8):979–989. [PubMed: 23020763]
15. RTI. SUDAAN (Version 9.0.1). Raleigh, NC: Research Triangle Institute; 2008.
16. Ybarra ML, Suman M. Help seeking behavior and the Internet: A national survey. *International Journal of Medical Informatics*. 2006; 75(1):29–41. Epub 2005 Aug 29. [PubMed: 16129659]
17. Kernisan LP, Sudore RL, Knight SJ. Information-Seeking at a Caregiving Website: A Qualitative Analysis. *Journal of Medical Internet Research*. 2010; 12(3):e31. [PubMed: 20675292]
18. Cotten SR, Gupta SS. Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine*. 2004; 59(9):1795–1806.10.1016/j.socscimed.2004.02.020 [PubMed: 15312915]
19. Jansen, J.; Fellow, S. Use of the internet in higher- income households. Pew Internet & American Life Project; 2010. <http://pewinternet.org/~media/Files/Reports/2010/PIP-Better-off-households-final.pdf> [Accessed 04 December 2013]
20. Van Dijk JAGM. Digital divide research, achievements and shortcomings. *Poetics*. 2006; 34(4–5): 221–235.10.1016/j.poetic.2006.05.004

21. Birru M, Steinman RA. Online health information and low-literacy African Americans. *Journal of Medical Internet Research*. 2004; 6(3):e26.10.2196/jmir.6.3.e26 [PubMed: 15471752]
22. Spink A, Cole C. Information and poverty: Information-seeking channels used by African American low-income households. *Library Information Science Research*. 2001; 23(1):45–65.10.1016/S0740-8188(00)00067-0

Table 1

Characteristics of online surrogate and self-seekers (i.e. those who seek information online for others and those who seek for themselves only).

	Total Sample	Those who have used the Internet to seek health or medical information				p-value	
		For Others (n=1461; 66.6%)		For Self Only (n=710; 33.4%)			
		N	Weighted %	N	%		
Sex							
Female	1338	54.24	940	56.9	398	48.9	.065
Male	798	45.76	496	43.1	302	51.1	
Age							
18–34	407	34.31	274	32.2	133	38.5	.002
35–49	622	30.96	437	32.5	185	27.9	
50–64	763	24.98	525	26.6	238	21.8	
65–74	253	6.92	155	6.4	98	7.9	
75+	98	2.83	51	2.2	47	4.0	
Race/Ethnicity							
NonHispanic White	1457	71.03	968	71.0	489	71.1	.897
NonHispanic Black	277	10.01	182	10.0	95	10.0	
Hispanic/Latino	200	11.03	141	10.4	59	12.3	
NonHispanic Other	151	7.93	112	8.5	39	6.7	
Annual Income							
Less than \$35,000	577	30.29	370	29.9	207	31.1	.496
\$35,000 to <\$75,000	669	29.37	440	28.6	229	31.0	
\$75,000 or more	762	33.01	535	33.5	227	32.0	
No Answer	163	7.33	116	8.0	47	6.0	
Education							
Less than HS	69	5.57	41	4.5	28	7.8	.429
HS Graduate	273	16.70	178	16.8	95	16.5	
Some College	671	34.28	433	33.1	238	36.6	

	Total Sample		Those who have used the Internet to seek health or medical information				p-value
			For Others (n=1461; 66.6%)		For Self Only (n=710; 33.4%)		
	N	Weighted %	N	%	N	%	
College Graduate	1130	43.44	793	45.6	337	39.1	
Household							.002
Live alone	437	12.88	245	10.6	192	17.5	
Live with others	1685	87.12	1182	89.4	503	82.5	
Born In USA							.139
Yes	1907	87.58	1274	86.3	633	90.2	
No	248	12.42	177	13.7	71	9.8	
Confident Understanding English							.222
Completely or very comfortable	2064	96.88	1390	96.3	674	98.0	
Somewhat, A little, or Not at all	56	3.12	40	3.7	16	2.0	
Marital Status							.004
Married, or Living as married	1303	58.06	914	62.1	389	50.0	
Not Married	828	41.94	520	37.9	308	50.1	
Health Insurance Status							.928
Insured	1964	82.8	1322	82.7	642	83.0	
Not Insured	196	17.2	129	17.3	67	17.0	

* N's provided are total number interviewed. Missing values cause the n's to vary slightly on individual questions.

Table 2

Health-information seeking experience of online surrogate and self-seekers (i.e. those who seek information online for others and those who seek for themselves only).

	Those who have used the Internet to seek health or medical information				p-value
	For Others (n=1461; 66.6%)		For Self Only (n=710; 33.4%)		
	N	%	N	%	
It took a lot of effort to get the information you needed					.426
Agree	446	34.8	230	31.9	
Disagree	948	65.2	423	68.1	
You felt frustrated during your search for the information					.298
Agree	424	32.4	190	28.3	
Disagree	966	67.6	459	71.7	
You were concerned about the quality of the information					.317
Agree	681	56.4	319	51.6	
Disagree	708	43.6	329	48.4	
The information you found was hard to understand					.651
Agree	309	25.1	176	26.6	
Disagree	1080	74.9	473	73.4	
Overall, how confident are you that you could get advice or information about health or medical topics if you needed it?					.697
Completely or very confident	959	64.3	456	65.9	
Somewhat, A little, or Not at all confident	498	35.8	249	34.1	
Imagine that you had a strong need to get information about health or medical topics. Where would you go first?					.289
Print Materials	28	1.4	13	1.9	
Family or Friends	33	2.0	15	2.2	
Internet	791	56.3	309	48.7	
Physician	537	38.8	328	45.6	
Other	30	1.6	13	1.7	

Table 3

Health-information seeking behaviors of online surrogate (i.e. those who seek information online for others) and those who seek for themselves only

	Those who have used the Internet to seek health or medical information				p-value
	For Others (n=1461; 66.6%)		For Self Only (n=710; 33.4%)		
	N	%	N	%	
The most recent time you looked for information about health or medical topics, where did you go first?					.107
Print Materials	88	4.8	42	5.4	
Family or Friends	35	2.4	12	2.6	
Internet	993	85.3	404	79.6	
Physician	89	6.5	71	10.3	
Other	22	1.1	16	2.0	
In the last 12 months have you used the Internet for any of the following reasons:					
Looked for information about quitting smoking					.130
Yes	118	9.4	40	6.2	
No	1337	90.6	668	93.8	
Bought medicine or vitamins online					.041
Yes	333	21.4	129	16.3	
No	1127	78.6	580	83.7	
Participated in an on-line support group for people with a similar health or medical issue					.011
Yes	90	6.8	29	2.9	
No	1366	93.2	680	97.1	
Used e-mail or the Internet to communicate with a doctor or doctor's office					<.001
Yes	389	24.3	124	14.3	
No	1070	75.7	584	85.8	
Used a website to help you with your diet, weight, or physical activity					.367
Yes	678	49.3	276	45.7	
No	779	50.7	433	54.3	
Looked for a health care provider					<.001
Yes	662	48.3	216	32.2	

	Those who have used the Internet to seek health or medical information				p-value
	For Others (n=1461; 66.6%)		For Self Only (n=710; 33.4%)		
	N	%	N	%	
No	782	51.7	491	67.9	
Downloaded health-related information to a mobile device, such as an MP3 player, cell phone, tablet computer or electronic book device					.038
Yes	215	15.5	62	9.9	
No	1244	84.5	648	90.1	
Visited a "social networking" site, such as "Facebook" or "LinkedIn" to read and share about medical topics					.025
Yes	253	19.7	89	13.7	
No	1205	80.3	621	86.3	
Wrote in an on-line diary or "blog" (i.e. Web log) about any type of health topic					<.001
Yes	72	5.2	13	1.4	
No	1386	94.8	694	98.6	
Kept track of personal health information such as care received, test results, or upcoming medical appointments					<.001
Yes	394	24.8	114	14.8	
No	1067	75.3	595	85.2	
	N	Mean (SE)			
How much attention do you pay to information about health or medical topics [from a variety of sources]?*	1458	0.76 (0.05)	708	0.53 (0.06)	.006

* **Attention to Information:** Respondents were asked to rate on a 4-point scale ranging from "None" to "A lot" the extent to which they pay attention to health or medical information from the following sources: online newspapers, print newspapers, health magazines or newsletters, the Internet, radio, television news programs, national or cable television news programs. Responses were dichotomized into A lot vs. all other responses; responses were summed to create a composite variable ranging from 0–7, where a higher score indicates that respondents paid "a lot" of attention to health or medical information from multiple sources.