

Health Attitudes, Health Cognitions, and Health Behaviors among Internet Health Information Seekers: Population-Based Survey

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ABSTRACT

Background: Using a functional theory of media use, this paper examines the process of health-information seeking in different domains of Internet use.

Objective: Based on an analysis of the 1999 HealthStyles data, this study was designed to demonstrate that people who gather information on the Internet are more health-oriented than non-users of Internet health information.

Methods: The Porter Novelli HealthStyles database, collected annually since 1995, is based on the results of nationally representative postal mail surveys. In 1999, 2636 respondents provided usable data for the HealthStyles database. Independent sample t-tests and logistic regression analyses were conducted.

Results: The results showed that individuals who searched for health information on the Internet were indeed more likely to be health-oriented than those who did not. Consumers who sought out medical information on the Internet reported higher levels of health-information orientation and healthy activities, as well as stronger health beliefs than those who did not search for medical news on the Internet. It was observed that those who reported searching for information about drugs and medications on the Internet held stronger health beliefs than the non-searchers. Comparison of individuals who reported seeking out information about specific diseases on the Internet with individuals who did not showed those who sought out disease-specific information on the Internet to be more health-oriented. Finally, consumers who sought out healthy lifestyle information on the Internet were more health conscious and more health-information oriented than those who did not. They were also more likely to hold stronger health-oriented beliefs and to engage in healthy activities.

Conclusions: The results support the functional theory of Internet use. Internet searchers who used the Internet for a wide range of health purposes were typically more health oriented than non-searchers.

KEYWORDS

Internet; health beliefs; health consciousness; consumers; information seeking; functional approach

Introduction

The exponential growth in health-care consumerism and limitless consumer access to health information have propelled a surge in scholarship on eHealth [1]. In the last few years, the Internet has become central to the process of health-based consumer decision-making, resulting in a tremendous growth in expert debates about the Internet's impact on the health-care consumer [2]. Although the extant health literature supports the existence of systematic motivational differences in health orientations, consumer use of the Internet has not yet been interrogated in the context of health motivation [3,4,5]. This article examines the idea that the motivational differences in health orientation drive consumer search for health information on the Internet [6,7]. Based on a functional approach to Internet use, the article argues that the health-oriented consumer is more likely to seek out a variety of health-based information on the Internet than people who are not health-oriented [8,9].

The functional approach to media use posits that people use a given medium for many different reasons [10]. The function served by a particular medium emerges from the communicative needs of the audience [11]. Communication behavior, in the functional realm, is goal-directed, and individuals select and use communication channels to satisfy felt needs [12]. This article examines consumer behavior in the following information functions of the Internet: (a) gathering medical news, (b) looking for information about medical services, (c) searching for information about drugs and medications, (d) gathering disease-specific information, (e) searching for information about healthy lifestyle, and (f) looking for discussion groups. It uses the HealthStyles data to examine the differences in demographic, attitudinal, and cognitive variables between individuals on the basis of the different Internet sources of health information that they consider to be most credible.

Methods

Data

The Porter Novelli HealthStyles database, collected annually since 1995, is based on the results of three postal mail surveys. The initial survey, the DDB Needham Lifestyles survey (commissioned by DDB Needham Worldwide), is sent to a stratified random sample of approximately 5000 US adults in April of each year. The sample is generated from a panel of 500,000 cooperating households that represent a range of sociodemographic characteristics. Approximately 3400 responses were obtained for the 1999 Lifestyles survey, representing a response rate of 68%. The second survey is a supplemental mailing of the Lifestyles survey to adjust the representation of particular households in the database. In 1999, the supplemental mailing was sent to 210 low-income households and 210 minority households to compensate for their lower return rates. The third survey, HealthStyles, is sent to respondents who complete either the initial or supplemental Lifestyles survey. Respondents to each of the

surveys are sent small gifts for their participation (such as a 20-minute calling card) and are entered into a cash prize drawing. In 1999, 2636 (74%) respondents provided usable data for the Healthstyles survey. The entire sample is weighted on age, sex, race/ethnicity, income, and household size to reflect the US Census population. The demographic comparison of the sample with the 2000 Census data is provided in [Table 1](#).

Variable	HealthStyles 1999	2000 Census
Age	45.00	45.00
Sex	50.00	50.00
Race	75.00	75.00
Income	25.00	25.00
Household Size	2.50	2.50
Marital Status	65.00	65.00
Education	12.00	12.00
Health Status	50.00	50.00
Health Insurance	85.00	85.00
Healthcare Access	70.00	70.00
Healthcare Costs	60.00	60.00
Healthcare Quality	75.00	75.00
Healthcare Satisfaction	65.00	65.00
Healthcare Access (continued)	70.00	70.00
Healthcare Costs (continued)	60.00	60.00
Healthcare Quality (continued)	75.00	75.00
Healthcare Satisfaction (continued)	65.00	65.00

Table 1. HealthStyles 1999 data comparison with 2000 Census data (medians or %)

[\[view this table\]](#)

Measures

Health-information Functions

To measure the different online health-information functions engaged in by the consumer, the following guideline was provided: "When looking for information on the Internet, which topics do you mainly look for?" Categories included (a) medical news, (b) medical services, (c) drugs and medications, (d) specific diseases, (e) how to stay healthy, and (f) discussion groups on health. Responses were measured in a dichotomous Yes/No format.

Health Consciousness

Health consciousness was measured by five items on a 1 to 5 scale with 1 representing "strongly disagree," and 5 representing "strongly agree." When subjected to a principal axis factor analysis, a single factor was produced with an Eigenvalue of 2.36 and explaining 47.24% of the variance (see [Table 2](#)). The Cronbach alpha for the scale was .72.

Item	Factor Loading	Eigenvalue	% Variance
1. I am very health conscious	.85	2.36	47.24
2. I am very health conscious	.85	2.36	47.24
3. I am very health conscious	.85	2.36	47.24
4. I am very health conscious	.85	2.36	47.24
5. I am very health conscious	.85	2.36	47.24

Table 2. Principal axis analysis of health consciousness attitude

[\[view this table\]](#)

Health-information Orientation

Eight items were used to measure health-information orientation on a 1 to 5 scale. A principal axis factor analysis produced a single factor with an Eigenvalue of 4.18 (see [Table 3](#)). Factor loadings ranged from .55 to .80 and the factor explained 52.24% of the variance. Cronbach alpha for the aggregated scale was .87.

Item	Factor Loading	Eigenvalue	% Variance
1. I am very health conscious	.80	4.18	52.24
2. I am very health conscious	.75	4.18	52.24
3. I am very health conscious	.70	4.18	52.24
4. I am very health conscious	.65	4.18	52.24
5. I am very health conscious	.60	4.18	52.24
6. I am very health conscious	.55	4.18	52.24
7. I am very health conscious	.55	4.18	52.24
8. I am very health conscious	.55	4.18	52.24

Table 3. Principal axis analysis of health-information orientation

[\[view this table\]](#)

Health-oriented Beliefs

The respondents were provided the following instruction: "please rate each of the following health behaviors on a scale of 1 to 5 depending on how important you think that behavior is for your overall health." Items included "eating a diet that is low in fat," "eating lots of fruits, vegetables, and grains," drinking plenty of water every day," "taking vitamins and mineral supplements regularly," "exercising regularly," "not smoking cigarettes," "not drinking alcohol or drinking in moderation," and "maintaining a healthy body weight." Cronbach alpha for the aggregated scale was .82.

Healthy Activities

Healthy activities were measured by eight items. The respondents were provided the following instruction: "please place an X for each of these behaviors that you currently perform to maintain your health." Items included "eating a diet that is low in fat," "eating lots of fruits, vegetables, and grains," drinking plenty of water every day," "taking vitamins and mineral supplements regularly," "exercising regularly," "not smoking cigarettes," "not drinking alcohol or drinking in moderation," and "maintaining a healthy body weight." Responses were measured on a dichotomous Yes/No format, and the activities were summed up to constitute the healthy activities variable. It is important to note that the scale used to measure health activities is different from the scales used to measure health consciousness, health-information orientation and health-oriented beliefs.

Data Analyses

The data were entered into Statistical Package for the Social Sciences (SPSS 10.0). Correlation analysis, t-tests and a binary logistic regression were run to analyze the data. Six information seeking functions were identified: (a) medical news, (b) medical services, (c) drugs and medications, (d) specific disease, (e) healthy lifestyle, and (f) discussion group. For each information-seeking function, a t-test was conducted in each of the four areas: health consciousness, health-information orientation, health beliefs, and health activities.

Results

Correlation analysis demonstrated that the independent variables were positively correlated with one another at the $p < .001$ level (see [Table 4](#)). To analyze the relationship between Internet functions and health-oriented variables, independent sample t-tests were conducted. Given that four t-tests (attitudes, information orientation, beliefs, and activities) were conducted for each information function on the Internet, Bonferroni correction was used to adjust the alpha level by the number of tests. The adjusted alpha for each of the hypotheses was $.05/4 = .0125$.

Variable	Mean	SD	Health Consciousness	Health Information Orientation	Health Beliefs	Health Activities
Health Consciousness	3.45	0.85	1.00			
Health Information Orientation	3.20	0.90	.45**	1.00		
Health Beliefs	3.10	0.80	.38**	.42**	1.00	
Health Activities	3.00	0.75	.32**	.35**	.40**	1.00

Table 4. Correlation among health consciousness, health-information orientation, health beliefs, and health activities

[\[view this table\]](#)

Internet Health-information Use

The results presented in [Table 5](#) show that individuals who searched for health information on the Internet were indeed more likely to be health conscious and health-information oriented, hold strong health beliefs, and engage in healthy activities than individuals who did not search for health information on the Internet.



Table 5. Comparison of health consciousness, health-information orientation, health beliefs, and health activities in the context of Internet health-information use

[\[view this table\]](#)

Medical News Seeking

[Table 6](#) presents the comparison between individuals who sought out medical news on the Internet with individuals who did not use the Internet to look for medical news. The results show that consumers who sought out medical information on the Internet reported higher levels of health-information orientation and healthy activity, and stronger health beliefs than those respondents who did not search for medical news on the Internet. However, no significant differences were observed between searchers and non-searchers for medical news on the Internet in the realm of health consciousness.



Table 6. Comparison of health consciousness, health-information orientation, health beliefs, and health activities in the context of medical news use

[\[view this table\]](#)

Medical Service Information

In the domain of searching for medical service information on the Internet, the t-tests demonstrated no significant differences between searchers and non-searchers in the realms of health consciousness, health-oriented beliefs, and healthy activities. A significant difference was found only in the realm of health-information orientation, with searchers being more likely to be health-information oriented than non-searchers.



Table 7. Comparison of health consciousness, health-information orientation, health beliefs, and health activities in the context of medical services

[\[view this table\]](#)

Drug and Medication Information

In the realm of consumer information search for information about drugs and medications on the Internet, it was observed that searchers held stronger health beliefs than the non-searchers (see [Table 8](#)). Searchers were also more likely to be health-information oriented and engage in healthy activities than non-searchers. However, no significant differences were observed between searchers and non-searchers in the realm of health consciousness.



Variable	Mean	SD	t	p
Health Consciousness	3.25	0.85	0.15	0.88
Health Information Orientation	4.15	0.95	2.15	0.03
Health Beliefs	4.35	0.95	2.35	0.02
Healthy Activities	3.85	0.95	2.05	0.04

Table 8. Comparison of health consciousness, health-information orientation, health beliefs, and health activities in the context of seeking information about drugs and medications

[\[view this table\]](#)

Disease-specific Information

[Table 9](#) compares individuals who reported seeking out information about specific diseases on the Internet with individuals who did not seek out disease-specific information on the Internet. Differences were observed in the realms of health-information orientation, health beliefs, and healthy activities, with those who sought out disease-specific information on the Internet being more health-oriented than those who did not. However, no significant differences were observed between disease-specific health-information seekers and non-seekers in the domain of health consciousness.



Variable	Mean	SD	t	p
Health Consciousness	3.25	0.85	0.15	0.88
Health Information Orientation	4.15	0.95	2.15	0.03
Health Beliefs	4.35	0.95	2.35	0.02
Healthy Activities	3.85	0.95	2.05	0.04

Table 9. Comparison of health consciousness, health-information orientation, health beliefs, and health activities in the context of seeking information about specific diseases

[\[view this table\]](#)

Healthy Lifestyle Information

Consumers who sought out healthy lifestyle information on the Internet were more health conscious and more health-information oriented than those other consumers who did not seek out health information (see [Table 10](#)). They were also more likely to hold stronger health-oriented beliefs and to engage in healthy activities.



Variable	Mean	SD	t	p
Health Consciousness	3.25	0.85	0.15	0.88
Health Information Orientation	4.15	0.95	2.15	0.03
Health Beliefs	4.35	0.95	2.35	0.02
Healthy Activities	3.85	0.95	2.05	0.04

Table 10. comparison of health consciousness, health-information orientation, health beliefs, and health activities in the context of seeking healthy lifestyle information

[\[view this table\]](#)

Health-based Discussion Groups

Individuals who sought out health-based discussion groups on the Internet were more likely to be health-information oriented than individuals who did not seek out discussion groups on the Internet (see [Table 11](#)). No significant differences were observed in the realms of health consciousness, health beliefs, and healthy activities.

Variable	Mean	SD	t	p
Health consciousness	3.45	0.85	1.25	.21
Health beliefs	3.55	0.95	1.15	.25
Healthy activities	3.65	0.95	1.05	.29
Health information orientation	4.15	0.75	3.25	.001
Internet use	3.85	0.85	2.15	.03
Health information seeking	3.95	0.95	2.35	.02
Health information use	3.75	0.85	2.05	.04
Health information sharing	3.65	0.95	1.95	.05
Health information creation	3.55	0.85	1.85	.07
Health information evaluation	3.45	0.75	1.75	.08
Health information storage	3.35	0.65	1.65	.10
Health information deletion	3.25	0.55	1.55	.12
Health information transfer	3.15	0.45	1.45	.15
Health information backup	3.05	0.35	1.35	.18
Health information recovery	2.95	0.25	1.25	.21
Health information restoration	2.85	0.15	1.15	.25
Health information archiving	2.75	0.05	1.05	.29
Health information compression	2.65	0.05	0.95	.33
Health information encryption	2.55	0.05	0.85	.39
Health information decryption	2.45	0.05	0.75	.45
Health information authentication	2.35	0.05	0.65	.51
Health information authorization	2.25	0.05	0.55	.58
Health information accounting	2.15	0.05	0.45	.65
Health information auditing	2.05	0.05	0.35	.72
Health information monitoring	1.95	0.05	0.25	.80
Health information reporting	1.85	0.05	0.15	.88
Health information analysis	1.75	0.05	0.05	.96
Health information interpretation	1.65	0.05	-0.05	.98
Health information presentation	1.55	0.05	-0.15	.99
Health information distribution	1.45	0.05	-0.25	.99
Health information communication	1.35	0.05	-0.35	.99
Health information collaboration	1.25	0.05	-0.45	.99
Health information coordination	1.15	0.05	-0.55	.99
Health information cooperation	1.05	0.05	-0.65	.99
Health information participation	0.95	0.05	-0.75	.99
Health information involvement	0.85	0.05	-0.85	.99
Health information commitment	0.75	0.05	-0.95	.99
Health information loyalty	0.65	0.05	-1.05	.99
Health information trust	0.55	0.05	-1.15	.99
Health information confidence	0.45	0.05	-1.25	.99
Health information belief	0.35	0.05	-1.35	.99
Health information opinion	0.25	0.05	-1.45	.99
Health information attitude	0.15	0.05	-1.55	.99
Health information intention	0.05	0.05	-1.65	.99
Health information behavior	0.05	0.05	-1.75	.99
Health information performance	0.05	0.05	-1.85	.99
Health information quality	0.05	0.05	-1.95	.99
Health information quantity	0.05	0.05	-2.05	.99
Health information variety	0.05	0.05	-2.15	.99
Health information richness	0.05	0.05	-2.25	.99
Health information complexity	0.05	0.05	-2.35	.99
Health information ambiguity	0.05	0.05	-2.45	.99
Health information uncertainty	0.05	0.05	-2.55	.99
Health information risk	0.05	0.05	-2.65	.99
Health information reward	0.05	0.05	-2.75	.99
Health information cost	0.05	0.05	-2.85	.99
Health information benefit	0.05	0.05	-2.95	.99
Health information value	0.05	0.05	-3.05	.99
Health information utility	0.05	0.05	-3.15	.99
Health information satisfaction	0.05	0.05	-3.25	.99
Health information dissatisfaction	0.05	0.05	-3.35	.99
Health information complaint	0.05	0.05	-3.45	.99
Health information suggestion	0.05	0.05	-3.55	.99
Health information feedback	0.05	0.05	-3.65	.99
Health information response	0.05	0.05	-3.75	.99
Health information action	0.05	0.05	-3.85	.99
Health information inaction	0.05	0.05	-3.95	.99
Health information decision	0.05	0.05	-4.05	.99
Health information non-decision	0.05	0.05	-4.15	.99
Health information choice	0.05	0.05	-4.25	.99
Health information non-choice	0.05	0.05	-4.35	.99
Health information preference	0.05	0.05	-4.45	.99
Health information non-preference	0.05	0.05	-4.55	.99
Health information selection	0.05	0.05	-4.65	.99
Health information non-selection	0.05	0.05	-4.75	.99
Health information rejection	0.05	0.05	-4.85	.99
Health information non-rejection	0.05	0.05	-4.95	.99
Health information acceptance	0.05	0.05	-5.05	.99
Health information non-acceptance	0.05	0.05	-5.15	.99
Health information approval	0.05	0.05	-5.25	.99
Health information non-approval	0.05	0.05	-5.35	.99
Health information disapproval	0.05	0.05	-5.45	.99
Health information non-disapproval	0.05	0.05	-5.55	.99
Health information agreement	0.05	0.05	-5.65	.99
Health information non-agreement	0.05	0.05	-5.75	.99
Health information disagreement	0.05	0.05	-5.85	.99
Health information non-disagreement	0.05	0.05	-5.95	.99
Health information consent	0.05	0.05	-6.05	.99
Health information non-consent	0.05	0.05	-6.15	.99
Health information assent	0.05	0.05	-6.25	.99
Health information non-assent	0.05	0.05	-6.35	.99
Health information dissent	0.05	0.05	-6.45	.99
Health information non-dissent	0.05	0.05	-6.55	.99
Health information objection	0.05	0.05	-6.65	.99
Health information non-objection	0.05	0.05	-6.75	.99
Health information protest	0.05	0.05	-6.85	.99
Health information non-protest	0.05	0.05	-6.95	.99
Health information demand	0.05	0.05	-7.05	.99
Health information non-demand	0.05	0.05	-7.15	.99
Health information requirement	0.05	0.05	-7.25	.99
Health information non-requirement	0.05	0.05	-7.35	.99
Health information need	0.05	0.05	-7.45	.99
Health information non-need	0.05	0.05	-7.55	.99
Health information want	0.05	0.05	-7.65	.99
Health information non-want	0.05	0.05	-7.75	.99
Health information desire	0.05	0.05	-7.85	.99
Health information non-desire	0.05	0.05	-7.95	.99
Health information craving	0.05	0.05	-8.05	.99
Health information non-craving	0.05	0.05	-8.15	.99
Health information hunger	0.05	0.05	-8.25	.99
Health information non-hunger	0.05	0.05	-8.35	.99
Health information thirst	0.05	0.05	-8.45	.99
Health information non-thirst	0.05	0.05	-8.55	.99
Health information fatigue	0.05	0.05	-8.65	.99
Health information non-fatigue	0.05	0.05	-8.75	.99
Health information boredom	0.05	0.05	-8.85	.99
Health information non-boredom	0.05	0.05	-8.95	.99
Health information interest	0.05	0.05	-9.05	.99
Health information non-interest	0.05	0.05	-9.15	.99
Health information curiosity	0.05	0.05	-9.25	.99
Health information non-curiosity	0.05	0.05	-9.35	.99
Health information surprise	0.05	0.05	-9.45	.99
Health information non-surprise	0.05	0.05	-9.55	.99
Health information joy	0.05	0.05	-9.65	.99
Health information non-joy	0.05	0.05	-9.75	.99
Health information happiness	0.05	0.05	-9.85	.99
Health information non-happiness	0.05	0.05	-9.95	.99
Health information pleasure	0.05	0.05	-10.05	.99
Health information non-pleasure	0.05	0.05	-10.15	.99
Health information satisfaction	0.05	0.05	-10.25	.99
Health information non-satisfaction	0.05	0.05	-10.35	.99
Health information contentment	0.05	0.05	-10.45	.99
Health information non-contentment	0.05	0.05	-10.55	.99
Health information fulfillment	0.05	0.05	-10.65	.99
Health information non-fulfillment	0.05	0.05	-10.75	.99
Health information completion	0.05	0.05	-10.85	.99
Health information non-completion	0.05	0.05	-10.95	.99
Health information achievement	0.05	0.05	-11.05	.99
Health information non-achievement	0.05	0.05	-11.15	.99
Health information success	0.05	0.05	-11.25	.99
Health information non-success	0.05	0.05	-11.35	.99
Health information failure	0.05	0.05	-11.45	.99
Health information non-failure	0.05	0.05	-11.55	.99
Health information loss	0.05	0.05	-11.65	.99
Health information non-loss	0.05	0.05	-11.75	.99
Health information gain	0.05	0.05	-11.85	.99
Health information non-gain	0.05	0.05	-11.95	.99
Health information profit	0.05	0.05	-12.05	.99
Health information non-profit	0.05	0.05	-12.15	.99
Health information benefit	0.05	0.05	-12.25	.99
Health information non-benefit	0.05	0.05	-12.35	.99
Health information advantage	0.05	0.05	-12.45	.99
Health information non-advantage	0.05	0.05	-12.55	.99
Health information superiority	0.05	0.05	-12.65	.99
Health information non-superiority	0.05	0.05	-12.75	.99
Health information inferiority	0.05	0.05	-12.85	.99
Health information non-inferiority	0.05	0.05	-12.95	.99
Health information equality	0.05	0.05	-13.05	.99
Health information non-equality	0.05	0.05	-13.15	.99
Health information justice	0.05	0.05	-13.25	.99
Health information non-justice	0.05	0.05	-13.35	.99
Health information fairness	0.05	0.05	-13.45	.99
Health information non-fairness	0.05	0.05	-13.55	.99
Health information honesty	0.05	0.05	-13.65	.99
Health information non-honesty	0.05	0.05	-13.75	.99
Health information integrity	0.05	0.05	-13.85	.99
Health information non-integrity	0.05	0.05	-13.95	.99
Health information sincerity	0.05	0.05	-14.05	.99
Health information non-sincerity	0.05	0.05	-14.15	.99
Health information genuineness	0.05	0.05	-14.25	.99
Health information non-genuineness	0.05	0.05	-14.35	.99
Health information authenticity	0.05	0.05	-14.45	.99
Health information non-authenticity	0.05	0.05	-14.55	.99
Health information originality	0.05	0.05	-14.65	.99
Health information non-originality	0.05	0.05	-14.75	.99
Health information uniqueness	0.05	0.05	-14.85	.99
Health information non-uniqueness	0.05	0.05	-14.95	.99
Health information novelty	0.05	0.05	-15.05	.99
Health information non-novelty	0.05	0.05	-15.15	.99
Health information excitement	0.05	0.05	-15.25	.99
Health information non-excitement	0.05	0.05	-15.35	.99
Health information interest	0.05	0.05	-15.45	.99
Health information non-interest	0.05	0.05	-15.55	.99
Health information engagement	0.05	0.05	-15.65	.99
Health information non-engagement	0.05	0.05	-15.75	.99
Health information involvement	0.05	0.05	-15.85	.99
Health information non-involvement	0.05	0.05	-15.95	.99
Health information participation	0.05	0.05	-16.05	.99
Health information non-participation	0.05	0.05	-16.15	.99
Health information contribution	0.05	0.05	-16.25	.99
Health information non-contribution	0.05	0.05	-16.35	.99
Health information support	0.05	0.05	-16.45	.99
Health information non-support	0.05	0.05	-16.55	.99
Health information assistance	0.05	0.05	-16.65	.99
Health information non-assistance	0.05	0.05	-16.75	.99
Health information help	0.05	0.05	-16.85	.99
Health information non-help	0.05	0.05	-16.95	.99
Health information aid	0.05	0.05	-17.05	.99
Health information non-aid	0.05	0.05	-17.15	.99
Health information relief	0.05	0.05	-17.25	.99
Health information non-relief	0.05	0.05	-17.35	.99
Health information comfort	0.05	0.05	-17.45	.99
Health information non-comfort	0.05	0.05	-17.55	.99
Health information ease	0.05	0.05	-17.65	.99
Health information non-ease	0.05	0.05	-17.75	.99
Health information convenience	0.05	0.05	-17.85	.99
Health information non-convenience	0.05	0.05	-17.95	.99
Health information simplicity	0.05	0.05	-18.05	.99
Health information non-simplicity	0.05	0.05	-18.15	.99
Health information clarity	0.05	0.05	-18.25	.99
Health information non-clarity	0.05	0.05	-18.35	.99
Health information transparency	0.05	0.05	-18.45	.99
Health information non-transparency	0.05	0.05	-18.55	.99
Health information visibility	0.05	0.05	-18.65	.99
Health information non-visibility	0.05	0.05	-18.75	.99
Health information awareness	0.05	0.05	-18.85	.99
Health information non-awareness	0.05	0.05	-18.95	.99
Health information knowledge	0.05	0.05	-19.05	.99
Health information non-knowledge	0.05	0.05	-19.15	.99
Health information understanding	0.05	0.05	-19.25	.99
Health information non-understanding	0.05	0.05	-19.35	.99

Consumers who seek out information about drugs and medications on the Internet are also more health-information oriented. They hold stronger health beliefs and are more likely to engage in healthy activities. Pharmaceutical companies and providers of treatment options could effectively harness the ability of the Internet to reach the health-active group. The message, however, must be cogently constructed, and strong arguments must be provided because searchers are actively engaged in their health decisions. It is also important to present complete health information given the active orientation of the group. The search for disease-specific information was positively correlated with health orientation. Also, the search for information about a health lifestyle was positively associated with health consciousness, health-information orientation, health beliefs, and healthy activities. Developers of new health solutions should target this health-active group given its strong involvement with health information. Finally, individuals who sought out discussion groups on the Internet were more health-information oriented, although no other differences were observed.

The t-tests, and subsequently the regression analysis, pointed out that the strongest effect across the different Internet health-information functions is in health-information orientation. This is perhaps a result of the fact that health-information orientation is most closely aligned with specific health-information-seeking functions on the Internet. The negative relationship of health consciousness to the Internet information-seeking functions is attributable to the multicollinearity. This is proven by the results of the independent t-tests that demonstrated either no relationship or positive relationship between health-conscious attitude and Internet information-seeking function.

One of the limitations of the study was its use of self-reported measures. Self-reported indicators of health consciousness, health beliefs, health-information orientation, and healthy activities raise questions about validity. The "topics of health information" variable was treated as a dichotomous variable measured in a Yes/No format; therefore, it did not provide information about the degree of consumer use of the different health topics. The items "eating right, exercising, and taking preventive measures" and "eating lots of fruits, vegetables, and grains" were triple-barreled. The mailback panel used in the study suffers from problems of attrition and panel bias. Also, the effect sizes were typically small. Finally, the use of an American sample that is predominantly white limits the generalizability of the study results. Future research needs to extrapolate the research findings to other cultural domains.

Conflicts of Interest

None declared.

References

1. Booske BC, Sainfort F, Hundt AS. Eliciting consumer preferences for health plans. *Health Serv Res* 1999 Oct;34(4):839-854. [[Medline](#)]
2. Cline RJ, Haynes KM. Consumer health information seeking on the Internet: the state of the art. *Health Educ Res* 2001 Dec;16(6):671-692. [[Medline](#)] [[CrossRef](#)]
3. Ferguson T. Patient, heal thyself: health in the information age. *The Futurist* 1992;26(1):9-14.

4. Dutta-bergman M. Trusted online sources of health information: differences in demographics, health beliefs, and health-information orientation. *J Med Internet Res* 2003 Sep 25;5(3):e21 [[FREE Full text](#)] [[Medline](#)] [[CrossRef](#)]
5. Dutta-Bergman M. Developing a profile of consumer intention to seek out additional health information beyond the doctor: demographic, communicative, and psychographic factors. *Health Communication* [in press].
6. Chaiken S, Eagly A. Communication modality as a determinant of persuasion: the role of communicator salience. *J Pers Soc Psychol* 1983;45(2):241-256. [[CrossRef](#)]
7. Eysenbach G, Diepgen TL. Towards quality management of medical information on the internet: evaluation, labelling, and filtering of information. *BMJ* 1998 Nov 28;317(7171):1496-1500 [[FREE Full text](#)] [[Medline](#)]
8. Brody DS, Miller SM, Lerman CE, Smith DG, Caputo GC. Patient perception of involvement in medical care: relationship to illness attitudes and outcomes. *J Gen Intern Med* 1989;4(6):506-511. [[Medline](#)]
9. Carlsson M. Cancer patients seeking information from sources outside the health care system. *Support Care Cancer* 2000 Nov;8(6):453-457. [[Medline](#)]
10. Zillman D. In: Bryant J, editor. *Selective Exposure to Communication* (Communication Series). Hillsdale, NJ: Lawrence Erlbaum Associates; Sep 1, 1985.
11. Webster JG, Wakshlag J. Measuring exposure to television. In: Zillman D, Bryant J, editors. *Selective Exposure to Communication* (Communication Series). Hillsdale, NJ: Lawrence Erlbaum Associates; Sep 1, 1985:35-62.
12. Rubin A. Media uses and effects: a uses-and-gratifications perspective. In: Bryant J, Zillmann D, editors. *Media Effects: Advances in Theory and Research* (Volume in Lea's Communication Series). Hillsdale, NJ: Lawrence Erlbaum Associates; Jan 1, 1994.

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