

## ABSTRACT

### THE ROLE OF INTERPERSONAL, MASS MEDIA, AND INTERNET COMMUNICATION ON CHANGES IN SELF-REPORTED HEALTH BEHAVIOR AND SKILLS

By Tara A. Nunenkamp

Communication plays an integral role in changing health behaviors. Seeking health related information from interpersonal, mass media, and Internet communication is a common trend. Research on the use of the various communication channels for health purposes reveals the mode of communication can influence an individual's perception of their health condition and ultimately their behavior.

This study focuses on whether personal health information found through the use of interpersonal, mass media, or Internet communication changes one's self-reported health behavior and skills. A statistical analysis was completed using the 2007 Health Tracking Household Survey conducted by the Center for Studying Health System Change (HSC) between April 2007 and January 2008. The original sample includes 17,797 respondents from 9,407 U.S. families. The national sample was collected using computer-assisted random telephone interviews.

The literature suggests the channel used to obtain personal health information may have an impact on self-reported health behaviors and health skills. Results of the statistical analysis indicated the channels of communication used to obtain health information did have an impact on self-reported health behavior and health skills. The strongest predictors of health behavior change were obtaining personal health information from books, the Internet and sharing personal health information with the healthcare provider. Future research for policy makers should be directed toward integrating traditional methods of obtaining personal health information and non-traditional methods of obtaining health information with regard to changes in health behavior and health skills.

THE ROLE OF INTERPERSONAL, MASS MEDIA, AND INTERNET  
COMMUNICATION ON CHANGES IN SELF-REPORTED HEALTH BEHAVIOR  
AND SKILLS

by

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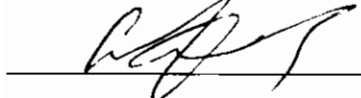
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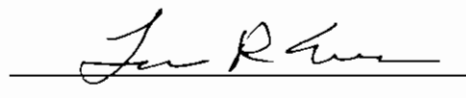
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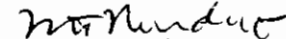
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## **CHAPTER I**

### **INTRODUCTION**

The health environment is changing with numerous advancements in technology. Patients are now able to gather health information through several channels of communication. Individuals seeking health information from interpersonal, mass media, and Internet communication influence may their health behaviors and skills. This chapter will provide an overview of the problem, define the purpose and the significance of the study and conclude with a summary.

#### **Statement of the Problem**

Chronic diseases are the most frequent causes of death in the United States and across the globe (Glantz, Rimer, & Lewis 2008). Six-hundred and sixty-seven people lost their lives in 2007 due to heart disease and each year approximately 785,000 Americans will have their first heart attack (Heart Disease and Stroke Statistics, 2009). In 2008, the number of people with diabetes increased to 24 million. In 2010, more than 20 million people age 20 or older are living with chronic kidney disease (Centers for Disease Control and Prevention, 2008; Centers for Disease Control and Prevention, 2010). Currently, heart diseases, cancer, lung diseases and diabetes are among the most common chronic diseases causing death and by 2030, the major causes of death are projected to be HIV/AIDS, depressive disorders, and heart disease (Glantz et al., 2008). There are many behaviors that also contribute to mortality. Making healthy lifestyle changes can decrease

the risk for disease and increase the ability to be highly functioning individual later in life.

Behavioral changes with regard to one's lifestyle is a process that is successful long-term, when it is self-motivated (Harvard Health Publications, 2007). Effective health behavior interventions can provide avenues for disease prevention and early detection thereby saving lives. Over the years, technology advancements have made it possible to track trends related to health behaviors in order to monitor the effectiveness of prevention programs (Glantz et al., 2008). Health care is changing providing and there are many more channels of communication for consumers to use when they obtain health related information than ever before (Glantz et al., 2008, Harvard health Publications, 2007).

Traditional sources of health information combined with the expansion of the Internet have increased the availability of health information to the public, allowing individuals to take a more active role in managing their personal health (Rains, 2007). Consumers are seeking health-related information from the Internet, healthcare providers, friends, family, acquaintances, television, radio, newspapers, magazines and many other sources. Consumers are making an effort to become informed or feel empowered to make decisions about their health, have a better understanding of their health conditions, and potentially influence their health behaviors based on the health-related information they find (Anderson, 2004; Dutta-Bergman, 2004; Rains, 2007; U.S. Department, 2010).

**Purpose of the Study**

The purpose of the study is twofold: (1) to investigate consumers' preferred channel of communication when seeking health information and (2) to examine relationships among different channels of communication (interpersonal, mass media, and Internet) and self-reported health behaviors and health skills.

**Significance of the Study**

As health care changes, the preferred mode of health information seeking may change the method in which health information is disseminated and have an impact on an individual's health behaviors and skills (Glantz et al., 2008). This study will add to the existing body of literature by establishing whether consumers report changes in their health behaviors and health skills as a result of using specific channels of communication. The influence health information seeking preferences may have on one's health behavior and skills is important to researchers and practitioners when creating and evaluating health policy as it relates to health behavior (Glantz et al., 2008).

**Research Questions**

1. What is consumers' preferred channel of communication when obtaining personal health information?
2. What is the role of interpersonal communication as determinant of health behaviors and skills?
3. What is the role of mass media as a determinant of health behaviors and skills?

4. What is the role of the Internet as a determinant of health behaviors and skills?
5. What is the role of control variables as determinants of health behaviors and skills?
6. What is the differential influence of the control variables, interpersonal, mass media, and Internet communication on health behaviors and skills?

### **Organization of the Project**

The remaining portions of the project are organized into five chapters. Chapter II is organized into three sections and provides a detailed review of literature on the study's major concepts: interpersonal communication, mass media communication, Internet communication, and control variables. Chapter III proposes an integrated model based on communication theory, health-behavior change theories, and specifies hypotheses to be tested. Chapter IV explains and justifies the methodology used in this study. The population and sample are presented, instrumentation described, and the type of statistical analysis is defended. Chapter V consists of the results of the data analysis and Chapter VI includes a discussion of the results, their implications, as well as limitations of the study.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **Introduction**

This chapter describes literature relevant to the research purposes of the project. It is organized into four sections. The role of the predictor variables interpersonal, mass media, Internet communication, and control variables are explicated separately. At the end of each section, the relevance of the literature to the research reported in this project is discussed.

#### **Dependent Variables**

##### **Health Behavior.**

One of the goals of health education is to have a positive impact on health behaviors. There are many determinates of overall health and the decision to maintain a healthy lifestyle lies in the hands of the individual. Glantz et al. (2008) define health behavior as “the actions of individuals, groups, and organizations, as well as their determinates, correlates, and consequences, including social change, policy development, improved coping skills, and enhanced quality of life.” The decision to maintain a healthy lifestyle lies in the hands of the individual. Though this is true, health related decisions can be easily influenced by one’s genetic makeup, physical and social environments, and their own behavior, as well as the behavior of others (U.S. Department, 2010).

There are many determinants of overall health at an individual, societal and

community levels. On an individual level, one's genetic makeup and family history of a health condition can influence and put an individual at risk to develop problems in the future. Individuals' physical and social environment, and the personal choices they make as a result, can further influence their health behaviors. Health related communication is an essential component to improving the health of individuals and their communities (U.S. Department, 2010).

Health related information can be found both actively and passively through various channels of communication. Individuals who are very health information oriented are interested in obtaining materials that will help understand their health conditions (Dutta-Bergman, 2004). Information is an essential component to changing, maintaining or evaluating health behaviors (Goldsmith, 2001; Johnson & Meishcke, 1993). Health communication through various channels can help raise awareness of health risks and solutions and promote further understanding of how to treat an illness (U.S. Department, 2010). Whether the communication is taking place in a clinical setting one on one or in a public forum, understandability is essential. Research shows the dissemination of relevant and appropriate health information tailored to a specific audience, using the preferred methods of communication, best supports health promotion (U.S. Department, 2010).

### **Health Skills.**

Health skills assist individuals when figuring out solutions to new health related situations or problems with health conditions. Health skills are largely related to health literacy when individuals are required to make decisions related to their health

conditions. Health literacy is defined in Healthy People 2010 as "The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions." Health literacy represents a broad range of skills including the following: written and spoken language understandability as it relates to health concerns and conditions, the ability to accurately complete medical forms, and the ability to seek out additional health related information and understand treatment options needed to make health decisions (Blackburn, 2010; Parker and Gazmararian, 2003). Over 90 million Americans struggle to understand basic health information including reading prescriptions and appointment slips (Allen & Horowitz, 2004).

The health literacy rate is particularly high among older adults with lower levels of education and is largely associated with increased healthcare costs (Allen & Horowitz, 2004; Blackburn, 2010; Wallace, 2006). Research indicates individuals with low health literacy skills are more likely to engage in risky health behaviors and health literacy skills are strongly linked to health-related outcomes (Wallace, 2006). Another study indicated individuals with low health literacy rates were more likely to lack the skills necessary to comprehend their physicians' recommendations and adhere to the medication regimes necessary for their conditions (Blackburn, 2010).

Patients are encouraged to play an active role in maintaining their health and health skills are essential more so now than ever due to the changes in the dissemination of health related information through television advertisements and the Internet (Glatter, 2004). The healthcare environment is becoming increasingly complex due to the

conflicting health information presented in through various communication channels including health professionals, television advertisements, the Internet, and the media, making it more difficult for consumers to make well-informed decisions regarding their health behaviors (Glatter, 2004). For example, disease awareness campaigns from pharmaceutical companies provide health information to selected audiences and serve as an advertisement campaign for the pharmaceutical company aiding in their profitability. Consumers are not in need of additional health related information. However, they are in need of better health information presented in a clear and understandable format (Glatter, 2004).

Cognition, motivation and language comprehension are all necessary components when obtaining, comprehending, and applying health related information (Blackburn, 2010). An individual's ability and desire to comprehend health information differ and studies have indicated knowledge alone does not lead to health behavior changes (Blackburn, 2010). To increase health literacy as it relates to health skills, research has shown health information should be presented in a way that is useful to the patients. It is important to note even with increased health related knowledge and motivation there are many environmental factors that contribute to health behavior changes (Blackburn, 2010). Research also indicates health literacy is prevalent across all segments of society and strongly related to health outcomes (Speros, 2005). Adequately informed patients have better health outcomes and open channels of communication with health care providers (Parker & Gazmararian, 2003).

## **Independent Variables**

### **Interpersonal Communication.**

Interpersonal communication is an influential method of communication and can put the intended message in a familiar context for the audience. According to Braithwaite and Baxter, interpersonal communication is more than sending and receiving information; it can be defined as “a way that humans negotiate meanings, identity, and relationships through person-to-person communication” (2010, p. 4). For the purpose of this study, interpersonal communication relates to the communication exchange between the patient and the provider. In a health care setting, the interpersonal communication that takes place between a patient and a provider plays a fundamental role in health care outcomes and can have a strong impact on a patient’s response to treatment (Campbell, Auerbach, & Kiesler, 2007).

Interpersonal communication may be more time consuming, but it is often more trusted and reliable when it comes to changing attitudes, behaviors and demonstrating skills. This channel of communication can have an impact on one’s awareness, knowledge, attitude, self-efficacy, skills and commitment to health behavior change (National Cancer Institute, 2008). In addition, interpersonal communications permits a two-way discussion allowing the patient to play an active role in their care and is very effective when teaching a patient about their health conditions. It is important to note that there are limitations to the use of interpersonal communication and at times the recipient may not be convinced that what they are being told is really necessary (National Cancer Institute, 2008). Positive patient-provider relationships are related to increased

patient trust, compliance, general satisfaction with care, and improved biological disease status (Campbell et al., 2007).

A study conducted by Dutta-Bergman, evaluated data from three postal mail surveys regarding sources of health information. This study found those who used their interpersonal network as their primary sources of health information played a more active role in their health care than their counterparts (Dutta-Bergman, 2004). Interpersonal communication between the patient and the provider has proven to assist in positive health outcomes in several areas. Improved health overall health status, lower blood pressures and blood sugars, decreased length in hospital stays and recovery time from surgery had all occurred due to positive communicative experiences between the patient and the provider. Patients are more likely to participate in a health behavior that is new to them upon the recommendation of their physician (National Cancer Institute, 2008). A national study also indicated the compliance of a patient, with regard to the use of prescription medicine, improved when there were open lines of communication between the patient and the provider (National Cancer Institute, 2008).

### **Mass Media Communication.**

Mass media communication for the purpose of the study includes communication through the following media sources: newspaper, radio, television, radio, books, friends, and alternative sources. Research shows, newspapers and television frequently serve as sources of health information (Brodie, Kjellson, Hoff & Parker, 1999; Cotton & Gupta, 2004; Dolan, Iredale, Williams & Ameen, 2004; Johnson & Meischke, 1993). Mass

media communication presents an opportunity for health information to be disseminated to individuals that may not normally seek health information on their own accord (Dutta-Bergman, 2004).

Mass media channels of communication have the ability to reach large audiences very quickly. The newspaper is easily accessible and can easily be shared with friends and family (Dutta-Bergman, 2004). Though the newspaper is easily accessed, the health related content presented in a newspaper has limited exposure and is selected based on whether or not it is newsworthy (National Cancer Institute, 2008). Individuals that use newspapers and books as their primary source of health information are more likely to exhibit healthy behaviors and skills and play an active role in maintaining their health. Due to the nature of printed materials, newspapers and magazines require the individual to take a more active role in gathering the information (Dutta-Bergman, 2004). The format of the printed message also needs to be considered. In a study conducted to evaluate the effects messages have on health decisions and the advocacy for adopting preventative health behaviors, Greene and Brinn (2003) found that messages containing facts and numeric values in a statistical format, and narrative messages, containing personal stories, functioned differently. Statistical messages were determined to be more effective in reducing the use of tanning beds, though it was important to note that either form of the message was more effective than no message at all (Greene & Brinn, 2003).

In addition to the newspaper, another method of obtaining health information through a mass media source is the television. The television can have both a positive and a negative impact on the health behaviors of an individual. Messages disseminated

through the television can have an emotional appeal and demonstrate behaviors, reach a large audience, including low-income families (National Cancer Institute, 2008).

Television can downplay the severity of risky health behaviors and is very passive-oriented (Dutta-Bergman, 2004; Rains, 2007). Studies have shown that the vividness of the messages, under conditions of high perceived self-efficacy, can have an impact on deterring harmful health-related behaviors (Block & Keller, 1997). Another study of women's preferences for cancer-related information indicated television was the most preferred method of information retrieval aside from interpersonal communication (Johnson and Meischke, 1994). Though the message reaches a large audience, it can be difficult for the audience to retain the information and pass it along and it is expensive to produce the television ads (National Cancer Institute, 2008).

Similar to receiving information from the television, the radio is also viewed as passive source and often for entertainment purposes alone. The radio offers many formats to distribute the information and can be interactive. Though there are many formats, the health-related message received through the radio may not be conducive to the health topic of discussion, due to the succinct nature of the messages making it difficult for the listener to retain the information (Dutta-Bergman, 2004; National Cancer Institute, 2008). It is relatively inexpensive to produce a radio ad and easier to reach the intended audience at a specific time based on their listening preference (National Cancer Institute, 2008). Dutta-Bergman evaluated data from three postal mail surveys regarding sources of health information. This study found those who used broadcast media, such as the television and radio, as their primary sources of health information were less focused on their health

than their counterparts. This study indicated prevention messages were best suited for this channel of communication due to the fact that individuals who were less healthy tended to use this method.

Mass media is an important source of health information that can influence health behaviors within a community. On average, health campaigns in the United States reach 40% of their target population. International family planning mass media campaigns reach 70% of their target population possibly due to the use of multiple communication channels (Snyder, 2007). Mass media campaigns can increase the awareness of risky health behavior and result in a change in behavior for the targeted audience (Hemo, Shamir-Shtein, Silverman, Tsamir, Heymann, Tseorhi, 2009; Reneger, Steinfelt, Lazarus, 2002; Wootan, Reger-Nash, Booth-Butterfield & Cooper, 2005; Wray, Jupka & Ludwig-Bell, 2005). Other studies have indicated on average, mass media campaigns have a small and quantifiable impact on behavior change and can vary by topic. For this reason, the literature suggests the mass media campaign messages be carefully crafted for the target population to persuade behavior change (Snyder 2007; Snyder, Hamilton, Mitchell, Kiwanuka-Tondo, Flemming-Milici, Procto, 2004; Wray et al., 2005).

Environmental barriers need to be considered when creating a mass media campaign for a specific population, as the intended recipient may not have the ability to make the behavioral change on their own (Snyder, 2007). The planning and placement of the advertisements associated with the mass media campaign may adversely impact the outcome of the mass media campaign without professional assistance (Wootan et al., 2005). Seatbelt, oral health, and drinking mass media campaigns tend to be successful

(Snyder et al., 2004; Snyder, 2007). The information obtained through the media has an effect on one's feelings of hope and can increase feelings of confusion. The level of education of the patient can determine treatment selection and have an impact on their hopes of being cured (Passalacqua, Caminiti, Barni, Bertta, Carlini, Contu, Di Costanzo, 2004). Mass media campaigns have been used to successfully promote healthful behaviors and address causes of death (Snyder, 2007).

### **Internet Communication.**

Health information can be found on the Internet through websites, e-mail, chat rooms, newsgroups, and advertisements. Internet access serves as a portal to a wealth of information with approximately 78% of U.S. adults using the Internet and 65% with broadband access at home (Fox, 2010). A variety of activities and research can be completed online. Seventy million U.S. adults sought out health related information in 2007 (Tu & Coehn, 2008). The Internet offers users opportunities to receive health education, assistance with chronic disease management, a resource in health related programs and behavior change interventions, increased health related knowledge, and engagement in health maintenance and decision making (Iverson, Howard & Penney, 2008; Weaver, Thompson, Weaver & Hopkins, 2009).

From 2001 to 2007, the health related searches completed on the Internet increased from 16% to 32% largely due to an increase in residential broadband access, increase in the number of health-related websites, making the Internet accessible as most traditional methods of obtaining personal health information (Tu & Cohen, 2008). Using the Internet to search for health related information is the third most common online

activity behind e-mail and researching a product service (Handfield, Turnbull & Bell, 2006). Internet is now available to many more people than it has been in the past but the user's ability to navigate to reputable sources may influence the type of information found (Bell, 2009; Handfield et al., 2006).

The use of the Internet as a channel of communication is effective because it can reach a large audience and can be updated and adapted instantaneously to meet the needs of a targeted audience. In addition, the appearance of the health information on the Internet can be graphically pleasing to the end user. Similar to the television and radio, the Internet has the ability to incorporate the audio and visual aspects with an added bonus of being self-paced. Though many people have the ability to access the Internet, there are audiences that do not have access. Use of the Internet to obtain health related information also requires an active approach often requiring an individual to "sign up" for additional information (National Cancer Institute, 2008).

The Internet can be used as a communication channel for individuals who are very active in maintaining their health (Dutta-Bergman, 2004). Often those searching for health information on the Internet are searching for someone else and are in good health (Bylund, Sabee, Imes & Aldridge Sandord, 2007). Studies have shown that 18% of people treat themselves based on the information they have found on the Internet without consulting a physician (e.g., Bylund et al., 2007). Many individuals who have sought information through the Internet believe the information they have found influenced their health behavior and skills (Bylund et al., 2007; Handfield et al., 2006).

A study conducted by Iverson et al. (2008) indicated a majority of the patients

who were Internet users did not change their behavior as a result of the information they found in online health resources, whereas 46% indicated they did make health behavior changes. The study also indicated Internet users were more likely to ask questions, adhere to the physician's advice, change dietary habits, and increase physician visits. Eighty-four percent of the patients surveyed believed their physicians were willing to discuss the information they obtained online (Iverson et al., 2008). Many individuals talk to their physicians about the information they have found on the Internet and yet there are many patients who do not mention their findings (Bylund et al., 2007; Handfield et al., 2006).

In one study, users viewed online forums, social networks, and support groups to be more helpful than physicians due to convenience, the level of emotional support, cost effectiveness, and the in-depth information provided (Cline & Haynes, 2001). The use of the Internet to find health-related information is largely dependent on the motivations of the individual and their computer skills (Shim, 2008). The use of the Internet for health information allows the patients to freely research their health conditions, adding to their knowledgebase at a comfortable pace (Iverson et al., 2008).

### **Control Variables**

Five control variables have been chosen for inclusion in this study including gender, age, race, education and income. Since literature on the role of some of these variables as antecedents has been discussed in part in previous sections, a brief overview of each will be provided next.

**Gender.**

Preferred communication channels for health related information varies among males based on the disease process (McCaughan & McKenna, 2007). McCaughan and McKenna's study focused on men newly diagnosed with cancer and their information-seeking behavior. The data for this study was gathered through an in-depth interview process. Researchers found that many times, the men did not ask for the information they needed because they felt "out of place." This feeling impacted their ability to communicate freely with the provider (McCaughan & McKenna, 2007). In this particular study, the men interviewed preferred to rely on their spouses or family members to obtain the additional information from the provider rather than communicate with the provider themselves.

Another study indicated males were less likely to follow the advice of a physician when selecting a treatment (Passalacqua et al., 2004). Studies have indicated women used the Internet to seek health-related information more so than men (Iverson et al., 2008). Women also preferred to receive cancer related information through the television (Johnson & Meischke, 1994). High-quality doctor-patient relationships increased patient satisfaction and trust as well as overall compliance with the medical advice obtained in their visits (Campbel et al., 2007).

**Age.**

Younger consumers were more likely to seek health information (Tu & Coehn, 2008). Older adults were more likely to rely on doctors, television, and neighbors for information. Older adults also, preferred health information in written form and it was

important to provide information using several channels (Wootan et al., 2005). Research has also indicated the younger population was more likely to use the Internet to seek information, and ages 31-45 were more likely to report changes in thinking as a result of what they have found (Iverson et al., 2008) Iverson et al. (2008) indicated older individuals were less likely to report their use of the Internet.

Though the Internet has become a primary source of information for many people, younger females with a higher level of education and a higher income tended to use the Internet as their sources of health information more so than older individuals (Bishop, Frain, Espinosa, & Steinhoff, 2009; Bylund et al., 2007). Individuals ages 31-45 who sought health information though the Internet were the most likely to report changed thinking and behavior whereas Internet users age 61 and older, were the least likely to report this outcome (Iverson et al., 2008).

### **Race.**

Whites and African Americans were more likely to seek health information than Hispanics (Tu & Cohen, 2008). African Americans and Hispanic consumers were more likely to change report a change in their overall approach to maintaining health and the information had a beneficial impact about treating their condition than their white counterparts (Tu & Cohen, 2008).

### **Education.**

Education is the key indicator for health information seeking behavior (Tu & Coehn, 2008). Less-educated adults were more likely to rely on doctors, television and neighbors for dietary information than those with higher education (Wootan et al., 2005).

One study also indicated, those with lower levels of education might have a difficult time communicating with their providers (Passalacqua et al. 2004). In addition, those with lower levels of education used television and radio as their main source of health information (Passalacqua et al., 2004).

**Income.**

People with higher incomes are more likely to seek health related information than those with lower incomes (Tu & Coehn, 2008). Those with a higher income are more likely to seek the health related information from the Internet (Bishop et al., 2009; Bylund et al., 2006), Further, those with lower incomes are more likely to receive information from the television (National Cancer Institute, 2008).

## **CHAPTER II**

### **THEORETICAL FRAMEWORK**

#### **Introduction**

The purpose of this study is to extend previous research and contribute new knowledge by investigating consumers' preferred channel of communication when seeking health information, and the relationship among different channels of communication (interpersonal, mass media, Internet) and self-reported health behaviors and health skills.

To accomplish these objectives, a theoretical framework would first provide rationale for the potential relationships among the variables presented in a conceptual model. Second, specific hypotheses will be developed to address the goals of the study.

#### **Theoretical Framework**

The rationale for expecting relationships among different channels of communication (interpersonal, mass media, and Internet) and health behaviors and skills will be drawn from the field of communication theory and health-behavior change theories.

##### **Communication Theory.**

Communication is an essential component of health behavior change. According to the John Finnegan, communication can be defined as “the production and exchange of information and meaning by use of signs and symbols.” Communication can be evaluated

at many levels both empirically and critically as a basis for understanding human behavior. Communication can positively and negatively impact health behaviors and many major health behavior change theories include communication processes as part of the catalyst for change (Finnegan & Viswanath, 2002). The communication process is a critical component of major health behavior change theories and value-expectancy theories.

### **Health Belief Model.**

The Health Belief Model (HBM) was developed in the 1950s by a group of social psychologists in the U.S. Public Health Service and used to explain people's unresponsiveness to free preventative programs. The theory has since evolved to include an individual's response to diagnosis and adherence to recommended course of therapy and is a value-expectancy theory. When value-expectancy theories were used to evaluate health-related behaviors, the desire for wellness is viewed as the value and belief that actions may prevent illness is viewed as the expectation. The expectation portion of the theory can be further defined as the extent to which an individual believes they are susceptible to an illness, severity, and the level of personal responsibility in taking action to prevent the illness (Glantz, Rimer & Lewis, 2002).

According to the Health Belief Model (HBM), an individual is more likely to change their health behavior if they find it to be of value, feel they are at risk, and the benefits of change offset the barriers to change. For more than fifty years, the HBM has been used to explain health-related behavior changes, maintenance, and theoretical support for health interventions (Glantz et al., 2002). There are four constructs that make

up the HBM representing perceived risk, benefits, and barriers that explain an individual's "readiness" and include the following: the perceived susceptibility, the perceived severity, the perceived benefits, and the perceived barriers. The *cues to action* concept of the HBM activates the readiness through physical or environmental factors such as media publicity and stimulate behavior. The final concept of self-efficacy can be defined as one's belief in the ability to successfully perform an action. This concept was added to the HBM in 1988 to incorporate lifestyle behaviors that may require long-term behavioral changes such as poor eating habits, smoking, or a poorly defined exercise regimen. (Glantz et al., 2002).

The HBM has been used to explain preventative health behaviors. However the effectiveness of the HBM in predicting behavior varies depending on the specific health threat (Greene & Brinn, 2003). The HBM model has been associated with cancer screening, dental behavior, diabetes, and HIV (Shumaker, Schron, Ockene & McBee, 1998). The disease, the individual's personal situation, the health service being promoted and a combination of internal and external factors have accounted for the difference in responsiveness to preventative health steps. Additionally, age, gender, education, and income have influenced disease prevention behaviors (Chew, Palmer & Kim. 1998).

### **Theory of Reasoned Action and Theory of Planned Behavior.**

In addition to the Health Belief Model, the Theory of Planned Behavior (TPB), which is an extension of the Theory of Reasoned Action (TRA), can provide insight into individual motivational factors and the likelihood that one would perform a specific behavior. The TRA was developed by Martin Fishbein in 1960 and revised and expanded

by Fishbein and Icek Azjen. The extension of the TRA that formed the TPB includes perceived behavioral control to account for factors outside the control of the individual that affect the intention and behavior (Glantz et al, 2002). Behavioral motivation, also referred to as intention, and the ability, also referred to as behavioral control, together determine behavioral performance. The TRA and TPB have explained health behaviors and intentions to include smoking and drug use, exercise behavior, clinician provision of preventative services (Glantz et al., 2002).

The most important determinant of one's behavior in the TRA is one's behavioral intention and the direct determinant of the intention is one's attitude and subjective norms toward the behavior. The attitude of one's behavior is determined by one's behavioral beliefs or beliefs about the outcomes of performing the behavior and one's subjective beliefs are determined by their normative beliefs. (Glantz et al., 2002). The TRA assumes one's behavioral and normative beliefs determine their attitude and subjective norms and that there are underlying reasons that one performs a specific behavior. The TPB explains the relationship between attitude and behavior and adds perceived behavioral control to the TRA to account for factors outside of one's control that may influence one's intention and thereby influence one's behavior. (Glantz et al., 2002).

### **Social Cognitive Theory of Mass Communication.**

The Social Cognitive Theory (SCT) explains health behavior patterns by addressing the dynamics of an individual's behavior and providing a foundation for intervention strategies (Glantz et al., 2002). This theory deals with both the cognitive and emotional aspects of behavioral change through the evaluation of the environment, the individual themselves, and their behavior (Shumaker et al., 1998). Self-efficacy is the main concept of the SCT and Self-efficacy is one of the most identified characteristics of adherence to a physical activity. The theory also includes the following concepts environment, behavioral capability, expectations, expectancies, self-control, observational learning, reinforcements, emotional coping responses, and reciprocal determinism. This theory postulates that the environment and one's cognitive thought processes both play a role in shaping behavioral outcomes. It serves as the framework for the creation and implementation of programs that can change health behaviors (Glantz et al., 2002).

### **Hypothesis Development**

Figure 1.1 provides a summary of the hypothesized relationships. The rationale for expecting relationships among different channels of communication and health behaviors and skills was based on theoretical and empirical research.

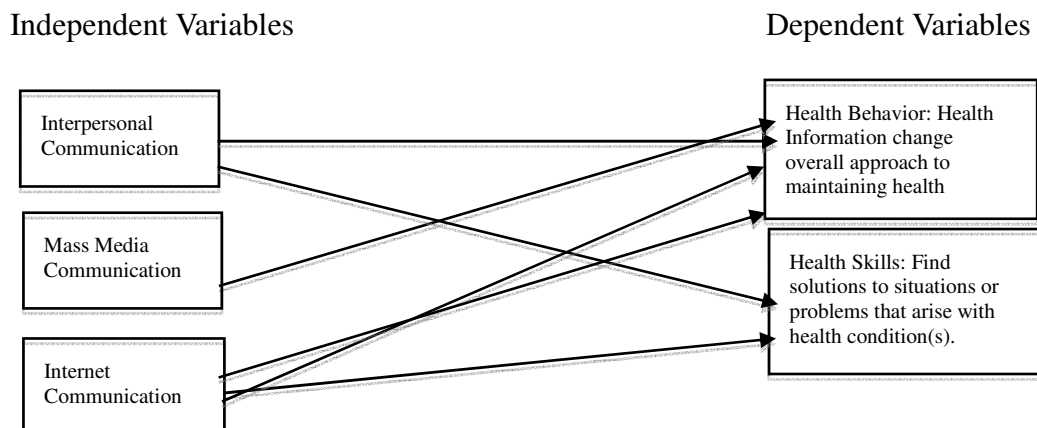


Figure 1.1 The Role of Interpersonal, Mass Media and Internet Communication on Changes in Self-Reported Health Behaviors and Skills Conceptual Model.

The following hypotheses will be tested:

**Hypothesis<sub>1</sub>:** Individuals who obtain health information from mass media sources (i.e. newspapers, television, radio, books, friends, alternative sources) will report changes in their health behaviors and skills.

**Hypothesis<sub>2</sub>:** Individuals who obtain health information from the Internet will report changes in their behaviors and skills.

**Hypothesis<sub>3</sub>:** There is a difference in influences of interpersonal, mass media, and Internet channels of communication on an individuals' change in self-reported behaviors and skills.

**Hypothesis<sub>4</sub>:** Individuals discuss the health information they have obtained from mass media sources and the Internet with their physician and will report changes in their health behaviors and skills.

**Summary**

The theoretical support provided justification for the hypothesis presented in this chapter. The identified relationships between the dependent (health behavior and health skills), independent (interpersonal communication, mass media communication and Internet communication), and control variables in this study. Chapter III presented a theoretical framework that explains the potential relationship among the study variables. It also developed hypotheses representing the relationships pictured in the model. To support or reject the hypotheses, each of the relationships must be empirically tested. Chapter IV outlines the research methodology, which will be used to examine the relationships represented by the model and the above hypotheses.

## **CHAPTER IV**

### **METHODOLOGY**

#### **Introduction**

The previous chapters provided a review of the literature and established a theoretical foundation for the hypothesized relationships between the independent variables and dependent variables. The purpose of this chapter is to address the methodology used in this study. It describes population and sample, measuring instruments and the methods of statistical analysis.

#### **Population and Sample.**

Households were selected using a computer-assisted telephone interview (CATI) and the survey obtained information about every adult and one child in the residence. The dataset includes both public-use and restricted datasets; this study will use the public-use dataset. The original sample includes 17,797 respondents from 9,407 U.S. families. This sample represents the U.S. population who are civilian and non-institutionalized. The national sample was collected using computer-assisted random telephone interviews. This study analyzes whether personal health information found through the use of interpersonal, mass media, or Internet communications changes one's self-reported health behavior or skills.

## **Instruments and Measures**

### **Instrument.**

This study uses data from the 2007 Health Tracking Household Survey conducted by the Center for Studying Health System Change (HSC) between April 2007 and January 2008. The Health Tracking Household Survey is the successor to the Community Tracking Surveys conducted in 1996-1997, 1998-1999, and 2000-2001. This survey informs policy and decision makers with information about how the health care system has changed and how the changes affect people at local and national levels (Center for studying Health System Change, 2007).

### **Measurement of Dependent Variables.**

Researchers asked respondents a variety of questions about obtaining personal health information and this study focuses on their method obtaining information and whether or not that changes their self-reported health behavior or skills. Respondents were asked “Did any of the health information you found change your overall approach to maintaining your health?” This question was coded No, Yes, Don’t Know, Refused, and Inapplicable. In addition, respondents were asked to respond to the following statement: “Please tell me whether you strongly agree, agree, disagree, or strongly disagree with each statement as it applies to you personally. I am confident I can figure out solutions when new situations or problems arise with my health condition(s)” (Center for Studying Health System Change, 2007) (See Appendix A).

### **Measurement of the Independent Variables.**

The independent variables pertain to the use of multiple sources to obtaining information related to a personal health concern. Respondents were asked whether they had used the Internet in the last 12 months “to look for or get information about a PERSONAL health concern.” Respondents were then asked a series of questions related to whether or not they obtain personal health information using the following methods: from books, friends, newspaper, television or the radio. The possible responses were as follows: No, Yes, Don’t Know, Refused, or Inapplicable (Center for Studying Health System Change, 2007) (See Appendix A).

### **Measurement of the Control Variables.**

Studies have indicated women, highly educated, and younger people are more likely to go online for health related information (Goldner, 2006). Age, gender, race, education, and family income were all control variables. Respondents were asked their age, gender, and race. Gender was coded 1=Male and 2=Female. Respondents were asked their race. The variable was constructed to include responses of White only, African American only, and all other survey responses. In addition, respondents were asked their highest grade completed. This question was top and bottom-coded for confidentiality purposes with response choices of grades 6, 7-11, 12, 13-15, 16, 17-18, 19 and -1 (inapplicable). Respondents were asked what their family income was in 2002 from all sources prior to taxes and other deductions. The range of responses were \$0, \$1 – 4999, \$5000 – 9999, \$1000 – 19999, \$20000 – 29999, \$30000 – 39999, \$40000 – 49999, \$50000 – 99999, \$100000 – 149999, -5 Census Family Income Top – Code. (See

Appendix A).

### **Data Analysis**

This study uses descriptive statistics, cross tabulation, correlation analysis and logistical regression analysis to test relationships between the variables. Cross tabulation is used to determine whether a statistically significant relationship exists between the dependent variables and the independent variables. In addition, logistic regression analysis has been completed to determine if individual effects of the variables are statistically significant.

### **Summary**

This study uses public-use data from the 2007 Health Tracking Household Survey had 17,797 respondents from 9,407 U.S. families. The relationships among dependent variables, health behavior and health skills, and the independent variables, sources of health information, interpersonal communication, mass media communication, and Internet communication, are evaluated using cross tabulation and logistic regression. In addition, the control variables or age, education, income and race are included as predictors. Chapter V evaluates the changes in self-reported health behavior and health skills based on the health information found.

## **CHAPTER V**

### **RESULTS**

#### **Introduction**

The previous chapter addressed the methodology used in the study including the methods of statistical analysis. The purpose of this chapter is to provide the results of the descriptive statistics, contingency analysis, and logistic regression conducted on the dependent and independent variables included in this study.

#### **Descriptive Statistics**

The tables provide descriptive statistics for the dependent, independent, and control variables. Forty-six percent of those surveyed were male, 54% female and 80% Caucasian with the median age of 47. The median level of education was some college and the median family income was \$38,000 with the lowest income of \$0 and the highest income \$149,999. Individuals getting health related information from the Internet for themselves was 31.4%; 29.4% from friends; 13.7% from tv/radio; 29.9% from books; 13.9% from the newspaper. Fifty-five percent of those surveyed talked to their doctor later about the information they found and 49% of those surveyed changed their overall approach to maintaining their health based on the information they found and 83.6% strongly agreed or agreed that they were confident they could figure out solutions when new situations or problems arise with their health condition(s).

## Contingency Analysis

Appendix B displays all cross tabulation tables for both dependent variables. Below is a summary of each cross tab analysis. A Pearson's chi-square test was conducted to determine whether there was a relationship between the dependent variables and the independent variables.

### Health Behavior.

The results revealed that there was a weak, yet statistically significant relationship between changing health behavior and obtaining personal health information from a variety of channels of communication. Weak, yet statistically significant relationships were found between the changing health behavior variable and obtaining health information from the Internet ( $\chi^2 (1, N = 8,484) = 32.48; p < .001; \text{Cramer's } V = .062$ ), friends ( $\chi^2 (1, N = 8,476) = 71.37; p < .001; \text{Cramer's } V = .092$ ), television or radio ( $\chi^2 (1, N = 8,471) = 105.20; p < .001; \text{Cramer's } V = .111$ ), books ( $\chi^2 (1, N = 8,477) = 219.32; p < .001; \text{Cramer's } V = .161$ ), newspaper ( $\chi^2 (1, N = 8,476) = 51.63; p < .001; \text{Cramer's } V = .078$ ). In cases where respondents obtained health information from the internet, friends and books, a majority changed their health behaviors (Appendix B, Tables B1-B4, B7-B8). On the other hand, for respondents who obtained health information from television, radio or newspapers, a majority did not change their health behavior (Appendix B, Tables B5-B6, B9-B10).

Contingency table analysis also revealed a weak, statistically significant relationship between changing health behavior and discussing information gathered from the sources discussed above. While 62.3% of respondents said they spoke with their

physician about the personal health information they obtained this changed their approach to maintaining their health, 37.7% indicated it did not change their approach (Appendix B, Tables B-11 and B-12).

### **Health Skills.**

The results revealed that there was a weak, yet statistically significant relationship between health skills and obtaining personal health information from a variety of communication channels. A strong statistically significant relationship was found between health skills and obtaining health information from books ( $\chi^2 (3, N = 6,512) = 2.66; p < .001; \text{Cramer's } V = .447$ ). Weak yet statistically significant relationships were found between health skills and obtaining health information from the Internet ( $\chi^2 (3, N = 6,516) = 18.68; p < .001; \text{Cramer's } V = .075$ ); friends ( $\chi^2 (4, N = 6,511) = 4.69; p < .001; \text{Cramer's } V = .096$ ); television or radio ( $\chi^2 (3, N = 6,510) = 8.60; p < .001; \text{Cramer's } V = .160$ ); newspapers ( $\chi^2 (3, N = 6,512) = 2.67; p < .001; \text{Cramer's } V = .174$ ); and sharing the personal health information they obtained from various sources with a physician ( $\chi^2 (3, N = 4,165) = 5.01; p < .001; \text{Cramer's } V = .035$ ).

In cases where respondents obtained health information from the Internet, friends and books, a majority indicated it had a positive impact on their health skills (Appendix B, Tables B-13 - B-14 and B-19 - B-20). On the other hand, for respondents who obtained health information from friends, the television or radio, newspapers, a majority did not indicate the information obtained had a positive impact on their health skills (Appendix B, Tables B-15- B-18 and B-21 - B-22).

Contingency table analysis also revealed a strong yet statistically significant

relationship between health skills and discussing personal health information obtained with their physician. While 62.6% of respondents strongly agreed they were confident in figuring out solutions when new situations or problems arise with their health condition(s) and sharing the personal health information they found with their physician, 53.3% strongly disagreed they were not confident in figuring out solutions to their health condition(s) (Appendix B, Tables B-17 and B-18).

### **Pearson's Product-Moment Correlation Analysis**

Examination of correlations can serve two important purposes for this analysis; confirmation of associations between variables revealed in the contingency tables analysis and assessment of levels of association between the independent variables. The latter is useful for determining whether collinearity is problematic in the analysis. The correlation matrix displayed in Appendix C indicates associations between variables at the .01 level. There was a moderate association between the health skills variable and age ( $r = .457, p < .01$ ) and obtaining personal health information from friends ( $r = 0.088, p < .01$ ). There was also a moderate correlation between the following variables and obtaining personal health information from books: obtaining personal health information from the Internet ( $r = .382, p < .01$ ), obtaining personal health information from friends ( $r = .357, p < .01$ ), and obtaining personal health information from the television or radio ( $r = .392, p < .01$ ). There was a moderate correlation between obtaining personal health information from friends and obtaining personal health information from the Internet ( $r = .360, p < .01$ ) and obtaining personal health information from the television or radio ( $r =$

.316,  $p < .01$ ). There was a moderate correlation between obtaining personal health information from the Internet and education ( $r = .289$ ,  $p < .01$ ). There was also a moderate association between obtaining personal health information from the news paper the following: obtaining personal health information from friends ( $r = .261$ ,  $p < .01$ ) and obtaining personal health information from the television or radio ( $r = .138$ ,  $p < .01$ ). The weak to moderate association among the independent variables suggests that collinearity is not a problem for the multiple regression models.

### **Logistic Regression Analysis**

Given the dichotomous nature of the dependent variable, health behavior, and the ordinal nature of the dependent variable, health skills, OLS is not an appropriate statistical technique. Logistic regression was conducted for the variables corresponding to health behavior (CIMAINT) and health skills (CCEPRBM). It is important to note, to complete logistic regression, health skills was recoded to be a dichotomous variable.

#### **Health Behaviors.**

The null model, which is the model with no predictors (i.e. independent variables), yields a prediction rate of 50.8%. This means that without knowing anything else about the respondents, there is a, essentially, a 50-50 chance of correctly predicting whether or not a respondent changed his/her health behavior. This provides a baseline for comparison to the model with independent variables (See Appendix D, Tables D-1 and D-2). The fully specified model, which includes demographic attributes of the respondents and methods of obtaining personal health information, increase the prediction rate to

61.2% of all health behavior change. The strongest indicators of change in health behaviors, based on the full model, are those who get information from books (Wald value of 133.002)<sup>1</sup> followed by those who talked with their physician or other healthcare professional about the information (Wald value of 108.489). Age, race, obtaining personal health information from friends and the television or radio are weak contributors to the model yet statistically significant (See Appendix D, Tables D-10).

### **Health Skills.**

The null model, which is the model with no predictors, only the intercept (Health skills) yields a prediction rate of 84.7%. When all independent variables added there is no change in the prediction value, yet the model is statistically significant ( $\chi^2 = 59.73$ ,  $p < .000$ ) (See Appendix D, Tables D-11, D-18, D-20). Family income ( $p < .000$ ) and race ( $p < .001$ ) are the only indicators that have a statistically significant impact on health skills (See Appendix D, Table D-21).

### **Interpersonal Communication.**

When it comes to changing health behaviors, interpersonal communication with one's doctor is often more trusted and reliable channel of communication and it can have a strong impact on a patient's response to a treatment regimen (Campbell et al., 2007; National Cancer Institute, 2008). In an attempt to account for this important relationship, logistic regression models were run with the same dependent variables and independent variables, except that the models were interacted by the question that asked those respondents shared the information they obtained from various sources with their

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<sup>1</sup>  $\chi^2 = 552.311$ ,  $p < .000$ .

physician or other health professional as a mediating variable in evaluating change in health behaviors (See Appendix A). If communication with one's doctor about health information is important, we should expect to find different results between those who did and did not talk to their doctor about the information they obtained from various sources.

The null model, including only cases in which respondents did not share information with their physician and no predictors, yields a prediction rate of 58.6% (Wald = 100.846,  $p < .000$ ) (See Appendix D, Tables D-24, D-25). With the introduction of all independent variables into the model, the prediction rate increases to 61.0% of all health behavior change. For those who did not discuss the personal health information they obtained with their physician, age (Wald = 20.485), obtaining personal health information from books (Wald = 86.683), and obtaining personal health information from the television or radio (Wald = 13.121) are the strongest indicators of change (See Appendix, Table D-34). The Chi-square for the full model is 220.562 ( $p < .000$ ).

Now considering only those respondents who discussed the personal health information they obtained from various sources with their physicians, the null model, yields a prediction rate of 55.7%. (Wald = 53.707,  $p < .000$ ) (See Appendix D, Tables D-35, D-36). With the introduction of all the independent variables into the model, the prediction rate increases to 61.0% (See Appendix D, Table D-44). For those who discuss personal health information they obtain with their physician or healthcare provider, the strongest predictors of health behavior change are obtaining health information from books (Wald = 47.835), age (Wald = 33.064), obtaining information from friends (Wald =

20.316), obtaining information from the television or radio (Wald = 18.696), and race (Wald = 12.964), with p-values < .000 (See Appendix D, Table D-45). The Chi-square for the full model is 197.736, df 5, p value < .000) (See Appendix D, D-42).

### **Summary**

The results of the statistical analysis conducted provide additional insight into the relationships between self-reported health behavior and health skills and the channels used to obtain personal health information. The findings revealed that respondents who obtain health information from a variety of sources, including books, friends, and the television or radio were more likely to change their health behaviors, but the information did not add to their health skills. The extent which health behaviors changed was also associated with whether or not the respondent discussed the information collected with his/her physician. Respondents who obtained health information from books, friends, television or radio and discussed the information with a doctor were more likely to change their health behavior.

## **CHAPTER VI**

### **DISCUSSION**

#### **Introduction**

The previous chapter addressed the results of the statistical analysis that was conducted. This chapter will discuss the research results, the implications and limitations of the study and suggest future research direction.

#### **Discussion of Research Results**

The findings from the logistical regression analysis partially supported hypothesis<sub>1</sub>, and hypothesis<sub>4</sub> indicating the strongest predictors of change in health behavior were obtaining personal health information from books and discussing the obtained personal health information with a physician. Those that obtained health information from the television, radio, and friends were also more likely to change their behaviors. Research indicated those who obtain information from books were more likely to exhibit healthy behaviors and skills (Dutta-Bergman, 2004). Other studies have shown that the vividness of the messages found on the television, under conditions of high perceived self-efficacy, can have an impact on deterring harmful health-related behaviors (Block & Keller, 1997).

Additionally, the communication that takes place between a provider and a patient plays a fundamental role in health care outcomes and has an impact on one's awareness and commitment to changes in health behavior (Campbell et al., 2007; Dutta-Bergman, 2004; National Cancer Institute, 2008). When looking at only those respondents who

shared the personal health information they obtained with their provider, those who obtained personal health information from friends, the television or radio, and books are more likely to report changes in health behavior. Other studies have shown that mass media can increase awareness of risky health behavior changes for specific audiences (Hemo et al., 2009; Reneger et al., 2002; Wootan et al., 2005; Wray et al., 2005).

The results did not support hypothesis<sub>2</sub>. Obtaining personal health information from the Internet was the least preferred method. This finding was not consistent with studies that showed that many who had obtained personal health information on the Internet believed the information they had found influenced their health behavior and skills (Bylund et al.; 2007, Handfield et al., 2006). This is, however, similar to Iverson et al.'s (2008) finding that indicated a majority of Internet users did not change their health behaviors based on the personal health information they found.

The results of the logistic regression analysis also partially supported hypothesis<sub>3</sub>. The results of the analysis indicated interpersonal communication and mass media have an impact on health behaviors, where as the Internet does not. In addition, health skills are not impacted by the method used to obtain personal health information. Researchers found health skills are strongly linked to health-related outcomes. (Speros, 2005; Wallace, 2006) Research also indicated knowledge alone does not lead to health behavior changes (Blackburn, 2010).

.Results indicated age and race had an impact on health behaviors and family income and race impacted health skills. . Research suggested younger consumers with higher incomes were more likely to seek personal health information. Research also

indicated African Americans and Hispanic consumers were more likely to change report a change in their overall approach to maintaining health and the information had a beneficial impact about treating their condition than their white counterparts (Tu & Cohen, 2008).

### **Implications for Practice and Future Research**

The implications of this study indicate method of obtaining health information has an impact on health behaviors and the personal relationships individuals have with their healthcare providers are of value. Interpersonal communication with the physician has an impact health behavior changes when the findings have been discussed with the physician. The public health community has the opportunity to work with health care providers to further enhance the relationships individuals have with their health care providers and educate the health care providers and organizations regarding best practices to increase health skills.

Additionally, though the use of the Internet is an option to when obtaining personal health information, it is important to note the combination of communication channels to include interpersonal communication are preferred. Traditional methods of obtaining personal health information through printed sources are need to be considered when promoting changes in health behavior and skills. Research has shown although mass media campaigns have a small and quantifiable impact on behavior change, when carefully crafted for a target population the messages persuade behavior change (Snyder 2007; Snyder, Hamilton et al.,2004; Wray et al., 2005).

## **Limitations**

One critical limitation of the study was the use of self-reported measures. In addition, another limitation of this study is the use of secondary data. The use of secondary data makes it difficult to determine the context of the question and the respondent's perception of the question. Another limitation to this study is that the sample size was predominately white which limits the generalizability of the study.

## **Conclusion**

Chronic diseases are a frequent cause of death and lifestyle changes can decrease the risk for disease and promote positive health behavioral changes. There are numerous channels available to patients when obtaining personal health information allows them to play an active role in their health care. The purpose of the study was to investigate consumers' preferred channel of communication when seeking health information and to examine relationships among different channels of communication (interpersonal, mass media, and Internet) and self-reported health behaviors and health skills by evaluating four hypothesis and numerous research questions.

This study added to the existing body of literature by broadening the understanding of the impact the method of obtaining personal health information has on health behaviors and health skills. Following a statistical analysis, based on the results of this survey, it was determined that health behaviors are impacted by interpersonal and mass media communication. It was discovered that there is variation among the level

impact of the channels of communication on health behavior and skills. Future research regarding with regard to methods of obtaining personal health information and the impact on health behaviors and skills would be beneficial to health policy makers and health care systems.

## APPENDIX A

### Variables and Descriptive Statistics

Table A-1

	<b>Variable Name</b>	<b>Question</b>
<b>DV<sub>1</sub></b>	CIMAINT	Did any of the information you found change your overall approach to maintaining your health?
<b>DV<sub>2</sub></b>	CCEPRBM	Please tell me whether you strongly agree, agree, disagree, or strongly disagree with each statement as it applies to you personally. I am confident I can figure out solutions when new situations or problems arise with my health condition(s).
<b>IV<sub>1</sub></b>	CITALK	Did you later talk with a doctor or other health care professional about any of the information you found, or didn't you happen to do this?
<b>IV<sub>2</sub></b>	CIWEB	During the past 12 months, did you look at or get information about a PERSONAL health concern on the Internet?
<b>IV<sub>3</sub></b>	AGEX	Beginning with [Fill HOUSEHOLDER's NAME], what is his/her age?
<b>IV<sub>4</sub></b>	SEX	Beginning with [Fill HOUSEHOLDER's NAME], is he/she/you male or female?
<b>IV<sub>5</sub></b>	HIGRADX	[IF AGE >= 18]What is the highest grade or year of school [fill NAME] completed?
<b>IV<sub>6</sub></b>	RACNEWX	Constructed variable indicates person's race.
<b>IV<sub>7</sub></b>	FAMINCX	During 2002, what was your family's total income from all sources, before taxes and other deductions?
<b>IV<sub>8</sub></b>	CIBOOK	During the past 12 months, did you look for or get information about a PERSONAL health concern from books or magazines.
<b>IV<sub>9</sub></b>	CINWSP	During the past 12 months, did you look for or get information about a PERSONAL health concern from newspapers.
<b>IV<sub>10</sub></b>	CITV	During the past 12 months, did you look for or get information about a PERSONAL health concern from TV or radio.
<b>IV<sub>11</sub></b>	CIFRND	During the past 12 months, did you look for or get information about a PERSONAL health concern from friends or relatives.

Table A-2

**HP5:sex1:Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1: Male	8179	46.0	46.0	46.0
d 2: Female	9618	54.0	54.0	100.0
Total	17797	100.0	100.0	

Table A-3

**HP5:CV:Race question**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1: White only	14401	80.9	80.9	80.9
d 2: African American only	1986	11.2	11.2	92.1
3: All other	1410	7.9	7.9	100.0
Total	17797	100.0	100.0	

Table A-4

**HP5:grd1:Education**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6: <= 6 (bottom code)	345	1.9	2.3	2.3
	7	92	.5	.6	2.9
	8	210	1.2	1.4	4.3
	9	266	1.5	1.8	6.0
	10	325	1.8	2.1	8.1
	11	450	2.5	3.0	11.1
	12	5029	28.3	33.1	44.2
	13	987	5.5	6.5	50.7
	14	2236	12.6	14.7	65.4
	15	466	2.6	3.1	68.5
	16	2823	15.9	18.6	87.1
	17	726	4.1	4.8	91.8
	18	632	3.6	4.2	96.0
	19: 19+ (top code)	610	3.4	4.0	100.0
	Total	15197	85.4	100.0	
Missing	-1: Inapplicable	2600	14.6		
Total		17797	100.0		

Table A-5

	HP5:age1:Age	HP5:grd1:Education	HF5:CV:Annual family income
N Valid	17797	15197	17797
Missing	0	2600	0
Mean	44.19	13.62	45087.45
Median	47.00	13.00	38000.00
Mode	56	12	-5
Std. Deviation	21.725	2.722	36899.445
Variance	471.986	7.408	1.362E9
Range	91	13	148005

Table A-6

**HP5:CI1a:Get personal hlth info,Internet**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	10932	61.4	68.6	68.6
	1: Yes	5006	28.1	31.4	100.0
	Total	15938	89.6	100.0	
Missing	-8: Don't Know	5	.0		
	-7: Refused	163	.9		
	-1: Inapplicable	1691	9.5		
	Total	1859	10.4		
Total		17797	100.0		

Table A-7

**HP5:CI1b:Get personal hlth info, friends**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	11250	63.2	70.6	70.6
	1: Yes	4676	26.3	29.4	100.0
	Total	15926	89.5	100.0	
Missing	-8: Don't Know	18	.1		
	-7: Refused	162	.9		
	-1: Inapplicable	1691	9.5		
	Total	1871	10.5		
Total		17797	100.0		

Table A-8

**HP5:CI1c:Get personal hlth info,TV/radio**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	13738	77.2	86.3	86.3
	1: Yes	2189	12.3	13.7	100.0
	Total	15927	89.5	100.0	
Missing	-8: Don't Know	17	.1		
	-7: Refused	162	.9		
	-1: Inapplicable	1691	9.5		
	Total	1870	10.5		
Total		17797	100.0		

Table A-9

**HP5:CI1d:Get personal hlth info, books**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	11175	62.8	70.1	70.1
	1: Yes	4757	26.7	29.9	100.0
	Total	15932	89.5	100.0	
Missing	-8: Don't Know	12	.1		
	-7: Refused	162	.9		
	-1: Inapplicable	1691	9.5		
	Total	1865	10.5		
Total		17797	100.0		

Table A-10

**HP5:CI1e:Get personal hlth info,newspapr**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	13710	77.0	86.1	86.1
	1: Yes	2221	12.5	13.9	100.0
	Total	15931	89.5	100.0	
Missin g	-8: Don't Know	13	.1		
	-7: Refused	162	.9		
	-1: Inapplicable	1691	9.5		
	Total	1866	10.5		
	Total	17797	100.0		

Table A-11

**HP5:CI2:Talk to Doc about health infor**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	3818	21.5	45.0	45.0
	1: Yes	4669	26.2	55.0	100.0
	Total	8487	47.7	100.0	
Missin g	-8: Don't Know	43	.2		
	-7: Refused	3	.0		
	-1: Inapplicable	9264	52.1		
	Total	9310	52.3		
	Total	17797	100.0		

Table A-12

**HP5:CI3:Hlth info chnge maintaining hlth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	4325	24.3	51.0	51.0
	1: Yes	4160	23.4	49.0	100.0
	Total	8485	47.7	100.0	
Missin g	-8: Don't Know	44	.2		
	-7: Refused	4	.0		
	-1: Inapplicable	9264	52.1		
	Total	9312	52.3		
Total		17797	100.0		

Table A-13

**HP5:CI3:Hlth info chnge maintaining hlth**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0: No	4325	24.3	51.0	51.0
	1: Yes	4160	23.4	49.0	100.0
	Total	8485	47.7	100.0	
Missin g	-8: Don't Know	44	.2		
	-7: Refused	4	.0		
	-1: Inapplicable	9264	52.1		
	Total	9312	52.3		
Total		17797	100.0		

Table A-14

**HP5:CE1\_12:Find solution for hlth prblm**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-1: Inapplicable	11073	62.2	62.9	62.9
	1: Strongly agree	1805	10.1	10.3	73.2
	2: Agree	3739	21.0	21.2	94.4
	3: Disagree	858	4.8	4.9	99.3
	4: Strongly disagree	121	.7	.7	100.0
	Total	17596	98.9	100.0	
Missing	-8: Don't Know	68	.4		
	-7: Refused	31	.2		
	5: Not applicable	102	.6		
	Total	201	1.1		
Total		17797	100.0		

## APPENDIX B

### Cross tabulation

Table B -1

## Crosstab

		HP5:CI1a:Get personal hlth info,Internet		Total	
		0: No	1: Yes		
HP5:CI3:Hlth info chnge maintaining hlth	0:	Count	1912	2412	4324
	No	% within HP5:CI3:Hlth info chnge maintaining hlth	44.2%	55.8%	100.0%
		% within HP5:CI1a:Get personal hlth info,Internet	54.7%	48.4%	51.0%
	1:	Count	1586	2574	4160
	Yes	% within HP5:CI3:Hlth info chnge maintaining hlth	38.1%	61.9%	100.0%
		% within HP5:CI1a:Get personal hlth info,Internet	45.3%	51.6%	49.0%
Total		Count	3498	4986	8484
		% within HP5:CI3:Hlth info chnge maintaining hlth	41.2%	58.8%	100.0%
		% within HP5:CI1a:Get personal hlth info,Internet	100.0%	100.0%	100.0%

Table B-2

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-Square	32.487 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	32.236	1	.000		
Likelihood Ratio	32.520	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	32.484	1	.000		
N of Valid Cases	8484				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1715.19.

b. Computed only for a 2x2 table

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by Nominal	Phi	.062	.000
	Cramer's V	.062	.000
N of Valid Cases		8484	

Table B-3

## Crosstab

		HP5:CI1b:Get personal hlth info, friends		Total	
		0: No	1: Yes		
HP5:CI3:Hlth info chnge maintaining hlth	0:	Count	2141	2178	4319
	No	% within HP5:CI3:Hlth info chnge maintaining hlth	49.6%	50.4%	100.0%
		% within HP5:CI1b:Get personal hlth info, friends	56.0%	46.8%	51.0%
	1:	Count	1681	2476	4157
	Yes	% within HP5:CI3:Hlth info chnge maintaining hlth	40.4%	59.6%	100.0%
		% within HP5:CI1b:Get personal hlth info, friends	44.0%	53.2%	49.0%
Total		Count	3822	4654	8476
		% within HP5:CI3:Hlth info chnge maintaining hlth	45.1%	54.9%	100.0%
		% within HP5:CI1b:Get personal hlth info, friends	100.0%	100.0%	100.0%

Table B-4

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-Square	71.375 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	71.006	1	.000		
Likelihood Ratio	71.496	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	71.366	1	.000		
N of Valid Cases	8476				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1874.48.

b. Computed only for a 2x2 table

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by Nominal	Phi	.092	.000
	Cramer's V	.092	.000
N of Valid Cases		8476	

Table B-5

## Crosstab

			HP5:CI1c:Get personal hlth info,TV/radio		Total
			0: No	1: Yes	
HP5:CI3:Hlth info chnge maintaining hlth	0: No	Count	3416	904	4320
		% within HP5:CI3:Hlth info chnge maintaining hlth	79.1%	20.9%	100.0%
		% within HP5:CI1c:Get personal hlth info,TV/radio	54.3%	41.5%	51.0%
	1: Yes	Count	2878	1273	4151
		% within HP5:CI3:Hlth info chnge maintaining hlth	69.3%	30.7%	100.0%
		% within HP5:CI1c:Get personal hlth info,TV/radio	45.7%	58.5%	49.0%
Total	Count	6294	2177	8471	
	% within HP5:CI3:Hlth info chnge maintaining hlth	74.3%	25.7%	100.0%	
	% within HP5:CI1c:Get personal hlth info,TV/radio	100.0%	100.0%	100.0%	

Table B-6

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-Square	105.203 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	104.693	1	.000		
Likelihood Ratio	105.520	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	105.190	1	.000		
N of Valid Cases	8471				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1066.78.

b. Computed only for a 2x2 table

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by Nominal	Phi	.111	.000
	Cramer's V	.111	.000
N of Valid Cases		8471	

Table B-7

## Crosstab

			HP5:CI1d:Get personal hlth info, books		Total
			0: No	1: Yes	
HP5:CI3:Hlth info chnge maintaining hlth	0: No	Count	2249	2072	4321
		% within HP5:CI3:Hlth info chnge maintaining hlth	52.0%	48.0%	100.0%
		% within HP5:CI1d:Get personal hlth info, books	60.0%	43.8%	51.0%
	1: Yes	Count	1499	2657	4156
		% within HP5:CI3:Hlth info chnge maintaining hlth	36.1%	63.9%	100.0%
		% within HP5:CI1d:Get personal hlth info, books	40.0%	56.2%	49.0%
Total	Count	3748	4729	8477	
	% within HP5:CI3:Hlth info chnge maintaining hlth	44.2%	55.8%	100.0%	
	% within HP5:CI1d:Get personal hlth info, books	100.0%	100.0%	100.0%	

Table B-8

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-Square	219.319 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	218.671	1	.000		
Likelihood Ratio	220.439	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	219.293	1	.000		
N of Valid Cases	8477				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1837.52.

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by Nominal	Phi	.161	.000
	Cramer's V	.161	.000
N of Valid Cases		8477	

Table B-9

## Crosstab

			HP5:CI1e:Get personal hlth info,newspapr		Total
			0: No	1: Yes	
HP5:CI3:Hlth info chnge maintaining hlth	0:	Count	3341	978	4319
	No	% within HP5:CI3:Hlth info chnge maintaining hlth	77.4%	22.6%	100.0%
		% within HP5:CI1e:Get personal hlth info,newspapr	53.3%	44.4%	51.0%
	1:	Count	2931	1226	4157
	Yes	% within HP5:CI3:Hlth info chnge maintaining hlth	70.5%	29.5%	100.0%
		% within HP5:CI1e:Get personal hlth info,newspapr	46.7%	55.6%	49.0%
Total		Count	6272	2204	8476
		% within HP5:CI3:Hlth info chnge maintaining hlth	74.0%	26.0%	100.0%
		% within HP5:CI1e:Get personal hlth info,newspapr	100.0%	100.0%	100.0%

Table B-10

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-Square	51.630 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	51.275	1	.000		
Likelihood Ratio	51.689	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	51.624	1	.000		
N of Valid Cases	8476				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1080.94.

b. Computed only for a 2x2 table

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by	Phi	.078	.000
Nominal	Cramer's V	.078	.000
N of Valid Cases		8476	

Table B-11

## Crosstab

		HP5:CI2:Talk to Doc about health infor		Total
		0: No	1: Yes	
HP5:CI3:Hlth info chnge maintaining hlth	0: Count	2238	2061	4299
	No % within HP5:CI3:Hlth info chnge maintaining hlth	52.1%	47.9%	100.0%
	% within HP5:CI2:Talk to Doc about health infor	58.9%	44.4%	50.9%
	1: Count	1560	2581	4141
Yes % within HP5:CI3:Hlth info chnge maintaining hlth	37.7%	62.3%	100.0%	
% within HP5:CI2:Talk to Doc about health infor	41.1%	55.6%	49.1%	
Total	Count	3798	4642	8440
	% within HP5:CI3:Hlth info chnge maintaining hlth	45.0%	55.0%	100.0%

Table B-12

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-Square	176.388 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	175.807	1	.000		
Likelihood Ratio	177.100	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	176.367	1	.000		
N of Valid Cases	8440				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1863.45.

b. Computed only for a 2x2 table

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by Nominal	Phi	.145	.000
	Cramer's V	.145	.000
N of Valid Cases		8440	

Table B-13

## Crosstab

			HP5:CI1a:Get personal hlth info,Internet		Total
			0: No	1: Yes	
HP5:CE1_12:Find solution for hlth prblm	1: Strongly agree	Count	1102	701	1803
		% within HP5:CE1_12:Find solution for hlth prblm	61.1%	38.9%	100.0%
		% within HP5:CI1a:Get personal hlth info,Internet	26.1%	30.6%	27.7%
	2: Agree	Count	2450	1285	3735
		% within HP5:CE1_12:Find solution for hlth prblm	65.6%	34.4%	100.0%
		% within HP5:CI1a:Get personal hlth info,Internet	58.0%	56.1%	57.3%
	3: Disagree	Count	589	268	857
		% within HP5:CE1_12:Find solution for hlth prblm	68.7%	31.3%	100.0%
		% within HP5:CI1a:Get personal hlth info,Internet	13.9%	11.7%	13.2%
	4: Strongly disagree	Count	84	37	121
		% within HP5:CE1_12:Find solution for hlth prblm	69.4%	30.6%	100.0%
		% within HP5:CI1a:Get personal hlth info,Internet	2.0%	1.6%	1.9%
Total	Count	4225	2291	6516	
	% within HP5:CE1_12:Find solution for hlth prblm	64.8%	35.2%	100.0%	
	% within HP5:CI1a:Get personal hlth info,Internet	100.0%	100.0%	100.0%	

Table B-14

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson's Chi-Square	18.675 <sup>a</sup>	3	.000
Likelihood Ratio	18.646	3	.000
Linear-by-Linear Association	17.765	1	.000
N of Valid Cases	6516		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 42.54.

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by	Phi	.075	.000
Nominal	Cramer's V	.075	.000
N of Valid Cases		15871	

Table B-15

			HP5:CI1b:Get personal hlth info, friends		
			0: No	1: Yes	Total
HP5:CE1_12:Find solution for hlth prblm	1: Strongly agree	Count	1204	599	1803
		% within HP5:CE1_12:Find solution for hlth prblm	66.8%	33.2%	100.0%
		% within HP5:CI1b:Get personal hlth info, friends	28.2%	26.7%	27.7%
	2: Agree	Count	2447	1283	3730
		% within HP5:CE1_12:Find solution for hlth prblm	65.6%	34.4%	100.0%
		% within HP5:CI1b:Get personal hlth info, friends	57.4%	57.1%	57.3%
	3: Disagree	Count	536	321	857
		% within HP5:CE1_12:Find solution for hlth prblm	62.5%	37.5%	100.0%
		% within HP5:CI1b:Get personal hlth info, friends	12.6%	14.3%	13.2%
	4: Strongly disagree	Count	78	43	121
		% within HP5:CE1_12:Find solution for hlth prblm	64.5%	35.5%	100.0%
		% within HP5:CI1b:Get personal hlth info, friends	1.8%	1.9%	1.9%
Total	Count	4265	2246	6511	
	% within HP5:CE1_12:Find solution for hlth prblm	65.5%	34.5%	100.0%	
	% within HP5:CI1b:Get personal hlth info, friends	100.0%	100.0%	100.0%	

Table B-16

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson's Chi-Square	4.692 <sup>a</sup>	3	.196
Likelihood Ratio	4.658	3	.199
Linear-by-Linear Association	3.729	1	.053
N of Valid Cases	6511		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 41.74.

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by	Phi	.096	.000
Nominal	Cramer's V	.096	.000
N of Valid Cases		15863	

Table B-17

			HP5:CI1c:Get personal hlth info,TV/radio		
			0: No	1: Yes	Total
HP5:CE1_12:Find solution for hlth prblm	1: Strongly agree	Count	1469	335	1804
		% within HP5:CE1_12:Find solution for hlth prblm	81.4%	18.6%	100.0%
		% within HP5:CI1c:Get personal hlth info,TV/radio	28.3%	25.5%	27.7%
	2: Agree	Count	2976	754	3730
		% within HP5:CE1_12:Find solution for hlth prblm	79.8%	20.2%	100.0%
		% within HP5:CI1c:Get personal hlth info,TV/radio	57.3%	57.4%	57.3%
	3: Disagree	Count	663	192	855
		% within HP5:CE1_12:Find solution for hlth prblm	77.5%	22.5%	100.0%
		% within HP5:CI1c:Get personal hlth info,TV/radio	12.8%	14.6%	13.1%
	4: Strongly disagree	Count	89	32	121
		% within HP5:CE1_12:Find solution for hlth prblm	73.6%	26.4%	100.0%
		% within HP5:CI1c:Get personal hlth info,TV/radio	1.7%	2.4%	1.9%
Total	Count	5197	1313	6510	
	% within HP5:CE1_12:Find solution for hlth prblm	79.8%	20.2%	100.0%	
	% within HP5:CI1c:Get personal hlth info,TV/radio	100.0%	100.0%	100.0%	

Table B-18

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson's Chi-Square	8.609 <sup>a</sup>	3	.035
Likelihood Ratio	8.398	3	.038
Linear-by-Linear Association	8.191	1	.004
N of Valid Cases	6510		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.40.

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by	Phi	.160	.000
Nominal	Cramer's V	.160	.000
N of Valid Cases		15861	

Table B-19

			HP5:CI1d:Get personal hlth info, books		Total
			0: No	1: Yes	
HP5:CE1_12:Find solution for hlth prblm	1: Strongly agree	Count	1090	713	1803
		% within HP5:CE1_12:Find solution for hlth prblm	60.5%	39.5%	100.0%
		% within HP5:CI1d:Get personal hlth info, books	27.7%	27.6%	27.7%
	2: Agree	Count	2263	1468	3731
		% within HP5:CE1_12:Find solution for hlth prblm	60.7%	39.3%	100.0%
		% within HP5:CI1d:Get personal hlth info, books	57.5%	56.9%	57.3%
	3: Disagree	Count	501	356	857
		% within HP5:CE1_12:Find solution for hlth prblm	58.5%	41.5%	100.0%
		% within HP5:CI1d:Get personal hlth info, books	12.7%	13.8%	13.2%
	4: Strongly disagree	Count	79	42	121
		% within HP5:CE1_12:Find solution for hlth prblm	65.3%	34.7%	100.0%
		% within HP5:CI1d:Get personal hlth info, books	2.0%	1.6%	1.9%
Total	Count	3933	2579	6512	
	% within HP5:CE1_12:Find solution for hlth prblm	60.4%	39.6%	100.0%	
	% within HP5:CI1d:Get personal hlth info, books	100.0%	100.0%	100.0%	

Table B-20

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson's Chi-Square	2.661 <sup>a</sup>	3	.447
Likelihood Ratio	2.674	3	.445
Linear-by-Linear Association	.046	1	.830
N of Valid Cases	6512		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 47.92.

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by	Phi	.180	.000
Nominal	Cramer's V	.180	.000
N of Valid Cases		15866	

Table B-21

			HP5:CI1e:Get personal hlth info,newspapr		
			0: No	1: Yes	Total
HP5:CE1_12:Find solution for hlth prblm	1: Strongly agree	Count	1446	356	1802
		% within HP5:CE1_12:Find solution for hlth prblm	80.2%	19.8%	100.0%
		% within HP5:CI1e:Get personal hlth info,newspapr	28.1%	26.0%	27.7%
	2: Agree	Count	2932	800	3732
		% within HP5:CE1_12:Find solution for hlth prblm	78.6%	21.4%	100.0%
		% within HP5:CI1e:Get personal hlth info,newspapr	57.0%	58.4%	57.3%
	3: Disagree	Count	669	188	857
		% within HP5:CE1_12:Find solution for hlth prblm	78.1%	21.9%	100.0%
		% within HP5:CI1e:Get personal hlth info,newspapr	13.0%	13.7%	13.2%
	4: Strongly disagree	Count	94	27	121
		% within HP5:CE1_12:Find solution for hlth prblm	77.7%	22.3%	100.0%
		% within HP5:CI1e:Get personal hlth info,newspapr	1.8%	2.0%	1.9%
Total	Count	5141	1371	6512	
	% within HP5:CE1_12:Find solution for hlth prblm	78.9%	21.1%	100.0%	
	% within HP5:CI1e:Get personal hlth info,newspapr	100.0%	100.0%	100.0%	

Table B-22

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson's Chi-Square	2.673 <sup>a</sup>	3	.445
Likelihood Ratio	2.694	3	.441
Linear-by-Linear Association	2.268	1	.132
N of Valid Cases	6512		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.47.

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by	Phi	.174	.000
Nominal	Cramer's V	.174	.000
N of Valid Cases		15865	

Table B-23

			HP5:CI2:Talk to Doc about health infor		
			0: No	1: Yes	Total
HP5:CE1_12:Find solution for hlth prblm	1: Strongly agree	Count	429	718	1147
		% within HP5:CE1_12:Find solution for hlth prblm	37.4%	62.6%	100.0%
		% within HP5:CI2:Talk to Doc about health infor	25.9%	28.6%	27.5%
	2: Agree	Count	957	1424	2381
		% within HP5:CE1_12:Find solution for hlth prblm	40.2%	59.8%	100.0%
		% within HP5:CI2:Talk to Doc about health infor	57.9%	56.7%	57.2%
	3: Disagree	Count	233	329	562
		% within HP5:CE1_12:Find solution for hlth prblm	41.5%	58.5%	100.0%
		% within HP5:CI2:Talk to Doc about health infor	14.1%	13.1%	13.5%
	4: Strongly disagree	Count	35	40	75
		% within HP5:CE1_12:Find solution for hlth prblm	46.7%	53.3%	100.0%
		% within HP5:CI2:Talk to Doc about health infor	2.1%	1.6%	1.8%
Total	Count	1654	2511	4165	
	% within HP5:CE1_12:Find solution for hlth prblm	39.7%	60.3%	100.0%	
	% within HP5:CI2:Talk to Doc about health infor	100.0%	100.0%	100.0%	

Table B-24

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson's Chi-Square	5.019 <sup>a</sup>	3	.170
Likelihood Ratio	5.008	3	.171
Linear-by-Linear Association	4.647	1	.031
N of Valid Cases	4165		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 29.78.

**Symmetric Measures**

		Value	Approx. Sig.
Nominal by	Phi	.035	.170
Nominal	Cramer's V	.035	.170
N of Valid Cases		4165	

## APPENDIX C

### Pearson's Product-Moment Correlation Analysis

Table C-1

		Correlations											
		HP5:age1:Age	HP5:sex1:Gender	HP5:grd1:Education	HP5:CV:Race	HP5:CE1_12:Find solution for hlth prblm	HP5:C11a:Get personal hlth info,Internet	HP5:C13: Hlth info chnge maintaini ng hlth	HP5:C11b: Get personal hlth info, friends	HP5:C11c: Get personal hlth info,TV/radio	HP5:C11d: Get personal hlth info, books	HP5:C11e: Get personal hlth info,newsp apr	HP5:C12:Talk to Doc about health infor
HP5:age1:Age	Pearson's Correlation	1	.038**	-.021**	-.101**	.457**	-.030**	-.052**	.015	.138**	.162**	.220**	.004
	Sig. (2-tailed)		.000	.010	.000	.000	.000	.000	.065	.000	.000	.000	.692
	N	17797	17797	15197	17797	17698	15938	8485	15926	15927	15932	15931	8487
HP5:sex1:Gender	Pearson's Correlation	.038**	1	-.020*	-.002	.082**	.071**	.034**	.064**	.038**	.114**	.048**	.037**
	Sig. (2-tailed)	.000		.016	.776	.000	.000	.002	.000	.000	.000	.000	.001
	N	17797	17797	15197	17797	17698	15938	8485	15926	15927	15932	15931	8487

HP5:grd1:Education	Pearson's Correlation	-.021**	-.020*	1	-.096**	-.048**	.298**	.005	.107**	-.009	.145**	.078**	.093**
	Sig. (2-tailed)	.010	.016	.000	.000	.000	.686	.000	.287	.000	.000	.000	.000
	N	15197	15197	15197	15197	15098	13413	7674	13401	13402	13407	13405	7673
HP5:CV:Race question	Pearson's Correlation	-.101**	-.002	-.096**	1	-.031**	-.053**	.076**	.006	.062**	.004	.008	-.019
	Sig. (2-tailed)	.000	.776	.000	.000	.000	.000	.467	.000	.638	.322	.075	
	N	17797	17797	15197	17797	17698	15938	8485	15926	15927	15932	15931	8487
HP5:CE1_12:Find solution for hlth prblm	Pearson's Correlation	.457**	.082**	-.048**	-.031**	1	.052**	-.010	.088**	.155**	.169**	.164**	.091**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.349	.000	.000	.000	.000	.000	.000
	N	17698	17698	15098	17698	17698	15871	8453	15863	15861	15866	15865	8454

HP5:CI1a:Get personal hlth info,Internet	Pears	-.030**	.071**	.298**	-.053**	.052**	1	.062**	.360**	.173**	.382**	.198**	.171**
	on's												
	Correl												
	ation												
	Sig.	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000
	(2-												
	tailed)												
	N	15938	15938	13413	15938	15871	15938	8484	15922	15922	15926	15925	8485
HP5:CI3:Hlth info chnge maintaining hlth	Pears	-.052**	.034**	.005	.076**	-.010	.062**	1	.092**	.111**	.161**	.078**	.145**
	on's												
	Correl												
	ation												
	Sig.	.000	.002	.686	.000	.349	.000		.000	.000	.000	.000	.000
	(2-												
	tailed)												
	N	8485	8485	7674	8485	8453	8484	8485	8476	8471	8477	8476	8440
HP5:CI1b:Get personal hlth info, friends	Pears	.015	.064**	.107**	.006	.088**	.360**	.092**	1	.316**	.357**	.261**	.078**
	on's												
	Correl												
	ation												
	Sig.	.065	.000	.000	.467	.000	.000	.000		.000	.000	.000	.000
	(2-												
	tailed)												
	N	15926	15926	13401	15926	15863	15922	8476	15926	15910	15915	15915	8481

HP5:CI1c:Get personal hlth info,TV/radio	Pears on's Correl ation  Sig. (2- tailed)  N	.138**	.038**	-.009	.062**	.155**	.173**	.111**	.316**	1	.392**	.393**	.050**
		.000	.000	.287	.000	.000	.000	.000	.000	.000	.000	.000	.000
		15927	15927	13402	15927	15861	15922	8471	15910	15927	15916	15915	8473
HP5:CI1d:Get personal hlth info, books	Pears on's Correl ation  Sig. (2- tailed)  N	.162**	.114**	.145**	.004	.169**	.382**	.161**	.357**	.392**	1	.465**	.087**
		.000	.000	.000	.638	.000	.000	.000	.000	.000	.000	.000	.000
		15932	15932	13407	15932	15866	15926	8477	15915	15916	15932	15921	8480
HP5:CI1e:Get personal hlth info,newspapr	Pears on's Correl ation  Sig. (2- tailed)  N	.220**	.048**	.078**	.008	.164**	.198**	.078**	.261**	.393**	.465**	1	.065**
		.000	.000	.000	.322	.000	.000	.000	.000	.000	.000	.000	.000
		15931	15931	13405	15931	15865	15925	8476	15915	15915	15921	15931	8480

HP5:CI2:Talk to Doc about health infor	Pears on's Correl ation	.004	.037**	.093**	-.019	.091**	.171**	.145**	.078**	.050**	.087**	.065**	1
	Sig. (2- tailed)	.692	.001	.000	.075	.000	.000	.000	.000	.000	.000	.000	
	N	8487	8487	7673	8487	8454	8485	8440	8481	8473	8480	8480	8487

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

APPENDIX D

Logistic Regression Analysis

Table D-1

**Block 0 Beginning Block****Classification Table<sup>a,b</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 0	HP5:CI3:Hlth info chnge maintaining hlth	0: No	3858	0	100.0
		1: Yes	3736	0	.0
Overall Percentage					50.8

a. Constant is included in the model.

b. The cut value is .500

Table D-2

**Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-.032	.023	1.960	1	.162	.968

Table D-3

**Block 1****Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	98.182	6	.000
Block	98.182	6	.000
Model	98.182	6	.000

Table D-4

**Block 1****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	10427.377 <sup>a</sup>	.013	.017

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Table D-5

**Block 1****Classification Table<sup>a</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 1	HP5:CI3:Hlth info chnge maintaining hlth	0: No	2500	1358	64.8
		1: Yes	2096	1640	43.9
	Overall Percentage				54.5

a. The cut value is .500

D-6

**Block 1****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup> AGEX	-.007	.002	18.553	1	.000	.993	.990	.996
HIGRADX	.004	.010	.132	1	.716	1.004	.984	1.023
FAMINCX	.000	.000	1.709	1	.191	1.000	1.000	1.000
RACNEWX	.262	.041	41.133	1	.000	1.299	1.199	1.408
SEX	.134	.048	7.873	1	.005	1.143	1.041	1.255
Constant	-.368	.188	3.860	1	.049	.692		

a. Variable(s) entered on step 1: AGEX, HIGRADX, FAMINCX, RACNEWX, SEX.

D-7

**Block 2****Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	454.128	6	.000
	Block	454.128	6	.000
	Model	552.311	12	.000

D-8

**Block 2****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	9973.249 <sup>a</sup>	.070	.094

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

D-9

**Block 2****Classification Table<sup>a</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 1	HP5:CI3:Hlth info chnge maintaining hlth	0: No	2471	1387	64.0
		1: Yes	1563	2173	58.2
Overall Percentage					61.2

a. The cut value is .500

D-10

**Block 2****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup> AGEX	-.012	.002	50.335	1	.000	.988	.985	.992
HIGRADX	-.008	.010	.573	1	.449	.992	.972	1.012
FAMINCX	.000	.000	.975	1	.323	1.000	1.000	1.000
RACNEWX	.235	.042	31.249	1	.000	1.266	1.165	1.374
SEX	.031	.049	.388	1	.533	1.031	.936	1.136
CIWEB	.150	.061	6.043	1	.014	1.162	1.031	1.309
CIFRND	.266	.049	29.644	1	.000	1.304	1.185	1.435
CITV	.323	.058	31.079	1	.000	1.382	1.233	1.548
CIBOOK	.599	.052	133.002	1	.000	1.821	1.645	2.016
CINWSP	.144	.059	5.880	1	.015	1.155	1.028	1.298
CITALK	.511	.049	108.490	1	.000	1.666	1.514	1.835
Constant	-.661	.198	11.154	1	.001	.516		

a. Variable(s) entered on step 1: CIWEB, CIFRND, CITV, CIBOOK, CINWSP, CITALK.

Table D-11

**Block 0****Classification Table**

Observed			Predicted		
			Recode_CCEPRBM		Percentage Correct
			.00	1.00	
Step 0	Recode_CCEPRB M	.00 1.0 0	0 0	635 3515	.0 100.0
Overall Percentage					84.7

- a. Constant is included in the model.  
b. The cut value is .500

Table D-12

**Block 0****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	1.711	.043	1574.843	1	.000	5.535

Table D-13

**Block 0****Variables not in the Equation<sup>a</sup>**

			Score	df	Sig.
Step 0	Variables	AGEX	3.921	1	.048
		HIGRADX	16.796	1	.000
		FAMINCX	29.577	1	.000
		RACNEWX	17.819	1	.000
		SEX	1.321	1	.250

- a. Residual Chi-Squares are not computed because of redundancies.

Table D-14

**Block 1****Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	53.057	6	.000
Block	53.057	6	.000
Model	53.057	6	.000

Table D-15

**Block 1****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	3498.499 <sup>a</sup>	.013	.022

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table D-16

**Block 1****Classification Table<sup>a</sup>**

Observed			Predicted		
			Recode_CCEPRBM		Percentage Correct
			.00	1.00	
Step	Recode_CCEPRB	.00	0	635	.0
1	M	1.0	0	3515	100.0
		0			
	Overall Percentage				84.7

a. The cut value is .500

Table D-17

**Block 1****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup> AGEX	-.005	.003	2.510	1	.113	.995	.989	1.001
HIGRADX	.035	.018	3.653	1	.056	1.035	.999	1.073
FAMINCX	.000	.000	16.111	1	.000	1.000	1.000	1.000
RACNEWX	-.246	.072	11.610	1	.001	.782	.678	.901
SEX	-.063	.091	.480	1	.489	.939	.785	1.123
Constant	1.671	.375	19.887	1	.000	5.317		

a. Variable(s) entered on step 1: AGEX, HIGRADX, FAMINCX, RACNEWX, SEX.

Table D-18

**Block 2****Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	6.665	6	.353
Block	6.665	6	.353
Model	59.723	12	.000

Table D-19

**Block 2****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	3491.834 <sup>a</sup>	.014	.025

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table D-20

**Block 2****Classification Table<sup>a</sup>**

Observed			Predicted		
			Recode_CCEPRBM		Percentage Correct
			.00	1.00	
Step	Recode_CCEPRB	.00	0	635	.0
1	M	1.0	0	3515	100.0
		0			
Overall Percentage					84.7

a. The cut value is .500

Table D-21

**Block 2****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup> AGEX	-.005	.003	2.585	1	.108	.995	.989	1.001
HIGRADX	.031	.018	2.854	1	.091	1.031	.995	1.069
FAMINCX	.000	.000	14.825	1	.000	1.000	1.000	1.000
RACNEWX	-.243	.073	11.191	1	.001	.784	.680	.904
SEX	-.064	.092	.486	1	.486	.938	.783	1.123
CIWEB	.172	.115	2.255	1	.133	1.188	.949	1.488
CIFRND	-.140	.089	2.468	1	.116	.869	.730	1.035
CITV	-.087	.098	.787	1	.375	.917	.757	1.111
CIBOOK	.000	.097	.000	1	.999	1.000	.827	1.209
CINWSP	.040	.102	.153	1	.696	1.041	.852	1.271
CITALK	.059	.091	.429	1	.512	1.061	.889	1.267
Constant	1.788	.384	21.669	1	.000	5.980		

a. Variable(s) entered on step 1: CIWEB, CIFRND, CITV, CIBOOK, CINWSP, CITALK.

Table D-24

**Block 0****Classification Table<sup>a,b</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 0	HP5:CI3:Hlth info chnge maintaining hlth	0: No	2029	0	100.0
		1: Yes	1435	0	.0
Overall Percentage					58.6

a. Constant is included in the model.

b. The cut value is .500

Table D-25

**Block 0****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-.346	.034	100.846	1	.000	.707

Table D-26

**Block 0****Variables not in the Equation<sup>a</sup>**

			Score	df	Sig.
Step 0	Variables	AGEX	17.631	1	.000
		HIGRADX	.319	1	.572
		FAMINCX	1.160	1	.281
		RACNEWX	31.715	1	.000
		SEX	14.870	1	.000

a. Residual Chi-Squares are not computed because of redundancies.

Table D-27

**Block 1****Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step 1 Step	60.336	6	.000
Block	60.336	6	.000
Model	60.336	6	.000

Table D-28

**Block 1****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	4639.425 <sup>a</sup>	.017	.023

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Table D-29

**Block 1****Classification Table<sup>a</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 1	HP5:CI3:Hlth info chnge maintaining hlth	0: No	1864	165	91.9
		1: Yes	1235	200	13.9
Overall Percentage					59.6

**Block 1****Classification Table<sup>a</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 1	HP5:CI3:Hlth info chnge maintaining hlth	0: No	1864	165	91.9
		1: Yes	1235	200	13.9
Overall Percentage					59.6

Table D-30

**Block 1****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)		
							Lower	Upper	
Step 1 <sup>a</sup>	AGEX	-.007	.002	9.490	1	.002	.993	.989	.998
	HIGRADX	-.001	.015	.004	1	.948	.999	.970	1.029
	FAMINCX	.000	.000	.249	1	.618	1.000	1.000	1.000
	RACNEWX	.297	.058	25.971	1	.000	1.346	1.201	1.510
	SEX	.285	.071	16.016	1	.000	1.330	1.157	1.530
	Constant	-.837	.267	9.836	1	.002	.433		

a. Variable(s) entered on step 1: AGEX, HIGRADX, FAMINCX, ITWEB, RACNEWX, SEX.

Table D-31

**Block 2****Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	160.227	5	.000
	Block	160.227	5	.000
	Model	220.562	11	.000

Table D-32

**Block 2****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	4479.198 <sup>a</sup>	.062	.083

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Table D-33

**Block 2****Classification Table<sup>a</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 1	HP5:CI3:Hlth info chnge maintaining hlth	0: No	1617	412	79.7
		1: Yes	940	495	34.5
	Overall Percentage				61.0

Table D-34

**Block 2****Variables in the Equation**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	AGEX	-.011	.002	20.485	1	.000	.989	.985	.994
	HIGRADX	-.007	.015	.234	1	.628	.993	.963	1.023
	FAMINCX	.000	.000	.047	1	.828	1.000	1.000	1.000
	RACNEW X	.260	.060	18.744	1	.000	1.297	1.153	1.460
	SEX	.179	.074	5.882	1	.015	1.196	1.035	1.382
	CIWEB	.191	.087	4.792	1	.029	1.211	1.020	1.437
	CIFRND	.240	.073	10.748	1	.001	1.271	1.101	1.467
	CITV	.317	.088	13.121	1	.000	1.373	1.157	1.630
	CIBOOK	.719	.077	86.683	1	.000	2.053	1.765	2.389
	CINWSP	.194	.090	4.655	1	.031	1.214	1.018	1.448
	Constant	-1.052	.281	14.020	1	.000	.349		

a. Variable(s) entered on step 1: CIWEB, CIFRND, CITV, CIBOOK, CINWSP.

D-35

**Block 0****Classification Table<sup>a,b</sup>**

Observed		Predicted			
		HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct	
		0: No	1: Yes		
Step 0	HP5:CI3:Hlth info chnge maintaining hlth	0: No	0	1829	.0
		1: Yes	0	2301	100.0
Overall Percentage					55.7

a. Constant is included in the model.

b. The cut value is  
.500

D-36

**Block 0****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	.230	.031	53.707	1	.000	1.258

D-37

**Block 0****Variables not in the Equation<sup>a</sup>**

			Score	df	Sig.
Step 0	Variables	AGEX	36.309	1	.000
		HIGRADX	.207	1	.649
		FAMINCX	2.269	1	.132
		RACNEWX	23.322	1	.000
		SEX	.054	1	.816

a. Residual Chi-Squares are not computed because of redundancies.

D-38

**Block 1****Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	59.556	6	.000
	Block	59.556	6	.000
	Model	59.556	6	.000

D-39

**Block 1****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	5611.779 <sup>a</sup>	.014	.019

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

D-40

**Block 1****Classification Table<sup>a</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step 1	HP5:CI3:Hlth info chnge maintaining hlth	0: No	345	1484	18.9
		1: Yes	292	2009	87.3
Overall Percentage					57.0

a. The cut value is .500

D-41

**Block 1****Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)		
							Lower	Upper	
Step 1 <sup>a</sup>	AGEX	-.010	.002	20.963	1	.000	.990	.986	.994
	HIGRADX	-.007	.014	.232	1	.630	.993	.967	1.020
	FAMINCX	.000	.000	2.372	1	.124	1.000	1.000	1.000
	RACNEWX	.242	.058	17.162	1	.000	1.273	1.136	1.427
	SEX	-.049	.066	.560	1	.454	.952	.837	1.083
	Constant	.571	.274	4.346	1	.037	1.770		

a. Variable(s) entered on step 1: AGEX, HIGRADX, FAMINCX, RACNEWX, SEX.

D-42

**Block 2****Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	138.180	5	.000
	Block	138.180	5	.000
	Model	197.736	11	.000

D-43

**Block 2****Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	5473.599 <sup>a</sup>	.047	.063

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

D-44

**Block 2****Classification Table<sup>a</sup>**

Observed			Predicted		
			HP5:CI3:Hlth info chnge maintaining hlth		Percentage Correct
			0: No	1: Yes	
Step	HP5:CI3:Hlth info chnge	0:	771	1058	42.2
1	maintaining hlth	No			
		1:	554	1747	75.9
		Yes			
	Overall Percentage				61.0

a. The cut value is .500

D-45

**Block 2****Variables in the Equation**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step	AGEX	-.013	.002	33.064	1	.000	.987	.982	.991
1 <sup>a</sup>	HIGRADX	-.010	.014	.496	1	.481	.990	.964	1.018
	FAMINCX	.000	.000	1.183	1	.277	1.000	1.000	1.000
	RACNEW X	.213	.059	12.964	1	.000	1.238	1.102	1.390
	SEX	-.104	.067	2.386	1	.122	.901	.790	1.028
	CIWEB	.098	.086	1.305	1	.253	1.103	.932	1.306
	CIFRND	.297	.066	20.316	1	.000	1.346	1.183	1.531
	CITV	.335	.078	18.696	1	.000	1.399	1.201	1.628
	CIBOOK	.489	.071	47.835	1	.000	1.630	1.420	1.873
	CINWSP	.124	.079	2.427	1	.119	1.132	.969	1.322
	Constant	.262	.286	.841	1	.359	1.299		

a. Variable(s) entered on step 1: CIWEB, CIFRND, CITV, CIBOOK, CINWSP.

## REFERENCES

Allen, M. P., & Horowitz, A. M. (2004, May). *Understanding Health Literacy and its Barrier*. Retrieved from <http://www.nlm.nih.gov/pubs/cbm/healthliteracybarriers.html>

Anderson, J. G. (2004). Consumers of e-Health: Patterns of use and barriers. *Social Science Computer Review*, 22(2), 242-248. doi:10.1177/0894439303262671

Bell, E. (2009). Patients commonly using Internet to obtain health information for themselves and their children. *Infectious Diseases in Children*, 22(11), 8-81. Retrieved from Academic Search Complete database.

Bishop, M., Frain, M. P., Espinosa, C. T., & Steinhoff, D. M. (2009). Sources of information about multiple sclerosis: Information seeking and personal, demographic and MS variables. *Journal of Vocational Rehabilitation*, 31, 107-117. doi:10.3222/JVR-2009-0479. Retrieved from Academic Search Complete database.

Blackburn, M. (2010). Cognitive and motivational factors support health literacy and acquisition of new health information in later life. *California Agriculture*, 64(4), 189-194. Retrieved from Academic Search Complete database.

- Block, L. G., & Keller, P. A. (1997). Effects of Self-Efficacy and Vividness on the Persuasiveness of Health Communications. *Journal of Consumer Psychology*, 6(1), 31-54. Retrieved from Academic Search Complete database.
- Braithwaite, D. O., & Baxter, L. A. (2008). *Engaging theories in interpersonal Communication: Multiple Perspectives* (, pp. 4-6). Thousand Oaks, California: Sage Publications.
- Brodie, M., Kjellson, N., Hoff, T., & Parker, M. (1999). Perceptions of Latinos, African Americans, and Whites on Media as a Health Information Source. *Howard Journal of Communications*, 10(3), Retrieved from Communication & Mass Media Complete database.
- Bylund, C. L., Sabee, C. M., Imes, R. S., & Aldridge Sanford, A. (2007). Exploration of the construct of reliance among patients who talk with their providers about Internet information. *Journal of Health Communication*, 12(1), 17-28. doi:10.1080/1080730601091318. Retrieved from Communication & Mass Media Complete database.

Campbell, T., Auerbach, S., & Kiesler, D. (2007). Relationship of interpersonal behaviors and health-related control appraisals to patient satisfaction and compliance in a university health center. *Journal of American College Health, 55*(6), 333-340. Retrieved from Academic Search Complete database.

Centers for Disease Control and Prevention (2008, June 24). *Number of People with Diabetes Increases to 24 Million* [Press Release] Retrieved August 18, 2010, from <http://www.cdc.gov/media/pressrel/2008/r080624.htm>

Centers for Disease Control and Prevention (2010). *National chronic kidney disease fact sheet 2010*. Retrieved August 18, 2010, from <http://www.cdc.gov/diabetes/pubs/factsheets/kidney.htm>

Center for Studying Health System Change. Health Tracking Household Survey, 2007 [United States] [Computer file]. ICPSR26001-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2009-10-16. doi:10.3886/ICPSR26001

Chew, F., Palmer, S., & Kim, S. (1998). Testing the Influence of the Health Belief Model and a Television Program on Nutrition Behavior. *Health Communications, 10*(3), 227-245.

- Cline, R., & Haynes, K. (2001). Consumer health information seeking on the Internet: The state of the art. *Health Education Research, 16*(6), 671-692.  
doi:10.1093/her/16.6.671
- Cotten, S. R. & Gupta, S. S. (2004). Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine, 59*(9), 1795-1806.
- Dolan, G., Iredale, R., Williams, R., & Ameen, J. (2004). Consumer use of the Internet for health information: A survey of primary care patients. *International Journal of Consumer Studies, 28*, 147-153.
- Dutta-Bergman, M. J. (2004). Primary sources of health information: Comparisons in the domain of health attitudes, health cognitions, and health behaviors. *Health communication, 16*(3), 273-288.
- Finnegan, J., Viswanath, K. (2002). Encyclopedia of Health. L. Breslow *Communication Theory*. Retrieved August 15, 2010,  
from  
<http://www.enotes.com/public-health-encyclopedia/communication-theory>

- Fox, S. (2010, February 23). *FCC: Broadband adoption and use in America*. In *Pew Internet*. Retrieved March 26, 2010, from <http://www.pewInternet.org/Commentary/2010/February/FCC-Broadband-Adoption-and-Use-in-America.aspx>
- Glantz, K., Rimer, B. K., & Lewis, F. M. (2002). *Health Behavior and Health Education Theory, Research, and Practice* (3rd ed.). San Francisco: John Wiley & Sons, Inc.
- Glantz, K., Rimer, B. K., & Lewis, F. M. (2008). *Health Behavior and Health Education Theory, Research, and Practice* (4th ed.). San Francisco: John Wiley & Sons, Inc.
- Glatter, J. (2004). Promotion, information and advertising: Why increasingly blurred boundaries do not benefit the public. *Journal of Generic Medicines*, *1*(2), 128-136. Retrieved from Academic Search Complete database.
- Goldsmith, D. J. (2001). A normative approach to the study of uncertainty and communication. *Journal of Communication*, *51*, 514-533.
- Goldner, M. (2006). Using the Internet and Email for Health Purposes: The Impact of Health Status. *Social Science Quarterly*, *87*(3), 691-707.
- Greene, K., & Brinn, L. S. (2003). Messages Influencing College Women's Tanning Bed

Use: Statistical Versus Narrative Evidence Format and a Self-Assessment to Increase Perceived Susceptibility. *Journal of Health Communication*, 8, 443-461.

Handfield, B., Turnbull, S., & Bell, R. J. (2006). What do obstetricians think about media influences on their patients? *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 379-383. doi:10.1111/j.1479-828X2006.00621.x

Harvard Health Publications (2007). *Why it's hard to change unhealthy behavior--and why you should keep trying*. Retrieved August 18, 2010, from <http://www.health.harvard.edu/newsweek/Why-its-hard-to-change-unhealthy-behavior.htm>

Heart Disease and Stroke Statistics (2009). In *American Heart Association*. Retrieved August 18, 2010, from <http://circ.ahajournals.org/cgi/content/full/119/3/e21>

Hemo, B., Shamir-Shtein, N., Silverman, B., Tsamir, J., Heymann, A., Tseheri, S., et al. (2009). Can a Nationwide Media Campaign Affect Antibiotic Use?. *American Journal of Managed Care*, 15(8), 529-534. Retrieved from Academic Search Complete database.

Iverson, S. A., Howard, K. B., & Penney, B. K. (2008). Impact of Internet Use on Health-

Related Behaviors and the Patient-Physician Relationship: A survey-Based Study and Review. *Journal of American Osteopath Association*, 108(12), 699-711.

Johnsons, J.D. & Meischke, H. (1993). A comprehensive model of cancer-related information seeking applied to magazines. *Human Communication Research*, 19, 343-367.

Johnson, J. D., & Meischke, H. (1994). Women's Preferences for Cancer-Related Information from Specific Types of Mass Media. *Health Care for Women International*, 15(1).

McCaughan, E., & McKenna, H. (2007). Information-seeking behaviour of men newly diagnosed with cancer: A qualitative study. *Journal of Clinical Nursing*, 16, 2105-2113.

National Cancer Institute (2008). *Pink Book - Making health communication programs work*. Retrieved August 15, 2010, from <http://www.cancer.gov/cancertopics/cancerlibrary/pinkbook/allpages#3>

Parker, R., & Gazmararian, J. (2003). Health Literacy: Essential for Health Communication. *Journal of Health Communication*, 8116. Retrieved from Academic Search Complete database.

- Passalacqua, R., Caminiti, C., Barni, S., Bertta, G. D., Carlini, P., Contu, A., & Di Costanzo, F. (2004). Effects of Media Information on Cancer Patients' Opinions, Feelings, Decision-Making process and Physician-Communication. *Cancer*, *100*(5). doi:10.1002/cncr.20050
- Rains, S. (2007). Perceptions of Traditional Information Sources and Use of the World Wide Web to Seek Health Information: Findings From the health Information National Trends Survey. *Journal of Health Communication*, *12*, 667-680.
- Reneger, R., Steinfeld, V., & Lazarus, S. (2002). Assessing the Effectiveness of a Community Based Media Campaign Targeting Physical Inactivity. *Family and Community Health*, *25*(3), 18-30.
- Shumaker, S., Schron, E., Ockene, J., McBee, W. (1998). *The Handbook of Health Behavior Change* (2<sup>nd</sup> ed.) New York: Springer Publishing Company.
- Shim, M. (2008). Connecting Internet Use with Gaps in Cancer Knowledge. *Health Communication*, *23*, 448-461. doi:10.1080/10410230802342143
- Snyder, L. B. (2007). Health Communication Campaigns and Their Impact on Behavior. *Journal of Nutrition Education Behavior*, *39*, S32-S40.

doi:10.1016/j.jneb.2006.09.004

Snyder, L. B., Hamilton, M. A., Mitchell, E. W., Kiwanuka-Tondo, J., Flemming-Milici, F., & Procto, D. (2004). A Meta-Analysis of the Effect of Mediated Health Communication Campaigns on Behavior Change in the United States. *Journal of Health Communication, 9*, 71-96. doi:10.1080/10810730490271548

Speros, C. (2005). Health literacy: concept analysis. *Journal of Advanced Nursing, 50*(6), 633-640. doi:10.1111/j.1365-2648.2005.03448.x.

Tu, H. T., & Cohen, G. R. (2008). Striking jump in consumers seeking health care information. Retrieved August 18, 2010, from <http://www.hschange.org/CONTENT/1006/1006.pdf>

U.S. Department of Health and Human Services (2010). Healthy people 2010: Understanding and improving health. 2nd ed. Washington, DC: U.S. Government Printing Office. Retrieved from <http://www.healthypeople.gov/document/pdf/uih/2010uih.pdf>

Wallace, L. (2006). Patient's health literacy skills: The missing demographic variable in primary care research. *Annals of Family Medicine, 4*(1), 85-86. doi:10.1370/afm.501.

Weaver, J., Thompson, N., Weaver, S., & Hopkins, G. (2009). Healthcare non-adherence decisions and Internet health information. *Computers in Human Behavior*, 25(6), 1373-1380. doi:10.1016/j.chb.2009.05.011.

Wootan, M. G., Reger-Nash, B., Booth-Butterfield, S., & Cooper, L. (2005). The Cost-Effectiveness of 1% Or Less Media Campaigns Promoting Low-Fat Milk Consumption. *Preventing Chronic Disease Public Health Research, Practice, and Policy*, 2(4). Retrieved September 24, 2010, from [http://www.cdc/pcd/issues/2005/oct/05\\_0019.htm](http://www.cdc/pcd/issues/2005/oct/05_0019.htm)

Wray, R. J., Jupka, K., & Ludwig-Bell, C. (2005). A Community-wide Media Campaign to Promote Walking in a Missouri Town. *Preventing Chronic Disease Public Health Research, Practice, and Policy*, 2(4). Retrieved September 24, 2010, from [http://www.cdc.gov/pcd/issues/2005/oct/05\\_0010.htm](http://www.cdc.gov/pcd/issues/2005/oct/05_0010.htm)