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Use of and Satisfaction With Sources of Health Information Among Older Internet Users and Nonusers

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Purpose: Older adults generally have an increased need for health care information. Whereas some use the Internet to look for this information, others use more traditional sources. This study gathered data from older adults to determine their health information needs, the perceived usefulness of sources of health information, and if there are differences in perceptions and use of health information between Internet users and nonusers. ***Design and Methods:*** We conducted 9 focus groups—4 groups of Internet users (n = 27) and 5 groups of non-Internet users (n = 26)—to determine reasons for seeking health information, satisfaction with information, and use of the Internet to fulfill information needs. Data from focus groups were supplemented with questionnaire data. ***Results:*** Those who do not use the Internet were found to be just as satisfied with the health information they find as those who search for information online. We also found that nonusers are more likely to make health care decisions based upon information found offline than Internet users who have access to more information. ***Implications:*** Nonusers may find it quicker to look for information through traditional media sources and stay offline, thus limiting their information options. Strategies for encouraging Internet use and programs to teach effective searching skills are needed. Physicians could also direct older patients toward credible health information Web sites.

Key Words: Internet, Health information seeking, Satisfaction with health information, Focus groups

The number of Internet users worldwide exceeded 1 billion in 2005 and is expected to reach 2 billion in 2011 (Computer Industry Almanac, 2006). In 2006, about 113 million American adults used the Internet to find health information (Pew Internet & American Life Project, 2006). More than any other source, the Internet provides instant access to tremendous amounts of health-related information that may affect "personal perceptions of health and illness, patients' compliance to treatment protocols and ultimately, overall health" (Bass, 2003, p. 26). Patients report that access to online health information makes them feel empowered because they have the knowledge to ask their doctors well-informed questions. They can also search after an office visit for information to supplement information provided by their doctors, and in fact, some people consider such information to be a dependable "second opinion" (Sciamanna, Clark, Diaz, & Newton, 2003).

Recent data indicate that older adults are less likely than younger adults to have Internet access (Pew Internet & American Life Project, 2005) and thus are missing the potential benefits afforded by this technology. This is a potential concern because older adults generally have more health issues than younger adults and are more likely to need health care information and services. Research shows that the number of health care visits increases with age among those 65 years and older: 34.4% of those aged 65–74 years made four to nine health care visits per year, whereas 39.3% of those 75 years and older made the same number of visits (U.S. Census Bureau, 2005). This use of the health care system, coupled with an increasing need for health information, is only expected to intensify; projections call for a 78%

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increase in the older population between 2010 and 2030 as compared with an 18% increase in the total population during this time (U.S. Census Bureau).

Although they may have a greater need for health information, older adults may also experience greater difficulty when attempting to use the Internet to find it (Morrell, Mayhorn, & Echt, 2004). A Kaiser Family Foundation study found that 69% of seniors had never been online, citing reasons such as never having learned how or "it's too complicated" (Rideout, Neuman, Kitchman, & Brodie, 2005). Although studies have shown that older adults are willing to learn to use the Internet when training opportunities are made available (Morrell et al., 2004), interface design issues exist that can impede older adults' ability to use this resource. Benbow (2004) notes that "fonts may be too small, contrast between screen objects and background may be insufficient, buttons may be hidden, tags may be missing, menus may be confusing, colors may be too strident or too muted, and pop-ups may appear, all making the task of finding information on the site difficult or impossible" (p. 87). Although it is critical that such issues be well understood if we are to design useful Web sites for older adults, it is also fundamental that we understand their health information needs and the resources from which they prefer to receive this information.

The goals of this study were to examine the health information needs of older adults and to determine the perceived usefulness of various information sources in satisfying these needs. We also gathered information on the differences between Internet users and nonusers regarding how access to health information influences health care behaviors. Additionally, we explored the barriers to access of online health information. We used focus groups as our primary data source because they are a powerful means of gathering information about user preferences and needs. As noted by Jobe, Keller, and Smith (1996), this technique may be especially important for collecting detailed information from older adults about topics of high relevance such as health care. Focus group data were supplemented with questionnaire data.

Design and Methods

Participants

Study participants included 53 adults ranging in age from 51 to 85 years (M = 68.94, SD = 8.47). Potential participants were recruited from the local community through newspaper advertisements, flyers in senior centers, and our database of participants from past studies who indicated interest in being contacted for future studies. They completed a telephone screening and were excluded if they were not fluent in English, had less than a sixth grade level of education, had never looked for health information from any source, had more than two errors on the Short Portable Mental Status Questionnaire (Pfeiffer, 1975), or remembered less than the acceptable amount of elements on the Wechsler Memory Scale III (Wechsler, 1997) for their age range. We included an educational exclusion criterion as it provided some assurance that the participants had the ability to read health-related text. Participants were also excluded if they exhibited symptomology for depression by scoring 17 or higher on the Center for Epidemiological Studies-Depression Index (Radloff, 1977). They were paid $25 for participation in the study.

Participants were recruited into two groups based on self-reported use of the Internet: a "non-Internet" group (those who reported little or no experience looking for health information online) and an "Internet" group (those who reported using the Internet often to seek health information). There were 26 participants (9 men and 17 women) in the non-Internet group (M = 70.65 years, SD = 7.92) and 27 participants (11 men and 16 women) in the Internet group (M = 67.30 years, SD = 8.77). The characteristics of the participants in each group are presented in Table 1.

Study Design

The study involved nine focus groups: four groups of Internet users and five groups of non-Internet users. Each group comprised 5–8 participants. The focus groups were conducted in a flexible semistructured format to allow participants to bring up topics that mattered to them, to build conversation from what other group members discussed, and to allow the moderator to probe for deeper insight into discussions (Jobe et al., 1996; Morgan, 1988; Rogers, Meyer, Walker, & Fisk, 1998; Stewart & Shamdasani, 1990). To ensure consistency, each group session was facilitated by the same moderator and notetaker who recorded responses on a flip chart. Each session was audiotaped and covered the same three topics: (a) reasons for seeking health information, (b) satisfaction with health information, and (c) use of the Internet to fulfill health information

Table 1. Sample Description

	Internet group (n = 27)	Non-Internet group (n = 26)	Both groups (N = 53)
Age in years, *M* (*SD*)	67.30 (8.77)	70.65 (7.92)	68.94 (8.47)
Gender, % (*n*)			
Male	41 (11)	35 (9)	38 (20)
Female	59 (16)	65 (17)	62 (33)
Education, % (*n*)			
≤High school	15 (4)	35 (9)	25 (13)
Vocational training, some college, or an associate's degree	37 (10)	35 (9)	36 (19)
Bachelor's, master's, or doctoral Degree	48 (13)	31 (8)	40 (21)
Ethnicity, % (*n*)			
Hispanic	44 (12)	42 (11)	43 (23)
Non-Hispanic White	30 (8)	50 (13)	40 (21)
Non-Hispanic Black	26 (7)	4 (1)	15 (8)
Other	—	4 (1)	2 (1)
Income, % (*n*)			
<20,000	37 (10)	58 (15)	47 (25)
20,000–49,999	44 (12)	31 (8)	38 (20)
>50,000	19 (5)	12 (3)	15 (8)
General health, % (*n*)			
Poor, fair	19 (5)	31 (8)	25 (13)
Good, very good	81 (22)	54 (14)	68 (36)
Excellent	—	15 (4)	8 (4)
Health compared with other people of same age, % (*n*)			
Poor, fair	15 (4)	23 (6)	19 (10)
Good, very good	74 (20)	38 (10)	57 (30)
Excellent	11 (3)	38 (10)	25 (13)
Satisfaction with health, % (*n*)			
Not at all, not very satisfied	22 (6)	19 (5)	21 (11)
Neither satisfied nor dissatisfied	7 (2)	12 (3)	9 (5)
Somewhat, extremely satisfied	70 (19)	69 (18)	70 (37)
Health problems limited routine activities, % (*n*)			
Never, seldom	48 (13)	65 (17)	57 (30)
Sometimes	44 (12)	23 (6)	34 (18)
Often, always	7 (2)	12 (3)	9 (5)

Note: Percentages were rounded.

needs. Within each group session, these topics were discussed in the same order using the same protocol. The study was approved by the university's institutional review board and all participants provided written informed consent.

Questionnaires

Prior to participation in the focus group, each participant completed a background questionnaire, a technology experience questionnaire, and a health information seeking questionnaire.

Background Questionnaire.—This questionnaire gathered demographic data such as gender, age, ethnicity, educational level, income, health information, and medication usage. It also gathered data on attitudes toward computers based on three attitudinal subscales (Czaja et al., 2006a; Jay & Willis, 1992): comfort (feelings of comfort with computers and their use), efficacy (feelings of competence with computers), and interest (the extent to which one is interested in learning about computers). Each subscale score was based on five questions using a 5-point Likert scale, which resulted in scores ranging between 5 and 25.

Technology Experience Questionnaire.—This questionnaire assessed use of common technologies such as computers, cellular phones, automated teller machines, fax machines, and microwave ovens. Those who reported having experience with

computers then responded to questions concerning their experience with input devices (e.g., keyboard, mouse), proficiency with basic computer operations (e.g., insert a disk, save a file), and proficiency with computer applications. Those who reported having Internet experience also responded to questions about frequency of Web use, training on Internet use, and activities performed on the Web (Czaja et al., 2006b).

Health Information Seeking Questionnaire.—This questionnaire collected data on the sources most frequently used to get health information, the type of health information for which they searched, difficulty or satisfaction in finding useful health information, and how this information affected health-related decisions. Participants who did not use the Internet answered a question to determine reasons for nonuse. Those who used the Internet answered questions concerning their use of the Internet in searching for health-related topics and how information found on the Internet affected their health-related decisions.

Procedure

After provision of informed consent and completion of the three questionnaires, the focus group began. Each group followed a standard protocol. The moderator provided a brief welcome, a description of the procedures for the group discussion, and ground rules for conversation. Participants were instructed to speak one at a time and encouraged to share their own ideas and experiences. As previously indicated, each session covered three topics in the same order. The first topic covered reasons for seeking health information. Participants were asked to discuss why they looked for health information recently, if they looked for information before a doctor's visit or after a visit to gather a second opinion, and how discussing information that they found influenced their interaction with their health care provider during visits. The second discussion topic concerned satisfaction with health information. Participants were asked to discuss both the positive and the negative aspects of the sources they use, the qualities they use in judging the usefulness of information, and the services that would better meet their health information needs. The third topic covered use of the Internet to fulfill health information needs. Participants were asked to discuss their feelings about using the Internet to find health information and what would encourage them to use the Internet to look for this information. The non-Internet groups were asked to base their responses on their limited experiences with the Internet and on what they had heard about the technology. Sessions lasted 2.5–3 hr and were audiotaped and transcribed.

Results

The questionnaire data were analyzed using frequencies, *t* tests, and chi-square tests to determine if significant differences in characteristics and responses existed between the two groups. Analyses were conducted using SPSS version 15.0 ($\alpha = .05$, two-tailed tests). These results are followed by the results of the focus group discussions.

The notes taken during the focus group sessions and the transcriptions of the focus group discussions were examined using a grounded theory approach (Auerbach, 2003; Nguyen, Wittink, Murray, & Barg, 2008; Pope, Ziebland, & Mays, 2000) to determine themes related to the three topics of interest. The grounded theory approach is a strategy that is used to identify analytical categories as they emerge from text-based data (Glaser & Strauss, 1967). Transcripts were reviewed line by line and texts relevant to the three topics were coded through an iterative process. Specifically, transcripts were examined using the process of constant comparison to develop a framework of possible relationships among the discussions captured in the transcripts (Thorne, 2000). Using this method, the facilitator initially compared each piece of text relevant to the three topics and then looked for relationships among these pieces of text to identify themes relevant to a particular topic (Nguyen et al., 2008). For example, review of the transcripts indicated that searching for information for a family member with a medical condition was discussed by four groups of Internet users and three groups of nonusers. "Searching for a family member" then became one of our themes within the topic of reasons for seeking health information.

To test the validity of the coding process with respect to assignment of text to themes, the transcripts were also coded by a second reviewer. The second reviewer used the themes defined by the facilitator and analyzed each transcript to assign the relevant text to the themes. The level of agreement between the coders was 89%, which was considered to be reasonable because an initial set of themes was established and the discussions were limited to three topics. Differences were resolved by discussion and consensus agreement by either

reassigning text to a different theme or creating a new theme from existing themes that were similar. For example, within the general topic of reasons for seeking health information, the themes "allowed for more intelligent questions" and "enabled greater understanding of physician information" were combined into the theme "enabled more meaningful interactions with physicians." Quotes were selected and organized to illustrate the themes that emerged within the three topics.

Background Characteristics

Significant differences were found between the non-Internet and Internet groups in the level of participants' comfort with computers, $t(51) = -4.190$, $p < .001$; interest in computers, $t(51) = -2.236$, $p = .030$; and computer self-efficacy, $t(42.303) = -2.154$, $p = .037$. Those who used the Internet were more comfortable using computers ($M = 20.22$, $SD = 3.609$; $M = 15.27$, $SD = 4.920$), felt more competent using them ($M = 22.07$, $SD = 2.074$; $M = 20.42$, $SD = 3.202$), and had a greater interest in learning about and using computers ($M = 21.59$, $SD = 2.291$; $M = 19.81$, $SD = 3.578$) than those in the non-Internet group.

Level of education was classified into three groups: less than or equal to a high school diploma; vocational training, some college, or an associate's degree; and bachelor's, master's, or doctoral degree. No significant differences were found between Internet users and non-Internet users in level of education, $\chi^2(2, N = 53) = 3.148$, $p > .05$.

We also looked at the two groups to see if there was a significant difference in either self-reported general health or self-reported health compared with people of similar age. Each of these self-reports was classified into two levels: those who reported their health or health compared with others as poor or fair and those who reported their health or their health compared with others as good, very good, or excellent. There was no significant difference between Internet users and nonusers in either general health, $\chi^2(1, N = 53) = 1.074$, $p > .05$, or health compared with others, $\chi^2(1, N = 53) = 0.072$, $p > .05$. In fact, the majority of participants in both groups reported their health or health compared with others as at least good.

Technology Experience

Although 50% of those in the non-Internet group reported having some experience with computers, their experience was limited: 31% had never deleted a file, 46% had never inserted a disk/CD/DVD, 62% had never installed software, 46% had never set monitor options, and 31% had never used a printer.

Participants in the Internet group reported relatively extensive experience using the Internet. The majority (52%) had been using the Internet for more than 5 years, and only 4% had been using the Internet less than 1 year. Participants also reported frequent use of the Internet: more than a quarter (26%) used the Internet more than 15 hr/week, 22% used it 11–15 hr/week, 26% used it 6–10 hr/week, and 26% used it 1–5 hr/week. Overall, these participants could be considered relatively frequent users of the Internet and perhaps distinct in this respect from the average older adult user.

The most commonly reported method for having learned to use the Internet was attending a class (44%), followed by learning by exploring (30%), learning from a friend or family member (19%), reading books on how to use the Internet (4%), or using another method (4%). Almost half of the participants (48%) reported using the Internet in the past year occasionally to find health information, whereas 33% reported using it frequently for this purpose (e.g., information about an illness, ordering medication or health products).

Table 2. Main Sources of Health Information

Sources used "most of the time" or "always"	Non-Internet group ($n = 25$), %	Internet group ($n = 27$), %
Doctors or other health care providers	68	67
Pharmacists	20	19
Newspapers	32	15
Popular magazines	28	7
Medical journals	12	4
Popular books	20	11
Medical books	16	4
Internet	0	58
Television	24	11
Radio	12	15
Friends or family	36	15

Note: Percentages were rounded.

Health Information Seeking Activities

The main sources of health information for both groups are displayed in Table 2. As shown in this table, the data indicate that although both Internet users and nonusers rely on information from their

Table 3. Types of Health Information Searched for

	Non-Internet group (n = 25), %	Internet group (n = 27), %
Prescription drugs	76	70
Alternative medicines or experimental treatment	56	63
Nutrition	76	82
Exercise	72	70
Health or medical products	56	30
Medicare	72	78
Medicaid	44	44
Health insurance policies	36	48
Illness or medical conditions	68	89
Information about a doctor, a hospital, a nursing home, a home health agency, or other health care provider	64	85
News about health policy issues	56	59
Current health topics	48	56

Note: Percentages were rounded.

health care providers a large percentage of the time, participants who do not use the Internet obtain a larger percentage of their health information from newspapers, popular magazines, television, or their family and friends than do those who use the Internet. This suggests that Internet users may be less reliant on these other sources of health information and use the Internet in place of these sources.

For those who had never been online, the most common reason given for nonuse was never having learned to use the Internet (48%). Other reasons given were as follows: it is too complicated (22%), too expensive (15%), concerns about being cheated or taken advantage of by someone online (15%), friends or family go online for them (11%), believing that information online is not correct (7%), or being too busy (4%).

Table 3 lists the different types of health information for which participants in these two groups searched. As indicated in this table, both groups searched for similar topics. This implies that although their health information sources may differ (Table 2), their health information needs may be similar.

To examine differences in behaviors of Internet users and nonusers, information sources were grouped into six categories: doctors; pharmacists; newspapers and popular magazines; medical journals, medical books, and popular books; television and radio; and friends or family. The data indicated that although there were no significant differences in the utilization of these information sources, more nonusers than Internet users turned to family or friends "most of the time" or "always" as a source for health information, $\chi^2(1, N = 52) = 3.107$, $p = .078$.

We also investigated whether Internet users differed from nonusers in either difficulty in finding information or satisfaction with information found. There was no significant difference between Internet users and nonusers in perceived difficulty of finding needed health information, $\chi^2(1, N = 52) = 0.182$, $p > .05$. In the Internet group, 13 participants reported no difficulty in finding health information and 14 reported difficulty, whereas in the non-Internet group, 11 reported no difficulty and 15 reported having difficulty. Also, there was no significant difference between Internet users and nonusers in satisfaction with the health information they find, $\chi^2(1, N = 52) = 0.315$, $p > .05$. In the Internet group, 15% reported less than moderate satisfaction, 37% moderate satisfaction, and 49% more than moderate satisfaction with the usefulness of the health information they found. In the non-Internet group, these satisfaction levels were 19%, 31%, and 50%, respectively.

Table 4 contrasts the responses between the Internet and the non-Internet groups with respect to the impact of obtained information on their health care decisions or actions. Analyses of these data indicate that a significantly larger number of non-Internet users have actually used information they found about how to treat an illness or a condition, $\chi^2(1, N = 49) = 6.379$, $p = .012$, and in changing their exercise or nutrition plans, $\chi^2(1, N = 46) = 4.207$, $p = .040$, as compared with Internet users.

In addition, participants in the Internet group were questioned regarding their feelings toward Internet health information. Their responses regarding the helpfulness of this information are summarized in Table 5; their feelings about looking for health information on the Internet are summarized in Table 6. As these tables indicate, the overwhelming majority of Internet users reported positive experiences; 96% of the users indicated that health information found online increased their ability to take better care of themselves.

Table 4. Impact of Health Information on Behavior

	Yes, % (*n*)		No, % (*n*)	
	Internet group	Non-Internet group	Internet group	Non-Internet group
Information influenced a decision about how to treat an illness or a condition	44 (11)	79 (19)	56 (14)	21 (5)
Information resulted in talking to another doctor or other health care provider	65 (17)	78 (18)	35 (9)	22 (5)
Information influenced decision to change medication	39 (9)	35 (8)	61 (14)	65 (15)
Information influenced decision to change insurance plan	32 (6)	44 (10)	68 (13)	57 (13)
Information influenced decision to change exercise or nutrition plan	46 (10)	75 (18)	55 (12)	25 (6)

Note: Percentages were rounded. This table does not include data from participants who responded "not sure."

Themes From the Group Discussions

Reasons for Seeking Health Information.—Many participants indicated that their information search was for themselves or for a relative who was ill, and in the latter case, it was often because they were acting as a caregiver for that person. However, it was also common that the search was just in the interest of maintaining general health or well-being. Many participants expressed interest in reading about nutrition, vitamins, and alternative medicines. When discussing alternative medicines, participants indicated they were able to obtain information on their own that they were not able to get from their physicians.

Both Internet users and nonusers indicated that they look for health information in preparation for doctor's visits, as well as after a visit to obtain a second opinion. They felt that gathering some prior knowledge enabled more meaningful interactions with their physicians by giving them the ability to ask more intelligent questions and better understand what their doctors told them during the visit. One Internet user indicated that "it is very interesting when you are able to know about what your doctor is telling you about your illness because you look on the Internet [to find out] what it's all about." She continued by saying that information before a visit helps so that "when you go to the doctor you have something in mind and you can understand what the doctor is telling you."

Table 5. Feelings About Internet Health Information

	Internet users in agreement (*n* = 27), %
Communication with my doctor improved when I discussed the health information that I found.	82
The health information that I found helps me become more knowledgeable.	96
The health information that I found helps me discuss alternative treatments with my doctor.	93
The health information that I found helps me make decisions with my doctor.	82
The health information that I found saves time when I have an appointment with my doctor.	74
The health information that I found improves the quality of the visit with my doctor.	85
The health information that I found increases my ability to take better care of myself.	96

Note: Percentages were rounded.

Table 6. Feelings About Looking for Internet Health Information

	Internet users in agreement (*n* = 27), %
It is frustrating to use the Internet to get health information because it is hard to find what I'm looking for.	22
It is good to use the Internet because I can get health information quickly.	82
The Internet helps me feel more informed when I go to the doctor.	85
The Internet is confusing because there is too much health information.	26
The Internet is good because I can get health information from a lot of different sources.	93
The Internet is difficult to use because I do not know what health information I can trust.	30

Note: Percentages were rounded.

Participants also expressed feelings of responsibility toward management of their own health. Most felt that a doctor's time was limited during visits and that it was their responsibility to spend time looking for information on their own to supplement the information given to them by their doctors. As one Internet user noted, " . . . your health is your own responsibility. The doctor sees you for five minutes and you cannot expect him to know everything about you . . . so it is your responsibility."

Participants had both positive and negative experiences associated with bringing the information they found to their doctors. Whereas some felt their doctors were receptive, others felt that their doctors did not have time to read the information they brought or were bothered by it, which for some was a reason to stop bringing information to visits. One nonuser commented, "I don't think the doctors really pay much attention when you go to them and you tell them that you heard or you read about a medicine. They want to be able to make their own diagnosis and recommend what they think is better for you." Some participants indicated there was no need to bring information with them because they believed their doctors were the most trustworthy source of health information and provided them with sufficient time to discuss the information. One nonuser indicated that discussing information with his doctor depends on the extent of the problem. This participant indicated that, "if [the problem] is minor, I just depend on what he recommends."

Satisfaction With Health Information.—Ease of use or convenience was one of the most frequently given reasons for satisfaction with an information source such as family members, friends, newspaper, television, and magazines. Books were considered to be a good source of information because, as one nonuser noted, " . . . with a book, you can keep it at home, and you can refer to it, and you can stop for a minute and then you can go back to it and you can reread it." Magazines such as AARP were thought to be informative, credible, and easy to understand; Spanish editions were rated especially helpful by participants whose primary language was not English. Other popular magazines were not given as much credit; one Internet user noted that "although it is more difficult to understand [a medical journal] because of the nomenclature, to me it is more credible than an article in Family Circle or Women's Day."

Participants were also pleased with information received from support groups. One Internet user who was taking care of a loved one with Alzheimer's valued the variety of opinions that groups provide and commented that "I use support groups a lot, including a teleconference once a month. And we share information that you cannot find any place because every Alzheimer's patient is different; they are unique . . . . By talking in support groups you find out how everybody handles the problem but in different ways."

Use of the Internet to Fulfill Health Information Needs.—Participants in the Internet and non-Internet user groups recognized both potential benefits and concerns in using the Internet for health information. One non-Internet participant commented that "something that [the medical community] establishes as fact now, five years later they say that it's all wrong, and five years later it goes all the way back again . . . you don't know who to believe, what to believe; even if you look it up on the Internet you can't always be sure that you get the proper information." Many Internet users indicated they look to see the source of the online information and then check what they find against other sources. Most said that when they searched Web sites of well-known hospitals or established organizations, such as the Alzheimer's Association, they believed the information was credible and up to date. The majority seemed to feel it was not too difficult to rely on commonsense to determine what was legitimate, and they did not fear the Internet was misinforming them. Although Internet-using participants generally responded that it was not too difficult for them to find health-related information on the Internet, they indicated that they would like to be able to find information more quickly. Most reported the hardest part of searching was narrowing the results with more accurate search terms. Participants felt that it was easy to get lost while sifting through results obtained with broad search terms and that it would be helpful to learn how to refine their searches. A common feeling was summed up by one user, who commented, "I think that [the Internet] is really fantastic. I think that to be able to go to your computer in your home and be able to get all of this information is priceless . . . [however] you can get frustrated and you waste a lot of time." Participants also indicated a major reason for dissatisfaction in using the Internet was that pop-ups were very distracting.

Although they had little or no experience searching for health information online, the participants in the non-Internet groups shared their ideas about using the Internet. They were similar to the Internet users in feeling there was sometimes too much information on the Internet and that it could be confusing to find the information for which they were searching. The perceived difficulty in locating online health information is indicated in the comment of one nonuser who said, "It's a lot of information and you need to know how to choose the specific thing that you need. That's why I think all of us would like more training in order to learn how to find a specific topic and not a lot of information. We don't find what we need." Another nonuser commented that "you have to keep searching, and searching, and searching. It's too long, too complicated. And you can find it maybe other ways much faster." Despite the perceived difficulty in using the Internet, most seemed willing to consider searching for health information online. One participant commented that "from what I hear, [the] Internet is a very good source of information . . . may I be able to learn it? I doubt it, not at my age. But I could try it as a new source of information." However, without proper guidance and motivation, use of the Internet will continue to be unlikely for some. As noted by one nonuser, "I have an interest in learning [to use the Internet], but right now I don't know anything about it, so [not using] it doesn't bother me."

Discussion

The purpose of this study was to examine the health information needs of older adults and the relative degree to which various sources of information satisfy these needs. In particular, we were interested in determining if older adults who use the Internet to search for health information have different perceptions about, and are influenced to a different extent by, the health information they access as compared with nonusers of the Internet. Data were collected from focus groups as well as from questionnaires covering demographics, technology experience, and health information seeking behaviors.

Many findings in this study support those found in the literature regarding patients and health information seeking (e.g., Bass, 2003; Morrell et al., 2004; Rideout et al., 2005; Sciamanna et al., 2003). It has been previously reported that patients feel more confident about their interactions with physicians when they have health information from the Internet (Murray et al., 2003) and that Internet-based health information improves their understanding and ability to manage health conditions (Baker, Wagner, Singer, & Bundorf, 2003; Murray et al.; Pew Internet & American Life Project, 2003). Similarly, we found that many participants felt empowered when they were able to bring information obtained from the Internet to their doctors and that their conversations with their physicians improved as a result of having this knowledge. We also found that participants often look for Internet information as a second opinion after an office visit. Many felt a sense of responsibility for finding health information on their own, as they understood the time constraints of office visits. These findings underscore the importance for older adults to have easy access to health information that is credible and easily understood.

For this sample of older adults, there was no significant difference between Internet users and nonusers in perceived difficulty in finding health information or satisfaction with information found. A potentially important implication of this result is that nonusers of the Internet may not understand the benefits of getting health information online. Because they are not familiar with the scope of information available on the Internet, nonusers are not likely to perceive any loss of options or rate themselves as less than satisfied with their current sources of health information. Many nonusers indicated that it is quicker and more convenient for them to look for information from more familiar sources such as magazines. They also indicated that they are unlikely to begin using the Internet to find health information because they do not know how to use the Internet for this purpose. However, our results also indicated that those who use the Internet tend to use this source in place of more traditional sources to get much of the same information in which nonusers are interested. Internet users are likely relying more on the Internet for health information because many feel that it enables them to get credible information compiled from many sources.

Although both groups reported using health information they found to make decisions and changes in their health care, an important finding was that those who used sources other than the Internet actually use that information to make health-related decisions significantly more often than those who obtained information from the Internet. Internet users may not be as likely as

nonusers to make decisions based on initial information found online and may be more deliberate in taking action because searching for additional evidence on the Internet is relatively easy. The difference in use of information for decision making between users and nonusers could also be because print sources are more familiar to this cohort, and they are more likely to base decisions on material that comes from such familiar sources. However, more research is needed to test these hypotheses.

There are a number of limitations of this study that should be noted. First, although nine focus groups were conducted, the total sample size was still relatively small and may have limited the power for detecting significant differences between the Internet and the non-Internet groups in their responses to questionnaires. Second, group discussions did not include topics regarding human–-Internet interaction so we were not informed about how participants felt about the design of Web sites that they used. Third, we used mixed gender focus groups, which could have potentially inhibited conversation of certain health conditions. However, the gender issue did not appear to limit discussions in that some of the male participants were acting as caregivers to women and some of the female participants were caregivers to men; thus, groups were able to relate to common problems.

Implications for Practice and Future Research

As suggested previously, one area of needed research concerns how access to health information on the Internet is affecting health-related decisions made by older adults. The Internet has the capability for significantly affecting the degree and efficiency with which health information is made available. Research is needed to determine if Internet users postpone decisions more often than those who do not use the Internet because users may feel that they can rapidly assess more options through continued information search. Research should also be directed at determining the factors influencing trust in Internet health information and how this in turn influences use of this information with respect to health care behaviors. Future research should also focus on whether older adults are more likely to make health care decisions based upon information found in magazines and other print material due to their familiarity and comfort with those sources.

The most common reason given by participants for not using the Internet was that they had never learned how to use it, although many indicated that they would be willing to try if they had someone to teach them. This finding supports other studies that showed older adults are eager to learn to use new technologies (Morrell et al., 2004; Rogers et al., 1998). Strategies to encourage Internet use among older adults and training programs to teach them how to search for credible health information online are clearly needed (Alpay et al., 2004). In addition to providing proper training, an awareness-raising campaign providing information about credible health Web sites is critically important. Although there are already many Web sites dedicated to providing seniors with health care information, older adults need to be made aware of such sites and directed toward those that are credible and reliable.

Many of our participants who used the Internet indicated that searching for health information on the Internet was difficult because of the extraneous information they confront while they are trying to locate specific information on health topics and that pop-ups get in the way. This seems to indicate that they are using search engines instead of going to sites specifically directed at providing health information to older adults, such as www.nihseniorhealth.gov. In fact, participants indicated that ease of use was one of the biggest factors in determining satisfaction with a health information source. This finding suggests that greater efforts need to be directed toward issues of usability. In this regard, web browsers designed especially for seniors would be helpful. Results from Czaja, Sharit, and Nair (2008) have indicated that problems persist in health information Web sites despite existing usability guidelines. Further research is thus needed to design health Web sites to meet the needs of older users trying to locate health information.

Finally, the prospect of increased access to health information through use of the Internet is likely to affect the dynamics of patient–physician interactions, suggesting the need for research directed at strategies for providing patients with approaches for effectively integrating this knowledge into their communication with their physicians. This may be especially important for older patients who may desire more time during their face-to-face visits but may not be afforded that opportunity due to the current climate in our health care systems. Participants in these focus groups noted that when bringing information to discuss with their doctor resulted in a negative outcome, they sometimes abandoned

this strategy. This problem might be eliminated if health care providers directed patients toward credible sources of Internet information to help them prepare for future office visits and provided guidance on information of particular relevance. It might also be helpful to install computers in clinics or waiting rooms to provide individuals with an opportunity to access Internet health information.

Overall, there are many ways that the Internet could and should be used to enhance sources of health information for older adults. For example, the Internet can provide information about a disease or illness, prevention and treatments, health care providers, and community resources. Assisting seniors to become educated health care consumers and successfully adapt to the rapid developments in "e-health" will take collaborative efforts from a variety of partners, including libraries, media companies, community organizations, and health care professionals (Voelker, 2005).

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