The Confidence of Health Information Seeking Behaviors from the Internet

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ABSTRACT

As a tremendous amount of health information available from the Internet, people feel less confidence in their ability to seek well-organized, high quality, and well-referenced health information. This study used 2012 Health Information National Trends Survey (HINTS) data to find that little confidence in their ability to find information were found in Hispanic, older adults, and had lower annual incomes. Furthermore, individuals who frustrated searching health information and who could not stop or control worrying had less confidence on seeking information. In addition, making own decisions, doctor's communication and doctor's attention were significant predictors of the levels of confidence. These findings would help identify how individuals' behaviors affect their level of confidence in their ability to find health information. Therefore, health care information vendors, policy makers, information specialists, and health professional could improve the development and delivery of health information to the general public.

Keywords: Confidence, policy makers, health professional, Internet

INTRODUCTION

Seeking and understanding health-related information from diversity of media sources has become a part of everyday life. A considerable amount of research revealed that the Internet is recognized as a primary media source of health and medical information (Ahmann, 2000; Chan, 2012; Diaz, 2002; Eysenbach, 1999; Haynes, 2001; Nettleton, 2003; Société française de santé publique, 2009). In 2012, the Pew Internet & American Life Project reported that 81% of U.S. adults use the Internet and 72% of those reported they have looked for health information online.

Numerous studies have identified online health information seeking behaviors associated with socio-demographic factors such as age, education, and annual incomes (Broom, 2008; Chen, 2001; Murray, 2003; Société française de santé publique, 2009; H. H. Y.M. Chan, H. Mei, 2012). Individuals who are younger, have higher education, and have higher incomes were more likely to seek health-related information online (Société française de santé publique, 2009). In addition, online health information seekers were healthier and happier than offline health information seekers (Société française de santé publique, 2009). The reliance on the Internet for health formation has risen a question that how confident of individuals get health-related information from the Internet.

Being confident of getting health and medical information online is particularly important for people to understand health knowledge. Number of studies has revealed that being confident of getting health information could reduce information overload. Individuals who were less confident in finding health-related information were more likely to suffer cancer information

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overload (Kyunghye Kim, 2007). Furthermore, people felt unconfident finding health information were more likely to have challenges of overweight information overload (H. H. Y.M. Chan, 2013). However, little is known about the characteristics of individuals confidently get the health-related information from the Internet.

This study investigates the potential factors (socio-demographics, health communication, and attitudinal behaviors) associated with confident health information seeking. These findings will help understanding a profile of people who have confident getting health and medical information. Recognizing these behaviors, individuals could build their confidence when searching for the health-related information in order to reduce information overload.

MATERIAL AND METHODS

The Health Information National Trends Survey 2012 (HINTS) is a telephone and survey conducted by the National Cancer Institute to study health information seeking behavior. 2,228 individuals reported that they looked for health information or medical topics from the Internet. Out of that, approximately 64.7% reported that they are confident to get health-related information, while 35.3% don't. Participants in this study stated that "Overall, how confident are you that you could get advice or information about health or medical topics if you needed it?" The responses were classified as "completely confident", "very confident", "somewhat confident", "a little confident", and "not confident at all". This variable was collapsed into two groups: those who reported "completely confident" and "very confident" as "confident", and those who indicated "somewhat confident", "a little confident", and "not confident at all" as "non-confident". After excluding the missing or unknown data, the final dataset includes 1,514 individuals.

Socio-demographic Characteristics

The following socio-demographic variables were included in the analysis: age (18-34, 35-39, 40-45, 45+); gender (male, female); education levels (<high school, high school graduate, some college, college graduate); race/ethnicity (Hispanic, non-Hispanic white, non-Hispanic black, other); and annual family income (<$20,000, $20,000-$34,999, $35,000-$49,999, $50,000-$74,999, ≥$75,000).

Health Communication

Health communication plays a critical role in receiving information from formal and informal sources. It is important to understand to what degree of people trust such information. The questions included: "In the past 12 months, how often did you feel that you could rely on your doctors, nurses, or other health care professionals to take care of your health care needs?" Participants were asked to respond in a range from "always" to "never." "In the past 12 months, how often did your health professional: Give the attention you needed to your feelings and emotions?" The responses ranged from "always" to "never." "In the past 12 months, how often did your health professional: Involve you in decisions about your health care as much as you wanted?" Participants were asked to respond in a range from "always" to "never." "In the past 12 months, have you talked to a health professional about any kind of health info you have gotten from the internet?" The responses were classified as "yes" and "no".

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Attitudinal Behaviors

This study also included attitudinal variables: "Based on your most recent search for information about health and medical topics, how much do you agree or disagree: You felt frustrated during your search for the information." Participants were asked to respond in a range from "strongly agree" to "strongly disagree." "Over the past 2 weeks, how often have you experienced: Feeling down, depressed or hopeless?" The responses ranged from "nearly every day" to "not at all." "Over the past 2 weeks, how often have you experienced: Little interest or pleasure in doing things?" The responses ranged from "nearly every day" to "not at all." "Over the past 2 weeks, how often have you experienced: Feeling nervous, anxious or on edge?" The responses ranged from "nearly every day" to "not at all." "Over the past 2 weeks, how often have you experienced: Not being able to stop or control worrying?" The responses ranged from "nearly every day" to "not at all."

This study addressed the following research questions:

- What are the characteristics of individuals having confident to get health or medical information from the Internet?
- What factors are significantly associated with confidence?

These questions were investigated by analyzing the correlation between confidence and the factors related to socio-demographic status, health communication, and attitudinal behaviors.

STATISTICAL ANALYSIS

A series of Chi-squared tests were performed to determine significant correlation differences between confident getting health-related information from the Internet and the following variables: socio-demographics, health communication, and attitudinal behaviors. Logistic regression analysis was used to identify which of these variables could significantly predict the probability of confident getting health-related information. Data analysis was conducted using STATA 11 software (College Station, Texas, USA).

RESULTS

The socio-demographics analysis indicated that the majority of the sample population was 45 years of age or above (63%). Most of the responders were female (62%). The majority of responders reported their race as non-Hispanic white (75%). Approximately 54% of the respondents reported their educational status as college graduate or more, while 3% reported less than high school. Annual household income status revealed that 40% earned $75,000 or more, while 13% earned less than $20,000. The percentages and chi-square analysis between the factors and confidence on getting health information form the Internet are shown in Table 1.

Confidence was found to be significantly related to age ($p = 0.049$), race ($p = 0.041$), education ($p = 0.044$), and annual income ($p = 0.001$). Individuals had confident on getting health-related information form the Internet were more likely to be younger age, those who had higher education, and those whose annual incomes were more than $75,000. Non-Hispanic whites and non-Hispanic African Americans were more likely to report confidence searching health information.

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Table 1. Chi-Square Analysis of Individuals' Characteristics between Confidence and Non-Confidence Online Users

Characteristics	*Confidence on Getting Health or Medical Topics*		
	Non-Confidence (%)	*Confidence (%)*	*p-value*
Socio-Demographic			
Age			0.049
18-34	18.68	19.1	
35-39	7.78	10.1	
40-44	6.81	9.6	
45+	66.73	61.2	
Gender			0.083
Male	40.66	36.1	
Female	59.34	63.9	
Race			0.041
Hispanic	12.84	8.9	
White	74.32	76.1	
Black	12.84	15	
Education			0.044
Less than high school	4.09	2.5	
high school graduate	13.23	10.3	
some college	33.07	31.4	
college graduate	49.61	55.8	
Income			0.001
less than $20,000	17.12	10.7	
$20,000 to < $35,000	14.2	14.1	
$35,000 to < $50,000	14.2	13.2	
$50,000 to < $75,000	20.82	19.2	
$75,000 or more	33.66	42.8	
Health Communication			
Doctors take care of needs			< 0.0001
always	33.85	57.1	
usually	45.14	34.9	
sometimes	18.29	7.5	
never	2.72	0.5	
Doctors pay attention to your feelings and emotions			< 0.0001
always	28.4	46.4	
usually	39.11	34.7	
sometimes	24.71	15.2	
never	7.78	3.7	
Make own decisions about your			< 0.0001

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health			
always	36.77	56.99	
usually	36.77	31.4	
sometimes	20.82	9.8	
never	5.64	1.9	
Talked to doctors about health information from the Internet			0.001
Yes	29.38	37.6	
No	70.62	62.4	
Attitudinal Behaviors			
Frustrated to search health information			< 0.0001
strongly agree	18.48	3.8	
somewhat agree	38.91	13.6	
somewhat disagree	28.99	30.2	
strongly disagree	13.62	52.4	
Feeling down and depressed			< 0.0001
nearly every day	6.03	3.5	
more than half the day	8.95	5.7	
several days	29.57	21.7	
not at all	55.45	69.1	
Little interest or pleasure in doing things			< 0.0001
nearly every day	7.59	4.6	
more than half the day	10.31	6.2	
several days	28.4	22.9	
not at all	5..7	66.3	
Nervous			0.002
nearly every day	7.39	3.7	
more than half the day	9.34	7.1	
several days	33.07	31.5	
not at all	50.19	57.7	
Not being able to stop or control worrying			< 0.0001
nearly every day	9.73	4.7	
more than half the day	8.56	5.5	
several days	25.29	22.3	
not at all	56.42	67.5	

As for health communication variables, this study revealed that individuals who always talked to doctors or health professional were more confident to seek health information ($p = 0.001$). People who always made their own decisions regarding to health were more confident to search information ($p < 0.0001$). Furthermore, individuals, who were experiences on

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doctors always took care of their needs and always addressed their feelings and emotions, were more confident on getting health information ($p < 0.0001$).

Among the attitudinal behaviors, individuals who experience frustrated were less confident searching health information. In addition, People who felt down and depressed, little interest in doing things, nervous, and not being able to stop or control worrying, were less confident seeking health or medical information when they needed it. The corresponding p-value are < 0.0001, < 0.0001), 0.002, and < 0.0001, respectively.

The results of the logistic regression analysis revealed that the factors could significantly function as predictors of confidence. Summaries of the significantly associated factors are shown in Table 2.

Table 2. Logistic Regression Analysis of Significant Predictors of Confidence

Characteristics	*Odds Ratios (95% Confidence Interval)*
Socio-Demographic	
Age	
18-34	1
35-39	1.01 (0.6, 1.71)
40-44	0.98 (0.57, 1.68)
45+	0.71 (0.50, 0.99) *
Race	
Hispanic	1
White	1.42 (0.94, 2.14)
Black	1.80 (1.07, 3.02) *
Income	
less than $20,000	1
$20,000 to < $35,000	1.16 (1.00, 2.67) *
$35,000 to < $50,000	1.19 (0.72, 1.94)
$50,000 to < $75,000	1.16 (0.73, 1.86)
$75,000 or more	1.56 (1.00, 2.42) *
Health Communication	
Doctors take care of needs	
always	1
usually	0.70 (0.52, 0.95) *
sometimes	0.52 (0.32, 0.84) **
never	0.24 (0.07, 0.80) *
Doctors pay attention to your feelings and emotions	
always	1
usually	0.70 (0.49, 0.99) *
sometimes	0.84 (0.53, 1.34)

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never	1.00 (0.50, 1.99)
Make own decisions about your health	
always	1
usually	0.92 (0.65, 1.30)
sometimes	0.55 (0.33, 0.90) *
never	0.51 (0.22, 1.15)
Talked to doctors about health information from the Internet	
Yes	1
No	0.68 (0.52, 0.90) **
Attitudinal Behaviors	
Frustrated to search health information	
strongly agree	1
somewhat agree	1.45 (0.92, 2.30)
somewhat disagree	4.21 (2.68, 6.62) ***
strongly disagree	14.77 (9.16, 23.83) ***
Not being able to stop or control worrying	
nearly every day	1
more than half the day	1.33 (0.64, 2.74)
several days	1.73 (0.84, 3.56)
not at all	1.91 (1.91, 4.02) *

Note. *p<0.05, **p<0.01, ***p<0.001

Among socio-demographic factors, individuals who were older aged, had lower annual income, and being Hispanic were less confidence searching health information from the Internet. Regarding health communication factors, people who talked to doctors, always made own health decisions, were experiences on doctors always took care of their needs and always addressed their feelings and emotions, were more confident to seek health information online. Concerning attitudinal behavior factors, individuals who felt frustrated searching health information and could not be able to stop or control worrying, were less confident in their ability to find health information.

DISCUSSION

Confidence in obtaining health or medical information is particularly important skill for individuals to stay in good health. This study included two bivariate data analysis investigating health information seeking behaviors associated with confidence. Previous research revealed that individuals, who had lower educational level, had lower annual income were less confidence in their ability to obtain health information (Richardson, Allen, Xiao, & Vallone, 2012). This is consistent with our findings that individuals with higher annual income had more confidence in obtaining health information. However, educational level was correlated with confidence but was not a predictor. This might be due to the fact that people with lower educational level had less seeking health-related information form the Internet. A

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study showed that individuals who seek health information online were more likely to be more educated and younger age (Shelia R. Cotten*, 2004). This might also explain that age was found to be significantly associated with confidence. Individuals with younger age had more confidence in searching health information. Younger ages of people are more experiences on using the Internet. Thus, they might build self-confidence in seeking health information.

Furthermore, race was significantly associated with confidence. Hispanics were statistically significant less confidence compared with non-Hispanic white and non-Hispanic black. One explanation might be that health numeracy confidence exists in racial/ethnic disparities. Health numeracy skills play an important role in process information. Research revealed that U.S. Hispanic population had lower health numeracy confidence than white population (Fagerlin, 2007; Hong Huang, 2012). The other reason might be due to the fact that Hispanics were less likely to seek health-related information online. Prior study indicated that lower Internet health information seeking was found among Hispanic groups (a-Purcell, 2008).

As for health communication variables, the findings revealed that doctors play a major role in increasing the level of confidence in individuals' ability seeking health-related information from the Internet. People, who talked to doctors about health information from the Internet, who always made own health decisions, had more confidence in their ability to search health information. One explanation might be that patients gained sufficient knowledge on the health websites, which guide them the right question to their doctors (Hassan, 2013). The other reason could be that there exists a strategy, shared decision making to improve patients' confidence on seeking health information. Pervious study revealed that shared decision making involves collaboration and discussion between doctors and patients to achieve the satisfying treatment decision (Whitley, 2009). This could increase the communication between doctors and patients so that patients could increase the level of confidence and make their own decision regarding to their health.

Furthermore, individuals who had experiences on always being taken care by doctors, and always addressed their feelings and emotions from the doctors, were more confidence in their ability to seek health-related information online. One possible explanation might be that patients visit/consult their regular doctor. Previous research showed that patients consulting the regular doctor were experiencing the highest levels of trust and satisfaction with consultations; thereby increasing the level of confidence (Richard Baker, 2003). The other possible reason might be the length of visiting time between physicians and patients. Existed research revealed that patients who experienced positive physicians affect and longer visits were more likely to have higher level of trust and confidence seeking health information (Martin, Roter, Beach, Carson, & Cooper, 2013).

As for attitudinal behavior variables, individuals who always could not stop or control worrying and who frustrated searching health information were less confidence in their ability to seek health-related information online. One explanation people experiencing less confidence might be that worrying was associated with poor psychological results such as poor problem-solving confidence, poor perceived personal control, and responsibility for negative but not positive outcomes (Davey, Hampton, Farrell, & Davidson, 1992). The other possible reason is that people with serious psychological distress were more likely to avoid visiting a doctor (Jiali Ye, 2012). They might be experiencing lack of communication with

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doctors; thereby decreasing the level of confidence in their ability to seek health information from the Internet.

CONCLUSIONS

This study investigated socio-demographic, health communication, and attitudinal behaviors associated with the levels of confidence in seeking health information. Our findings revealed that lower levels of confidence searching health information were found in Hispanic, older age, and lower annual incomes. Furthermore, people who communicated with doctors, who made own health decisions, who were taken care of their needs and addressed their feelings and emotions by doctors, had higher levels of confidence in seeking health information online. In addition, individuals who frustrated searching health information and who could not stop or control worrying, were less confidence in their ability to look for health information. These findings will help identify the characteristics of individuals associated with the levels of confidence in their ability to seek health information from the Internet. More importantly, doctors' attentions and communication with doctors play a major role in influencing the levels of confidence. Thus, doctors or health professional should spend more time on patients' visiting to understand their needs. Also, they should develop online health information center that could not only provide presentations on demonstrating the concepts of medical information, but also high quality and well-referenced health information for the general public. Overall, the higher levels of psychological disorders will decrease the levels of confidence in individual's ability seeking health information. This suggests that people should control their personality disorders and regularly visit/consult doctors to increase the levels of confidence in seeking health information.

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