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Internet Use for Health Information Among College Students

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Abstract. Use of the Internet to retrieve health information is increasingly common. The authors surveyed 743 undergraduate students at 2 academic institutions to examine their Internet use, health-seeking behaviors, and attitudes related to the use of the Internet to obtain health information. Fifty-three percent of the respondents indicated that they would like to get health information online, and 28% reported that they would like to attend a health program online. Overall, 74% of the students reported having ever received health information online, and more than 40% reported that they frequently searched the Internet for information. They used various search engines and multiple Web sites to find health information. Issues related to the credibility of the information on health Web sites were crucial considerations for students. The study found differences in Internet use for health information by gender and by level of Internet experience.

Key Words: college students, eHealth, health information, Internet, Web

Internet use to locate health information is increasingly common. The Pew Internet and American Life Project reported that 52 million adults (55% of adults in the United States with Internet access) used the Internet in 2000 to get medical or health information.¹ Those researchers also found that 70% reported that Internet information affected their health decisions, and 48% said that the advice from the Internet improved their self-care.

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Previous studies have found that a majority of college students use the Internet. In a survey of 1,302 college students at 8 institutions, Anderson² found that 83% indicated that they used the Internet. In his report, *The Internet Goes to College*, Jones³ found that 86% of 2,501 college students had gone online. Their most frequently reported online communication activities were e-mail (62%) and instant messaging (29%). Five percent or fewer of college students used Web boards, chat rooms, and newsgroups.

The Internet provides volumes of health information for consumer health education⁴ and has the potential for improving individual health.^{5,6} It offers online health information and service delivery through various different formats, including text-based health information, e-mails, chat rooms, and listservs.⁷ Individuals can use the Web to access information and support on demand.^{8,9} In addition, it can also mediate interactions among patients or with health professionals for support with health concerns.^{10,11} Other advantages of the Internet include the possibility of obtaining health information conveniently to make better decisions about health and medical care, interacting with others over the Internet, and choosing health providers.^{4,12}

*The Chronicle of Higher Education Almanac 2003–4*¹³ reported that nearly 15,312,000 students are enrolled in colleges and universities nationwide. A national health objective from *Healthy Campus 2010*¹⁴ emphasizes the need for health education in colleges and universities. Specifically, the objective is to increase the proportion of college and university students who receive information from their institutions on each of the 6 priority health-risk behavior areas, including injuries; tobacco; alcohol and illicit drug use; sexual behaviors; dietary patterns; and inadequate physical activity. Although we recognize the potential for using the Internet more in the delivery of health education on college and university campuses, we have found little

data about college students' use of the Internet for locating health information. In this study, we examined college students' Internet use, health-seeking behaviors on the Internet, and attitudes toward the use of the Internet for health information. We also investigated differences in Internet use for health information by gender, level in college, racial group, and level of Internet experience.

METHOD

College Sample

We used an anonymous, cross-sectional survey completed by a sample of college students from 2 southeastern universities in fall 2002 and spring 2003 to collect data. The questionnaire was administered as either an anonymous paper survey in an introductory health education course or online. Students gave passive consent to participate in the study after they read an informed-consent letter. Teaching assistants distributed the survey in the health education course. To administer the online survey, we recruited students from advertisements in the college newspaper and fliers. We e-mailed interested students a description of the study, a log-in code, and a password to take the survey online. After logging into the online survey, they clicked *I agree* as consent to participate in the study and completed it by submitting data on multiple Web pages.

Measures

The survey consisted of 30 behavioral, attitudinal, and demographic items. For demographic information, respondents provided details on their ages, genders, years of college, races, and places of residence while attending college.

We assessed Internet use from the question: "Do you use the Internet?" We then asked those who reported Internet use to indicate about how long they had used the Internet, frequency of use, number of hours of Internet use per day, access to the Internet, and barriers to using the Internet. The respondents were also asked to report their level of experience with the Internet and use of common Internet activities.

We assessed the likelihood of using the Internet for health education purposes from responses to 2 questions. Respondents were first asked, "Would you like to get health information on the Internet?" They were then asked, "Would you attend a health program on the Internet?" The response options were *yes* or *no*. Respondents were also asked to rate the importance of certain criteria for health Web sites: "If you were to read a Web site with health information, rate the importance of each of the following factors to you." We identified many factors from surveys and guidelines used in previous studies that assessed quality elements of health Web sites,¹⁵ including accuracy, utility, credibility, currency of information, and confidentiality of personal information. Other factors were related to interactivity, appearance, use of multimedia, or ease of navigating the Web sites. The response options for rating criteria were *not important*, *somewhat important*, and *very important*.

The questionnaires asked respondents about their use of

the Internet for seeking health information: "Have you tried to get some type of health information from the Internet for yourself?" The response options were *a lot*, *some*, *a little*, or *none*. Those who responded yes to having received some information received more questions. They were asked to indicate how they search for health-related Web sites, the last time they went online to look for health information, the topic of the information they were locating from a list of topics, and whether they talked with a doctor about the information they found online.

Two questions assessed attitudes and beliefs about using the Internet for finding health information. Respondents were asked about the frequency of finding information for which they were looking, with response options of *always*, *most of the time*, *only sometimes*, *hardly ever*, or *never*. They also were asked about perceptions of how obtaining health information on the Internet had improved their personal health. The response options were *a lot*, *some*, *only a little*, and *not at all*. We based these measures of attitudes about Internet use for health information on similar items in the Pew Health and Internet Survey.¹

Data Analysis

We entered all data into Epi Info 6.03¹⁶ (CDC, Atlanta, GA, 1996), then imported the data into SPSS 11.0¹⁷ (SPSS Inc., Chicago, IL, 2001) for analysis. We calculated descriptive statistics for (1) demographics, (2) general Internet use, (3) likelihood of Internet use for seeking health information, (4) ratings of the importance of criteria for evaluating health Web sites, (5) use of the Internet for health information, and (6) attitudes about use of the Internet for health. We used chi-square tests to assess differences in obtaining health information from the Internet by gender, year in college, racial group, and level of experience with the Internet. The alpha level of significance for all chi-square tests was $< .05$.

RESULTS

The 743 students who completed the survey were predominantly women, first-year or sophomore, and White (Table 1). All students (98.7%) reported Internet use. Eighty-five percent reported using the Internet 6 to 7 days a week and said that they used it for an average of 2.49 hours a day ($SD = 2.55$); 59.1% (435 students) reported being very experienced with the Internet; 53.0% (393 students) reported that they would like to get health information on the Internet. Only 27.5% (204 students), however, reported that they would like to attend a health program on the Internet. Students also rated the importance of criteria in reviewing Web sites for health information (see Table 2).

Overall, 542 students (72.9%) reported getting health information from the Internet for themselves. Of those who retrieved health information, 42 (7.7%) reported retrieving information *a lot*, 267 (49.3%) reported retrieving information *some*, and 233 (43.0%) reported retrieving information *a little*. The most common method used to find health-related Web sites was using a search engine (72.9%). The health Web sites mentioned most frequently by the students were

TABLE 1. Demographic and Internet-Related Characteristics of Students (N = 743)

Characteristic	n	%	M	SD
Age (y)			19.23	1.46
Gender				
Male	309	41.6		
Female	433	58.4		
Year in college				
First	362	48.7		
Sophomore	187	25.2		
Junior	117	15.7		
Senior	77	10.4		
Race/ethnicity				
White (non-Hispanic)	575	77.5		
Black (non-Hispanic)	40	5.3		
Hispanic	19	2.6		
Asian	80	10.8		
Other	28	3.8		
Use Internet	733	99.9		
Years of Internet use			6.32	2.01
Hours of Internet use			2.49	2.55
Place of primary Internet access				
Dorm or home	636	86.4		
Campus labs	75	10.2		
Other	25	3.4		
Level of experience with the Internet				
Very experienced	435	59.1		
Somewhat experienced	290	39.4		
Not experienced	11	1.5		
Use of different technologies				
E-mail	731	98.4		
Web site	710	95.6		
Chat	387	52.1		
E-news	371	49.9		
Discussion boards	306	41.2		
Listserv	271	36.5		
Support group	47	6.3		

Note. All numbers for an item may not sum to 743 because of missing values.

WebMD and Yahoo! Health. Other health Web sites mentioned were Ask Jeeves, Centers for Disease Control and Prevention, FitDay, Health.com, Mayo Clinic, Planned Parenthood, MensHealth, Sexeducation.com, and Shape.com.

Using the Internet to obtain health information was fairly frequent. Approximately 15% of the students reported that they had used the Internet for health information in the past day or week, and 32% reported doing so in the past month. See Table 3 for the percentages of students who searched for specific health topics. In seeking health information, only 11% of the respondents reported always being able to find information they were seeking, and 56% reported success most of the time.

Access to healthcare information online is not substantially influencing the students' interactions with their healthcare providers. Only 131 of 516 students (25.4%) reported talking to a doctor about the information they found online. However, Internet use for health information is improving consumers' belief that what they are finding is having an impact on their health. Of the 514 students who reported seeking health information on the Internet, 204 (36.7%) felt that retrieving health information online improved the way they took care of their health *a lot* or *some*. Our chi-square test revealed that significantly more female students (77.9%) than male students (68.6%) obtained health information online, $\chi^2(3, N = 733) = 8.26, p < .05$. In addition, we found a significant difference in the levels of experience (*very*, *somewhat*, or *not experienced*) with the Internet, $\chi^2(3, N = 733) = 13.65, p < .01$, and obtaining health information online. But we observed no differences among college class and racial group with use of the Internet for obtaining health information.

COMMENT

Findings and Discussion

In this study, we examined college students' use of the Internet for seeking health information. We found that more than 98% of the college students we surveyed used the Internet. The finding that almost all students used e-mail or the Internet is not surprising. Previous research has demonstrated widespread Internet use among college students,^{2,3} and our findings suggest that Internet use is almost ubiquitous on college campuses. Today, many colleges and universities provide students with free Internet connections in residence halls or on campus. Students in this study primarily accessed the Internet in the residence halls or at home, probably because these are locations that offer privacy and where students spend leisure time. The finding that students conduct more Internet activities in residence halls or at home instead of in college computer labs is consistent with previous research.³

We found that more than half of the respondents wanted to find health information on the Internet, and almost one third reported that they would participate in an Internet health program. This finding suggests the potential of the Internet as a desired health-promotion channel for college students. Going online to obtain health information has been increasing among all American adults because the Internet offers convenient and abundant information.¹ The Internet also has been found to be an acceptable and feasible tool for behavioral intervention for college students^{18,19} and adults.²⁰

The wealth of health Web sites available to the public has spurred research into the accuracy of information on such sites and the potential for harm to the general public resulting from inaccurate information.^{5,6,21} According to this study, criteria for assessing Web sites with health information important to college students are related to the accuracy, credibility, currency, clarity, and ease of understanding the health content

TABLE 2. Ratings of Important Criteria for Health Web Sites

Factor	N	Not important		Somewhat important		Very important	
		n	%	n	%	n	%
Accuracy	731	6	0.8	36	4.9	689	94.3
Credibility of author	727	21	2.9	135	18.6	571	78.5
Currency of information	726	21	2.9	142	19.6	563	77.5
Comprehensiveness	726	12	1.7	179	24.6	535	73.7
Ease of understanding	724	14	1.9	179	24.7	531	73.4
Readability	726	15	2.1	186	25.6	525	72.3
Personal relevance	723	26	3.6	193	26.7	504	69.7
Confidentiality	726	84	11.6	199	27.4	443	61.0
Ease of navigation	727	36	5.0	256	35.2	435	59.8
Utility	717	20	2.8	280	39.0	417	58.2
Quality of links	726	94	12.9	299	41.2	333	45.9
Bias	723	105	14.5	334	46.2	284	39.3
Appearance	725	126	17.4	378	52.1	221	30.5
Citation for information	726	211	29.1	310	42.7	205	28.2
Use of multimedia	726	191	26.3	353	48.6	182	25.1
Interactivity	726	227	31.3	303	41.7	196	27.0

TABLE 3. Health Topics Researched on the Internet (N = 619)

Topic	N	%
Fitness/exercise	309	49.9
Diet and nutrition	292	47.2
Medicines and pharmaceuticals	245	39.6
Alcohol and other drugs	196	31.7
Sexual health	175	28.3
Mental health issues	171	27.6
Sexually transmitted diseases	154	24.9
Other diseases	129	20.8
Tobacco and smoking	119	19.2
Cancer	97	15.7
Provider, hospital, or health agency	31	14.8
Sexual or physical abuse	39	6.3
Heart disease	42	6.8
Violence	37	6.0
Illness support groups	31	5.0
Dating violence or rape	26	4.2

rather than to the design and navigation of the Web page. Another study²² found that criteria of greatest importance among adult Internet users were attribution; authority of source; ease of use; disclosure of authors, sponsors, and developers; accessibility; and availability of Web sites. Thus, our study confirms that the credibility of the information is crucial for consumers of online health information.

We found that 74% of the responding students received health information from the Internet. This is higher than the rates of Internet use for health reported in other studies of

adults with Internet access.^{1,23,24} Plausible explanations for college students' greater use of the Internet are that college campuses provide Internet access and that young adults are comfortable in using the technology because they grew up with it.³ Almost 60% of the students in our study reported being very experienced with the Internet. They are major consumers of health information online and will probably continue to use the Internet for such information.

The difference in accessing health information on the Internet among men and women and with levels of experience is not surprising. Other studies have found that women asked more questions than men did and received more health information²⁵ and that women were more likely to use the Internet to access health information.^{1,24,26} In addition, the finding of no differences in Internet use for health among racial groups is consistent with another study²⁴ that found that Internet access eliminates the digital divide, the gap between those who can effectively use new information and communication technologies, such as the Internet, and those who cannot.

Previous research indicates that only a minority of students had received information from their colleges and universities on all health topics recommended in *Healthy Campus 2010*.^{25,26} Exercise, nutrition, alcohol and other drugs, and sexual health have been identified as key health concerns for the college population.^{14,29,30} We were not surprised to find that college students searched for the topics that represented their leading health issues. We found it interesting that an estimated 40% of the students surveyed researched prescription drugs or medicines online. One analysis found a similar result: about one third of respondents reported using the Internet to learn more about a prescription drug.²³

The majority of students indicated that they used a vari-

ety of search engines and multiple Web sites to locate health information.^{1,26} We found that 89% of students do not always find the desired health information. Our findings support the need to train students to locate relevant Web sites more efficiently.

Limitations

This study has some limitations. The study population was a convenience sample of college students. The findings may not be generalizable to other college populations. The number of college students who use the Internet may be an overestimation because a percentage of the study sample used the Internet to complete the survey. Respondents also self-reported their Internet use to obtain health information. Last, the rates of such Internet use may not be directly comparable to those found in other studies. Other researchers may have worded questions about Internet use to obtain health information differently.

Future studies should build on these findings to explore additional factors related to Internet use for health information among college students. In-depth research might be useful in exploring the barriers to finding the health information students seek, the search terms and strategies that they use, and the factors that make a Web site credible for students.

Implications for Colleges and Universities

Our results suggest the great potential for using the Internet for health education at institutions of higher learning. Campus health centers may be able to augment their services by using the Internet as an innovative tool for health education. Specifically, our findings suggest the following recommendations for college and university health centers: (1) incorporate Web-based education and programs into university student health, (2) train health staff and students to search the Internet for health information and to evaluate health information on Web sites, and (3) offer a Web portal for common college health issues.

Overall, more than half of the students we surveyed wanted to use the Web to obtain health information, and some were receptive to participating in online health programs. Training in Internet use would improve students' ability to retrieve information successfully and evaluate the information they receive (only 11% of students in this study reported always finding health information they were seeking). The finding that students searched for information on the most common college health topics suggests that health center staff should explore the use of the Internet, in addition to their other health promotion services, to provide information on these priority health issues. Finally, a Web presence for college health centers could serve as a mechanism for delivering health information to students or as a portal for access to additional, authoritative health Web sites. These ideas have been promoted in previous research with colleges and universities,³¹ and some universities have launched Web sites to address health promotion issues, such as Columbia University's Ask Alice (<http://www.goask>

[alice.columbia.edu](http://www.goask.alice.columbia.edu)), where students can ask and receive feedback on health-related issues.

College students' growing use of the Internet to obtain health information is likely to continue. In this study, we found high rates of Internet use for finding health information. The Internet, therefore, is a critical tool for health promotion professionals to use to improve the health status of the college population. Health services in colleges and universities should strongly consider incorporating the use of the Internet to increase access to health information, education, and services to meet the needs of college students more effectively.

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NOTE

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