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Primary Sources of Health Information: Comparisons in the Domain of Health Attitudes, Health Cognitions, and Health Behaviors

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The recent growth in consumer autonomy in health care accompanied by the surge in the use of new media for health information gathering has led to an increasing scholarly interest in understanding the consumer health information search construct. This article explores consumer health information seeking in the realm of the primary sources of health information used by consumers. Based on an analysis of the 1999 HealthStyles data, the paper demonstrates that active communication channels such as interpersonal communication, print readership, and Internet communication serve as primary health information sources for health-conscious, health-information oriented individuals with strong health beliefs, and commitment to healthy activities. On the other hand, passive consumption channels such as television and radio serve as primary health information resources for individuals who are not health-oriented. Media planning implications are drawn from the results, suggesting that broadcast outlets with an entertainment orientation are better suited for prevention campaigns. Such channels provide suitable sites for entertainment-education. On the other hand, print media, interpersonal networks, and the Internet are better suited for communicating about health issues to the health-active consumer segment.

In a recent colloquium on information seeking published in Human Communication Research, health communication scholars Brashers, Goldsmith, and Hsieh (2002) pointed out the complexity of health information seeking and recommended a streamlined approach to the exploration of the construct. The article...
highlighted the increasing need to clearly understand the process of health information consumption. This recent interest in health information seeking has been sparked by two different processes that have occurred almost simultaneously: (a) the explosion of the health care consumerism movement across the globe (Booske, Sainfort, & Hundt, 1999; Brashers, Goldsmith, & Hsieh, 2002; Carlsson, 2000; Dutta-Bergman, 2004; Eysenbach & Diepgen, 1998; Marks & Lutgendorf, 1999; Navarro & Wilkins, 2001), and (b) the limitless access to health information available to the consumer through the Internet (Brashers, et al., 2002).

The emerging need for a systematic approach to studying consumer health information seeking was also reiterated in the survey of the literature by Cline and Haynes (2001) who pointed out the scarcity of scholarship on consumer information processing. One of the areas of health communication needing empirical research involves the sources consumers visit to access health information and to learn about issues of health. In an attempt to fill the existing void in consumer-based health information research, this article examines different communication sources of health information in the domain of health attitudes, health opinions, and health behaviors.

Although the extant health communication literature supports the existence of systematic motivational differences in health orientations (Ferguson, 1992; Morris, Grossman, Barkdoll, & Gordon, 1987), the comparison of media types as sources of information in the context of health-oriented attitudes and behaviors has not yet been conducted. This article is driven by the idea that the motivational differences in health consciousness manifest themselves in channel selection. In that spirit, the article seeks to answer the questions: Do health oriented consumers tend to learn information about disease and prevention most often from a particular source (such as a newspaper) as opposed to other sources? How do individuals who learn about health most often from one particular medium differ in their health oriented attitudes, cognitions, and behaviors compared to those individuals who do not most often learn their health information from that particular medium? Do particular media types lend themselves more to health conscious attitudes, interests and opinions as compared to other media types? To build hypotheses, the article offers a comparison of media types and locates this comparison within a broader environment of health consciousness. The focus here is specifically on media types as sources of learning about health information.

HEALTH ORIENTATION

Health orientation has emerged as a critical concept in the explanation of health behaviors (Burns, 1992; Janz & Becker, 1984; MacInnis, Moorman, & Jaworski, 1991; Moorman & Matulich, 1993; Park & Mittal, 1985). Past research demonstrates systematic differences in the extent to which individuals engage in a healthy
way of life. While some individuals show a positive orientation toward health, others demonstrate a neutral stance. Yet others report a negative orientation. In their model of preventive health behaviors of consumers, Moorman and Matulich (1993) articulate that the motivation to be healthy defines the extent to which an individual is willing to take care of his or her health. The researchers defined health orientation as “a goal-directed arousal to engage in preventive health behaviors” (Moorman & Matulich, 1993, p. 210). Motivation triggers an individual’s interest in a particular issue or topic, subsequently leading to active engagement in cognitions and behaviors related to the specific issue or topic (Bloch, 1984; Petty & Cacioppo, 1986). A high level of motivation increases the attention paid by the individual to relevant information and the comprehension of such material. Motivation in the domain of health, therefore, suggests an active consumer participation in issues of personal health and an active search for relevant health information (Ardell, 1977; Bloch, 1984; Celsi & Olson, 1988; Kraft & Goodell, 1993; MacInnis, et al., 1991; Moorman & Matulich, 1993; Park & Mittal, 1985).

Four indicators of health-orientation are specifically explored in this article: health consciousness, health information orientation, health-oriented beliefs, and healthy activities. Health consciousness refers to “the extent to which health concerns are integrated into a person’s daily activities” (Jayanti & Burns, 1998, p. 10). Health-conscious individuals are “wellness-oriented” (Jayanti & Burns, 1998, p. 10) and hold positive attitudes toward preventive measures such as exercising and eating healthy. Yet another indicator of health orientation used in this research is health information orientation. Health information orientation refers to the extent to which the individual is willing to look for health information. A high level of health information-orientation suggests the willingness to look for information about issues of health and to educate oneself about these issues (Petty & Cacioppo, 1986). At the cognitive level, health orientation manifests itself in the domain of health beliefs. Health beliefs refer to the specific cognitions held by individuals about health behaviors such as eating healthy, exercising, and so forth. Finally, health-oriented individuals are more likely to engage in healthy activities than other individuals in the population. The four aspects of health-orientation discussed here are introduced into the theoretical framework to suggest differences between individuals in the context of their primary sources of health information. The next section proposes hypotheses after a discussion of the different communication channels available to individuals.

COMMUNICATION TYPES AND HEALTH MOTIVATION

Communication channels may be categorized into different groups based on their information and entertainment orientations. Although certain communications serve primarily the entertainment needs of individuals, other communication chan-
nels serve their information needs (Vivian, 2002). Health conscious individuals are motivated to find information about issues of health, and are motivated toward the consumption of those communication channels with an information orientation (Ardell, 1977; Bloch, 1984; Celsi & Olson, 1988; Kraft & Goodell, 1993; MacInnis, et al., 1991; Moorman & Matulich, 1993; Park & Mittal, 1985). Yet another categorization of communication channels is based on active–passive orientations (Becker & Dunwoody, 1982; Benton & Frazier, 1976; Chaiken & Eagly, 1983; Clarke & Fredin, 1978; DeFleur & Cronin, 1991; Robinson & Levy, 1986, 1996; Singer, 1980; Stone, 1987). While some communication channels are disposed toward active information orientation, others lend themselves to gathering information passively. Health-oriented individuals are likely to engage in active information search and therefore, gather their information from active-oriented channels. Finally, communication channels may also be classified as health enhancing or health-reducing. Although the participation in some communication channels might be related to positive health outcomes, the participation in other channels is likely to be related to detrimental outcomes. In building hypotheses, this article will apply the information or entertainment-orientations, active or passive orientations, and health-enhancing or health-reducing categorizations of communication channels in the domain of health consciousness.

The role of interpersonal communication as a source for communicating about prevention and treatment to the health conscious consumer is well established (Brashers, et al., 2002; Kreps & Thornton, 1992). Individuals often gain information about health issues from those in their interpersonal networks. Family and friends serve as resources for identifying symptoms, determining possible treatments, and making particular lifestyle changes. individuals who mostly learn about health issues from interpersonal channels are also probably surrounded by health-oriented people who gather information from other sources. This pattern of communication within interpersonal networks is documented in the two-step flow model. The presence of health-oriented individual(s) in one’s social network is likely to trigger the participation in healthful choices. Interpersonal networks also serve as flexible and situation-oriented repositories of information such that a health active individual can turn to his or her interpersonal network for information support whenever a need is felt. Interpersonal communication is actively oriented in the context of health information gathering because an individual has to actively communicate with others in gathering the information. Such an active orientation clearly aligns itself with a high level of health orientation. Therefore, those individuals who learn information about treatment and prevention primarily from interpersonal networks are also more likely to have a stronger health orientation.

H1: individuals who learn most often about diseases and how to prevent them from their interpersonal networks are more likely to be health ori-
Newspapers are typically classified as information-oriented media (Becker & Dunwoody, 1982; Benton & Frazier, 1976; Chaiken & Eagly, 1983; Robinson & Levy, 1986, 1996; Singer, 1980; Stone, 1987). Existing research in health communication points out that newspapers serve as reliable and credible sources of health information to the public (Atkin & Wallack, 1990; Dutta-Bergman, 2004; Kreps & Thornton, 1992). The serious health information searcher is likely to get his or her health information from newspapers because of the high reliability of the information received from newspapers. Information-oriented newspapers have been shown to have health-enhancing effects by supplying the public with relevant health information (Atkin & Wallack, 1990). Newspapers often carry a health section that presents information on different issues of health. Stories covered typically provide information from medical journals, directing the consumers to additional information for further research. Newspapers also have an archival quality such that an individual looking for specific information can search through past newspaper issues (Sissors & Bumba, 1997). Information on a particular health topic may be cut out of the newspaper and stored or shared with family, friends, nurses, or doctors. The health-oriented individual is likely to be drawn to the newspaper when in need of information because of the aspects mentioned above. Also, it is worth pointing out that newspapers are actively oriented and are likely to draw the actively engaged individual because of the focused attention he or she has to put on reading the newspaper (Becker & Dunwoody, 1982; Benton & Frazier, 1976; Chaiken & Eagly, 1983; Robinson & Levy, 1986, 1996; Singer, 1980; Stone, 1987). Individuals who list newspapers as one of their primary sources of information are more likely to be health conscious and health information oriented than those individuals who do not list newspapers as a primary source of health information. Studies have shown that magazines serve as primary health information resources for specific segments of the population. Magazines share some of the same properties as newspapers: they are actively oriented, require cognitive involvement, provide in-depth coverage and directions to additional information, have a long shelf life and an archival quality. Hence, it is hypothesized:

H2: individuals who learn most often about diseases and how to prevent them from the newspaper or magazine are more likely to be health oriented than individuals who do not learn most often about health issues from the newspaper or magazine.

Existing research on television viewership demonstrates the detrimental effects of television viewership on health outcomes. Programs and advertisements on television have often downplayed the health risks associated with unhealthy practices.
such as smoking, alcohol consumption and unsafe sex (Jacobson & Amos, 1985; Kreps & Thornton, 1992; Novelli, 1990; Trauth & Huffman, 1986). Instead, television content provides positive reinforcement to unhealthy behaviors by locating such behaviors as indicators of individual sophistication and social acceptance. Television programs typically highlight the popularity gained by engaging in risky behaviors such as alcohol consumption and smoking that threaten human health (Jacobson & Amos, 1985; Novelli, 1990). Given television’s largely negative influence on health outcomes, it may be argued that the health conscious individual will not perceive the medium as a primary health information resource (Dutta-Bergman, 2004). Also, television is entertainment-oriented (Guo & Moy, 1998). Therefore, the health conscious consumer looking for health information is less likely to learn the information from television. Unlike print media, television does not have a long shelf life or an archival quality (Sissors & Bumba, 1995). Health oriented individuals in search of health information cannot refer back to the information they received from television unless the specific program was videotaped. Television has no catalog value (Sissors & Bumba, 1995) and individuals engaging in health information search cannot look through the past television programs to identify the specific health information on a specific topic. This suggests that the television is not a primary source of health information for the health-oriented individual.

Also, television is passively oriented (Singer, 1980). It is characterized as a medium that requires less intellectual involvement and cognitive effort compared to print media such as newspapers and magazines (Chaiken & Eagly, 1983; Iyengar, 1991; Vivian, 2002). Individuals watching television do not have to engage in an active information search to retrieve information (Guo & Moy, 1998; Gunter, 1987). Learning from television about health issues is perhaps a result of serendipitous learning rather than goal-directed learning\(^1\) (Culbertson & Stempel, 1986; Gunter, 1987; Hyde & Jenkins, 1969). This type of “bumping into information” happens, for instance, when a health topic gets covered in news. For the individual that is not health motivated, this form of serendipitous learning provides one of the most frequent and primary processes in learning health information. The individual that is not health oriented can learn something about health from television news without having to actively seek out the information and engage in it. The arguments presented above support a negative relationship between television viewership and health orientation, leading to the following hypothesis.

**H3:** individuals who learn most often about diseases and how to prevent them from television are less likely to be health oriented than individuals who do not learn most often about health issues from television.

\(^1\)In spite of the evidence that documents serendipitous learning from television, it is important to acknowledge that Slater (1997) demonstrated instances of goal-directed learning.
Radio, similar to television, is a medium that is entertainment-oriented (Vivian, 2002). Also, consumption of the radio is typically a passive act. Often, radio simply provides the background to a wide range of activities the individual might be engaged in (Vivian, 2002). Messages broadcasted on radio are short-lived (Sissors & Bumba, 1997). Also, such material presented on radio does not have an archival quality (Sissors & Bumba, 1997). On one hand, a health-conscious individual searching for specific health information cannot search through radio content to identify that material. On the other hand, for those individuals who are not health-oriented, serendipitous learning from radio can serve as a primary form of health information gathering.

H4: individuals who learn most often about diseases and how to prevent them from radio are less likely to be health oriented than individuals who do not learn most often about health issues from radio.

The Internet has been seen as the harbinger of the consumerism movement in health care and lends itself to goal-directed consumer information search (Carlsson, 2000; Eysenbach & Diepgen, 1998; Marks & Lutgendorf, 1999; Navarro & Wilkins, 2001; Rice & Katz, 2001). Almost half of the Internet users in 1997 reported searching for health information (Rice & Katz, 2001). Ranging from medical journals to health Web sites, the Internet offers a wide array of services for the health-motivated consumer. The health-active consumer can go to the Internet to find specific information on the health topic that he or she is engaged in. He or she can type the health topic on a search engine and hit a wide range of sites on the topic of interest. Specialized Web sites are available to help the consumer navigate through the health information through subject areas of interest (e.g., www.drkoop.com).

It is worth noting here that using the Internet for information gathering involves an active orientation. The user needs to be actively engaged in the process. It is only by clicking on a particular link will the user reach the information of interest to him or her. If the site does not capture his or her attention, the user can click out of the site and go to another site. This active orientation of the Internet especially makes it conducive for the health-oriented consumer. The archival quality of the Internet is reflected in the vast repository of health information that can be accessed by the health-conscious consumer during times of information need. Health information is often organized by topic areas in health Web sites, making it easier for the health conscious consumer to search through the Internet when he or she needs a particular piece of information. Through hyperlinks and related sites, an individual can engage in extensive search on a specific issue. In other words, the Internet demonstrates a strong health information orientation. Given the health information-orientation of the Internet, it may therefore be argued that Internet use
as a primary source of health information will be positively associated with health conscious attitudes, interests, and opinions.

**H5:** individuals who learn most often about diseases and how to prevent them from the Internet are more likely to be health conscious than individuals who do not learn most often about health issues from the Internet.

**METHOD**

**Data**

The Porter Novelli HealthStyles database (Porter Novelli, 1999), 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, 1999), is sent to a stratified random sample of approximately 5,000 U.S. 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. 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 participants who completed either the initial or supplemental Lifestyles survey. Participants to each of the surveys are sent small gifts for their participation (such as a 20 min calling card) and are entered into a cash prize drawing. In 1999, the response rates for Lifestyles and HealthStyles were 68% and 74%, respectively. The entire sample was weighted on age, sex, race or ethnicity, income, and household size to reflect the US Census population. There were 2,636 participants that provided usable data. The sample was comprised of 48.2% men and 51.8% women. The mean age of the sample was 44.87 ($SD = 16.71$).

**Measures**

**Sources of health information.** To measure the primary sources of health information, the following guideline was provided: “Look at the following list. Now think about the past year and then X the three places you MOST OFTEN learned something about diseases or how to prevent them (i.e. AIDS, cancer, diabetes, flu, asthma, injuries, etc.).” Categories included TV, radio, newspaper or magazine, hotlines, Internet, and family or friends. Responses were measured in a dichotomous “Yes/No” format. Family and friends served as primary sources of health information for 1,876 (71.1%) participants; 2,047 (77.6%) participants used
newspapers and magazines; television served as a primary health information source for 2,186 (82.9%) participants; radio was used by 623 (23.6%) participants, and the Internet was used by 329 (12.5%) participants as a primary source of health information.

**Health consciousness.** Health consciousness was measured by five items: “living life in the best possible health is very important to me,” “eating right, exercising, and taking preventive measures will keep me healthy for life,” “my health depends on how well I take care of myself,” “I actively try to prevent disease and illness,” and “I do everything I can to stay healthy.” Responses were measured 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. The Cronbach’s alpha for the scale was .72.

**Health information orientation.** Eight items were used to measure health information orientation. The items were: “I make a point to read and watch stories about health,” “I really enjoy learning about health issues,” “to be and stay healthy it’s critical to be informed about health issues,” “the amount of health information available today makes it easier for me to take care of my health,” “when I take medicine, I try to get as much information as possible about its benefits and side effects,” “I need to know about health issues so I can keep myself and my family healthy,” “before making a decision about my health, I find out everything I can about this issue,” and “It’s important to me to be informed about health issues.” Responses were measured on a 1 to 5 scale with 1 representing “strongly disagree” and 5 representing “strongly agree.” A principal axis factor analysis produced a single factor with an Eigenvalue of 4.18. Factor loadings ranged from .55 to .80 and the factor explained 52.24% of the variance. Cronbach’s alpha for the aggregated scale was .87.

**Health-oriented beliefs.** The participants were provided the following instruction: “please rate each of the following health behaviors on a scale of 1 through 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.” A principal axis factor analysis yielded a single factor with factor loadings ranging from .52 to .77. Eigenvalue of the factor was 3.71 and it explained 46.31% of the variance. Cronbach’s alpha for the aggregated scale was .82.
Healthy activities were measured by eight items. The participants were provided the following instruction: “please place a 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 or No format and the activities were summed up to constitute the healthy activities variable.

RESULTS

The hypotheses compared different communication channels as sources of health information. Each of the hypotheses compared those individuals who reported learning most of their health information from a particular channel with the individuals who reported not learning health information most often from that particular channel. To test the hypotheses, independent sample t-tests were conducted. Given that four t-tests were conducted for each information source type, 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.

The results presented in Table 1 supported H1, indicating that individuals who learned about health issues most often from their interpersonal networks were in-

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TABLE 1
Comparison of Health Consciousness, Health Information Orientation, Health Beliefs, and Health Activities in the Context of Family and Friends as a Primary Source

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Primary Source</th>
<th>Not Primary Source</th>
<th>t</th>
<th>( \eta^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health consciousness</td>
<td>3.97 .63</td>
<td>3.90 .72</td>
<td>2.59*</td>
<td>.003</td>
</tr>
<tr>
<td>Health information orientation</td>
<td>3.73 .70</td>
<td>3.58 .78</td>
<td>4.71**</td>
<td>.008</td>
</tr>
<tr>
<td>Health-oriented beliefs</td>
<td>4.16 .67</td>
<td>4.07 .71</td>
<td>2.98*</td>
<td>.004</td>
</tr>
<tr>
<td>Healthy activities</td>
<td>4.01 2.41</td>
<td>3.47 2.52</td>
<td>5.11**</td>
<td>.009</td>
</tr>
</tbody>
</table>

\*p < .0125. **p < .001

Healthy activities. Healthy activities were measured by eight items. The participants were provided the following instruction: “please place a 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 or No format and the activities were summed up to constitute the healthy activities variable.

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2The tests are likely to be significant given the incredible power inherent in the larger sample size. The effect sizes are indeed small on average.
deemed more likely to be health conscious and health information oriented, hold strong health beliefs, and engage in healthy activities as compared to individuals who did not learn most of the information on disease and prevention from their family and friends.

Table 2 presents the comparison between individuals who primarily retrieved health information from traditional media (print, television, and radio) with individuals who did not primarily receive information from these media. In support of H2, the results pointed out that the participants who learned most often from news-

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Comparison of Health Consciousness, Health Information Orientation, Health Beliefs, and Health Activities in the Context of Traditional Media as Primary Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Newspapers/Magazines</strong></td>
<td></td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>Primary Source</td>
</tr>
<tr>
<td>Health consciousness</td>
<td>3.98</td>
</tr>
<tr>
<td>Health information orientation</td>
<td>3.74</td>
</tr>
<tr>
<td>Health-oriented beliefs</td>
<td>4.18</td>
</tr>
<tr>
<td>Healthy activities</td>
<td>3.98</td>
</tr>
<tr>
<td><strong>Television</strong></td>
<td></td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>Primary Source</td>
</tr>
<tr>
<td>Health consciousness</td>
<td>3.93</td>
</tr>
<tr>
<td>Health information orientation</td>
<td>3.67</td>
</tr>
<tr>
<td>Health-oriented beliefs</td>
<td>4.12</td>
</tr>
<tr>
<td>Healthy activities</td>
<td>3.80</td>
</tr>
<tr>
<td><strong>Radio</strong></td>
<td></td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>Primary Source</td>
</tr>
<tr>
<td>Health consciousness</td>
<td>3.86</td>
</tr>
<tr>
<td>Health information orientation</td>
<td>3.51</td>
</tr>
<tr>
<td>Health-oriented beliefs</td>
<td>4.05</td>
</tr>
<tr>
<td>Healthy activities</td>
<td>3.83</td>
</tr>
</tbody>
</table>

*p < .0125; **p < .001
papers or magazines reported higher levels of health consciousness, health information orientation, health beliefs, and healthy activities than those participants that did not learn most often from newspapers or magazines. In the realm of television, the results provided partial support for H3. individuals who reported learning most often from television were less likely to be health conscious and held weaker health beliefs than individuals who did not learn most often about health issues from television. Demonstrating partial support for H4, the results articulated that the respondent that learned about disease and prevention most often from radio was also less likely to be health conscious and health information oriented than the respondent that did not most often learn about health matters from the radio. He or she also held weaker health beliefs.

Finally, the results of the t-tests conducted to test H5 partially supported the hypothesis (see Table 3). The respondent that listed the Internet as a primary source for learning information related to health was more likely to be health conscious, hold stronger health-oriented beliefs, and engage in healthy activities as compared to the respondent that did not learn health information from the Internet.

### DISCUSSION

Communication channels differ in the extent to which they serve as primary health information sources for different segments of the population. Even though some communication channels serve as primary sources of health information for health conscious and health information-oriented individuals, other communication channels prove to be more frequently used by the non health-oriented individuals. In support of the hypotheses, the results point out that channels with an active-ori-
entation are more likely to draw the health-oriented individual. Communication channels such as newspapers, magazines, Internet, and interpersonal networks serve as active communication channels because they require audience involvement in the processing of information. The engaged and health conscious individual actively seeks out health information through these channels and, hence, reports them as his or her primary sources of information.

Those individuals who reported the interpersonal network as their primary health information channel were more health-oriented than their counterparts. Although this finding reiterates the positive role of family and friends in serving as sources of information for health-motivated individuals, it also raises questions about the use of interpersonal networks for disseminating information to less healthy groups. In the realm of print media, it was observed that individuals who ascribe newspapers or magazines the status of primary health information sources are also more likely to be health-oriented than individuals who do not learn health information primarily from newspapers and magazines. The research results support the idea of an active orientation of print media. Consumers with enduring involvement in health issues are likely to find information on such issues from print media. Strategically, the results suggest that campaign planners targeting unhealthy behaviors in unique populations should stay away from using newspapers and magazines, because these outlets do not serve as sources of health information for the unhealthy individual (Dutta-Bergman, 2004). The use of the print media for prevention campaigns is likely to increase the knowledge and behavioral gaps between the information rich and poor, and the healthy and unhealthy (Dutta-Bergman, 2004).

Broadcast media such as television and radio are typically classified as passive media outlets. Supporting the nomological network, these passive media outlets were more likely to be the primary sources of health information for the individual that is less health oriented. For the less healthy individual, most health information is learned through the broadcast media and therefore, broadcast media such as radio and television might be used for sending out prevention messages to the target population. Future research needs to explore innovative ways for placement of preventive messages on such media outlets as television and radio because they served as sites of health information delivery for the health-unmotivated target group (see Karlyn, 2001; Palmgreen, Donohew, Lorch, Hoyle, & Stephenson, 2001). Current research exploring the role of entertainment education in communicating prevention is a worthwhile endeavor, given the broadcast orientation of the target group.

Finally, this study documented interesting insights in the context of health information acquisition from the Internet. The study results supported the fundamental idea that information gathering from the Internet is an active process, and therefore is oriented toward the health information oriented, health active individual. The Internet, therefore, can be used as a viable mechanism for reaching the health-active segment of the population. Informing health conscious individ-
uals about different preventions and treatments could be accomplished through the medium.

One of the critical 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 “sources of health information” variable was treated as a dichotomous variable measured in a yes or no format; therefore, it did not provide information about the differences in the rankings among the different information source types. 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, as acknowledged in an earlier footnote, the effect sizes were typically pretty 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.

This article calls for a shift in approach in studying health information use and is a step toward articulating the different sources of health information used by individual patients (Cline & Haynes, 2001; Pricewaterhouse-Coopers, 1999). Future research needs to tap into communication theories such as selective exposure theory and uses and gratifications theory to further elucidate the process of health information seeking. Scholarship on health information use, especially in the context of new media, needs to engage communication scholars (Brashers, et al., 2002) and consumer behaviorists.

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