

## Internet as a Source for Health Information: User Assessments of Utility and Quality‡

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*Objectives.* The internet offers considerable promise as a health promotion and education tool. However, the fact that some online health information (OHI) may be inaccurate – combined with questions about consumers' abilities to recognize erroneous OHI – remains troublesome. We explore this issue by comparing assessments of OHI reported by internet users either engaged in internet health-information seeking behaviors (iHISB) or not.

*Methods.* Among internet users, assessments of iHISB (internet as the primary source for health information; dichotomously coded), responses to four health information perceptions, self-reported health care visits during the previous 12 months, and demographics were drawn from the 2007 Health Information National Trends Survey (HINTS). A dummy variable representing the two sampling frames (address-based and random digit dialing) of HINTS 2007 study was also assessed. Sample demographic characteristics are detailed in Table 1.

Health information perceptions were assessed by asking respondents to, based on their “most recent search for information about health or medical topics,” agree or disagree with the 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;” and “The information you found was hard to understand.” For this analysis responses were coded “strongly disagree” (1), “disagree” (2), “agree” (3), and “strongly agree” (4).

iHISB use by respondent sex ANCOVA models adjusting for demographics, prior year health care visits, and sampling frame were computed.

*Results.* The results from the ANCOVA models, summarized in Table 2, reveal significant differences between individuals using the internet as the primary source for health information ( $n = 3,065$ ), compared with internet users not engaged in iHISB ( $n = 1,175$ ) on two measures.



iHISB users considered accessing health information less effortful ( $M = 2.05$ ) than iHISB non-users ( $M = 2.21$ ). As can be seen in Table 2, older ages (50+), lower educational achievement (post high school or less), and, to a lesser extent, Hispanic race/ethnicity were linked to greater effort and higher household income (\$75K+) and being unmarried to less effort. At the same time, iHISB users ( $M = 1.82$ ) found OHI easier to understand than their non-using counterparts ( $M = 1.89$ ). Lower educational achievement (post high school or less), Hispanic and Other race/ethnicity, and the address-based sampling frame (ABS) were linked with the information being harder to understand.

Sex differences were apparent for two health information perceptions. Male respondents ( $M = 2.38$ ) reported greater concern about the quality of health information and that health information was harder to understand ( $M = 1.91$ ) than their female counterparts (concern,  $M = 2.31$ ; understanding,  $M = 1.80$ ).

Examination of the two models for which iHISB was not a significant contributor is informative. Frustration during OHI searches, for example, appears most strongly associated with lower educational achievement and the ABS. Concern about OHI quality, on the other hand, is positively linked with lower household income (< \$20K), non-white race/ethnicity, and the number of health care visits during the previous year and negatively linked with older age (50+).

*Conclusions.* Experience with online health information, these findings suggest, frames judgments of OHI uniquely. Internet users engaged in iHISB appear to recognize the convenience of OHI while also considering health information less difficult to understand. Men acknowledge more skepticism about OHI quality and find the content harder to understand.

Demographic characteristics often linked with health inequities (e.g., older age, lower educational achievement, and non-white race/ethnicity) also appear associated with negative perceptions of online health information. These considerations should inform future health communication tailoring and targeting endeavors.

*Learning Objectives:* To discuss the idea, articulated by others, that health information disseminated via the internet may be “inaccurate, erroneous, misleading, or fraudulent” and may pose “a threat to public health in general.” To describe how assessments of internet health information utility (i.e., convenience) and quality may encapsulate important motives for internet health information-seeking behaviors. To explain how an enhanced understanding of motives underlying internet health information-seeking behaviors could better inform the targeting and tailoring of health promotion and disease prevention endeavors.

**Table 1.** Sample Characteristics as a Function of Internet Health Information-Seeking Behaviors (iHISB)

Characteristics	Sample Estimates ( <i>n</i> = 4,240)	Odds Ratio (95% CI)	iHISB	
			No ( <i>n</i> = 1,175)	Yes ( <i>n</i> = 3,065)
<b>Age (years) (Age; <math>\chi^2[3] = 135.19^*</math>)</b>				
Age 18 to 34	17.4%	Ref.	12.5%	19.3%
Age 35 to 49	30.1%	0.90, 0.72-1.12	23.7%	32.6%
Age 50 to 64	36.7%	0.61, 0.49-0.75	38.5%	36.0%
Age 65 or older	15.8%	0.31, 0.25-0.39	25.4%	12.1%
<b>Education (Edu; <math>\chi^2[3] = 17.72^*</math>)</b>				
High school or less	17.7%	0.97, 0.79-1.21	20.2%	16.7%
Post high school	32.5%	1.23, 1.00-1.49	31.5%	32.9%
College graduate	31.0%	1.40, 1.15-1.70	27.3%	32.5%
Post college	18.8%	Ref.	21.0%	17.9%
<b>Household Income (HI; <math>\chi^2[5] = 47.90^*</math>)</b>				
Less than \$20,000	8.2%	0.66, 0.49-0.87	12.0%	6.7%
\$20,000 – \$34,999	9.6%	0.96, 0.73-1.27	11.1%	9.0%
\$35,000 – \$49,999	11.5%	1.33, 1.00-1.75	10.5%	11.9%
\$50,000 – \$74,999	19.7%	1.25, 0.98-1.59	18.9%	20.0%
\$75,000 or more	38.7%	1.42, 1.15-1.77	33.6%	40.7%
Not reported	12.4%	Ref.	13.9%	11.8%
<b>Marital status (MS; <math>\chi^2[2] = 3.79</math>)</b>				
Never married	15.1%		13.7%	15.7%
Unmarried	19.5%		20.9%	19.0%
Married	65.4%	Ref.	65.4%	65.3%
<b>Race/Ethnicity (R/E; <math>\chi^2[3] = 12.33^*</math>)</b>				
African-American	7.4%	0.71, 0.56-0.91	9.1%	6.8%
Hispanic	6.4%	0.73, 0.56-0.95	7.7%	5.8%
Other	5.6%	1.06, 0.78-1.43	5.2%	5.7%
White	80.6%	Ref.	78.0%	81.6%
<b>Sex (<math>\chi^2[1] = 0.07</math>)</b>				
Female	63.8%	Ref.	64.2%	63.7%
Male	36.2%		35.8%	36.3%

Note: Referent categories of dummy coded variables indicated by “Ref.”.

\**p* < .05 via Sidak’s adjustment.

**Table 2** General Linear Models: Health Information Perceptions as a Function of Respondent Sex and Internet Health Information-Seeking Behaviors (iHISB)

Source ( <i>F</i> )	Health Information Perceptions			
	Lot of effort to acquire	Frustrated during search	Concerned about quality	Hard to understand
<i>Fixed Effects</i>				
Sex	3.06	0.14	4.59*	14.25***
iHISB	20.97***	3.60	0.51	4.29*
Sex X iHISB	1.58	0.73	0.01	0.24
<i>Covariates</i>				
ABS Sampling Frame	1.32	22.18***	0.31	38.69***
Health Care Visits	0.53	0.71	4.83*	0.31
Age: 18 to 34	Ref.	Ref.	Ref.	Ref.
Age: 35 to 49	0.79	0.65	(-) 0.29	1.03
Age: 50 to 64	6.04*	4.02*	(-) 6.77**	2.93
Age: 65 or older	6.32*	1.62	(-) 7.10**	0.63
Edu: High school or less	11.45***	17.85***	2.82	34.18***
Edu: Post high school	6.35*	11.97***	0.66	17.31***
Edu: College graduate	0.85	2.09	(-) 0.12	2.81
Edu: Post college	Ref.	Ref.	Ref.	Ref.
HI: Less than \$20,000	1.34	3.43†	6.57**	2.09
HI: \$20,000 – \$34,999	1.80	0.25	1.05	0.63
HI: \$35,000 – \$49,999	(-) 0.07	(-) 0.09	0.24	(-) 0.10
HI: \$50,000 – \$74,999	(-) 0.18	(-) 0.01	(-) 0.83	(-) 0.90
HI: \$75,000 or more	(-) 9.40**	(-) 5.58*	(-) 0.84	(-) 1.99
HI: Not reported	Ref.	Ref.	Ref.	Ref.
MS: Never married	0.12	0.16	1.00	0.41
MS: Unmarried	(-) 8.07**	(-) 0.99	0.42	(-) 2.03
MS: Married	Ref.	Ref.	Ref.	Ref.
R/E: African-American	0.48	(-) 2.68	4.31*	(-) 0.04
R/E: Hispanic	3.67†	0.60	4.36*	7.38**
R/E: Other	2.00	0.27	4.79*	3.97*
R/E: White	Ref.	Ref.	Ref.	Ref.

*Note:* Referent categories of dummy coded variables indicated by “Ref.”. Model covariates with negative parameter estimates indicated by “(-)”.

†  $p = 0.055$  \*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$

‡The findings and conclusions in this presentation are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention or the U.S. Department of Health and Human Services.