Internet access and internet health information-seeking behaviors as a function of trust in health information from the internet and from health care providers

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

Abstract

Objectives. Research suggests that differential access to digital technologies, often called the "digital-divide," inadequately explains inequalities in internet health-information seeking behavior (iHISB). Within the knowledge-gap framework, social-psychological determinants impacting iHISB appear increasingly important. Our research explored whether trust in health information from the internet and health care providers was related to three levels of internet use (not accessing the internet, accessing internet without iHISB, and engaging in iHISB).

Methods. Assessments of iHISB (internet as the primary source for health information), trust in health information from the internet and health-care providers, and demographics were drawn from the 2007 Health Information National Trends Survey (HINTS; n = 6,713). Logistic regression models accommodating the HINTS survey design were computed, adjusting for demographics and survey design.

Results. Trust in internet health information was associated with a significant increase in the odds of accessing the internet (OR 2.14, CI 1.91, 2.40), compared to those not accessing the internet; accessing the internet without iHISB (OR 1.59, CI 1.40, 1.80), compared to respondents not accessing the internet; and engaging in iHISB (OR 2.02, CI 1.73, 2.36), compared with those accessing the internet and not engaging in iHISB.

Conclusions. Research suggests that social-psychological determinants impacting motives to seek information may be underlying iHISB, beyond access to technology. Our findings are consistent with this research, suggesting that trust in online health information may be one factor motivating iHISB. Additional research is needed to examine trust in information sources as a gateway factor for iHISB in the context of other motives, such as the presence of diseases and health conditions.

Learning Objectives:

1. To discuss the ideas of the "digital divide" and the knowledge-gap hypothesis, and how these ideas are related to internet health information-seeking behaviors.
2. To describe how trust in health information from the internet and from health care providers may be seen as motives for internet health information-seeking behaviors.
3. To explain how trust in health information on the internet is related to accessing the internet, accessing the internet but not using internet health information, and using internet health information.

Background

- The internet, a widely diffused technology in the United States, has been recognized as a promising tool for health promotion and disease prevention and represents a common source for health information among Americans
- Substantial differences in internet access (i.e., the "digital divide") remain an unresolved challenge from a public health research and policy perspective, however
- The notion of a "digital divide" in internet health information access is essentially an extension of the knowledge-gap hypothesis, which conceptualizes information as a valued resource vulnerable to disparities in access and utility
- The knowledge-gap states that individuals with access to information gain advantages and benefits in terms of knowledge and opportunity
- Consequently, some argue that internet facilitated access to health information has likely widened the "digital divide" because of disparities in access to and use of the internet
- Existing research provides us with an understanding of the common sociodemographic factors that characterize inequities in internet access and health care utilization (e.g., education, income, race/ethnicity)
- Emerging research suggests, however, that there may be certain psychosocial factors underlying differences in internet access and specifically the use of online health and medical information beyond sociodemographic characteristics

Objective

- Within the knowledge gap framework, this study investigated whether trust in health information from the internet and from health care providers were associated with three levels of internet use and internet health information-seeking behaviors:
    - Not accessing the internet, accessing internet without seeking health information, and engaging in internet health information-seeking behaviors (iHISB)

Methods

- This study analyzed data from the Health Information National Trends Survey 2007 (see http://hints.cancer.gov), which applied a dual frame sampling design, utilizing address-based and random digit dial samples
- Data with imputed values for race/ethnicity, age, and education were used**,** resulting in a final sample size of 6,713 respondents
- Measures included demographic characteristics, internet use, internet health information use, and assessments of trust of the internet and health care providers as sources of health information
- Multivariate logistic regression models were created, accounting for the complex sampling design and controlling for demographic covariates and sampling frame

Results

- Table 1 illustrates the bivariate associations between demographic characteristics, trust in sources of health information, and iHISB

- At the bivariate level, accessing the internet and engaging in iHISB were significantly associated with trust in the internet and trust in health care providers for health information, as well as each of the demographic characteristics examined (Table 1)
- The complete results of the logistic regression models are displayed in Table 2
- Controlling for demographic characteristics and sampling frame, greater trust in the internet as a source of health information was associated with:
    - A significant increase in the odds of reporting accessing the internet (OR 2.14, 95% CI 1.91, 2.40), compared with those who did not access the internet
    - A significant increase in the odds of accessing the internet without engaging in iHISB (OR 1.59, 95% CI 1.40, 1.80), compared with those who did not access the internet
    - A significant increase in the odds of reporting iHISB (OR 2.02, 95% CI 1.73, 2.36), compared to those who accessed the internet and did not engage in iHISB

Discussion

- The findings of this study indicate that trust in the internet as a source for health information was significantly associated with internet access, accessing the internet and not engaging in iHISB, and accessing the internet and engaging in iHISB
- Trust in health care providers as a source of health information was not significantly associated with the internet-related behaviors examined
- Within the knowledge gap framework, trust in internet health information appears to be an important factor motivating internet health information-seeking behaviors
- Prior research demonstrates that engaging in iHISB can affect patient-provider interactions
    - For example, consumers who engage in iHISB frequently approach providers to discuss health information obtained from the internet
- Such behaviors can have a positive impact on the patient-provider relationship, such as facilitating shared healthcare decision-making
- Inaccurate internet health information, however, may mislead some patients who engage in iHISB and have a negative impact on patient-provider interactions
- When patients turn to a source they perceive as trustworthy for health information, such as the internet, and that source contains information with questionable accuracy and credibility, it is important that providers are prepared to communicate clearly with their patients about this information during clinical encounters
- Factors such as information appraisal skills, health literacy, and numeracy may influence the relationships among trust in health information from the internet, health information seeking behaviors, and clinical encounters with healthcare providers, and the influence of these factors should be examined in future research

Conclusions

- Trust in the internet as a source of health information was significantly associated with internet access and iHISB, after accounting for demographic characteristics
- Future research is needed to examine the influence of factors such as information appraisal skills, health literacy, and numeracy, on the relationships among trust in health information from the internet, health information seeking behaviors, and clinical encounters with healthcare providers

Table 1. Trust in Health Information and Demographic Characteristics related to Accessing the Internet and Internet Health Information Seeking Behavior (iHISB)

	Not Accessing the Internet (n = 1,739)	Internet Access, no iHISB (n = 1,867)	Internet Access, iHISB (n = 3,107)
Trust in Sources of Health Information			
Internet* (Mean, SE)	2.20 (0.04)[a]	2.78 (0.03) [b]	3.14 (0.02)[c]
Health care provider* (Mean, SE)	3.49 (0.03)[a]	3.64 (0.02)[b]	3.69 (0.02)[b]
Sampling Frame (%)**			
Address	49.0	54.2	57.9
Random Digit Dial	51.0	45.8	42.1
Age (%) **			
18-34 yrs old	22.7	38.5	34.7
35-49 yrs old	26.1	29.3	35.5
50-64 yrs old	23.8	21.5	23.9
65-75 yrs old	12.5	6.9	4.5
75+ yrs old	14.9	3.8	1.4
Education (%) **			
High school or less	68.7	36.1	22.2
Vocational	5.9	7.1	5.4
Some college	16.8	30.7	36.3
College graduate	6.4	15.8	24.0
Graduate Education	2.2	10.3	12.2
Employment (%)**			
Employed	43.6	58.9	66.2
Unemployed	6.8	5.8	3.9
Other employment	39.2	28.0	25.8
Not specified or missing	10.4	7.2	4.1
Race/Ethnicity (%)**			
White, non-Hispanic	55.5	68.5	78.0
Black, non-Hispanic	15.5	11.3	8.2
Hispanic	23.6	12.7	7.5
Other race/ethnicity	5.3	7.5	6.3
Gender (%)**			
Female	45.0	48.7	55.3
Male	55.0	51.3	44.7
Household Income (%)**			
$0-$19,999/yr	29.5	13.0	8.3
$20-$34,999/yr	20.7	13.1	9.4
$35-$49,999/yr	9.6	10.5	13.5
$50-$74,999/yr	10.1	17.5	19.9
≥$75,000/yr	8.2	27.8	37.8
Missing	21.8	18.2	11.0

*Means with different superscript letters differ significantly at $p < 0.01$

**Rao-Scott χ^2 statistically significant at $p < 0.01$

Table 2. Trust in Health Information and Demographic Characteristics as a Function of Accessing the Internet and internet Health Information Seeking Behavior (iHISB)

	Any Internet Access vs. No access (n = 6,713)	Internet Access, No iHISB vs. No access (n = 3,606)	Internet Access, iHISB vs. Internet Access, No iHISB (n = 4,974)
Trust in Sources of Health Information			
Internet	2.14 (1.91, 2.40)*	1.59 (1.40, 1.80)*	2.02 (1.73, 2.36)*
Health Care Provider	1.91 (0.97, 1.46)	1.19 (0.95, 1.49)	1.00 (0.84, 1.18)
Survey Mode (1=Mail, 0 = RDD)	1.05 (0.82, 1.35)	1.02 (0.77, 1.36)	1.01 (0.85, 1.21)
Age			
18-34 yrs old	Ref	Ref	Ref
35-49 yrs old	0.46 (0.32, 0.64)*	0.38 (0.25, 0.59)*	1.15 (0.89, 1.47)
50-64 yrs old	0.28 (0.20, 0.39)*	0.25 (0.17, 0.38)*	0.90 (0.71, 1.14)
65-75 yrs old	0.17 (0.11, 0.25)*	0.18 (0.11, 0.27)*	0.56 (0.38, 0.82)*
75+ yrs old	0.07 (0.05, 0.11)*	0.09 (0.06, 0.15)*	0.36 (0.21, 0.60)*
Education			
High school or less	Ref	Ref	Ref
Some post-high school	3.01 (2.35, 3.85)*	2.60 (1.94, 3.49)*	1.55 (1.17, 2.07)*
College degree or higher	5.32 (3.93, 7.20)*	4.45 (3.07, 6.44)*	1.79 (1.39, 2.31)*
Employment			
Unemployed	Ref	Ref	Ref
Employed	1.07 (0.61, 1.91)	1.05 (0.58, 1.91)	1.33 (0.86, 2.05)
Other employment	1.15 (0.62, 2.12)	1.02 (0.53, 1.97)	1.54 (0.88, 2.67)
Not specified or missing	0.78 (0.34, 1.76)	0.66 (0.26, 1.70)	1.10 (0.55, 2.21)
Race/Ethnicity			
White, non-Hispanic	Ref	Ref	Ref
Black, non-Hispanic	0.48 (0.31, 0.75)*	0.57 (0.34, 0.96)*	0.68 (0.51, 0.93)*
Hispanic	0.32 (0.22, 0.46)*	0.40 (0.25, 0.62)*	0.59 (0.41, 0.87)*
Other race/ethnicity	0.57 (0.39, 0.84)*	0.69 (0.45, 1.08)	0.69 (0.45, 1.06)
Gender			
Female	Ref	Ref	Ref
Male	0.63 (0.52, 0.76)*	0.70 (0.55, 0.89)*	0.80 (0.64, 1.00)
Household Income			
$0-$19,999/yr	Ref	Ref	Ref
$20-$34,999/yr	1.74 (1.10, 2.74)*	1.56 (0.97, 2.50)	1.17 (0.66, 2.09)
$35-$49,999/yr	3.04 (2.01, 4.60)*	2.42 (1.54, 3.81)*	1.89 (1.26, 2.85)*
$50-$74,999/yr	4.42 (3.01, 6.49)*	3.79 (2.39, 5.99)*	1.71 (1.12, 2.63)*
≥$75,000/yr	6.48 (4.02, 10.45)*	5.36 (3.21, 8.96)*	1.66 (1.08, 2.55)*
Income Missing	2.17 (1.36, 3.47)*	2.23 (1.34, 3.34)*	1.03 (0.61, 1.74)
Model Wald χ^2 Statistic	χ^2 [21 df] = 1,753.64, $p < 0.001$	χ^2 [21 df] = 1,017.43, $p < 0.001$	χ^2 [21 df] = 204.12, $p < 0.001$

* Odds Ratio statistically significant at $p < 0.05$