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Understanding Health Inequalities for Uninsured Americans: A Population-wide Survey

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Numbers of the uninsured in America have risen in the past few years to more than 40 million people, yet relatively little is known about their health communication behaviors. Data from the 2003 Health Information National Trends Survey (HINTS) were used to analyze the relationship among demographics, health status, health insurance status, online health seeking, and amount of attention paid to various media for health. A random sample of 6,369 Americans indicated several statistically significant differences between the insured and uninsured: the uninsured were more likely younger, less educated, and Hispanic. Findings also indicated that those without health insurance reported being less healthy and more distressed and hold a greater risk perception for cancer, compared with their insured counterparts. Health insurance, when controlling for demographics and health status, explained a statistically significant but small amount of variance in both online health seeking and attention to health messages in various other media.

Background

The ranks of the uninsured in America have steadily risen over the past few years, from 39.8 million in 2000 to 45 million in 2004 (DeNavas-Walt, Proctoer, & Lee, 2005). To date, about one in seven Americans are without health coverage. Despite growing numbers of the medically uninsured in America today, there exists a dearth of understanding of their health conditions and risks, especially their health communication and information-seeking behaviors. There are obstacles to obtaining medical treatment and preventive services, especially among the growing numbers of medically uninsured persons who are at great risk for cancer and other behaviorally related health care problems. This study examines differences in the health conditions, perceived care and mediated health information-seeking behaviors in order to understand contemporary patterns of health inequalities and health informational gaps between the uninsured and insured.

Employing an ecological perspective of health behavior, this research examines factors associated with medical health insurance status and, in turn, how health insurance status is associated with access to health care and health information. Specifically, this article compares the insured with their uninsured counterparts with regard to the following: (1) health status, (2) perceived health threats, (3) perceived

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care, and (4) mediated health information-seeking behaviors, including access to the Internet. Through an integrated investigation of intrapersonal and interpersonal factors associated with medical health insurance status, this study highlights the importance of understanding the interrelations between layers of health inequalities experienced by the uninsured for health communicators seeking to target this critical population.

Health Inequalities and the Uninsured: An Ecological Approach

There exists a growing clamor in the public health sector to address the national health care crisis in America today. The burgeoning cost of health insurance, changes in poverty concentration, changing labor market conditions, increasing asset poverty, and growing immigrant populations are among some of the key economic and demographic trends that are changing the picture of health insurance coverage (Blumberg & Nicols, 2004). The health care milieu historically has been governed by the free market ideology and has treated health care like any other economic good. The American health care system has evolved to be a complex and fragmented set of providers, facilities, and services with much of the current organization of medical care structured to accommodate incentives in the reimbursement system where the needs of providers are oftentimes prized over the needs of patients (Cunningham, 2002; Grol, 2001). According to Davis (2001), the current American health system is a ''patchwork of insurance coverage'' relying on employer-sponsored insurance (ESI) coverage for the majority of working-age adults, the Medicare program for the elderly and disabled, and Medicaid and the State Children's Health Insurance Program (CHIP) for low-income adults and children. Consequently, there are multiple gaps in health care and health support program services, including the difficulties that many Americans face in obtaining private health insurance and dealing with an outdated Medicare program (Schoen, DesRoches, Donelan, & Blendon, 2000). Moreover, in recent years, the health care crisis has been exacerbated by skyrocketing health care costs and the exorbitant prices for prescription drugs, resulting in increases in citizens' premium contributions and copayments (The Kaiser Family Foundation, 2003).

In spite of the rising numbers of the uninsured within the past 5 years, there is a lack of awareness about the issues they face. In addition, misinformation about the uninsured exists. For example, only about a quarter of Americans are aware that more than 40 million people are uninsured, while about one half of the population believe that the number of uninsured persons has remained unchanged or diminished over the past 5 years (Blendon, Young, & DesRoches, 1999). Another myth is that the uninsured are well to do but simply prefer to go without health insurance coverage (Blendon et al., 1999). In fact, 55% of the uninsured, or 24 million people, have incomes below 200% of the federal poverty level (Davis, 2001). In addition, various studies suggest that being medically vulnerable is not the discrete or insular characteristic of the minority poor populations. Instead, the prevailing sense of threat of poor health, given the diminished access to availability and quality of healthcare, and uncertainty over the lack of adequate health care resources and information, is experienced bylarger segments of society. According to results of the sixth annual Health Confidence Survey, Americans are more concerned about health care coverage than terrorist attacks, education, war, taxes, or social security (Society for Human Resource Management, 2004). Only the economy ranks ahead of health care concerns as Americans are becoming increasingly worried about their ability to

obtain and maintain health insurance coverage. One half of all Americans say they have found medical bills to be a source of financial stress in the past 2 years. Thirty percent say they have either delayed or decided not to obtain health care, and only one third of Americans expressed confidence that they will be able to receive the treatment they mayrequire in the next 10 years.

The national health care crisis and health threats faced by millions of Americans, especially by the medically vulnerable, raise important questions about the health care ecology and resulting stratification processes in terms of health inequalities in access to health care and health information faced by the medically uninsured. Yet, a paucity of research exists with regard to the uninsured, particularly on the contemporary challenges that they experience in obtaining health care, information, and services (McLaughlin, Crow, Harrington, & Kuttner, 2004). Moreover, the bulk of recent research on health insurance has been undertaken by economists focusing on the relationships between labor market conditions and the demand and supply of health care coverage (e.g., Gruber, 2000; Short, 2000) as well as economic theories on decision making to describe the determinants of insurance enrollment (Schneider, 2004). Comparatively less research has been done investigating health inequalities in terms of health status and health communication patterns experienced by the uninsured. In particular, little research has focused on the health informational disparities associated with health information-seeking behaviors of the uninsured in spite of the intent and need to reach the uninsured using mediated mass media campaigns. Therefore, in the context of a stratified health care system, and the vast and rising numbers of the uninsured, this article examines the differences in the health conditions, perceived health risks, and health communication behaviors between the uninsured and insured in order to understand contemporary patterns of health inequalities.

> RQ1: To what extent and in what ways do the uninsured and insured differ in terms of their health conditions, perceived health threats, and health care?

Health Information Seeking, Media Use, and the Uninsured

Health consumers today have access to a variety of interpersonal and mediated health information resources, including the mass media and the Internet. Surveys on Internet use among Americans have found that online health information seeking has emerged as an important health resource for a growing number of Americans (Fox & Fallows, 2003). Results from the latest Pew Internet and American Life survey conducted in 2005 showed that the topic of health insurance has been searched by 31% of the population, making it amongst the top six most searched health topics online. Thirty-eight percent of online parents have checked online for health insurance information (Fox, 2005). Yet a proportion of the uninsured may face unique barriers to the Internet as a source of health information, and utilize different strategies of information seeking. In particular, health practitioners are concerned about segments of the population who do not apply for health insurance because of impaired decision making due to their lack of information about the health care system and health insurance procedures, thereby increasing their medical vulnerabilities (Pollack & Kronebusch, 2004).

Studying individual health information-seeking behaviors may add to understanding of the knowledge gap between the insured and uninsured. The knowledge

gap hypothesis posits that as the flow of information on a given topic into a community increases, people from higher socioeconomic status are in a better position to take advantage of the information compared with others, thus potentially leading to differential knowledge among social groups (Tichenor, Donohue, & Olien, 1970; Vishwanath & Finnegan, 1996). Past research on the knowledge gap hypothesis suggests that the choice of communication channels can play a significant role in contributing to or reducing knowledge gaps (Robinson, 1972; Tichenor et al., 1970), since those with higher social wealth tend to use print media while those of lower socioeconomic status tend to depend more on television (Dutta-Bergman, 2004; Viswanath & Finnegan, 1996). More recent research on the "digital divide" phenomenon evidences disparities in Internet access as well as postadoption online activities between various subgroups traditionally differentiated along the lines of income, gender, race, and education (e.g., Cheong & Wilkin, 2005; Katz & Rice, 2002; Martin, 2003; Mossberger, Tolbert, & Stansbury, 2003). Recent research has showed that about 95 million American adults have sought health information online and found that certain groups, including women, Internet users younger than 65, and college graduates were more likely to have sought health information online (Fox, 2005; Fox & Fallows, 2003). A scarcity of digital divide research exists in the area of health Internet use among the insured and uninsured populations, although the demographic characteristics of uninsured individuals suggest the gap in terms of access to health information online will widen in the future.

Moreover, most digital divide research tends to singularly focus on Internet access and typically does not consider the wider communication and media environment in which health consumers operate. As Hargittai, DiMaggio, Celeste, and Shafer (2004) note, research on the digital divide needs to account for how online inequality compares with inequality in use of other media technologies such as television, newspapers, radio, and face-to-face communication. This is because the Internet does not enter into society's communications environment tabula rasa but competes with an already-established habitus of older media and scarce resources (Ball-Rokeach, 1998). The reality of incorporating newer technologies to health communication is not merely an effortless addition to the current landscape. An ecological perspective highlights the importance of viewing health behavior, including health information seeking, in the context of other health communications and older media connection patterns. In an earlier study, Dutta-Bergman (2004) examined the communicative choices of the uninsured in a populationwide survey in 1995, and found that the uninsured are more likely to consume entertainment-based television. His study also found a negative relationship among interpersonal communication, community participation, print media usage, and insurance coverage. These data reported by Dutta-Bergman (2004), however, did not explore Internet use, nor did the analyses control for demographic characteristics when examining the effect of health insurance status on individuals' choice of health communication media. Cheong (in press) investigated the health communication ecology of Hispanic immigrants and found that the uninsured and insured differed in terms of their health communication choices and health-seeking behaviors. Hispanics who were insured were more likely to have a higher income and education, have less than full-time employment, and have access to a wider scope of ethnically targeted and mainstream English media resources, including the Internet. In contrast, the uninsured were more likely to tap into their interpersonal networks and ethnically targeted newspapers, radio, and television for their medical and health information. Her study

focused on the investigation of the health communication ecology of Hispanic immigrants who experience elevated risks of being medically uninsured, and thus the findings may not be applicable to other vulnerable populations in the country.

Furthermore, classic media studies have questioned if a "culture of poverty" exists with regard to mass media use, and it has been proposed that some types of vulnerabilities, such as low socioeconomic status, are likely to influence media use (Greenberg & Dervin, 1970). The uninsured may face marginalization and discrimination on multiple levels, resulting in health informational gaps and marginalized status in the health care system (Dutta-Bergman, 2004). It may be expected that the poorer, uninsured populations lag behind in health information access and face constraints in gaining access to certain types of health information, especially to health information available on newer media like the Internet. On the other hand, the perceived health threats faced by the uninsured may impel them toward paying more attention to health information and seeking health information from a variety of sources. This is because the impetus toward obtaining health insurance coverage starts with the presence of risk faced by every person's vulnerability to illness, injury, and disease and the intention to spread the burdens of that risk (Pollack & Kronebusch, 2004).

According to the transnational model of stress and coping, information seeking is the most commonly used coping method when under stress as a form of cognitive control to lessen health threats (Folkman & Lazarus, 1980; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). With regard to individual media relationships, media system dependency theory has identified perceptions of ambiguity and threat in the social environment as an antecedent affecting the intensity of peoples' media dependency relations (Ball-Rokeach, 1998). Previous research suggests that individual perception of threat and ambiguity will directly affect the level of dependency on the mass media and other interpersonal sources (Hirschburg, Dillman, & Ball-Rokeach, 1986; Loges, 1994; Nigg, 1982). Thus, in the case of health communication, perceived health risks may heighten one's attention to news media as people seek to find information to understand better and respond to the concerns and changes in their health and health care environment. This implies that in the case of the medically uninsured, digital inequalities need to be accessed in light of the other communication inequalities faced by the medically uninsured as well as the potentially threatening context in which they cope with their health constraints. More specifically, it is important to examine the ways in which sociodemographic factors, health insurance status, and perceived health threat potentially interact with and influence health information seeking behaviors. Hence research question is posed:

> RQ2: Do health insurance and perceived health threats individually and/or collectively affect health information seeking behaviors, including health information seeking online?

Method

Data

Data from this study are from the 2003 HINTS. The HINTS collects nationally representative data via telephone surveys every 2 years on the American public to track

the access to and use of new communication technologies and the need for, access to, and use of general health and cancer relevant information (Nelson et al., 2004). Data were collected from October 2002 through April 2003. The survey was administered by trained interviewers to a representative sample of U.S. households drawn from all telephone exchanges in the United States, with Blacks and Hispanics being oversampled. One adult aged 18 or older within each household was selected for the extended interviews during a household screening. Complete interviews were conducted with 6,369 persons. The final response rate for the household screener was 55%, and the final response rate for the extended interview was 62.8%. Details about the sample and the sampling design are published online (http://cancercontrol.cancer.gov/hints/instrument.jsp). For the purposes of this research, the HINTS data set provided a unique opportunity to examine health condition factors associated with health insurance status in previous research as well as factors relevant to general health information seeking behaviors in a large, national population-based survey.

Measures

The survey instrument contained questions on individual health conditions, perceived health risks, perceived health care, sources of, and attention to health information and health insurance status. Specific details of each measure are described below.

Demographics

Sociodemographic factors including age, gender, income, education, race/ethnicity, and employment status were used in the analyses. Respondents were asked their age on their last birthday. Income was measured by the annual household income from all sources in 8 categories, ranging from "less than $25,000" to "$75,000 or more." Education was represented with three categories: less than high school, high school graduate or GED, and more than high school. Race/ethnicity was represented with 4 categories (Non-Hispanic White, Non-Hispanic African-American, Hispanic, and Other). Respondents were asked about their current employment status. Respondents who were employed for wages were coded as "1"; other circumstances, including out of work, self-employed, retired, or homemaker status, were coded as "0."

Physical and Mental Health Status

Physical health status was self-reported on a 5-point scale ranging from 1 = excellent to 5 = poor. A psychological distress composite was calculated by summing respondents' responses (all of the time, most of the time, some of the time, a little of the time, none of the time) to the following conditions in the last 30 days: (a) so sad that nothing could cheer you up, (b) nervous, (c) restless or fidgety, (d) hopeless, (e) that everything was an effort, and (f) worthless.

Perceived Health Threat

Health threats/risks were assessed by asking respondents about their personal health risk of getting cancer in the future, measured on a 5-point scale from very low to very high. Respondents also were asked how often they worry about getting cancer (rarely or never, sometimes, often, or all the time). These items were related ($r = .5$) and were therefore combined to form a perceived health threat composite.

Perceptions Regarding Health Care Communication

For perceived health care, respondents were asked to rate their general perceptions about the quality of their communication with their health care providers in the past 12 months. Respondents were asked to rate how often doctors or other health care providers engaged in the following activities: (1) listened carefully to you, (2) explained things in a way you could understand, (3) showed respect for what you had to say, (4) spent enough time with you, and (5) involved you in decisions about your health care. Responses were on the following 4-point scale: always, usually, sometimes, never.

Health Insurance Status

Health insurance coverage was measured by a self-reported item, similar to extant research that examined health insurance. Respondents were asked if they have any kind of health care coverage, including health insurance, prepaid plans such as health maintenance organization (HMOs), or government plans such as Medicare.

Health Internet Use

Health Internet use was measured by aggregating the affirmative responses to two questions concerning health Internet use by asking respondents if they had used the Internet in the past 12 months to look for health or medical information for themselves (yes or no) or for someone else (yes or no). Health Internet users were coded as "1," and nonusers as "0."

Attention to Health Messages in Other Media

To further understand the various other media resources that are utilized for health information, respondents also were asked about how much they attended to health information across a number of media aside from the Internet. Respondents were asked to indicate how often (a lot, sometimes, a little, not at all) they pay attention to information about health or medical topics from the following sources: television, radio, newspapers, and magazines. Responses from these 4 items were combined to form a composite measure.

Frequency of Internet Health Information Seeking

Health information seeking was measured by asking the Internet users if and how frequently they had searched for health or medical information on the Internet in the past 12 months. Response categories were grouped into four categories, with "1" indicating less than every few months, "2" indicating every few months, "3" once a month, and "4" once a week.

Online Health Activity Scope

Online health activity scope was measured by aggregating the health-related activities that respondents participated in online, including the following items: (a) bought medicine or vitamins online, (b) participated in an online support group for people with a similar health or medical issue, (c) used e-mail or the Internet to communicate with a doctor or a doctor's office, (d) looked for health or medical information, (e) done anything else health related on the Internet.

Analysis

Most conventional statistical procedures operate on the assumption that the data to be analyzed have been drawn from a simple random sample. The sampling methodology for the HINTS dataset went beyond that of a simple random sample and, as such, the complex sampling procedures must be accounted for in any analyses of the data. To this end, within the dataset, weights are provided for each subject for accurate point estimates, and a set of 50 replicate weights is present for jackknife variance estimation procedures. To account for HINTS' complex sampling and weighting schemes, all analyses were carried out using SAS-callable SUDAAN 9.0.1.

Comparisons between the insured and uninsured with regard to sociodemographic characteristics, physical and mental health status, and perceptions of health care were made using independent-samples *t* tests for continuous variables and chi-square tests for categorical data. Logistic regression was used to examine potential predictors of whether one used the Internet for health information seeking. Sets of variables were entered as blocks to control for their potential colinearity and to better identify the unique variance explained by each block of variables. Sociodemographic variables (age, gender, employment status, educational level, household income, and race/ethnicity) comprised the first block, followed by health status, then perceived health risk, followed finally by insurance status. The same sets of predictor variables were tested in a blockwise fashion in a series of linear regressions predicting attention to health messages in other media and for the subset of reported Internet users, the frequency of health information seeking, and the scope of their online health information seeking activities.

Results

Characteristics of the Sample

Of the total 6,369 respondents, 48% were male and 52% were female. Respondents ranged in age from 18 to 95, with a median age of 46. With regard to educational attainment, 17% attained less than a high school education, 32% were high school graduates, and 51% attained at least some college education. Approximately 29% of respondents reported an annual household income of less than $25,000, and 23% report a household income of more than $75,000. With regard to race/ethnicity, 72% were non-Hispanic White, 12% were Hispanic, and 10% were African American. About 60% of survey respondents were employed for wages, and 15% reported that they had no health insurance coverage.

Differences Between the Uninsured and Insured

Table 1 provides details on the many comparisons between the insured and their uninsured peers. Relative to those with health insurance coverage, the uninsured tended to be younger, male, low income, less educated, and Hispanic. Additionally, the uninsured reported poorer physical and mental health status, less positive health care experiences, and greater perceived risk for developing cancer, but were less likely to use the Internet to seek health information and attended less to media messages regarding health.

Table 1. Comparisons between the insured and uninsured

Variable	Uninsured	Insured	t/X^2	p
Demographics				
Mean age	36.10	47.00	16.63	<.001
Female	43.7%	53.4%	28.10	<.001
Income				
<$25,000	56.5%	24.5%	332.79	<.001
$25,000 to <$35,000	18.3%	12.7%		
$35,000 to <$50,000	14.5%	17.6%		
$50,000 to <$75,000	6.9%	19.3%		
>$75,000	3.8%	26.0%		
Education				
Less than high school grad	34.0%	13.8%	131.40	<.001
High school grad/GED	35.6%	31.3%		
Greater than high school	30.3%	54.8%		
Race/ethnicity				
Hispanic	32.6%	8.2%	181.18	<.001
Non-Hispanic White	46.4%	76.2%		
Non-Hispanic African American	12.8%	10.1%		
Other	8.2%	5.6%		
Unemployed	37.5%	40.6%	2.02	.162
Health status[a]				
General health status	3.02	2.67	6.64	<.001
Perceived cancer risk	4.01	4.23	2.49	.016
Psychological distress	6.14	4.47	8.14	<.001
Perceived health care[b]				
Doctor listened carefully	1.71	1.50	5.09	<.001
Doctor explained things well	1.70	1.48	4.24	<.001
Doctor showed respect	1.56	1.37	3.68	<.001
Doctor spent enough time	1.87	1.65	3.85	<.001
Doctor involved you in decisions	1.83	1.56	4.54	<.001
Health information seeking				
Use Internet for health information	23.8%	43.0%	88.19	<.001
Attention to health messages in other media	2.21	2.44	6.19	<.001

Notes: [a]For general health status, perceived cancer risk, and psychological distress, lower values indicate better status.

[b]All items were measured on a scale where 1 = always, and 4 = never, so lower values indicate better perceived care.

Predicting Health Internet Use

The logistic regression model predicting whether one uses the Internet for health information seeking is summarized in Table 2. Within the block of demographic variables, many were significant predictors of health Internet use. For example, compared with those individuals in the 65 and over age group, individuals in each of the three younger age categories were more likely to seek health information online, with the most marked difference between the youngest age group (18–34) and the 65 and

Table 2. Predictors of health Internet use

Predictor	*b*	SE	OR	95% CI	*p*
Demographics—$R^2 = .24$					
Mean age					
18–34	2.39	0.17	10.87	7.79, 15.15	<.001
35–49	1.90	0.17	6.67	4.75, 9.36	<.001
50–64	1.32	0.16	3.75	2.74, 5.13	<.001
65 and older (Ref)	–	–	–	–	–
Male	−.46	0.10	0.63	0.51, 0.77	<.001
Income					
<$25,000 (Ref)	–	–	–	–	–
$25,000 to <$35,000	0.48	0.17	1.61	1.15, 2.27	.007
$35,000 to <$50,000	0.53	0.17	1.70	1.21, 2.40	.003
$50,000 to <$75,000	1.02	0.17	2.77	1.97, 3.89	<.001
>$75,000	1.25	0.17	3.47	2.48, 4.86	<.001
Education					
Less than high school grad (Ref)	–	–	–	–	–
High school grad/GED	0.41	0.24	1.50	0.92, 2.45	.102
Greater than high school	1.38	0.24	3.98	2.48, 6.38	<.001
Race/ethnicity					
Hispanic	−0.74	0.17	0.48	0.34, 0.67	<.001
Non-Hispanic White (Ref)	–	–	–	–	–
Non-Hispanic African American	−0.36	0.16	0.70	0.50, 0.96	.030
Other	−0.06	0.20	0.94	0.63, 1.41	.774
Employed	−0.27	0.09	0.77	0.63, 0.93	.007
Health Status—$\Delta R^2 = +.001$					
Excellent	0.12	0.13	1.13	0.86, 1.48	.361
Very good	0.11	0.09	1.11	0.93, 1.32	.228
Good (Ref)	–	–	–	–	–
Fair	−0.02	0.14	0.98	0.74, 1.29	.886
Poor	0.17	0.29	1.19	0.67, 2.12	.547
Perceived cancer risk—$\Delta R^2 = -.014$	0.08	0.03	1.08	1.02, 1.15	.016
Uninsured—$\Delta R^2 = +.004$	−.41	0.14	0.66	0.50, 0.88	.006
Total $R^2 = .25$					

older group. Individuals in the 18-to-34-year-old age group were nearly 11 times more likely than their oldest peers to access health information online. Females were about one-and-a-half times more likely than males to engage in online health information seeking, and those with higher income levels also evidenced an increased likelihood. Although there was not a significant difference between high school graduates/GED holders and those with less than a high school education in terms of their likelihood to engage in online health information seeking, those with any amount of education beyond high school were nearly four times more likely than those who failed to complete high school. Compared with their White majority peers, Hispanics and African Americans were significantly less likely to access online

health information, but those in the "Other" race/ethnicity category did not differ significantly from their White peers. Interestingly, individuals employed for wages were only about three fourths as likely as the unemployed to engage in online health information seeking.

Health status was not significantly related to health Internet use, but increased perceived risk of cancer was associated with a slight increase in the likelihood of online health information seeking. Finally, those with health insurance coverage were about one-and-a-half times more likely to engage in health Internet use relative to the uninsured. Overall, the regression model on online health information seeking predicted 24% of the variance, with most of the variance accounted for by demographic factors.

Predicting Attention to Health Messages in Other Media

Similar to the results from the above logistic model predicting health Internet use, males and individuals who are employed for wages attend significantly less to health messages on television and radio and in newspapers and magazines (Table 3). In addition, a similar pattern with regard to education level emerged. Specifically, there was no difference between high school graduates and those with less than a complete high school education; however, those who went on to educational pursuits beyond high school show significantly greater attention to health messages than those at the lowest level of educational attainment. Individuals who perceive themselves to be under greater health threat paid higher levels of attention to health messages. On the other hand, the uninsured paid significantly less attention to media for health information.

In addition to the above similarities, several differences emerged between the models predicting health Internet use and attention to health messages from other media. For example, although income was an important predictor of health Internet use, it was not significantly related to level of attention paid to health information from other media. Moreover, although both Hispanics and African Americans were less likely than Whites to engage in online health information seeking, there was no difference between Hispanics and Whites, and African Americans showed higher levels of attention to health information from other media sources. Individuals in the 18-to-34-year-old age group did not differ from those in the oldest age group, but those in the middle two age groups (35 to 49, and 50 to 64) showed a greater degree of attention to health messages than those in the 65 and older group. Finally, those with the poorest health status showed a lower level of attention to health messages relative to those in good health.

Factors Affecting Frequency and Scope of Online Health Use

These analyses were performed on the subset of Internet users rather than on the entire population represented by the dataset. For frequency of online health information seeking, the model R^2 was .034, with race/ethnicity and perceived cancer risk emerging as significant predictors. More frequent Internet use was positively associated with perceived cancer risk ($b = .08$, $p < .001$) and with being African American ($b = .20$, $p = .04$) or Other ($b = .32$, $p = .03$) relative to being White. For the scope of online health use, the model R^2 was .068, with age, employment status, race/ethnicity, and perceived cancer risk emerging as significant predictors. A wider scope

Table 3. Predictors of attention to health messages in other media

Predictor	*b*	SE	95% CI	*p*
Demographics—$R^2 = .0888$				
Mean age				
18–34	0.02	0.05	−0.08, 0.11	.750
35–49	0.13	0.05	0.03, 0.24	.016
50–64	0.18	0.06	0.06, 0.29	.004
65 and older (Ref)	–	–	–	–
Male	−0.28	0.03	−0.33, −0.23	<.001
Income				
<$25,000 (Ref)	–	–	–	–
$25,000 to <$35,000	−0.02	0.04	−0.10, 0.06	.598
$35,000 to <$50,000	−0.01	0.04	−0.09, 0.08	.881
$50,000 to <$75,000	0.07	0.05	−0.04, 0.17	.198
>$75,000	0.06	0.04	−0.03, 0.15	.164
Education				
Less than high school grad (Ref)	–	–	–	–
High school grad/GED	0.04	0.04	−0.05, 0.13	.333
Greater than high school	0.25	0.05	0.16, 0.34	<.001
Race/ethnicity				
Hispanic	0.02	0.05	−0.07, 0.12	.624
Non-Hispanic White (Ref)	–	–	–	–
Non-Hispanic African American	0.26	0.05	0.15, 0.37	<.001
Other	−0.02	0.06	−0.14, 0.09	.690
Employed	−0.13	0.03	−0.19, −0.06	<.001
Health status—$\Delta R^2 = +.0056$				
Excellent	−0.02	0.05	−0.12, 0.07	.606
Very good	0.05	0.03	−0.02, 0.12	.135
Good (Ref)	–	–	–	–
Fair	0.04	0.05	−0.06, 0.13	.428
Poor	−0.25	0.07	−0.39, −0.12	<.001
Perceived cancer risk—$\Delta R^2 = +.0099$	0.06	0.01	0.03, 0.08	<.001
Uninsured—$\Delta R^2 = +.0022$	−0.09	0.04	−0.18, −0.01	.028
Total $R^2 = .11$				

of online health activity was positively associated with increased perceived cancer risk ($b = .09$, $p < .001$), Other ($b = .25$, $p = .05$) race/ethnicity, and being in the 50-to-64-year-old age group ($b = .42$, $p = .006$). Being employed for wages ($b = -.19$, $p = .003$) was negatively related to online health activity scope.

Discussion

The current data reported are important to health communication professionals who are interested in studying and potentially influencing, through campaigns, the

swelling number of adults in the United States who do not have basic health insurance coverage. The current study uses self-report data taken from a representative sample of Americans, whereas previous research on the uninsured (e.g., Cheong, in press; Feeley, Rizzo, & Osborne, 2004) typically studies either a specifically targeted demographic group or a convenience sample of adults for analysis. Moreover, the current data are both representative and remarkable, with more than 6000 respondents—providing confidence in population and effect size estimates from univariate and multivariate analyses.

The current data provide a more complete picture of the complex relationships among demographics, health status, insurance, and health-seeking behaviors. Clearly, examining the relationship between health insurance and online (and offline) health seeking is incomplete when limiting the focus to only health insurance status and Internet use for health information. Consider that the uninsured, compared with the insured, are poorer, less educated, disproportionately minority, and male. Just as important, the 15% who do not have health insurance are less healthy physically and psychologically, report more distress, and report fewer immediacy behaviors (e.g., listening, explaining, involvement) in the physician–patient interaction compared with the insured. These data suggest that the uninsured American could benefit greatly from quality, user-friendly information provided at minimal or no charge from communication media. It appears, however, the uninsured pay less attention to health messages across various media and are less likely to seek out more information via the Internet. The current picture painted by the HINTS data suggest that the uninsured may be less *able* to access and navigate certain online health resources due to limited education, training, or financial resources.

Another finding from the current data is the meager relationship between insurance status and health seeking behaviors when you control for demographics and health status. It appears that insurance status may be a proxy variable for socioeconomic status, health access, and health outcome factors, given the escalating costs of health costs and insurance coverage in America in the recent decade (DeNavas-Walt, Proctor, & Mills, 2004). Ku and Waidmann (2003) also illustrated the relationships among other demographic factors like race, immigration status, and language to health insurance coverage, access to care, and quality of health care experienced by low-income populations. Having stated this, it is important to note that the uninsured feel more vulnerable in terms of cancer risk while at the same time report significantly greater psychological distress; this suggests that those lacking health insurance may suffer both physically and psychologically.

Both digital divide and knowledge-gap theorists should take heed of the current data that evidence further marginalization of the uninsured. Specifically, findings showed that even though the uninsured tend to have poorer physical and mental health, perceive themselves as being at higher risk for cancer, and have less positive health care experiences, they are less likely to use the Internet to seek health information and pay less attention to health messages from other media (television, radio, newspapers, and magazines). In addition, findings support further digital divide research, in the context of older, more established media in one's health communication ecology. Although results showed that low-income, minority individuals were less likely to access the Internet for health information, it was found that income is not related to how much they attend to television, radio, newspaper, and magazine health messages. In fact, African Americans and Other individuals show higher levels of attention to health messages in other media. Thus, it seems that traditionally

vulnerable populations are missing out on digital experiences and health information found online. These results have implications for health communicators who are seeking to reach the insured via mediated campaigns, as the findings indicate that the use of the Internet must be accompanied by other traditional forms of media because online resources may not be utilized or accessible to those who are uninsured, have low-income, and are ethnic minorities.

Interpretation of the current results should be done with caution due to several study limitations. First, many of the current study factors are based on single-item measures, such as health insurance status and general health status. Future studies would benefit from more comprehensive measures of each critical study factor. For example, health insurance is not as simple as "having it" or "not having it," as one could have limited coverage or could be in between policies as is the case when switching employers. Patterns of individual health insurance coverage may change due to the dynamics of the federal and state insurance reform efforts (Ziller, Coburn, McBride, & Andrews, 2004).

Second, it may be the case that those who have more experience going without health insurance may be more expert and savvy about managing health through nontraditional means, such as the Internet. Moreover, many counties and public health officials have used the Internet to provide information about free-of-cost or sliding-fee health services for inner-city and rural residents (Feeley et al., 2004). In addition, what is known from the data is that individuals with higher socioeconomic status (SES) are less likely to be uninsured and more likely to be online health seekers. What is unknown, however, is how health seeking online differs for the insured and uninsured. If Fox (2005) has identified health insurance as a popular search topic, then how do users arrive at this topic and what is done with the accessed information? The most obvious state of affairs would have an uninsured individual searching for health service or medical information online. It may also be the case that individuals who have insurance are searching for health service or coverage information for a friend or family member who is uninsured (e.g., Dickerson et al., 2004). Alternatively, someone with health insurance may be searching for coverage information or provider contact information online. In any of the above instances, the health-seeking topic would be categorized as "health insurance" despite stark differences between individual needs and motivations for seeking information. Future research should seek to inform health communication scholars about how often online health insurance is being sought after and to what end.

Another limitation of the current research is the lack of data on health outcomes for the uninsured and more sophisticated information on how specifically the uninsured obtain health care (e.g., emergency room, public clinics), how often, and for what ailments. Furthermore, future research, perhaps through qualitative research, would go far in identifying what prompts individuals to actively seek health information from various communication channels. It may be the case that heavy media consumption begets even heavier media consumption. Conceivably one could hear a radio news report on a recent advancement to curb diabetes and proceed to search for the article or additional information online. Related to the uninsured, an individual may be forced to rely on media for more information about symptoms or treatment for childhood asthma before seeking treatment from a clinic or emergency room. In light of the large numbers of the uninsured and the current inadequacies of the health care system, increased attention to the multiple and interrelated health

inequalities faced by the uninsured at the health care and health communication levels is needed to better understand, reach out to, and provide for this critical population.

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