ABSTRACT

Title of Document:	QUALITY OF PAST EXPERIENCES WITH HEALTHCARE PROVIDERS, LEVEL OF SELF-EFFICACY, AND DEGREE OF TRUST IN PROVIDERS AS DETERMINANTS OF PROVIDER AVOIDANCE: TESTING THE MODERATING EFFECTS OF RACE AND GENDER
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A critical component in the prevention and treatment of illness and disease is

individuals' timely and consistent consultation with healthcare providers. The

purpose of the current study was to examine factors influencing individuals'

avoidance of healthcare providers in a national sample of insured U.S. adults who

potentially have access to healthcare but may not use it. Inadequate access to

healthcare as a function of disparities (e.g., lack of health insurance) has increasingly

received attention. However, there has been a lack of attention to factors that

interfere with use of healthcare among individuals who potentially have access based

on insurance coverage. Those individuals are at risk of negative health outcomes

when they avoid medical consultation for serious health symptoms. Consequently,

the present study examined factors influencing healthcare avoidance among

individuals who have health insurance.   A secondary analysis was conducted with a publically available data set, the 2007 Health Information National Trends Survey (NCI, 2009). The study examined the extent to which health self-efficacy, quality of past interactions that an individual has had with healthcare providers (HCPs), and trust in HCPs to take care of one's health needs predicted current avoidance of HCPs. The study also examined individuals' levels of trust in HCPs as a potential mediator of the relationship between the quality of interactions with HCPs and the degree to which individuals avoid HCPs, as well as patient race/ethnicity and gender as potential moderators of the relationship between quality of interactions with HCPs and trust in HCPs. Control variables included age, education, and income. Results provided support for the expected relationships between health self-efficacy, quality of interactions with HCPs, and trust in HCPs, and HCP avoidance. Furthermore, results revealed that trust in HCPs is a significant mediator between quality of interactions with HCPs and HCP avoidance. However, results did not provide support for race/ethnicity and gender as clinically significant moderators between quality of interactions with HCPs and trust in HCPs. Findings provide useful information about factors that influence individuals' avoidance of HCPs, thereby identifying targets for reducing this problematic public health phenomenon. Implications for theory, research, practice, and policy are presented.

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DETERMINANTS OF PROVIDER AVOIDANCE:
TESTING THE MODERATING EFFECTS OF RACE AND GENDER.

By

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Chapter 1: Background & Significance

Introduction

Statement of the Problem

A critical key to advancing public health goals is ensuring that individuals and families take appropriate health-related actions when needed. However, many people avoid or delay seeking medical care from healthcare providers (HCPs) for both preventative care like routine check-ups and screenings as well as for treatment care in response to disease symptoms. This type of behavior is referred to as *healthcare avoidance*, and it is an active process in which individuals decidedly avoid healthcare when they are aware that a need for care has arisen.

Reasons for healthcare avoidance are numerous and vary for families and individuals. On the one hand, people may fail to seek healthcare due to barriers that often contribute to health disparities, such as lack of health insurance, lack of money, and an absence of HCPs in a geographic region, particularly in rural areas (LaVeist, 2005). On the other hand, there are psychologically-based internal reasons that may explain why people sometimes engage in healthcare avoidance even when external barriers are removed. Examples include cultural/religious beliefs contra-indicating medical treatment, unconventional health beliefs (e.g., believing that natural, home remedies should be the primary form of healthcare for oneself and family), previous bad experiences within the healthcare system, and low confidence in one's ability to handle one's healthcare needs (e.g., carrying out treatment procedures recommended by HCPs or finding a specialist HCP). There is increasing attention in the literature to external barriers to healthcare access that create health disparities, but little research has addressed the internal reasons for healthcare avoidance (AHRQ, 2010; Williams & Jackson, 2005). Consequently, the current study investigated psychologically-based determinants of healthcare

avoidance among a population of Americans who do have some form of health insurance and have had contact with HCPs within the past year.

This study focused on factors that contribute to healthcare avoidance among individuals who have some level of access to healthcare. Whereas the existence of external barriers to healthcare access has particular implications for policy and the structure of the healthcare system, psychologically-based factors that contribute to healthcare avoidance have a different set of implications for training HCPs in ways to strengthen the relationship between professional and patient, as well as in strategies for increasing patients' sense of self-efficacy in participating actively in their own healthcare.

Healthcare avoidance can have major consequences for individuals, families, and society. Consequences of healthcare avoidance for individuals include decreased health protective actions, non-adherence to treatment regimens, increased healthcare costs, loss of work attendance and productivity, increased psychological distress, increased severity or progression of disease, increased disability, and even increased incidence of death (Byrne, 2008; Moore et al., 2004; Moser et al., 2006). These consequences also affect families negatively in similar ways when an individual member avoids needed healthcare. Furthermore, consequences of healthcare avoidance for the broader society include increased spread of communicable diseases, increased health disparities among vulnerable populations, increased healthcare costs, and loss of workforce labor. Data from the 2007 Health Information National Trends Survey (HINTS) (NCI, 2009) indicate that approximately 35% of Americans report avoiding their doctor when they suspect a need for medical care (e.g., when a concerning symptom arises). According to recently published health behavior studies, healthcare avoidance was reported by 23–25% of

adults in U.S. samples (Facione, Miaskowski, Dodd, & Paul, 2002; Tromp et al., 2005). Thus, this type of behavior is quite common despite the seriousness of its outcomes.

Given the above-mentioned prevalence and consequences of this phenomenon, healthcare avoidance is an important area of research and policy focus. Indeed, it was one of the major objectives included in Healthy People 2010 and has been carried over to the Healthy People 2020 agenda. Both Healthy People 2010 and 2020 are cycles of Healthy People, a national public health initiative created by the U.S. Department of Health and Human Services aimed at improving health and reducing disparities in the United States (U.S. Department of Health and Human Services, 2011). Specifically, healthcare avoidance is targeted within Healthy People via the goal of "Access to Health Services" with the specific objective being to "reduce the proportion of individuals [by 10%] who are unable to obtain or delay in obtaining necessary medical care, dental care, or prescription medicines" (U.S. Department of Health and Human Services, 2011). Reaching this objective is critical for public health and raises important questions for further research exploration. Even though recent legislative efforts have resulted in national healthcare reforms that will increase access to health services for all Americans over time, reducing healthcare avoidance is not a simple matter of ensuring that health services are more widely available to the population, given that healthcare avoidance often occurs in spite of service availability. Consequently, this study investigated factors beyond income and access to healthcare that may play roles in the degree to which individuals fail to use available healthcare. Social Learning Theory, which proposes that human behavior can be explained and predicted by the interaction of personal, behavioral, and environmental factors (Bandura, 1977b), was used as a framework to identify factors that may contribute to this behavior.

This study examined three main research questions. First, to what extent do quality of past interactions that an individual had with HCPs, trust in HCPs to take care of one's health needs, and health self-efficacy predict HCP avoidance? Second, do individuals' levels of trust in HCPs mediate the relationship between the quality of interactions with HCPs and HCP avoidance? We know that the quality of interactions and trust in the patient-provider relationship play significant roles in patients' health decisions and outcomes (Beach, Keruly, & Moore, 2006; Bechel, Myers, & Smith, 2000; Stewart et al., 2000), but knowledge about the relationship of these factors specifically to HCP avoidance is limited. The quality of interactions that individuals have had with HCPs was assessed based on patient perceptions and was examined as a predictor of HCP avoidance. Although self-efficacy has been linked to patient health behaviors, there has been minimal research examining the role of self-efficacy in HCP avoidance (Case, Andrews, Johnson, & Allard, 2005; Tromp, Brouha, Hordijik, Winnubst, Gebhardt, van der Doef, & De Leeuw, 2005). For example, Tromp et al. (2005) studied healthcare avoidance in patients with head and neck cancer and found that among the 25% of participants who reported delaying at least three months before seeing a HCP for their cancer symptoms, lower levels of perceived health competence – a concept synonymous with health self-efficacy – predicted higher likelihood of delaying care for cancer symptoms. However, the current study differs from this previous research in that health self-efficacy was examined using a nationally representative sample of participants who may or may not have been diagnosed with cancer previously. As another example, Case and colleagues (2005) discussed the role of self-efficacy in two major theoretical models regarding individuals' information-seeking, including Johnson's Comprehensive Model of Information Seeking (CMIS) and Wilson's Model of Information Behavior. Both of those models have been used to explain individuals' avoidance of health

information, a form of healthcare avoidance. Case et al. (2005) concluded from their comparison of the models that self-efficacy plays a central role in patients' decisions to *avoid* health information, not just to *seek* such information. Consequently, they argued for increased research on factors affecting avoidance as a key area of health behavior research. Overall, the lack of empirical literature in this area underscores the need for studies examining psychologically-based personal determinants of healthcare avoidance.

The third research question addressed by the current study was whether patient race/ethnicity and gender moderate the relationship between quality of interactions with HCPs and trust in HCPs? As described in the literature review, there is evidence that minority group patients are more likely than White patients to have negative experiences with HCPs, and such experiences that have accrued over generations have led many minority individuals to be wary of potential racial biases among HCPs (e.g. Blanchard & Lurie, 2004; LaVeist, 2005; van Ryn and Burke, 2000). Consequently, there is reason to expect that minority patients are more likely than White patients to experience decreased trust in HCPs when they have had negative personal interactions with their HCPs. Regarding patient gender, as described in the literature review, there is clear evidence that male patients are less trusting of HCPs than female patients (Bonds, Foley, Dugan, Hall, & Extrom 2004; Kraetschmer, Sharpe, Urowitz, & Deber 2004; Wiltshire, Person, & Allison, 2011). However, the evidence is less clear about the potential moderating role of gender between the quality of interactions with HCPs and trust in HCPs, although there is some reason to believe that this may be the case, and thus it was tested in the current study. Overall levels of trust in HCPs are generally lower among male patients when compared to female patients, and there appear to be unique correlates of trust in HCPs between minority men

and women (Bonds, 2004; Kraetschmer et al., 2004; Wiltshire et al., 2011). Findings in this regard are described in the literature review.

Purpose

The purpose of the current study was to investigate determinants of individuals' healthcare avoidance among a sample of U.S. adults drawn from an existing national dataset. The sample was derived from the 2007 Health Information National Trends Survey (HINTS) (NCI, 2009), a nationally representative dataset that examines trends and changes in people's sources and use of health information and services for both themselves and others (e.g. family members, friends). This sample represents a broad population of U.S. healthcare consumers of varying ages, races, and socioeconomic levels. The current study examined the extent to which the quality of a person's prior interactions with HCPs predicts his or her avoidance of HCPs. The conceptual model used in this study also focused on characteristics that individuals bring to their interactions with HCPs that may influence their responses to HCPs (in this case avoidance of contact with HCPs) such as patients' subjective appraisals of HCPs (e.g., their trust in HCPs) and appraisals of their own self-efficacy regarding health. Therefore, even though there may be an overall tendency for past negative experiences with HCPs to motivate an individual to avoid further contact, this study investigated whether personal characteristics such as health self-efficacy and trust in HCPs may provide a more complete picture of factors that influence avoidance. Findings from this study provide useful information about factors that contribute to healthcare avoidance among those who have health insurance coverage and thus have some level of access to healthcare. These findings have implications for the training of HCPs in order to increase high quality patient-provider interactions, for health behavior researchers in order to further the understanding of the occurrence of healthcare avoidance (particularly among the

population of patients who are not primarily deterred by an absence of insurance coverage for healthcare), and for health professionals charged with the task of devising strategies to help decrease healthcare avoidance.

The following is a review of scholarly literature on healthcare avoidance and factors that influence it. First, Social Learning Theory is presented as the theoretical model that guided the current study. Then, a review of literature on healthcare avoidance, including its definition, measurement, patient variables associated with it, and the implications of its occurrence, is presented. Next, a review of literature is presented on factors affecting healthcare avoidance, including quality of patients' interactions with HCPs, health self-efficacy, and patients' trust in HCPs.

<div align="center">**Theoretical Base for the Study**</div>

Social Learning Theory

Social Learning Theory (SLT) was used as the guiding conceptual framework for the current study. SLT, first developed by Albert Bandura (Bandura & Walters, 1963) as an advancement over previous learning theories that were limited in capturing the complexities of human versus animal learning, has been used widely to explain learning processes influencing human behavior. The theory has been used to account for factors affecting a range of negative health behaviors such as alcohol abuse, smoking, and the intergenerational transmission of risky health behaviors within families such as excessive drinking and poor diet (Akers, La Greca, Cochran, & Sellers, 1989; Akers & Lee, 1996; Wickrama, Conger, Wallace, & Elder, 1996). It has also been used to design several of the most efficacious health education programs (Warsi, Wang, LaValley, Avorn, & Solomon, 2004). The following is a description of the background and main concepts of SLT and its application to the current study.

Earlier models of learning such as the operant model proposed by Skinner (1969) focused exclusively on environmental determinants of behavior; on the one hand, eliciting stimuli, and on the other hand reinforcing and punishing consequences. Processes internal to the individual were ignored because it was believed that they could not be measured validly and reliably. In other words, the same environmental factors that could account for an animal learning to push a lever to obtain food pellets were used to account for human learning. Bandura (1977b) did not reject those concepts. Indeed, reinforcement is a central concept in SLT, but it is "considered a facilitative rather than a necessary condition because factors other than response consequences can influence what people attend to" (Bandura, 1977b, p. 37). Bandura argued that along with external environmental influences human behavior is to a large extent influenced by internal cognitive processes that continuously interact with environmental conditions:

> In the social learning view, people are neither driven by inner forces nor buffeted by environmental stimuli. Rather, psychological functioning is explained in terms of a continuous reciprocal interaction of personal and environmental determinants. Within this approach, symbolic, vicarious, and self-regulatory processes assume a prominent role Bandura, 1977b, pp. 11-12).

He proposed that humans observe contingencies occurring in their experiences and store concepts about them, which they subsequently apply to new situations that they face. An individual's cognitions based on past experiences influence which external events the person notices in the future and how positively or negatively his/her perceptions of those events will be.

A core concept in SLT regarding cognition is that individuals develop expectancies or cognitive predictions about the likelihood of particular events occurring under particular conditions, and that a person's likelihood of enacting a specific behavior often depends at least as

much on his or her expectancies of consequences as on the actual consequences in the environment. Thus, SLT proposes that human behavior can be explained and predicted by the interaction of personal (e.g., cognitive), behavioral, and environmental factors (see Figure 1). According to Bandura (1977b), these three factors operate together and influence each other through reciprocal determinism, described as a process of continuous, mutual action and feedback. Within this process an individual's behavior is not only an *outcome*, but also influences his or her environment and operates as a *determinant* or antecedent of future outcomes. This is one of the key advancements of SLT over previous learning theories that focused on behavior simply as a product of the environment, with little emphasis on what a person may have learned from past behaviors and their outcomes. SLT explains how that learning is stored as cognitions and serves as a relatively stable aspect of the person.

SLT proposes that much of human learning occurs as a social process of interaction with other people (hence the name "social learning theory"), and that learned concepts shape future behavior (Bandura, 1977b). According to Bandura, learning not only occurs as individuals observe the consequences of their own actions, but also through observing the outcomes of others' actions. Response consequences have three major functions: to *inform* behavior (people observe the consequences of their behavior and thus receive information about likely outcomes of certain behaviors), to *motivate* behavior (people can make predictions about the possible outcomes of behavior and thus be prompted to take certain actions to attain desired outcomes), and to *reinforce* behavior (people's future behavior can be shaped, either encouraged or discouraged, by past behavior and its outcomes).

Whereas learning from the consequences of one's own behavior is inefficient, SLT describes how learning by observing models provided by other people is the process through

which most human learning takes place, as it entails less labor, less risk, and allows for learning

to occur more quickly than through response consequences of one's own behavior. Learning

through modeling involves observing the behavior of others, the outcomes of this behavior, and

making cognitive inferences about appropriate behavior for oneself based on these observations.

For example, one could learn that an appropriate sequence of action for treating a physical illness

involves making an appointment with a HCP, going to the appointment, attaining a prescription

for medicine, taking the medicine, and then healing from the ailment. If this sequence could

only be learned by shaping an individual's behavior through reinforcement of successive

approximations, then it is unlikely that the learning would be successful. However, because

humans have the capacity to learn by observing others' experiences, such a complex sequence of

health promoting behavior can be learned quickly. Overall, whether one is learning via the

outcomes of their own behavior or the outcomes that they observe others receiving, in both cases

it is the cognitive ability to store information about these outcomes that enhances human

learning.
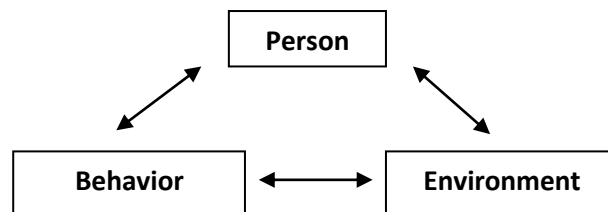
Figure 1. Main factors in Social Learning Theory.

Overall, the principles and major concepts within SLT appear to be very useful for

understanding the process of healthcare avoidance. The following are definitions of the main

variables in the present study, as well as a description of factors that may influence it according

to SLT and an explanation of how the variable may influence the healthcare avoidance. In

addition, specific hypotheses are proposed for how the main study variables operate, based on SLT.

In the current study, self-efficacy was examined as a main predictor variable for its relationship with healthcare avoidance. *Self-efficacy*, defined as the degree to which an individual has confidence in his or her ability to successfully perform actions, is a major concept within SLT. For the current study, this pertains to self-efficacy regarding health-related actions. Within SLT, self-efficacy has a significant effect on the degree to which an individual is likely to engage in particular behaviors, including actions performed under psychologically stressful conditions such as health challenges. In general, "people will approach, explore, and try to deal with situations within their self-perceived capabilities, but they will avoid transactions [or situations] with stressful aspects of their environment they perceive as exceeding their ability" (Bandura, 1977a, p. 203). More specifically, SLT states that individuals are more likely to engage in actions when they hold an *outcome expectancy* (a prediction that a certain behavior will produce a certain outcome) that those actions will produce desired benefits *and* they hold a positive *efficacy expectancy*, or prediction that they are capable of successfully carrying out those actions.

Bandura's theory proposes that different forms of psychological experiences may affect one's level of self-efficacy or efficacy expectancies. Specifically, Bandura argued that the level and strength of self-efficacy may vary depending on four main factors. The first is *prior performance accomplishments* with a given task, and Bandura argues that this is one of the most influential factors of the four in terms of its influence on self-efficacy. The more prior successful attempts one has had in carrying out a task, the higher one's self-efficacy will be, whereas the more unsuccessful attempts one has had, the lower the self-efficacy. For example, repeated

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unsuccessful attempts to make an appointment with a healthcare specialist (perhaps in the form

of having to wait a number of weeks before the next available appointment or not being able to

see a particular specialist without a referral) may lead to lowered confidence in one's ability to

obtain needed healthcare. As another example, the National Cancer Institute suggests that a

behavioral contract may help patients who have had difficulty losing weight or maintaining

weight loss, as it may help "establish achievable, short-term goals" and in turn build confidence

as one experiences repeated, short-term successes (NCI, 2005, p .14).

According to Bandura (1977), an individual's level of self-efficacy also can be influenced

by *vicarious experience*, in the form of witnessing others' success or failure with tasks. For

example, seeing a family member die from cancer despite the individual's great efforts with

treatments may lower one's perceived self-efficacy regarding one's own ability to respond to a

new diagnosis of cancer, which may in turn lead to healthcare avoidance. A third factor that

affects self-efficacy is *verbal persuasion* from another person whose goal is to motivate the

person to engage in particular behavior. Bandura argues that this factor has a weaker impact on

self-efficacy than the prior two factors because it lacks the vividness of a direct experiential

component. However, in the context of healthcare, verbal persuasion may be one of the primary

tools that HCPs have for influencing behavior change in patients, or that laypersons have

available for influencing their family members and friends toward positive health actions. For

example, during an appointment with a patient a HCP could cite research findings or experiences

of other patients to help persuade a patient to care for his or her health.

Finally, Bandura (1977) identifies *emotional arousal* as the fourth factor that influences

self-efficacy. Awareness of physiological processes (e.g., feeling one's heartbeat race) provides

information about one's emotional response to situations and may lead the individual to make

interpretations about his or her self-efficacy. Bandura points out that whereas mild to moderate emotional arousal may improve performance of challenging tasks, high levels of arousal can interfere with performance. Furthermore, when an individual interprets his or her symptoms of arousal as signs of poor personal functioning, that negative self-appraisal can interfere with engaging in health-enhancing behavior. For example, a patient who is highly aroused during a doctor's exam may be less likely to feel confident about asking the doctor certain questions or describing symptoms that brought him or her in for the appointment.

Overall, in the present study it was expected that health self-efficacy would be negatively associated with healthcare avoidance. This is based on the SLT principle that individuals are more likely to engage in actions when they hold positive efficacy expectancies. Given the importance of self-efficacy expectancies for individuals' likelihood of taking health promoting action, interventions that target each of the four factors that influence self-efficacy may be crucial in fostering individuals' appropriate use of HCPs and decreasing avoidance. Such interventions can help increase an individual's health self-efficacy and reduce avoidance of needed interactions with HCPs. Next, quality of interactions with HCPs as a predictor of healthcare avoidance is discussed using SLT as a theoretical framework.

In the current study, *quality of interactions with HCPs* was another main predictor variable that was examined for its potential relationship to healthcare avoidance. This variable can be defined by the extent to which patient-provider interactions represent "patient-centered care," or care that involves the provider listening carefully to patients, explaining things in a way that insures the patient understands, conveying respect for the patient, and spending adequate time with the patient to conduct an appropriate evaluation and treatment (AHRQ, 2010; U.S. Department of Health and Human Services, 2011). It is important to note that in the present

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study quality of interactions with HCPs was measured by patient perceptions of these

interactions as opposed to the perceptions of others (e.g., HCPs, researcher direct observations).

Within the SLT model, the quality of interactions with HCPs fits the environmental component

of the person-behavior-environment triad, and thus it was expected that the impact of provider-

patient behaviors would be influenced by both the patient's personal characteristics and the

patient's behavioral responses. Furthermore, in addition to the patient's cognitions as personal

factors, his or her race and gender were additional personal patient factors, and health insurance

status was an environmental factor that was expected to possibly affect provider-patient

interactions. Indeed, the literature shows that the quality of patients' interactions with HCPs is

influenced by all of these factors, among others. A detailed discussion of the factors associated

with quality of interactions with HCPs is provided in the Literature Review section of this

document. Quality of interactions with HCPs was expected to be associated negatively with

HCP avoidance, such that higher quality interactions were expected to be associated with lower

degrees of avoidance. This hypothesis was based on the SLT principle that past experiences with

consequences of seeking assistance from HCPs lead individuals to develop expectancies

regarding likely outcomes of future interactions with HCPs and affect motivation to engage in

that behavior. Thus, in SLT terms past medical encounters that are of high quality would

motivate the future behavior of seeking a HCP when medical needs arise.

Another predictor variable that was examined in this study for its relationship to

healthcare avoidance was *trust in HCPs*. Trust in HCPs has been conceptualized in a number of

different ways (which are discussed in detail in the Literature Review section) but for the current

study this type of trust was defined as confidence in one's HCPs to take care of one's healthcare

needs. Based on SLT, this type of trust would be considered another form of a cognitive

personal factor (a generalized expectancy about the degree to which one can rely on HCPs to meet one's medical needs), as individuals bring varying levels of trust in HCPs with them to their encounters with HCPs. Trust in HCPs may be influenced by environmental factors like the reputation of a HCP within one's local community, or at a more personal level by one's prior experiences with HCPs (e.g., a HCP listening carefully to a patient). Based on SLT, it was expected that greater trust in HCPs would be associated with less healthcare avoidance. It was expected that trust in HCPs, as a cognitive factor, would operate as a mediator between quality of interactions with HCPs and individuals' avoidance of HCPs. Specifically, higher quality interactions may lead to greater trust in their HCPs to care for their health, therefore decreasing the likelihood of avoiding them when the need to see them arises. Recent studies show that high quality patient-provider interactions do in fact promote trust in HCPs and ultimately improve patient health outcomes (Finney Rutten, Augustson, & Wanke, 2006; Kraetschmer et al., 2004).

Finally, in the current study race/ethnicity and gender were moderator variables that were examined for their potential influence on the relationship between prior interactions with HCPs and level of trust in HCPs to take good care of one's health. The measurement of both variables is provided in the Measures section of the Method chapter of this document. Within SLT, a patient's race and gender are both personal factors that may affect provider-patient interactions. Indeed, this has been shown in the literature (e.g., Blanchard & Lurie, 2004; van Ryn & Burke, 2000), and a detailed discussion of these factors and their relationship to the quality of interactions with HCPs is provided within the Literature Review that follows. It was expected that race/ethnicity and gender would moderate the expected positive association between quality of interactions with HCPs and trust in HCPs, such that the association will be stronger for particular groups of participants who may have more negative prior experiences with HCPs

based on these personal characteristics (minority status and male gender). Similar to the

hypothesis for quality of interactions with HCPs, the hypotheses regarding race/ethnicity and

gender were based on the SLT principle that past experiences with consequences of seeking

assistance from HCPs lead individuals to develop expectancies regarding likely outcomes of

future interactions with HCPs. However, the hypotheses regarding race/ethnicity and gender

differed in the sense that past experiences with HCPs were expected to affect individuals' levels

of trust in HCPs (which in this study is considered an antecedent to individuals' motivation to

engage with HCPs rather than avoiding them).

Indeed, the central tenet of SLT is that human behavior can be explained and predicted by

the interaction of personal, behavioral, and environmental factors. Thus, it was posited here that

race/ethnicity and gender were two variables that may play key roles in the process of healthcare

avoidance to the extent that they interact with quality of interactions with HCPs to produce

differing levels of trust in HCPs for different racial/ethnic and gender groups. Specifically,

contacts with HCPs were expected to possibly have different consequences for White patients

than for minority race patients who in general have a history of lower perceived quality of

interactions with HCPs, in turn differentially affecting their trust levels in HCPs. To the extent

that minority patients are likely to be more reactive than White patients to current negative

interactions with HCPs due to personal and shared racial group experiences with the healthcare

system, the association between quality of their interactions with HCPs and their level of trust in

HCPs should be stronger than the same association for White patients.

Regarding gender, in this study females and males were expected to differ in how much

their quality of interactions with HCPs is associated with their level of trust in HCPs. This is

based on prior research that shows that males report lower quality interactions with HCPs

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(specifically, males are significantly more likely than females to perceive disrespectful treatment from HCPs), females have reported higher trust in HCPs than males, and different correlates of trust have been found for men and women (Blanchard & Lurie, 2004; Kraetschmer et al., 2004; Wiltshire et al., 2011).

Additional patient demographic factors that were expected to potentially affect healthcare avoidance included age, education, income, and health insurance status. The first three of these variables were included in the current study as control variables that can affect individuals' resources that are needed to access healthcare. The last, health insurance status, was used as a selection variable for the current study, as only those participants with some form of health insurance were included in the study sample. This selection of individuals who had insurance was based on the focus of this study on people's failure to have adequate healthcare that is not primarily due to inequities in access to care.

In summary, SLT proposes that a triad of factors, person-behavior-environment, explain and predict human behavior through a process of reciprocal determinism, or continuous mutual action and feedback. Within the current study quality of interactions with HCPs was expected to be an environmental factor, trust in HCPs and health self-efficacy were expected to be personal factors (specifically cognitive factors), and race/ethnicity and gender were expected to be additional personal factors, all of which influenced the health behavior of HCP avoidance. There were seven hypotheses tested in this study, all of which were formulated based on the existing literature and principles from SLT:

- *Hypothesis 1:* The quality of individuals' past interactions with HCPs is negatively associated with their HCP avoidance, or when quality of interactions with HCPs is higher level of HCP avoidance is lower.

- *Hypothesis 2:* Health self-efficacy is negatively associated with HCP avoidance, or as health self-efficacy level is higher, level of HCP avoidance is lower.

- *Hypothesis 3:* Trust in HCPs is negatively associated with HCP avoidance, or as level of trust in HCPs is higher, level of HCP avoidance is lower.

- *Hypothesis 4:* Quality of interactions with HCPs is positively associated with level of trust in HCPs, or as quality of interactions with HCPs is higher, trust in HCPs is higher.

- *Hypothesis 5:* Trust in HCPs mediates the relationship between quality of interactions with HCPs and HCP avoidance, such that when trust in HCPs is controlled (partialled out) the association between quality of interactions with HCPs and avoidance of HCPs (tested in hypothesis 1) is reduced significantly or becomes non-significant.

- *Hypothesis 6:* Race moderates the positive association between quality of interactions with HCPs and trust in HCPs, such that the association is stronger for White participants than for non-White or minority participants (Blacks/African-Americans, Hispanics, and Asians).

- *Hypothesis 7:* Gender moderates the positive association between quality of interactions with HCPs and level of trust in HCPs, such that the association is stronger for male participants than for female participants.

The following figure summarizes the associations that were tested in the current study:
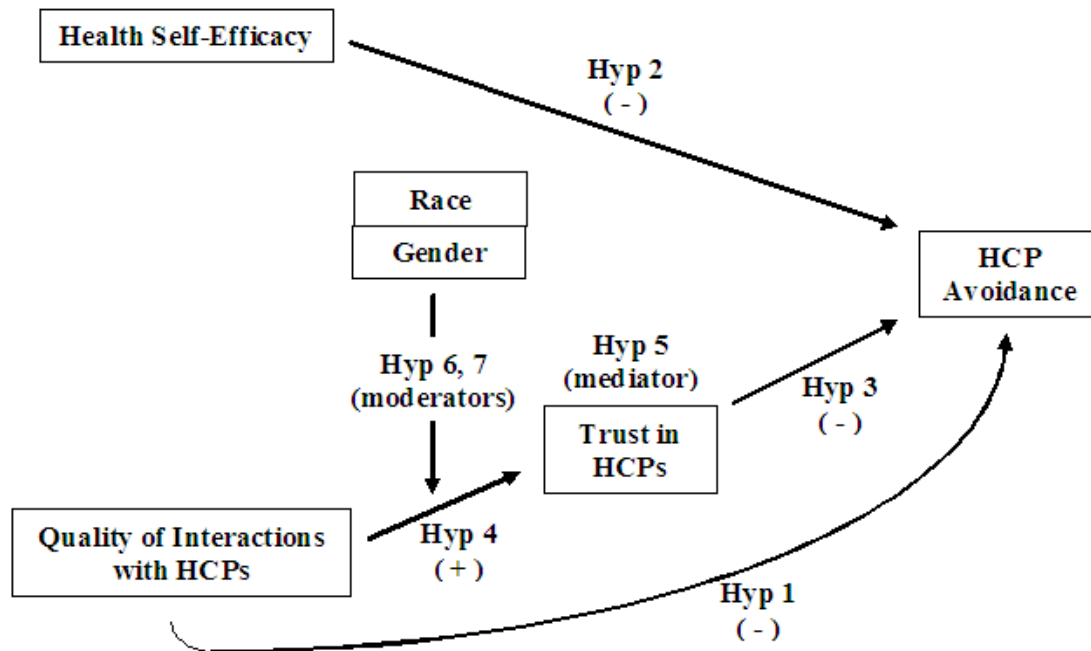
Figure 2. Design of hypothesized associations among variables.

SLT seemed to be a very good fit as a theoretical base for the current study, providing guidance about how the variables were likely to be related. The following is a review of the literature on the variables that were examined in this study, beginning with the problematic phenomenon of healthcare avoidance.

Literature Review

Healthcare Avoidance

Healthcare avoidance is a type of health behavior that can have serious consequences for individuals' physical and mental well-being. Health behaviors encompass a broad range of either positive (i.e., health promoting) or negative (i.e., health damaging) actions that influence conditions affecting an individual's physical and mental condition. Positive health behaviors may be oriented toward either prevention or treatment of illness or injury and examples include exercising, healthy dietary intake, adhering to a daily vitamin regimen, maintaining personal hygiene and sleep routines, stress-reduction activities such as meditating or praying, and health

service use for prevention (e.g., periodic physical exams) or treatment (e.g., compliance with doctors' prescribed medications and other interventions). Examples of negative health behaviors include smoking, excessive alcohol and drug use, maintaining a nutritionally poor diet, and engaging in risky behavior such as unprotected sexual activity.

Health damaging behaviors typically receive a considerable amount of attention in research, policy, and clinical practice in the U.S. For example, cigarette smoking has received great research support (e.g., the National Institute of Health has an entire division dedicated to tobacco control research), policy support (e.g., there are several state and federal laws banning public smoking in the U.S.), and clinical support (e.g., the wide availability of smoking cessation programs and pharmaceutical drugs). Despite the great attention paid to health damaging behaviors, there has been a notable lack of attention to the behavior of healthcare avoidance, perhaps in part because it is not as easy to measure as other negative health behaviors such as those noted above. Indeed, it involves the *absence* of certain positive health behaviors as well as noticeable *active* avoidance behavior. However, healthcare avoidance occurs in a significant proportion of adults in U.S. samples. For example, Tromp et al. (2005) studied patients with head and neck cancer and found that 25% of them reported delaying at least 3 months before seeing a HCP for their symptoms. Similarly, Facione et al. (2002) found that 23% of asymptomatic women in their sample reported that they would delay seeking professional help in the event that they experienced symptoms of breast cancer. Thus, health avoidance is clearly a health behavior deserving of further focus, given the scope of its occurrence and the seriousness of its consequences.

Definition and measurement of healthcare avoidance. A review of empirical literature concludes that a standard definition of healthcare avoidance has been lacking. However, in

general there has been consensus that avoidance can be either mental (not thinking about a potentially threatening topic), or physical (literally removing oneself from contact with a threatening experience) (Byrne, 2008; Princeton University, 2010). Byrne (2008) describes avoidance in the context of healthcare as having three specific defining characteristics. The first is *protective distancing* of oneself from preventive or treatment oriented health services, which involves the individual's expectancy that the avoidance protects oneself from exposure to distressing experiences such as bad news from a physician regarding one's prognosis. The second characteristic is *multidimensionality*, which entails five dimensions through which avoidance may occur: "spatial distance (physical dimension), failure to acknowledge a situation (cognitive dimension), passively accepting an unfavorable situation (emotional dimension), self-imposed isolation (social dimension), and finding an alternative escape activity (behavioral dimension)" (Byrne, 2008, p. 282). Finally, the third defining characteristic of healthcare avoidance identified by Byrne (2008) is *variability* in the behavioral or cognitive manifestations of avoidance. For example, behavioral responses may range from cancelling an appointment to refusing to make an appointment in the first place, and cognitive responses may range from fear about current symptoms to complete denial that the symptoms even exist (Byrne, 2008).

Previous studies have measured healthcare avoidance in a variety of ways. One example of this is Facione et al.'s (2002) study that examined the prospective likelihood of asymptomatic women delaying healthcare in response to breast cancer symptoms. They measured healthcare avoidance using the J-Delay scale which was designed specifically to assess women's responses to signs of breast cancer (Facione et al., 2002). This scale includes 15 items about potential actions that a woman could take in response to symptom discovery, beginning with the following general question: "There are many things a woman could do if she discovered a change in her

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breast that concerned her. Which of these things might *you* do?" An example of an item from the J-Delay scale is "If I could avoid it, I would not go to the doctor." Individuals choose between "yes" and "no" response options for each item. Another example of previous measurements of healthcare avoidance in research studies is the approach used in Moore and colleagues' (2004) study of a community sample of adults, which examined the extent to which the doctor-patient relationship influenced patients' avoidance of healthcare. To measure healthcare avoidance, "participants were asked to indicate whether, during the previous 12 months, they had had a medical problem for which they would have liked to see a doctor, but did not" (p. 425). Although the authors did not clearly describe the circumstances in which they measured avoidance, it appears that their aim for this single question was to capture avoidance that occurred by choice as opposed to situations in which a person was blocked from seeing a doctor, as they excluded participants who lacked a means of transportation to access a doctor.

It is important to note that there are other health behavior terms presented in the literature that are closely related or synonymous with healthcare avoidance. Some include "delay in care," "patient delay," "treatment avoidance," "non-attendance," and "avoidant coping" (Byrne, 2008; Facione, et al., 2006; Moore et al., 2004; Moser et al., 2006). The most closely related term found was *healthcare delay*. This is a type of health-seeking behavior that has been defined as "a time period of 3 months or more from a symptom discovery to the initial seeking of a diagnosis" (Facione et al., 2002, p. 397), although it may refer to any period of delay in seeking healthcare when needed. Healthcare delay is sometimes used as an interchangeable term with healthcare avoidance, although one may argue that the latter seems suggestive of ignoring or denying a health need altogether (a passive approach) whereas the former seems more suggestive of an active decision to avoid contact with HCPs (e.g., one has actually acknowledged a health

need and has made a decision to seek care but is behaviorally delaying or "putting off" the action of doing so). In fact, Moser and colleagues (2006) delineate specific "delay phases" in their examination of healthcare delay for those experiencing cardiac symptoms. These phases imply that delay can operate both cognitively and behaviorally and include the time intervals from "(1) symptom onset to the decision to seek medical attention, (2) from the decision to seek medical attention to first medical contact, and (3) from first medical contact to hospital arrival" (p. 169). However, both healthcare avoidance and delay are terms typically used to refer to the same general behavior of avoiding medical care for some period of time when it is recognized that it may be needed.

The HINTS survey refers to the behavior of avoiding seeing a HCP when it may be needed. Therefore, healthcare avoidance is the term used for the current study to refer to what may also be considered healthcare delay. For the current study, this type of avoidance refers to an active process in which individuals knowingly engage, as opposed to a passive process in that may occur without the individual realizing it (e.g., not experiencing any health symptoms that one identifies as signs that one should see a HCP). As noted previously, there is not a standard accepted definition for this concept within the research literature; nor has there been a standard way of measuring it in previous studies. Similar to Moore et al. (2002), the current study examined participants' avoidance behavior over the 12 months prior to survey completion.

Patient factors associated with healthcare avoidance. Several factors have been found to be related to healthcare avoidance. Of the sociodemographic factors examined, the following are significantly associated with the increased likelihood of healthcare delay: both older age and female gender *specifically* among those experiencing cardiovascular symptoms, lower educational levels, lower income, Black or Latino race, lack of access to health care or insurance,

and low literacy (Byrne, 2008; Facione et al., 2002; Larkey, Hecht, Miller, & Alatorre, 2001; Marcus, 2006; Moore et al., 2004; Moser, 2006). Several other patient factors beyond sociodemographic characteristics also have been identified as correlates of healthcare avoidance. Cognitive/emotional factors including fear of the medical consequences of seeking care (e.g., fear of receiving a cancer diagnosis), embarrassment about seeking help, and denial about the need for medical help have been found to increase the likelihood of healthcare avoidance (Byrne, 2008; Moser et al., 2006). Furthermore, negative health beliefs (e.g., appraising symptoms as not being serious; lacking knowledge of particular problems that are likely signified by specific symptoms) have been found to contribute to a belief that healthcare is not needed when in fact it is, and to a greater likelihood of healthcare avoidance. Indeed, it has been found that when symptoms are appraised as serious or urgent individuals are less likely to avoid healthcare. For example, Larkey et al. (2001) found that their sample of Hispanic Americans was less likely to avoid healthcare when they appraised symptoms as more medically serious. Fatalistic attitudes, poor cognitive problem-solving and coping skills, and lack of confidence in preventive care measures have also been found to be associated with an increased likelihood of healthcare avoidance (Blomberg, Ternestedt, Tornberg, & Tishelman, 2008; Facione et al., 2002). For example, in Blomberg et al.'s (2008) qualitative study of Swedish women many participants reported avoiding free, publicly available cervical cancer screenings due to previous negative interactions with HCPs associated with the screening program and lack of confidence that the program would benefit their health. In fact, with some of their prior negative experiences, tests results were actually mixed up or were reported inaccurately to patients. These events contributed to the women's lack of confidence in visiting the public program HCPs in the future because they lacked confidence in their ability to provide accurate, preventive care information.

As another example, Facione et al. (2002) found that fatalistic attitudes toward breast cancer, specifically about developing or dying of breast cancer, contributed to individuals' likelihood of delaying healthcare after discovering breast cancer symptoms. Such findings underscore how important various cognitive factors are in individuals' decisions to seek or avoid sources of healthcare and contact with HCPs. The present study's focus on self-efficacy and trust in HCPs as possible contributors to healthcare avoidance is consistent with this trend toward identifying cognitive/emotional factors that may predict healthcare avoidance.

In addition to patients' cognitive/emotional factors, behavioral factors also have been linked to healthcare avoidance. Individuals' general patterns of poor health care habits and self-care behaviors have been associated with increased likelihood of healthcare avoidance (Byrne, 2008; Moser, 2006). It may be the case that failure to seek assistance from HCPs is sometimes part of a broader pattern of neglect of one's health. In addition, individuals' interactions with members of their social support network have been associated with either increased or decreased likelihood of healthcare avoidance, depending on the role of the persons with whom the individual consults. For example, in their examination of healthcare delay in response to cardiac symptoms Moser et al. (2006) found that consultation with a non-relative (e.g., a co-worker or friend) decreased the likelihood of delay in seeking treatment. On the other hand, they found that consultation with a family member increased the likelihood of delay, as "family members (particularly spouses) often recommend strategies that increase delay" (Moser et al., 2006, p. 171). However, Moser et al. do not provide examples of such counterproductive strategies. Similarly, Larkey and colleagues (2001) found that treatment and/or health information obtained from non-HCPs (e.g., spiritual healers, family, and friends) are factors that may potentially increase delay among Hispanic Americans.

Furthermore, practical barriers including lack of transportation, time, or babysitting and administrative hassles (e.g., trouble completing medical paperwork) have been cited by Hispanic Americans as factors that promoted their delay in seeking medical help (Larkey et al., 2001). Such constraints may contribute to delay among other racial/ethnic groups as well (Byrne, 2008). Low literacy may also lead to healthcare avoidance, as patients with low literacy may avoid potentially embarrassing interactions with HCPs or health conversations that are difficult to comprehend (Marcus, 2006).

Factors related to one's personality, an individual's responses that are fairly consistent across various life events and stable over time, have also been examined for their relation to healthcare avoidance. Greater neuroticism or, the tendency to experience forms of emotional distress such as anxiety in response to stressful life events, has been found to be associated with greater healthcare avoidance, and extraversion has been found to be associated with less avoidance (Byrne, 2008).

Regarding the variables that were included in the current study of predictors of healthcare avoidance, specific characteristics of the *quality of interactions with HCPs* previously have been found to be associated with greater avoidance. These include the individual's previous negative experiences with systems of healthcare and with HCPs (e.g., feeling disrespected, embarrassment, discomfort), including previously experienced racial/ethnic prejudice in care delivery (Blomberg et al., 2008; Byrne, 2008; Facione, 2002; Larkey et al., 2001). Patient-provider interactions are a crucial factor in predicting healthcare avoidance, and there is evidence that such avoidance is less likely to occur when patients perceive that physicians listen to them well (Moore et al., 2004). Greater general *trust in HCPs* has also been found to be associated with less healthcare avoidance (Byrne, 2008; Larkey et al., 2001). Additionally, it has been

found that greater levels of *health self-efficacy* are associated with lower levels of healthcare avoidance (Blomberg et al., 2006; Larkey et al., 2001; Moser et al., 2006). Detailed literature findings for all three of these variables are presented shortly.

Regarding the treatment of these variables in the current study, the quality of the individual's past interactions with HCPs was used as an independent variable predicting healthcare avoidance, whereas the individual's trust in HCPs was used as a possible mediator variable between these two factors. Health self-efficacy was examined as another independent variable that may predict healthcare avoidance. The present study differs from previous studies in this area in that it combined both personal factors such as general trust in HCPs and health self-efficacy, along with the environmental factor of quality of interactions with HCPs to predict individuals' degree of healthcare avoidance. It appears that previous studies have not tested all of these variables in the same model in this manner, and doing so was expected to provide a more complete picture of the process of healthcare avoidance.

Implications of healthcare avoidance for health. Researchers have examined healthcare avoidance both in preventive situations like cancer screenings (e.g., Blomberg et al., 2008; Facione et al., 2002) and in treatment situations in which avoidance occurs after symptoms appear or an injury has occurred (e.g. Larkey et al., 2001; Moser et al., 2006). Healthcare avoidance can lead to poor health outcomes and disparities in both situations. For example, avoiding preventive care entails avoiding important health measures like cancer screenings, annual routine physicals, and testing for sexually transmitted diseases/infections. Avoiding healthcare in treatment situations may have more immediate health damaging consequences than in preventive care situations, because avoidance of treatment deprives the individual of needed interventions for existing threatening health conditions. Consequences of healthcare avoidance

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for both prevention and treatment include increased health disparities among vulnerable populations, increased healthcare costs, loss of work attendance and productivity, decreased health protective actions, psychological distress, non-adherence to treatment regimens, increased morbidity, increased severity or progression of disease, increased disability, increased spread of communicable diseases to others, and even death that otherwise would be preventable (Byrne, 2008; Moser et al., 2006; Moore et al., 2004). In the current study, general avoidance of HCPs was the focus, as the HINTS data do not differentiate between avoidance of HCPs for preventative versus treatment care.

Quality of Interactions with HCPs

The relationship between patients and providers in the healthcare setting is one of the most valuable healthcare resources available to society. The value of these relationships lies in the fact that there are health benefits to patients when they are of high quality, as well as the fact that such relationships are highly personal and confidential in nature. As such it is critically important that patient-provider relationships are subjected to scrutiny, given research attention, and improved where possible, as they help eliminate health disparities among U.S. citizens and contribute to family health and well-being. Thus, the quality of interactions with HCPs (as rated by patients) was a focus of the current study. The following is a review of recent literature in this area.

Definition and measurement of quality of interactions with HCPs. There has been great attention in the research literature given to interpersonal interactions between patients and providers and the factors that create an atmosphere of high quality interactions during clinical encounters (AHRQ, 2010; Finney Rutten et al., 2006; U.S. Department of Health and Human

Services, 2003). The greatest emphasis has been on promoting high quality patient-provider interactions through the provision of "patient-centered care." This type of care is defined as:

> Health care that establishes a partnership among practitioners, patients, and their families (when appropriate) to ensure that decisions respect patients' wants, needs, and preferences and that patients have the education and support they need to make decisions and participate in their own care [and it is] supported by good provider-patient communication so that patients' needs and wants are understood and addressed, and patients understand and participate in their own care (AHRQ, 2010, p. 110).

To this end, Finney Rutten et al. (2006) discuss three major communication goals that have been recommended as aims for healthcare providers, including "establish a good interpersonal relationship, facilitate information exchange, and facilitate patient involvement in decision making" (p. 136). Reflective of a patient-centered communication approach, these goals have been shown to promote trust and actually improve patient health outcomes (Finney Rutten et al., 2006; Kraetschmer et al., 2004).

One of the major aims of Healthy People 2010 was to improve health communication through increasing the quality of patient-provider interactions. This aim also carries over to Healthy People 2020 (U.S. Department of Health and Human Services, 2003, 2011). Four specific behaviors displayed by HCPs during clinical encounters have been identified by the Agency for Healthcare Research and Quality (AHRQ) for measuring progress toward this goal, including listening carefully to the patient, explaining things in a way that can be understood by the patient, showing respect for the patient, and spending enough time with the patient (U.S. Department of Health and Human Services, 2011). The largest health communication survey projects in the U.S., namely the Annenberg National Health Communication Survey (ANHCS,

2010) and the Health Information National Trends Survey (NCI, 2009) used for the current study, use these behaviors as criteria for measuring the quality of interactions that patients have with HCPs. Five HINTS questions that assess the quality of patient interactions with HCPs from the patient's perspective were used in the current study as an index of the quality of past interactions with HCPs. (See the Methods section for the list of questions.)

Patient factors associated with quality of interactions with HCPs. Characteristics of patients that have been found to be associated with *higher* quality of interactions with HCPs include race concordance between patient and physician, having health insurance, and having a usual source of medical care (Blanchard & Lurie, 2004; Finney Rutten et al., 2006). On the other hand, factors that have been found to be correlated with *lower* quality interactions with HCPs include racial minority status, male gender, lower educational level, patient's perceived discrimination by HCPs, poor self-perceived health status, and the presence of depression symptoms (Blanchard & Lurie, 2004; Finney Rutten et al., 2006; Johnson, Roter, Powe, & Cooper, 2004).

Regarding race, Blanchard and Lurie (2004) found that Blacks, Hispanics, and Asians in their sample were more likely than Whites to report being treated with disrespect by their HCP and to attribute it to their race or language. However, a limitation of this study is that it did not include any information on race concordance between the participants and their physicians. This should be examined in future studies, as perceived disrespect may still occur in cases where both physician and patient are of the same (minority) race. In the same study, men were more likely than women to report lower quality interactions with HCPs, and this effect was particularly pronounced among Asian and Hispanic men, more so than among Black and White men.

Low literacy may also affect the quality of interactions with HCPs in a negative manner

(HRSA, 2010; Marcus, 2006). For example, patients who are illiterate or who have low literacy may feel embarrassed during encounters with clinicians and intimidated by HCPs, which can be detrimental to the quality of their interactions with HCPs (Marcus, 2006). Thus, there is considerable evidence that characteristics that patients bring to the HCP-patient relationship contribute to its quality.

HINTS data are available regarding participants' race/ethnicity and gender. Therefore, these two characteristics were examined in this study as potential moderator variables in the relationship between the predictor variable of quality of interactions with HCPs and the mediator variable of trust in HCPs. Based on prior findings reported in the literature, it was expected that both minority race/ethnic groups and male patients *may* have lower quality interactions overall with HCPs than White and female patients, respectively. The prior findings also suggest that minority and male patients may be *affected more strongly* by negative interactions with HCPs than are White and female patients. Therefore, race and gender may interact with quality of prior experiences with HCPs in affecting patients' levels of trust in HCPs (a moderation effect), which in turn contributes to their likelihood of engaging in HCP avoidance. It is likely that beyond those patient characteristics that were tested here that there are a variety of others (e.g., personality characteristics) that also influence the relationship between quality of interactions with HCPs and healthcare avoidance; these should be examined in future research.

Implications of quality of interactions with HCPs for health. As mentioned earlier, HCP behaviors such as listening carefully to a patient or showing respect contribute to high quality patient-provider interactions. Overall, these HCP behaviors have been found to occur at high frequency levels in several studies (Finney Rutten et al., 2006; Ok, Marks, & Allegrante, 2008; Silk, Westerman, Strom, & Andrews, 2008; Stewart et al., 2000). However, as argued by

Ok and colleagues (2008), most U.S. patients report that these key HCP communication behaviors do not "always" occur during clinical encounters. This leaves room for continued improvement, which may lead to health benefits for patients including decreased healthcare avoidance and reductions in health disparities. One such benefit is trust. Indeed, based on several studies it is clear that high quality interactions with HCPs lead to patients having high levels of trust in their providers (Finney Rutten et al., 2006; Halbert, Armstrong, Gandy, & Shaker, 2006; Torke et al., 2004). Consequently, trust in HCPs was tested as a potential mediator between quality of interactions with HCPs and avoidance of HCPs.

Other benefits of high quality interactions with HCPs include higher treatment participation rates (and in turn lower treatment avoidance rates), adherence to treatment, and health status. For example, Beach et al. (2006) found that HIV patients who reported patient-centeredness between them and their HCP, specifically those who agreed that "my HIV provider really knows me as a person," had significantly higher rates of beginning an HIV treatment regimen, adherence to the regimen, and favorable HIV management outcomes at four weeks post study interview. Additionally, in their study of the health benefits of patient-centered care Stewart et al. (2000) found other positive outcomes among patients who reported high levels of patient-centered care from their family physicians, including better recovery rates and reduced post-encounter diagnostic tests. However, it is important to note that they did not find the same significant health benefits when they measured patient-centered care with researchers' observational ratings. Stewart et al. (2000) suggested that "observable [HCP] skills are not as important as patient perceptions" (p. 800). Thus, a strength of the present study is that the quality of interactions with HCPs was measured from the participant (patient) perspective.

Whereas *high* quality interactions with HCPs have been shown to produce patient benefits including higher treatment participation rates, conversely there is evidence that *low* quality interactions with HCPs may be associated with a major negative consequence for patients, namely greater healthcare avoidance. For example, Federman et al. (2001), who completed one of the only recent studies examining healthcare avoidance in a clinical setting (in the context of a primary care facility), found that patients' perceptions that their HCP did not listen to their concerns during previous clinical encounters were predictive of their subsequent avoidance and unwillingness to return to general internal medicine practices. Furthermore, they found that patients' dissatisfaction with visit duration also predicted later avoidance. In another example, as mentioned earlier Blomberg and colleagues (2008) conducted a qualitative study and found a similar phenomenon with women in Sweden, who reported avoiding free, publicly available cervical cancer screenings due to previous negative interactions with HCPs associated with the program. Their qualitative data revealed themes including disrespect, degrading treatment, and patients feeling as though they were part of an assembly line and had been "herded" through the screenings "like cattle" that contributed to their avoidance of future screenings. These studies provide evidence that low quality interactions with HCPs can lead to subsequent healthcare avoidance.

Low quality interactions with HCPs may put members of racial/ethnic minority groups at particular risk for healthcare avoidance. For example, Blanchard and Lurie (2004) examined the impact of low quality interactions on health behaviors and found that ethnic minorities were significantly more likely to report being disrespected or "looked down upon" during clinical encounters with HCPs. These negative experiences had implications for HCP avoidance, as the participants who thought they would have been given better treatment if they were of a different

race had significantly higher levels of treatment non-compliance and delaying care. Moreover, there is evidence from the perspective of HCPs that racial/ethnic minorities may be more likely than Whites to experience low quality interactions with HCPs. In their study of the effect of patient race on physicians' perceptions of patients, van Ryn and Burke (2000) found that African American patients were significantly more likely to be rated as less intelligent and at risk for noncompliance with treatment and substance use than White patients, even after controlling for demographic variables (age, gender, income, and education). Additionally, HCPs in this study were significantly less likely to report "affiliative feelings" toward their African American patients than toward their White patients; this particular item was measured using levels of agreement with the Likert scale item "This patient is the kind of person I could see myself being friends with" (van Ryn & Burke, 2000, p. 816). In response to differential treatment and interaction quality, it has been found that Hispanics may attempt to overcome previous negative experiences with HCPs by seeking out HCPs of the same race and/or gender, and who reflect their specific cultural values of confianza (trust) and personalismo (personalized caring) (Larkey et al., 2001). Such findings call attention to differences that may exist between race/ethnic groups in their quality of interactions with HCPs, and given that this quality has been shown to influence health outcomes, there may be differing implications in this area for minority patients.

The purpose of the current study was to investigate determinants of healthcare avoidance among the U.S. population. Overall, the literature in this area suggests that the higher the quality of interactions between patients and HCPs, the lower the likelihood of healthcare avoidance. Thus, this inverse association between quality of interactions with HCPs and the likelihood of patients' healthcare avoidance was one of the hypotheses tested in the current study using the HINTS 2007 data. Next, is a presentation of recent literature on two additional key variables,

trust in HCPs and health self-efficacy, that may influence healthcare avoidance but that previously have been understudied in relation to healthcare avoidance.

Trust in HCPs

As described earlier, patient trust in HCPs is a health-related perception held by patients regarding the patient-provider relationship. This cognitive variable may operate in two main ways to influence healthcare avoidance – it may interact with or result from patients' past health experiences with HCPs to produce healthcare avoidance outcomes. In the current study, trust in HCPs was examined as a mediator in the relationship between the independent variable, quality of interactions with HCPs, and the dependent variable, healthcare avoidance. This section provides a literature review of trust in HCPs beginning with its definition and measurement.

Definition and measurement of trust in HCPs. There are many conceptualization and measurement issues found in the literature regarding trust between health care consumers and HCPs. Trust is recognized as a critical component of the medical care system, particularly that within the doctor-patient relationship. Trust between patients and HCPs has been summarized as "an expectation that medical care providers (physicians, nurses, and others) will act in ways that demonstrate that the patient's interests are a priority" (Halbert et al., 2006, p. 896). Trust in this context has been carefully examined and broken down in several ways in the literature. For example, in an essay arguing that trust has become a "scarce medical resource," Illingworth (2002) outlines a number of ways that trust in this relationship can be viewed. One view focuses on trust in one's physician as a product of the combination of several patient-related factors, including his or her beliefs about the physician's motives, personal history (including childhood experiences, such as experiencing child abuse, which may lower general trust levels in others), and past health care system experiences. Thus, the patient's trust in HCPs depends on his or her

perceptions, particularly regarding interactions with HCPs and the entire system of healthcare. However, Illingworth (2002) points to another way to view trust in the doctor-patient relationship originally proposed by Zaner (1991), which is to view it as "unavoidable." In this view of trust, a healthcare consumer is in effect forced to trust HCPs to a great extent because his or her health depends on the expertise of HCPs who possess valuable knowledge and skills not possessed by most patients. The main difference between the two concepts appears to be based on relative levels of power in the patient-HCP relationship. In the former view of trust presented by Illingworth (2002), trust primarily depends on characteristics of the consumer (e.g., the patient's childhood experiences), such that even the most competent and trustworthy HCPs may not be fully trusted by a consumer. In the latter view, trust is based on the great power that HCPs have over consumers by virtue of possessing special expertise and control over access to medical treatments (Zaner, 1991).

Similarly, other scholars have differentiated between "blind trust" and "informed trust" between health care consumers and HCPs (Akerkar & Bichile, 2004; Kraetschmer et al., 2004). Blind trust is given to HCPs based on little or no information about key factors like their background, their ability to act responsibly and effectively provide medical care, or the health issue at hand (e.g., causes, available treatment options). Instead it is based on patients' assumptions that individuals who have achieved professional status have expertise upon which one can rely. In contrast, informed trust is given in the context of the consumer having credible information about a HCP's background and record, as well as about the health issue for which the consumer is seeking assistance. Kraetschmer and colleagues (2004) found that among a sample of 601 Canadian health care consumers who had received treatment within a teaching hospital, 9% of the patients had low trust, 48% moderate trust, 36% high trust, and 6% blind trust

(considered the highest level) in their HCPs. Blind trust was more likely to occur in females, those with less education, and older participants (those over 65 years old). It was never found among participants younger than 35 years of age and those with post-secondary education. This study also showed how these forms of trust in HCPs shape individuals' roles in making health care decisions. Those patients with lower trust levels in their HCPs were significantly more likely to prefer an autonomous role in making personal healthcare decisions, those with blind trust were more likely to prefer a passive role in healthcare decisions, and those with moderate levels of trust tended toward a shared approach between themselves and their HCP to make decisions (Kraetschmer et al., 2004).

Akerkar and Bichile (2004) argue that major shifts are occurring in the dynamics of the doctor-patient relationship structure in the U.S. and that "blind trust" has shifted toward "informed trust," creating an environment in which the power in these relationships is more shared today between HCPs and patients than ever before. For example, many people are searching for health information online before seeing HCPs and are using the information that they find to research a particular doctor or hospital, ask their HCP questions, request certain tests and medications, and even help make treatment decisions such as getting a second opinion (Akerkar & Bichile, 2004; Hesse et al., 2005). Illingworth (2002) argues that consumers' trust in HCPs has been impaired to some extent by the structure and requirements of managed care organizations and increased numbers of publicized lawsuits against HCPs. It seems reasonable to assume that societal changes in America have led to significant changes in trust levels in HCPs, whether they are qualitative shifts from blind to informed trust, or quantitative shifts toward lower levels of trust. More research is warranted to shed light on the exact nature of these broad shifts.

A somewhat different perspective on forms of trust in the relationship between patients and HCPs is the distinction between "thick" versus "thin" trust. Borrowing from Putnam (2000), Illingworth (2002) describes thick trust as strong and based on frequent, presumably positive interactions, as opposed to thin trust, which is weaker and based on one's capacity to give generalized trust to new contacts. Thus, thick trust is influenced by the characteristics of the HCP, whereas thin trust is based more upon characteristics of the consumer. The concept of thick trust more closely fits the view of the trust variable in the current study. Specifically, this concept helps shed light on the context that may surround the relationship between the independent variable in the current study, quality of interactions with HCPs, and mediator variable, trust in HCPs. For instance, thick trust highlights the fact that even HCPs with substantial medical expertise may not instill trust in patients if they interact negatively with the patients, because high levels of trust are likely to be a function of a history of high quality interactions with HCPs.

Another useful way to conceptualize the trust that patients place in HCPs is offered by Pearson and Raeke (2001), who have argued that individuals' trust in HCPs is different from their trust in other major sources of health information such as families and friends. Although both are based on interpersonal relationships (unlike getting health information from media sources), patient-provider trust involves social trust as well as interpersonal trust. *Interpersonal trust* operates at the individual level and is built as a person has specific interactions with others in his or her life. For example, a patient's interpersonal trust in a particular HCP or in providers in general develops from experiences in which his or her HCP exhibits behaviors such as listening carefully to the patient or showing respect (Finney Rutten et al., 2006; Silk, 2008; Stewart et al., 2000). In contrast to interpersonal trust, *social trust* operates on the larger societal

level, is built collectively through group experiences, and is shaped by forces such as the media (Pearson & Raeke, 2000). For example, many African Americans experienced overt racism, unequal treatment, and negative interactions within the U.S. health care system in the late nineteenth and early twentieth centuries following the abolishment of slavery (LaVeist, 2005). During much of this time period, "Jim Crow" laws led to medical facilities designed to be "separate, but equal" for Blacks and Whites, although the facilities and quality of care offered to Blacks were generally poorer. Along with this unequal care – which led to lower levels of Black Americans' social trust in the medical system – the media may have contributed to maintaining this system of care by promoting the myth that services were in fact "separate, but equal" and that Blacks were receiving adequate care. Today, Black race in particular continues to be a predictor of mistrust in the medical system (e.g., Brandon, Isaac, & LaVeist, 2005) and of patients reporting disrespectful treatment by HCPs that they attribute to race (e.g., Blanchard & Lurie, 2004). This demonstrates the important role that social trust may play in national health behavior trends. Pearson and Raeke (2000) point out that interpersonal trust in patient-provider relationships (i.e., trust at the individual level, based on personal experiences) must be viewed within the context of trends in social trust (i.e., broad group experiences and attitudes) and it is likely the case that both types of trust may produce racial/ethnic group differences in trust in HCPs. Although these specific types of trust were not measured in the current study, race/ethnicity was included as a moderator variable to account for potential group differences in individuals' levels of trust in HCPs that are associated with the quality of their interactions with HCPs. The prior literature suggests that minority group members may be more likely than Whites to respond negatively to negative interactions with their HCPs, and the present study investigated that possibility.

It is clear that there has been considerable focus on trust in HCPs within the scholarly literature. However, there does not appear to be consensus on a definition of trust in the context of HCP-patient relationships. In summary, the conceptualizations from the scholarly literature that are described above demonstrate that trust in HCPs may be considered the product of personal patient factors, an "unavoidable" aspect of these relationships, a factor influenced by amounts of information a given patient has about their HCP ("blind" vs. "informed" trust), or a factor influenced by amounts of experience that a given patient has with their HCP and with others in general ("thick" vs. "thin" trust). For the current study, the concept of "thick" trust, which is based on one's personal interactions and experiences with HCPs, was used to define the variable of *trust in HCPs* because it is the concept most closely represented in the available HINTS question used to measure this variable: *In the past 12 months, how often did you feel you could rely on your doctors, nurses, or other health care professionals to take care of your health care needs?*

Regarding the measurement of trust, there are three main validated instruments that are used to measure patient-provider trust and that are based on many of these conceptions of trust. These include the Trust in Physician Scale (Anderson & Dedrick, 1990), the Primary Care Assessment Survey (Safran, Kosinski, Tarlov, Rogers, Taira, Lieberman, & Ware, 1998), and the Patient Trust Scale (Kao, Green, Davis, Koplan, & Cleary, 1998). These instruments are each designed to measure trust between health care consumers and HCPs from a patient perspective versus that of an HCP or researcher, as there is evidence that patient perceptions are most critical when measuring this type of trust (Stewart et al., 2000). Another instrument, the Wake Forest physician trust scale, was designed to address shortcomings of the earlier instruments concerning

their conceptualizations of patient-provider trust, internal consistency, and utility across various patient populations and types of HCPs (Hall et al., 2002).

Patient factors associated with trust in HCPs. A number of research studies have indicated that patient characteristics that are correlates of high trust in HCPs include age (a curvilinear relationship was found, with the highest trust experienced by the youngest and oldest participants), gender (females report greater trust), educational level (higher levels), race (White), a longer relationship with one's physician, trust in one's managed care organization, having a choice of one's physician, gender concordance with one's physician, and health status (poorer) (Bonds et al., 2004; Brodie, Kjellson, Hoff, & Parker, 1999; Hesse et al., 2005; Kraetschmer et al., 2004; Musa, Schultz, Harris, Silverman, & Thomas, 2009; O'Malley, Kerner, & Johnson, 1999; Pearson & Raeke, 2000; Wiltshire et al., 2011). Although a curvilinear relationship has been found between patient age and trust in HCPs, at least one other study found an inverse relationship in which the trust level decreased with every year increase in patient age (Bonds et al., 2004). Bonds et al. note the lack of consistent research findings in this area and suggest that perhaps trust in patient-provider relationships is related to patient-physician age differential, with higher trust occurring for those patients who have physicians more similar in age to themselves.

Brodie et al. (1999) found that race played a role in trusting HCPs for health information, as Whites were significantly more likely than African Americans to report trusting HCPs as reliable sources of health information (79% versus 63%, respectively). However, it is important to note that other studies have been unable to replicate factors such as race as correlates of level of patient-provider trust (see Pearson and Raeke, 2000 for a review).

Race/ethnicity has received more attention than many of the other patient characteristics for its relationship to trust in HCPs. In addition to the above-mentioned finding by Brodie and colleagues (1999), another study in this area conducted by Halbert et al. (2006) found that African Americans had significantly lower levels of trust in HCPs than White Americans, even after accounting for socio-demographic factors (e.g., marital status, education). Nearly 45% of the African Americans in their sample reported low trust in HCPs compared to 33% of Whites. Overall, they found that the three most significant predictors of having low trust in HCPs were African American race, lower quality interactions with HCPs, and receiving medical care somewhere other than a physician's office such as a health clinic or hospital emergency department (Halbert et al., 2006). The major predictor of low trust in HCPs among African Americans was low quality interactions with HCPs. This provides more support for the use of race/ethnicity as a potential moderator variable in the relationship between quality of interactions with HCPs and trust in HCPs, as it is used in the current study. Surprisingly, none of the sociodemographic variables included in the study (gender, marital status, education, income level, and health insurance status) was associated with trust levels for African Americans. Predictors of low trust in HCPs for White Americans included low quality interactions with HCPs, but also lack of health insurance and fewer annual healthcare visits. Additionally, being female and having lower levels of education were found to be significantly associated with lower trust levels among White Americans (inconsistent with previously mentioned studies showing that females have higher trust levels), although the strength of the relationship was low. Thus, in this study sociodemographic variables were not strong predictors of trust in HCPs among either racial group.

Gender has received considerably less attention for its relationship to trust in HCPs. Male patients have been found to have lower overall trust levels in HCPs, and female patients have been found to be more likely to have "blind" trust in HCPs (Bonds, 2004; Kraetschmer et al., 2004; Wiltshire et al., 2011). It is widely accepted that the quality of interactions with HCPs affects individuals' trust levels in HCPs, but evidence regarding gender as a possible moderator between these two factors is very limited. One recent study, however, examined possible gender differences and whether there are factors that differentially predict trust in HCPs for men versus women. Wiltshire and colleagues (2011) examined data from a large household survey dataset and found that men were less trusting overall of HCPs than were women, and that unique factors were associated with their trust in HCPs (living in a rural setting and having no doctor's appointment within the past year) versus for women whose unique factors included low income and poorer health status. The Wiltshire et al. study only included African American men and women, but it provides at least some information about potential gender differences in factors influencing trust in HCPs. Considering the lack of consistent findings in the literature regarding the relationships between trust in HCPs and demographic variables such as race and gender, there is a great need for further studies in this area to help clearly determine how these factors operate together. In the current study, participant race and gender were tested as potential moderators of the relationship between quality of interactions with HCPs and trust in HCPs.

Implications of trust in HCPs for health. So why does patients' trust in HCPs matter in general and in particular for healthcare avoidance? In general, many studies have shown clear health benefits to having trust in one's HCP, including the reduction of unexpected death and medical complications, lower levels of physical discomfort, lower levels of post-encounter concern, better mental health status, better recovery, and reduced post-encounter diagnostic tests

and referrals (Bechel et al., 2000; Stewart et al., 2000). For example, Ling, Klein, and Dang

(2006) found that trust in HCPs was the most significant factor in being up to date on colorectal

cancer screening recommendations among a sample of participants aged 50 and over. Another

medical benefit of trust is that it promotes information exchange between patients and doctors,

allowing for more accurate treatment decisions (Finney Rutten et al., 2006). And as discussed

previously, trust in one's HCP may even shape the role and amounts of responsibility that

patients take in making treatment decisions (Kraetschmer et al., 2004). Furthermore, trust may

be a key factor in keeping a patient emotionally motivated throughout treatment, as demonstrated

by this quote from an older African American health consumer:

> I like to trust someone, especially dealing with my life. Most of all I trust God, he is the
>
> highest over everything, but I have a nice doctor, I trust him and believe in what he says.
>
> He breaks it down to me where I can understand what is going on with my body or
>
> whatever. Just tell me the truth. I think I can survive just about everything if somebody
>
> is honest with me (Torke et al., 2004, p. 528).

Given these findings, it is clear that high trust in the context of healthcare is critical and

may improve medical outcomes. However, low trust levels likely develop from low quality

interactions with HCPs, and when trust in HCPs is low, health needs may be neglected and

disease symptoms may go untreated. Findings from previous studies (Blomberg, et. al., 2008,

Federman et al., 2001) make it clear that low quality interactions with HCPs contribute to

individuals' subsequent healthcare avoidance, but it remains unclear exactly how these low-

quality interactions are interpreted by patients that results in the healthcare avoidance. It is

reasonable to suspect though that there may be a mediation process occurring in which the

participants' prior negative experiences with HCPs led to lower trust in HCPs, which in turn led

to avoidance. Thus, trust in HCPs may operate as a mediator between lower quality interactions with HCPs and subsequent healthcare avoidance. Illingworth (2002) goes so far as to argue that any factors that diminish or threaten doctor-patient trust pose harm not only to an individual, but to his or her community as well. In the present study trust in HCPs was viewed as an individual-level perception that may decrease the likelihood that people will avoid HCPs. This hypothesized cognitive mediation model proposes that when trust in HCPs is controlled statistically, the association between individuals' quality of interactions with HCPs and their HCP avoidance will be reduced significantly or become non-significant.

Health Self-Efficacy

The current study took into account health self-efficacy for its potential as a predictor of individuals' HCP avoidance. The following is a review of literature on health self-efficacy, including what is currently known about its relationship to healthcare avoidance.

Definition and measurement of health self-efficacy. *Self-efficacy* can be defined as personal confidence in one's ability to perform or overcome barriers to particular behaviors (Bandura, 1977a). Within Bandura's widely applied Social Learning Theory, it is proposed that "expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences" (Bandura, 1977a, p. 191). In other words, one's personal *efficacy expectancies* affect how one will react to challenges, specifically health-related challenges in the case of the current study. As described earlier, in addition to efficacy expectancies, Bandura's (1977b) Social Learning Theory defines the concept of *outcome expectancies* as the expectation that a certain behavior will produce a certain outcome. Efficacy and outcome expectancies are thought to work in tandem to influence how individuals react to challenging situations.

However, the current study focused solely on efficacy expectancies as they relate to health self-efficacy, due to the HINTS data available to measure self-efficacy. In general, self-efficacy has been found to affect many different areas of life functioning. Some of the key areas include expectations (e.g., of one's abilities), attitudes (e.g., optimism, pessimism), perceptions (e.g., of barriers), emotions (e.g., depression), and actions (e.g., initiating effort) (Bandura, 2006). Furthermore, measures of self-efficacy are generally not global, but rather tend to be tailored to certain life domains.

Several researchers have noted the lack of consistency and agreement over how to define and measure self-efficacy as it relates to health (Maibach & Murphy, 1995; Smith, Wallston, & Smith, 1995). However, in many previous studies, self-efficacy in the health domain has been measured in terms of self ratings of one's perceptions of their ability to successfully take health-related actions, perform health behaviors, or reach health goals (Arora et al., 2002; Gebhardt, van der Doef, & Paul, 2001; Smith et al., 1995) which encompasses both the efficacy and outcome expectancies defined in Bandura's (1977b) Social Learning Theory. Indeed, healthcare self-efficacy has also been referred to as *health competence*, defined as "an individual's generalized expectancy regarding the ability to interact effectively with the environment in order to obtain the desired outcome; i.e., to be healthy" (Tromp et al., 2005, p. 666). One specific measure of health self-efficacy is the widely used Perceived Health Competence Scale (PHCS), which has rating scale items such as "I am able to do things for my health as well as most other people" and "I'm generally able to accomplish my goals with respect to my health" (Smith et al., 1995). Similarly, the Revised Health Hardiness Inventory (RHHI-24) includes a subscale that measures *perceived health competence*, which is self-efficacy specifically in the context of health. It also includes items (with five possible response options ranging from "strongly disagree" to "strongly

agree") such as "I find efforts to change things I don't like about my health are ineffective" and

"It is difficult for me to find solutions to health problems that come my way" (Gebhardt, van der

Doef, & Paul, 2001, p. 591). The HINTS survey used in the current study measures self-efficacy

with a single question "*Overall, how confident are you about your ability to take good care of*

your health?" This only encompasses the efficacy expectancies aspect of health self-efficacy

(i.e., one's expectancies regarding one's ability to perform health-related actions) and not the

outcome expectancies aspect (i.e., expectancies regarding the health outcomes of one's actions).

  Patient factors associated with health self-efficacy. Age, personality factors, health

status, health information use/knowledge, and family household influences are all factors that

have been found to be correlated with or predictive of individuals' health self-efficacy levels.

Using the PHCS, Gebhardt et al. (2001) examined correlates of health competence, or health

self-efficacy, across three different samples including college students, adults, and adults with a

chronic health condition. Their findings provide valuable information about the patient

correlates of health self-efficacy. There was evidence that among healthy adults (i.e., those with

no chronic health conditions), younger adults (ages 18–23) have higher health self-efficacy

levels than older adults (ages 26–65). Furthermore, those with active rather than passive coping

styles in relation to pain management had significantly higher levels of health self-efficacy.

According to this study, examples of active pain coping strategies were "carrying on despite

pain" or "distracting oneself from pain" whereas examples of passive coping strategies were

"taking to bed" and "praying." Gebhardt et al. (2001) also found that those with a more positive

approach to life and higher levels of psychological well-being were more likely to have higher

levels of health self-efficacy than those with lower levels of well-being (e.g., higher presence of

negative affect or depression symptoms). Finally, they found that people with chronic health

conditions (e.g., rheumatoid arthritis) had lower health self-efficacy levels than healthy individuals. It is important to emphasize that all of the relationships among these factors were correlational, and that various health self-efficacy levels have not been shown to *cause* various health conditions or vice versa.

Additionally, some studies have examined predictors of health self-efficacy. For example, one study examining predictors of dietary beliefs and behaviors in adults and children in the same households found that predictors of health self-efficacy levels differ somewhat between adults and children (Rimal, 2003). Health information use and health knowledge predicted self-efficacy levels for adults, and health knowledge and self-efficacy levels of household adults predicted said levels for children. The latter finding suggested a transmission process of health self-efficacy levels across generations. In another more recent study it was shown that health self-efficacy levels, specifically for asthma self-management, were significantly higher among those who were participants in an intervention program that delivered asthma education and home visits by community health workers versus those who only received asthma educational materials (Martin et al., 2009).

Implications of self-efficacy for health. Self-efficacy is considered a critical factor in shaping health behaviors and may include confidence in one's ability to care for one's personal health as well as the health of one's family. Indeed, it is included in health behavior and information seeking theories (e.g., the Health Belief Model and Wilson's Model of Information Behavior) as a prime factor in determining coping health behaviors that individuals engage in to respond to symptoms (Case et al., 2005; NCI, 2005). Those with higher health self-efficacy levels also are more likely to engage in *preventive* health behaviors (e.g., exercise, contraceptive use), self-care activities (e.g., relaxation), experience more positive health outcomes (e.g., faster

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recovery from illness), and report better health status and lower susceptibility to illness than those with lower health self-efficacy levels (Arora, 2002; Gebhardt et al., 2001; Gecas, 1989; Smith et al., 1995). Furthermore, self-efficacy is considered a component of the overarching concept of *health-related hardiness* that includes commitment, perceptions of control, and a positive approach to health-related activities. At higher levels health-related hardiness is found to increase health promoting behaviors (Tromp et al., 2005). Curtin and colleagues (2008) found that adult patients with chronic kidney disease who had higher levels of self-efficacy engaged in better disease management behaviors, including greater communication and partnership with caregivers, self-care, and medication-adherence. Ni et al.'s (1999) study of adults with congestive heart failure found that those with lower self-efficacy levels had lower adherence to disease treatments compared to those with higher self-efficacy.

In addition to the impact that individuals' self-efficacy levels have on their health management behaviors, it also is important to determine the degree to which health self-efficacy is specifically related to avoidance of HCPs. Findings from some studies suggest that greater self-efficacy is associated with greater health healthcare avoidance, albeit in an indirect manner. For example, "self-treating," a behavior that may result from high self-efficacy levels, was found to increase the likelihood of healthcare avoidance in patients experiencing cardiac symptoms (Moser et al., 2006). Similarly, self-treating with home remedies was found to increase healthcare avoidance among Hispanic Americans who were experiencing symptoms of cardiovascular disease, diabetes, or cancer (Larkey et al., 2001). Furthermore, Blomberg et al. (2008) found that belief in one's own ability to detect disease symptoms increased the likelihood of healthcare avoidance. These self-treating behaviors and belief in one's own ability to diagnosis symptoms may stem from high self-efficacy levels, although these studies did not

directly assess health self-efficacy. Thus, these studies are only suggestive that higher health self-efficacy levels may lead patients toward more healthcare avoidance. A more direct test of that relationship is needed and the present study was designed to provide such a test.

Case et al. (2005) point out that self-efficacy can act as either a motivating or inhibiting factor in seeking information about one's own health, which would include visiting a HCP when the need to do so arises. After controlling for factors such as health insurance status and income, this may very well depend in part on the inference that one makes about seeing a HCP (e.g., "Is seeing a HCP the best course of action that I could take for my health at this time?"). In spite of the prior findings that individuals who engage in more self-treating behavior are less likely to seek assistance from HCPs, the broader body of findings shows that those with greater health self-efficacy levels engage in more positive health management which suggests that those with higher health self-efficacy levels will be less likely to avoidance HCPs. Thus, in the present study it was hypothesized that high health self-efficacy would be directly associated with less HCP avoidance. Low self-efficacy levels, which indicate that one is not confident in one's ability to take health-promoting actions such as seeing a HCP when needed or taking further health-promoting actions that may be required after seeing a HCP, were expected to be associated with higher levels of HCP avoidance. Although this is a reasonable hypothesis, the prior findings cited above indicating that individuals who engage in self-treatment seek less assistance from HCPs suggest that higher self-efficacy levels may lead individuals to reason that they have their healthcare under control and do not necessarily need to see a doctor even when symptoms arise and they suspect that they should. However, the present investigator expected that this scenario was not as likely to occur, and that overall high self-efficacy would be associated with less avoidance of HCPs.

In summary, the purpose of the current study was to investigate determinants of individuals' healthcare avoidance among a sample of insured U.S. adults. The main research questions were as follows:

- To what extent do quality of interactions with HCPs, trust in HCPs, and health self-efficacy predict HCP avoidance?

- Do individuals' levels of trust in HCPs mediate the relationship between the quality of interactions with HCPs and HCP avoidance?

- Do patient race/ethnicity and gender moderate the relationship between quality of interactions with HCPs and trust in HCPs?

Based on the literature review, it was expected that better quality of interactions with HCPs, trust in HCPs, and health self-efficacy would all be significant predictors of less HCP avoidance. It was also expected that trust in HCPs would act as a significant mediator in the relationship between quality of interactions with HCPs and HCP avoidance. Finally, race/ethnicity and gender were expected to moderate the relationship between quality of interactions with HCPs and trust in HCPs.   The following Method chapter details the data source, sample, and measures that were used to investigate those research questions.

Chapter 2: Method

Data Source

The current study involves secondary analyses of data from the Health Information National Trends Survey (HINTS) of the National Cancer Institute (NCI, 2009). HINTS is a nationally representative dataset based in the United States, primarily containing information about trends and changes in citizens' sources and use of health information for both themselves and others such as family members and friends. Data were collected in 2003, 2005, and 2007. Data for the current study came from the 2007 wave, which were actually collected between January and April of 2008.

Approximately half of the individuals in the 2007 HINTS sample were recruited via telephone, using random digit dial (RDD) and interviewed via a computer-assisted telephone interview. The other half of the 2007 sample was recruited randomly using a comprehensive national listing of addresses available from the United States Postal Service. This half completed the survey through the mail as a pencil and paper questionnaire. Participants who were contacted were told that they were randomly selected from U.S. households and were being contacted on behalf of the U.S. Department of Health and Human Services for a national study on people's needs for health information. They were informed that their participation was needed but voluntary, and that they could refuse to answer any questions or withdraw from the study at any time. Participants were also informed that all information obtained would be kept confidential. The overall weighted response rates for the 2007 wave of HINTS were 24.23% for the RDD surveys and 30.99% for the mailed surveys (NCI, 2009).

Sample

The full sample of the HINTS 2007 wave consisted of 7,674 participants. Of the full sample, approximately 88% indicated having seen a healthcare provider within the last 12 months ($n = 6,748$). This sub-sample was selected for analysis in the current study because only those individuals had completed the HINTS questions regarding the quality of their interactions with healthcare professionals, a key variable in this study.

Of this sub-sample of 6,748 individuals who had seen a healthcare provider within the last 12 months, 5.6% of them had missing data for *quality of interactions with HCPs*, 1.2% for the index of *HCP avoidance*, 1.7% for their report of degree of *trust in HCPs*, and 1.5% for the index of their sense of *self-efficacy*. Given that the portions of cases containing missing data were low for all of the study variables, a list-wise deletion procedure was performed to omit all cases that were missing data for one or more of those study variables. This procedure omitted 7.6% of the 6,748 cases ($n = 516$), with 92.4% of the cases ($n = 6,232$) retained for the final sample.

Analyses were conducted in order to determine whether the 516 omitted cases significantly differed from the 6,232 cases that would be used in this study. First, a grouping variable was constructed to create two groups of cases, one containing all of the 516 cases that were missing data on one or more of the main study variables and the other containing the remaining 6,232 cases that had full data for all of the main study variables. This grouping variable was then used to conduct independent sample *t*-tests and chi-square tests in order to determine whether these two groups differed from one another on responses to the HINTS variables of interest and demographic variables. Independent sample *t*-tests were conducted for the continuous variables including one demographic variable (age) and the main study variables

(quality of interactions with HCPs, HCP avoidance, trust in HCPs, and self-efficacy). Chi-square tests were conducted for the categorical demographic variables including race, gender, marital status, and household income. Results of these analyses showed that there were no statistically significant differences between the groups in regard to the main study variables, including quality of interactions with HCPs ($t = -1.95$, $p = .051$), HCP avoidance ($t = -0.16$, $p = .873$), trust in HCPs ($t = -1.53$, $p = .127$), and self-efficacy ($t = 1.32$, $p = .186$). Likewise, there were no significant differences found for the demographic variables of gender (χ^2 (1) = .29, $p = .589$) and race/ethnicity (χ^2 (4) = 6.44, $p = .169$). Results of these analyses showed that the groups were significantly different with respect to age ($t = 8.39$, $p < .001$), educational attainment (χ^2 (4) = 20.22, $p < .001$), household income (χ^2 (4) = 24.31, $p < .001$), and marital status (χ^2 (3) = 43.88, $p < .001$). However, given the large sample used for these tests, providing a high level of power for detecting effects, p values were considered an insufficient criterion for concluding that the deleted group of cases was meaningfully different from the group of study cases on the relevant variables.

Consequently, the effect sizes for group differences also were examined for these particular variables. The effect size for age as indexed by Cohen's d was 0.37. Cohen's phi values were used to examine effect sizes for the categorical variables of education ($\Phi = .06$), household income ($\Phi = .07$), and marital status ($\Phi = .08$) that were tested with χ^2 tests. Overall, effect sizes showed that the group differences on these variables were of small magnitudes.

Further analysis was conducted for the *quality of interactions with HCPs* index, because 376 of the 516 cases with *any* missing data were missing data specifically on quality of interactions with HCPs. This was found to be largely due to approximately half of the cases failing to answer the item "How often did they [HCPs] help you deal with feelings of uncertainty

about your health or health care?" that was included this variable's index. Therefore, a second independent samples *t*-test was conducted to test for a significant difference in quality of interactions with HCPs between the two groups, using only four items for the interactions with HCPs composite scale, omitting the item for which there was a large portion of missing data. Results of this *t*-test revealed no significant difference in quality of interactions with HCPs between the omitted and retained cases. The groups did not differ in their reports of the quality of their prior interactions with HCPs. In addition, results for the Cronbach alpha for the five items assessing interactions with HCPs (.88) and the item-total correlations indicated strong associations among all five of the interactions with HCPs items (including the item asking how often HCPs helped the individual deal with feelings of uncertainty about health or health care). Consequently, this investigator concluded that it is justified to retain all five items on this scale for this study's analyses.

Based on all of the above analyses, the author determined that there are likely no clinically significant differences between cases for which there are missing data on one or more of the main study variables and those cases with complete data. Thus, these 6,232 participants from the 2007 HINTS were retained for the sample for this study.

At this point the sample was further refined based on individuals' health insurance status. Of the 6,232 participants who had the appropriate scores for inclusion in this study, 5,639 (90.5%) of them reported having some type of health insurance coverage, 524 (8.4%) reported having no type of health insurance, and 69 (1.1%) had missing data for this variable. The 539 participants who reported having no type of health insurance coverage or were missing data for this variable were eliminated from the sample in order to meet one of the study objectives of examining the occurrence of healthcare avoidance among those with access to healthcare. Thus,

the final sample whose data were analyzed in the present study consists of participants with complete data for all of the main study variables *and* who reported that they both had seen a HCP within the last 12 months and have some form of health insurance. This sample consisted of 5,639 participants and represents 83.6% of the cases from the 2007 HINTS sub-sample of participants who indicated that they had seen a HCP within the last 12 months ($n = 6,748$) and 73.5% of cases from the entire 2007 HINTS sample ($n = 7,674$). It was expected that findings from the final sample of 5,639 would be generalizable to the larger sample of 6,748 individuals who had seen a HCP within the last 12 months but may have been missing data for key study variables.

The sample used for this study contained participants ranging from 18 to 96 years of age, with a mean age of 55 years ($SD = 16.7$) and median age of 56. Among these participants, 63% were females and 37% were males. With respect to race, the majority of participants (74%) were White. The remainder of the sample was 8% Black/African American, 6% Hispanic, 2% Asian, and 3% "other" (which includes participants who reported their race as American Indian, Alaska Native, Native Hawaiian, Pacific Islander, or multiple races). With respect to education, 67% of the sample reported having college education, including either some college, a college degree, or higher (e.g., a master's degree), whereas those reporting a high school diploma as their highest educational attainment represented nearly a quarter of the sample (23%). Nearly half of the sample (47%) reported a household income of $50,000 or higher. With respect to occupation, nearly half (49%) reported their status as "employed." Finally, regarding marital status more than half (59%) reported their marital status as "married" or "cohabitating." Table 1 summarizes the demographic characteristics of the sample.

Table 1 – Demographic Information for the Final Sample

	n = 5,639	% of Sample
Age		
18 – 34	720	12.8%
35 – 49	1268	22.5%
50 – 64	1824	32.3%
65 – 74	991	17.6%
75+	785	13.9%
Missing*	51	0.9%
Gender		
Male	2083	36.9%
Female	3551	63.0%
Missing*	5	0.1%
Race		
White	4309	76.4%
Black or African American	453	8.0%
Hispanic	352	6.2%
Asian	128	2.3%
Other**	153	2.7%
Missing*	244	4.3%
Level of Education		
Less than high school	389	6.9%
High school graduate	1290	22.9%
Some college	1661	29.5%
College degree or higher	2132	37.8%
Missing*	167	3.0%
Income		
Less than $20,000	695	12.3%
$20,000 – less than $35,000	739	13.1%
$35,000 – less than $50,000	664	11.8%
$50,000 – less than $75,000	957	17.0%
$75,000 or more	1697	30.1%
Missing*	887	15.7%
Employment Status		
Employed	2764	49.0%
Unemployed	147	2.6%
Homemaker	472	8.4%
Student	143	2.5%
Retired	1574	27.9%
Unable to work, Disabled, or Other	372	6.6%
Missing*	167	3.0%
Marital Status		
Married or Cohabitating	3343	59.3%
Divorced or Separated	776	13.8%
Widowed	652	11.6%
Never married	694	12.3%
Missing*	174	3.1%

Note: Total percentages may be above or below 100% due to rounding.
* Includes no available data and those recorded as "refused" or "do not know" for a given demographic variable.
** American Indian, Alaska Native, Native Hawaiian, Pacific Islander, & participants reporting multiple races.

The sub-sample from the 2007 HINTS that was used in the present study is demographically similar to the general U.S. population in many ways. First and foremost, even though the sample for the current study was composed entirely of individuals who have some type of health insurance coverage, whether it is public or private insurance, it is important to note that among the entire 2007 HINTS sample, approximately 17% of participants report having no health insurance of any type, and this is nearly identical to the current rates of persons within the U.S. population who report no coverage of any type (16% in 2010) (U.S. Census Bureau, 2010a). With respect to education, the 2010 American Community Survey (ACS) shows that among the current U.S. population, a high school diploma is the highest level of educational attainment for approximately 29% of persons and approximately 28% have attained college education or higher (U.S. Census Bureau, 2010b). These percentages are similar to those in the HINTS sub-sample used for the current study, where the respective figures are 23% and 38%. Regarding income, the median household income in 2010 was $49,445 with approximately 52% of the U.S. households having an income of $50,000 or higher (U.S. Census Bureau, 2010a). This is similar to the number of participants in the current sample who reported a household income of $50,000 or higher (47%). The current sample is somewhat similar to the general U.S. population with regard to marital status, as nearly 14% reported their status as divorced compared to 13% of persons within the U.S. population with the same status in 2010 (U.S. Census Bureau, 2010b). However, comparisons for marital status are difficult to make, because the most reliable current estimates for the U.S. population are provided by the 2010 American Community Survey, which reports marital status data for persons 15 years of age or older, in contrast to the HINTS data set, which begins at age 18. Furthermore, the marital status categories from the 2010 ACS are slightly different than those from the 2007 HINTS. However, based on the available population

data provided by the 2010 ACS, among those 15 years of age and older approximately 49% are married, 13% are divorced or separated, 6% are widowed, and 32% have never married (U.S. Census Bureau, 2010b).

There are, however, some differences between the U.S. population and the current study's sub-sample. Regarding age, the current median age of the U.S. population is 37 years (U.S. Census Bureau, 2010b), which is far younger than the median age of 56 years for the current sample. Regarding gender, the U.S. population is currently 50.8% female, which differs from the current sub-sample, which is 63% female. Regarding race, data from the 2010 U.S. Census (2010a) indicate that the current U.S. population is approximately 64% non-Hispanic White, 13% Black, 16% Hispanic, and 4.8% Asian. Finally, in terms of occupational status, in 2010 approximately 64% of the U.S. population was employed and approximately 35% were not working, including nearly 11% of whom were unemployed (U.S Census Bureau, 2010b). However, for the current sample, only 49% reported their status as employed, and only 3% reported their status as unemployed. The remainder of the sample (45%) reported a status other than employed or unemployed, including "homemaker," student, retired, unable to work, disabled, or "other."

Overall, it was expected that findings from the current study are generalizable to the U.S. population with respect to education, income, and possibly for marital status. However, findings may not be as generalizable with regard to other demographic characteristics such as age, race, gender, and possibly for employment status. Therefore, one must be cautious when drawing conclusions about how these findings apply to the U.S. population. In particular, findings from this study may not as useful when applied to populations with low rates of recent HCP contact and should *not* be applied to populations of persons without health insurance coverage.

Measures

All measures of this study's variables were constructed from the available questionnaire

items within the HINTS 2007 wave. These items and resulting variables were selected based on

guidance provided by Social Learning Theory, which provided information about factors within

the HINTS 2007 data most likely to influence healthcare avoidance. These variables include

quality of interactions with HCPs, HCP avoidance, trust in HCPs, and health self-efficacy.

Independent Variables

One independent variable for this study was *health self-efficacy*, which was assessed with

the following HINTS survey question: *Overall, how confident are you about your ability to take*

good care of your health? This is a continuous variable, and the five Likert scale response

options are: completely confident, very confident, somewhat confident, a little confident, and not

at all confident. Scores for self-efficacy associated with these five responses range from 1 to 5,

and they were reverse coded so that higher scores indicate higher health self-efficacy levels.

A second independent variable for this study was *quality of interactions with HCPs.* This

was assessed using the following five HINTS survey questions: *(1) During the past 12 months,*

how often did doctors, nurses, or other health professionals give you the chance to ask all the

health-related questions you had? (2) How often did doctors, nurses, or other health

professionals give the attention you needed to your feelings and emotions? (3) How often did

they involve you in decisions about your health care as much as you wanted? (4) How often did

they make sure you understood the things you needed to do to take care of your health? (5) How

often did they help you deal with feelings of uncertainty about your health or health care?

Response options for all questions were: always, usually, sometimes, or never. Scores ranged

from 1 for "always" to 4 for "never." Individual scores for each of these responses were reverse

coded so that higher scores indicate higher quality of interactions with HCPs, then combined to create a composite score to represent the quality of interactions with health care professionals for each participant. Thus, total scores for quality of interactions with HCPs range from 5 to 20, with higher scores indicating higher quality interactions with health care professionals as perceived by the participant. The Cronbach alpha for this scale in the present sample was .88.

It is important to note that a limitation of the measures of both independent variables is that they assess the concepts in a relatively non-specific manner. Health self-efficacy was measured based on participants' overall ratings of their ability to take good care of their health, which may encompass a wide range of personal interpretations of "health." Given that health self-efficacy is intended to represent an individual's general efficacy expectancies in the area of self-care, the index used in this study seems appropriate, but the lack of specificity regarding "health" is a potential limitation. Regarding the assessment of quality of interactions with HCPs, this variable was measured fairly broadly, as participants were asked about their experiences over the past 12 months with HCPs with whom they have had contact. However, the items ask about relatively specific types of HCP behavior, which is consistent with the goal of assessing memorable positive or negative interactions that the individual had with HCPs in his or her life.

Dependent Variable

The dependent variable for the current study was *healthcare provider avoidance*. This was assessed with the following survey question: *Some people avoid visiting their doctor even when they suspect they should. Would you say this is true for you, or not true for you?* This is a dichotomous variable with response options of "true" and "not true." It is important to note that there is a limitation with this variable in that it can only capture HCP avoidance among those HINTS participants who have seen a HCP at some point during the prior 12 months. This is due

to the fact that only these participants were asked questions about their interactions with HCPs that were used to construct the independent variable. Those individuals who may have engaged in even higher avoidance of HCPs such that they had no contact with HCPs during the past 12 months could not be included in this study. However, the large majority of the total HINTS survey participants (88%) had HCP contact during the 12 months prior to survey completion. Another noteworthy limitation is that the HINTS data do not differentiate between avoidance of HCPs for preventative care versus treatment of existing conditions, although this would be important for future studies given that avoidance of these two forms of care may have different predictors.

Similar to the limitation regarding the assessments of the independent variables, the measure of the dependent variable of healthcare provider avoidance asks broadly about whether the respondents "avoid visiting their doctor even when they suspect they should." Furthermore, the specificity of this variable's measurement differs from the measure of the quality of interactions with HCPs, in that no time frame is specified in the question used to measure healthcare provider avoidance, whereas the question used to measure quality of interactions with HCPs refers specifically to the past 12 months. Also, only the term "doctor" is used in the question used to measure healthcare avoidance, whereas "doctors, nurses, or other health professionals" are used in the question regarding quality of interactions with HCPs. It is important to consider these differences in the perspectives represented by the measures of the variables when interpreting results of analyses that involve them.

Mediator Variable

The mediator variable that was tested in the current study for its potential to be a pathway between quality of interactions with HCPs healthcare provider avoidance is *trust in HCPs*. This

variable was assessed with one HINTS item: *In the past 12 months, how often did you feel you could rely on your doctors, nurses, or other health care professionals to take care of your health care needs?* This is a continuous variable, and Likert scale response options were: a lot, some, a little, and not at all. Scores ranged from 1 for "a lot" to 4 for "not at all" and were reverse coded so that higher scores indicate higher trust levels in HCPs. This item was chosen to represent the *trust in HCPs* variable because it is the HINTS survey question that best captures participants' self-reported levels of trust in HCPs. The time-frame considered in this variable's measurement is the same as that used in the assessment of the quality of interactions with HCPs, but is more specific than that used in the assessment of health self-efficacy and the dependent variable of healthcare provider avoidance.

Moderator Variables

There were two variables to be tested for their potential to moderate the association between quality of interactions with HCPs and trust in HCPs. These are gender and race/ethnicity. *Gender* is a categorical variable (male or female). *Race/ethnicity* was measured using the following survey question: *Which one or more of the following would you say is your race?* Responses to this question placed participants in the following four categories: (1) Hispanic, (2) White (Non-Hispanic), (3) Black or African American, and (4) Asian. In this study, race categories are collapsed into two: (1) White and (2) minority race (a composite of the other three categories).

Control Variables

The proposed control variables for the present study include: age, education, and income. *Age* was an interval variable measured in years. *Education* was a categorical variable including the following four groups: (1) less than high school, (2) high school graduate, (3) some college,

and (4) college graduate. For this study, these four categories were collapsed into two: (1) non-college graduates (a composite of the first three original categories for this variable) and (2) college graduates. The education variable was dichotomized in this manner because the current sample was generally more educated than the current U.S. population, as approximately 28% of persons within in the U.S. population has a college degree or higher (U.S. Census Bureau, 2010a) versus 38% within the current sample. Therefore, the decision was made to compare those with a college degree to those with less than a college degree (including participants who fell into the "some college" category). Finally, *income* was a categorical variable measured by annual household income and included the following five groups: (1) <$20k, (2) $20k – <$35k, (3) $35k – <$50k, (4) $50k – <$75k, and (5) $75k and over. For the present study, these five categories were collapsed into two: (1) <$50k and (2) $50k and over. The household income variable was dichotomized in this manner because the current median household income in the U.S. is around $50k, with approximately 52% of the U.S. households having an income of $50,000 or higher (U.S. Census Bureau, 2010a). Thus, the decision was made to split the income groups around $50k for the current study. Each of these variables was tested for significant group differences between those who engaged versus did not engage in HCP avoidance to determine their appropriateness to be used as control variables for the current study prior to conducting the main analyses. Results of these group comparison tests are presented in the following chapter (Chapter 3).

Chapter 3: Results

Overview of the Data Analyses

A set of multiple regression analyses were used to test the study hypotheses. As shown previously in Figure 2, quality of interactions with HCPs, health self-efficacy, and trust were treated as a predictor variables, with HCP avoidance as the dependent variable. In addition, trust in HCPs was examined as a potential mediator of the relationship between quality of interactions with HCPs and avoidance of HCPs. First, *HCP avoidance* was regressed simultaneously on *quality of interactions with HCPs*, *health self-efficacy*, and *trust in HCPs*. Then, a stepwise multiple regression analysis was conducted to determine whether *trust in HCPs* mediates the relationship between *quality of interactions with HCPs* and *HCP avoidance*. In the first step, *HCP avoidance* was regressed on *trust in HCPs*, and in the second step *quality of interactions with HCPs* was added to the model and the change in R^2 due to *quality of interactions with HCPs* (controlling for trust in HCPs) was examined and tested for significance.

Finally, to test whether *race/ethnicity* and *gender* operate as moderators of the relationship between quality of interactions with HCPs and trust in HCPs, *trust in HCPs* was regressed on a block of predictors including (1) the *quality of interactions with HCPs*, (2) *race/ethnicity*, and (3) *gender*; and then a second block of predictors including (4) the interaction between *quality of interactions with HCPs* and *race/ethnicity* (a variable constructed as the product of the two variables), and (5) the interaction between *quality of interactions with HCPs* and *gender* (a variable constructed as the product of the two variables). In this hierarchical multiple regression analysis, after the main effects for quality of interactions with HCPs, race/ethnicity, and gender were entered in the first block, the interaction terms were entered to test whether they accounted for significant increases in variance of *trust in HCPs*.

Overall, the control variables (age, education, income) were entered into each of the

above regression models as an initial block of predictors to control for variance that they account

for in the dependent variable.

Descriptive Statistics

Before the analyses testing the study's hypotheses were conducted, descriptive statistics

were computed for all of the variables involved in tests of the study's hypotheses. Tables 2 and

3 present the means and standard deviations for the variables for the total sample and by gender.

Overall, it is shown that health self-efficacy levels were generally high among the sample, with a

mean score of 3.91 (scores range from 1 to 5). Women's and men's mean health efficacy scores,

3.92 and 3.88 respectively, were comparable. Figure 3 displays the percentage of sample

participants at each level of health self-efficacy and indicates that approximately 50% of the

sample reported the second highest level. Furthermore, Figure 4 displays percentages of

participant reports of health self-efficacy level separately by gender, indicating similar reports

for this variable by females and males.

Table 2

Descriptive Statistics for Main Variables for the Total Sample (n=5,639)

Variable	Mean (SD)
Health Self-Efficacy	3.91 (.79)
Quality of Interactions with HCPs	16.71 (3.36)
Trust in HCPs	3.44 (.74)
HCP Avoidance	n/a
% True*	27.1%

Values rounded to the nearest hundredth
*% True = I do engage in healthcare avoidance

Table 3

Descriptive Statistics for Main Variables by Gender

	Women	Men		
	n = 3,551	n = 2,083		
Variable	Mean (SD)	Mean (SD)		
Health Self-Efficacy	3.92 (.78)	3.88 (.80)		
Quality of Interactions with HCPs	16.82 (3.35)	16.51 (3.37)		
Trust in HCPs	3.43 (.74)	3.46 (.73)		
HCP Avoidance	n/a	n/a		
% True*	25.7	29.5		
t-test	*t*	*df*		*p*
Gender differences in HCP Avoidance scores	-.3.271	5632		.001
Chi-square Test	χ^2	*df*		*p*
Gender * HCP Avoidance	9.808	1		.002

Values rounded to the nearest hundredth
*% True = I do engage in healthcare avoidance

The overall mean score for quality of interactions with HCPs was 16.71, indicating that participants perceived generally high quality past interactions with their HCPs (on this composite index with scores that can range from 5 to 20). The mean scores for women and men were 16.82 and 16.51, respectively. An independent groups t-test was conducted to test whether there was a significant gender difference on these scores, and it was found to be statistically significant, *t* = -3.27, *p* < .01, indicating that women (*M* = 16.82, *SD* = 3.35) reported statistically significantly higher quality of interactions with HCPs than did men (*M* = 16.51, *SD* = 3.37). However, the difference in means between women and men appears to be small in magnitude and thus limited in clinical significance. Table 3 reports the mean scores and results of the *t*-test. Figure 5 displays the percentage of sample participants at each level of quality of interactions with HCPs and indicates that approximately 30% of the sample reported the highest level of quality of interactions with their HCPs. Figure 6 displays percentages of participant reports of quality of interactions with HCPs by gender, with similar distributions across gender.

The mean trust level in HCPs was 3.44 for the overall sample, indicating generally high

trust in their HCPs, as scores could range from 1 to 4. The mean scores for women (3.43) and

men (3.46) were similar. Figure 7 displays the percentage of sample participants at each level of

trust in HCPs and indicates that over 50% of the sample reported the highest level of trust in

HCPs. Figure 8 displays the percentage of sample participants at each level of trust in HCPs by

gender and indicates similar reports for this variable across genders.

Finally, 27.1% of the total sample reported engaging in HCP avoidance ($n = 1,528$).

Among women, 25.7% ($n = 912$) indicated engaging in HCP avoidance, and among men 29.5%

($n = 615$) indicated engaging in HCP avoidance. A chi-square test was conducted to test whether

there was a significant relationship between gender and HCP avoidance. The results of the chi-

square test indicated that there was indeed a significant relationship between gender and HCP

avoidance (χ^2 (1) = 9.81, $p < .01$). However, given the similarity of the percentages of women

and men who engaged in HCP avoidance this difference does not appear to be clinically

significant. Table 3 reports the avoidance percentages by gender and results of the chi-square

test.

Figure 3. Reports of health self-efficacy (levels).

Health Self-Efficacy
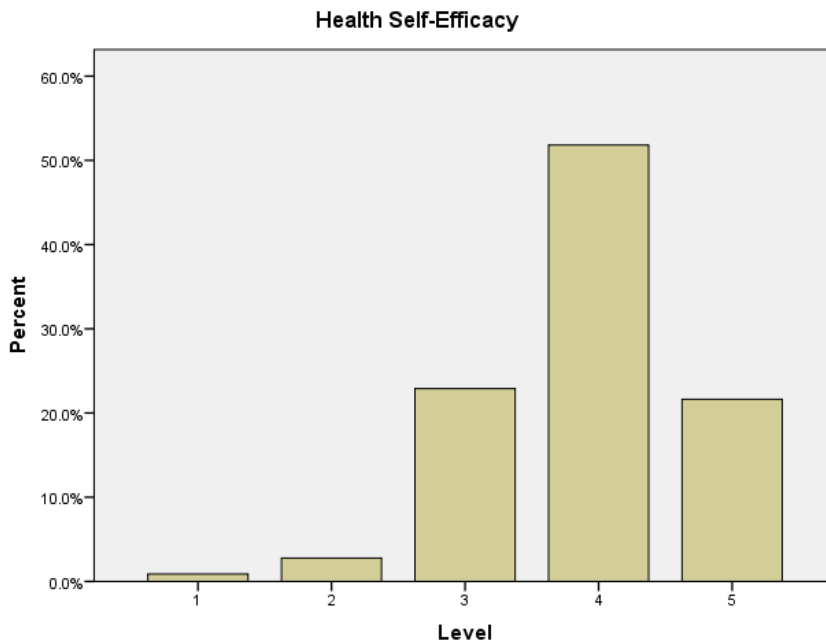
Figure 4. Percentages of health self-efficacy levels for total sample by gender.
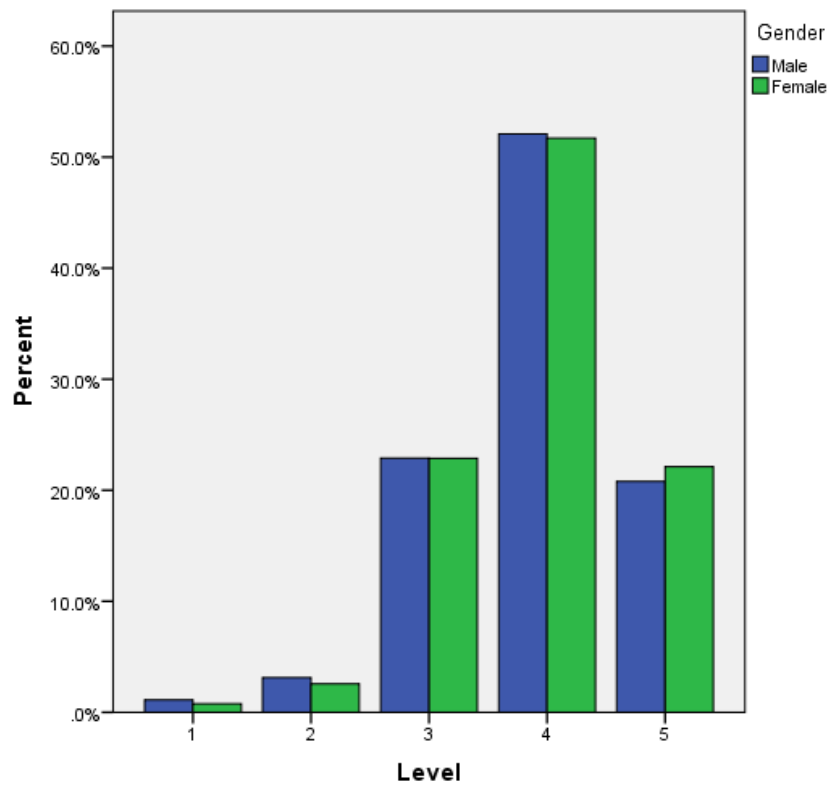
Figure 5. Reports of quality of interactions with HCPs (scores).
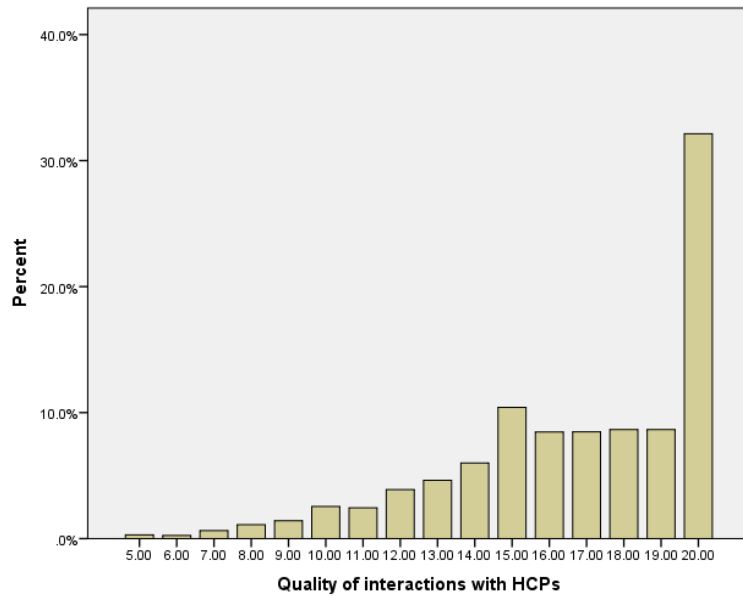
Figure 6. Percentages for total sample by gender.
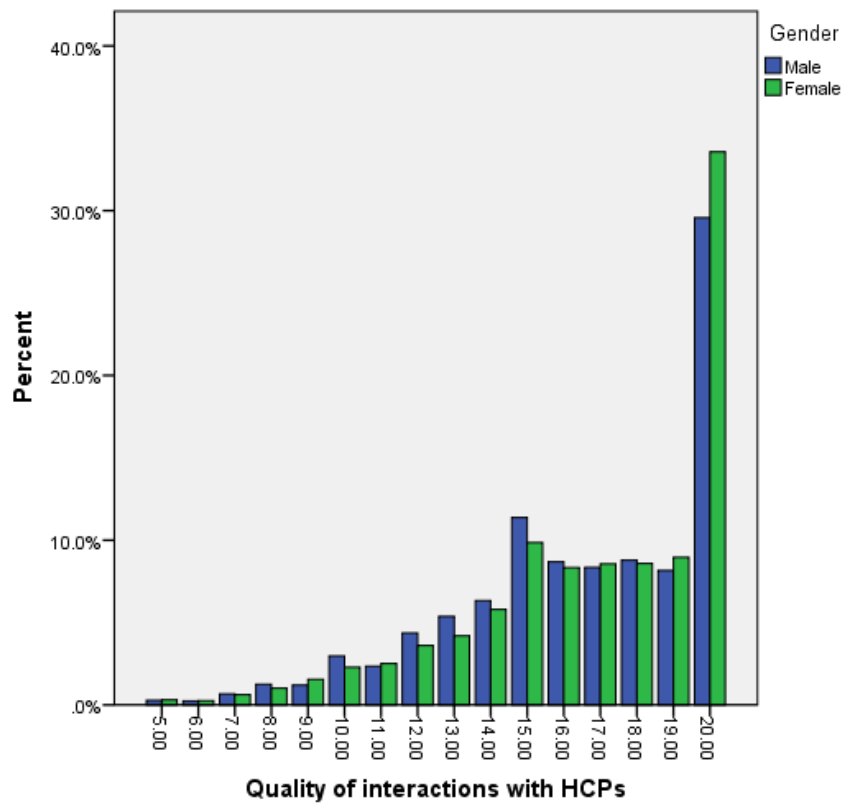
Figure 7. Reports of trust in HCPs (levels).
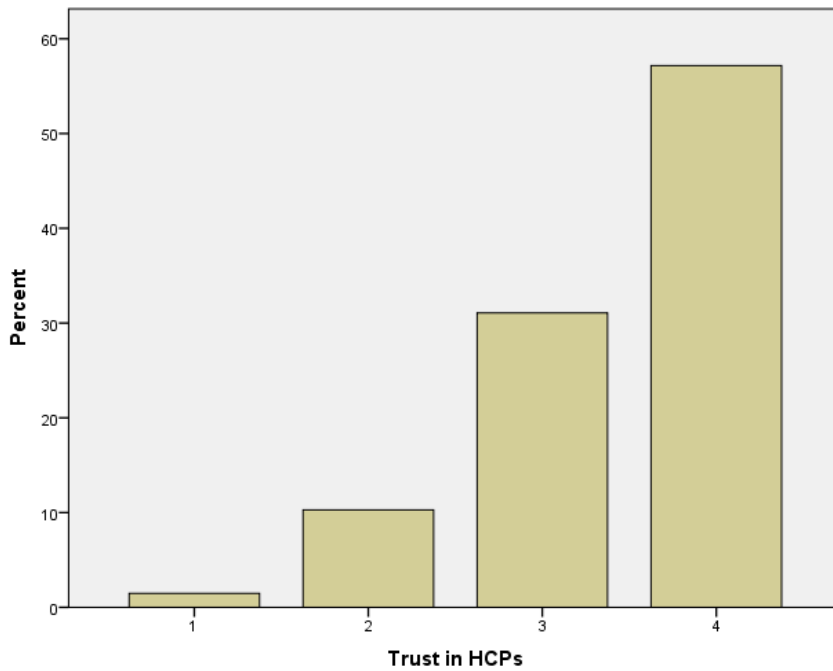
Figure 8. Percentages of trust in HCP levels for total sample by gender.
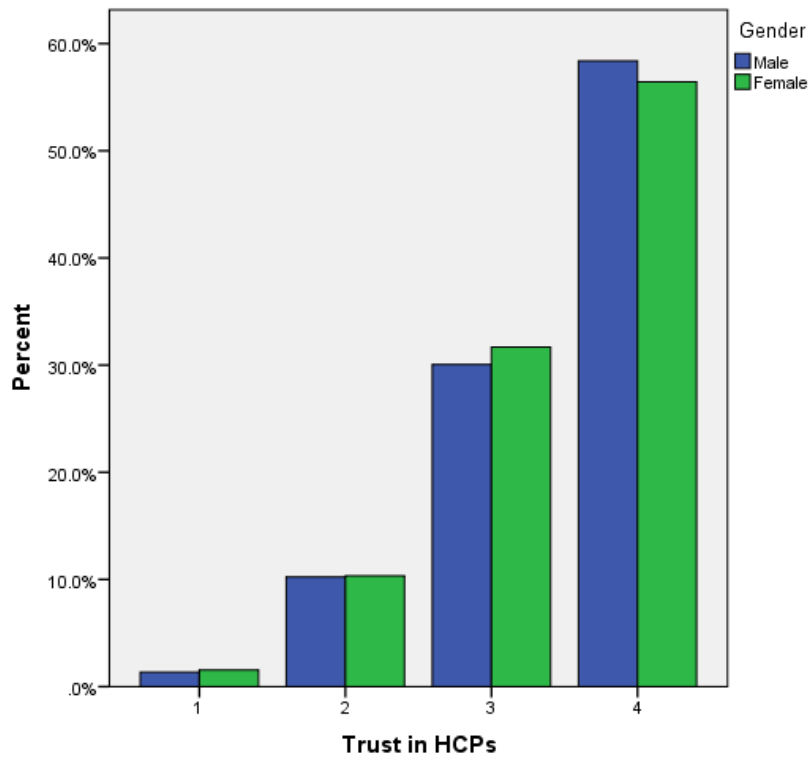
Table 4 presents frequencies and percentages for demographic variables by gender. The mean ages for women and men are 54.8 and 56.4, respectively. An independent groups t-test was conducted to test whether there was a significant gender difference in age, and it was found to be statistically significant, $t = 3.48$, $p < .001$, indicating that the mean age of men ($M = 56.4$, $SD = 16.0$) was statistically significantly older than that of women ($M = 54.8$, $SD = 17.1$). With respect to race, among male participants Whites comprise 77.9% of the sample whereas among female participants 75.9% are White. Minority race participants (Black or African Americans, Hispanics, Asians, and "Other") comprise 17.8% of the male participants and 20.2% of the females. A chi-square test was conducted to test whether there was a significant relationship between gender and race comparing White participants to those of minority race (Black or African American, Hispanic, Asian, and "other"); the results did not reach statistical significance ($\chi^2 (1) = 3.64$, $p = .056$). With respect to education, 41.1% of men reported having a college degree or higher, whereas 35.9% of women reported this level of education. A chi-square test was conducted to test whether there was a significant relationship between gender and education, and the results were statistically significant, indicating that men in the current sample were more likely to have obtained a college degree or higher level of education such as a Masters degree (versus either having obtained some college education, a high school diploma, or less than a high school diploma) than were women ($\chi^2 (1) = 15.36$, $p < .001$). Regarding household income, 54.4% of the men and 42.8% of the women reported an income of $50,000 or higher. A chi-square test was conducted to test whether there was a significant relationship between gender and household income, and the results were statistically significant, indicating that men in the current sample were significantly more likely to have an annual household income of $50,000 or higher (versus an annual household income less than $50,000) than were women ($\chi^2 (1) = 54.73$, $p <$

.001). With respect to occupation, 45.9% of women and 54.5% of men reported their status as "employed." Again, a chi-square test was conducted to test whether there was a significant relationship between gender and employment status, and the results were statistically significant, indicating that men in the current sample were significantly more likely to be employed (versus being either unemployed, a homemaker, a student, retired, unable to work, disabled, or "other") than were women (χ^2 (1) = 39.44, p < .001). Finally, more men (69.0%) than women (53.7%) reported their marital status as "married" or "cohabitating." A chi-square test testing for a significant relationship between gender and marital status was statistically significant, indicating that men in the sample were significantly more likely to be in marital or cohabitating relationships (versus being either divorced, separated, widowed, or never married) than were women (χ^2 (1) = 132.36, p < .001).

Table 4

Frequencies and Percentages for Demographic Variables by Gender

Variable	Women *n* = 3,551	% of Female Sample	Men *n* = 2,083	% of Male Sample
Age				
Mean	54.8	n/a	56.4	n/a
18 – 34	510	14.4	210	10.1
35 – 49	809	22.8	459	22.0
50 – 64	1093	30.8	731	35.1
65 – 74	608	17.1	383	18.4
75+	499	14.1	286	13.7
Missing*	32	0.9	14	0.7
Race				
White	2686	75.6	1623	77.9
Black or African American	318	9.0	135	6.5
Hispanic	223	6.3	129	6.2
Asian	71	2.0	56	2.7
Other**	104	2.9	49	2.4
Missing*	149	4.2	91	4.4
Level of Education				
Less than high school	244	6.9	145	7.0
High school graduate	858	24.2	431	20.7
Some college	1070	30.1	591	28.4
College degree or higher	1275	35.9	857	41.1
Missing*	104	2.9	59	2.8
Income				
Less than $20,000	503	14.2	192	9.2
$20,000 – less than $35,000	503	14.2	236	11.3
$35,000 – less than $50,000	415	11.7	249	12.0
$50,000 – less than $75,000	575	16.2	382	18.3
$75,000 or more	944	26.6	753	36.1
Missing*	611	17.2	271	13.0
Employment Status				
Employed	1629	45.9	1135	54.5
Unemployed	101	2.8	46	2.2
Homemaker	465	13.1	7	.3
Student	102	2.9	41	2.0
Retired	901	25.4	673	32.3
Unable to work, Disabled, or Other	249	7.0	123	5.9
Missing*	104	2.9	58	2.8
Marital Status				
Married or Cohabitating	1906	53.7	1437	69.0
Divorced or Separated	541	15.2	235	11.3
Widowed	544	15.3	108	5.2
Never married	452	12.7	242	11.6
Missing*	108	3.0	61	2.9

Note: Total percentages may be above or below 100% due to rounding.

* Includes no available data and those recorded as "refused" or "do not know" for a given demographic variable.

** American Indian, Alaska Native, Native Hawaiian, Pacific Islander, & participants reporting multiple races.

Univariate Analyses among Variables Testing the Hypotheses

Pearson correlations were computed among the variables involved in the hypotheses: health self-efficacy, quality of interactions with HCPs, trust in HCPs, HCP avoidance, race, and gender, and the results may be found in Table 5. First, the independent variable *health self-efficacy* was found to be positively correlated with quality of interactions with HCPs and with trust in HCPs, and negatively correlated with HCP avoidance. The finding that health self-efficacy is negatively correlated with HCP avoidance provides support for hypothesis 2, that *health self-efficacy is negatively associated with HCP avoidance.*

Table 5

Correlations among the Variables

	Health Self-Efficacy	Quality of Interactions with HCPs	Trust in HCPs	HCP Avoidance
Health Self-Efficacy	--	.35***	.33***	-.20***
Quality of Interactions with HCPs	.35***	--	.65***	-.17***
Trust in HCPs	.33***	.65***	--	-.17***
HCP Avoidance	-.20***	-.17***	-.17***	--
Race/ethnicity[†]	-.02	-.03*	-.06***	.01
Gender[†]	.02	.04**	-.02	-.04**

*p ≤ .05; **p ≤ .01; ***p ≤ .001
[†] Denotes a categorical variable:
   Race/ethnicity (0 = White, 1 = minority race including African American, Hispanic, & Asian)
   Gender (1 = male, 2 = female)

The independent variable *quality of interactions with HCPs* was found to be positively correlated with trust in HCPs and negatively correlated with HCP avoidance. The finding that quality of interactions with HCPs was negatively correlated with HCP avoidance provides support for hypothesis 1, that *the quality of individuals' past interactions with HCPs is negatively associated with HCP avoidance.* Furthermore, the finding that quality of interactions

with HCPs was positively correlated with trust in HCPs provides support for hypothesis 4, that *quality of interactions with HCPs is positively associated with level of trust in HCPs.*

The proposed mediator variable, *trust in HCPs*, was found to be positively correlated with quality of interactions (as noted above) and negatively correlated with HCP avoidance. The finding that trust in HCPs is negatively correlated with HCP avoidance provides support for hypothesis 3, that *trust in HCPs is negatively associated with HCP avoidance.* Furthermore, the findings that trust in HCPs was significantly correlated with both quality of interactions with HCPs and HCP avoidance fulfills two of the criteria needed to demonstrate mediation (Baron & Kenny, 1986). Further testing of the mediation hypotheses through a multiple regression analysis is described in the next section.

Because the correlations among the three predictor variables of health self-efficacy, quality of interactions with HCPs and trust in HCPs indicate some shared variance among them, it was important to examine their individual abilities to account for unique variance in the dependent variable of HCP avoidance. Multicollinearity is an analytical problem that occurs when two or more predictor variables are correlated with one another, creating a situation in which statistical models may contain redundant information (Tabachnick & Fidell, 2007). The multiple regression analyses used for this purpose are described in the next section.

Regarding the tests of the hypotheses that race/ethnicity and gender moderate the association between quality of interactions with HCPs and level of trust in HCPs, Table 6 indicates that race/ethnicity was significantly correlated with both variables and gender was significantly correlated with quality of interactions with HCPs. Although these significant correlations raise the potential for a multicollinearity problem in tests of the interaction effects, the correlations were low (.03 to .06), indicating minimal multicollinearity. Nevertheless, this

issue is considered in the multiple regression analyses in the next section that tested the moderation hypotheses.

Multiple Regression Analyses

The main purpose of this study was to determine the potential influence of several factors on health care avoidance. Figure 2 below represents the relationships among the variables in the study's hypotheses. Hypotheses 1 through 5 were designed to test the associations between the main outcome of interest, HCP avoidance, and the predictor variables of quality of interactions with HCPs, health self-efficacy, and trust in HCPs. Hypotheses 1, 2 and 3 concerned direct associations between the three predictor variables and HCP avoidance, and hypotheses 4 and 5 addressed trust as a mediator of the relationship between quality of interactions with HCPs and HCP avoidance. Finally, hypotheses 6 and 7 addressed race and gender as moderators of the relationship between quality of interactions with HCPs and trust in HCPs. A set of multiple regression analyses was used to test the hypotheses.
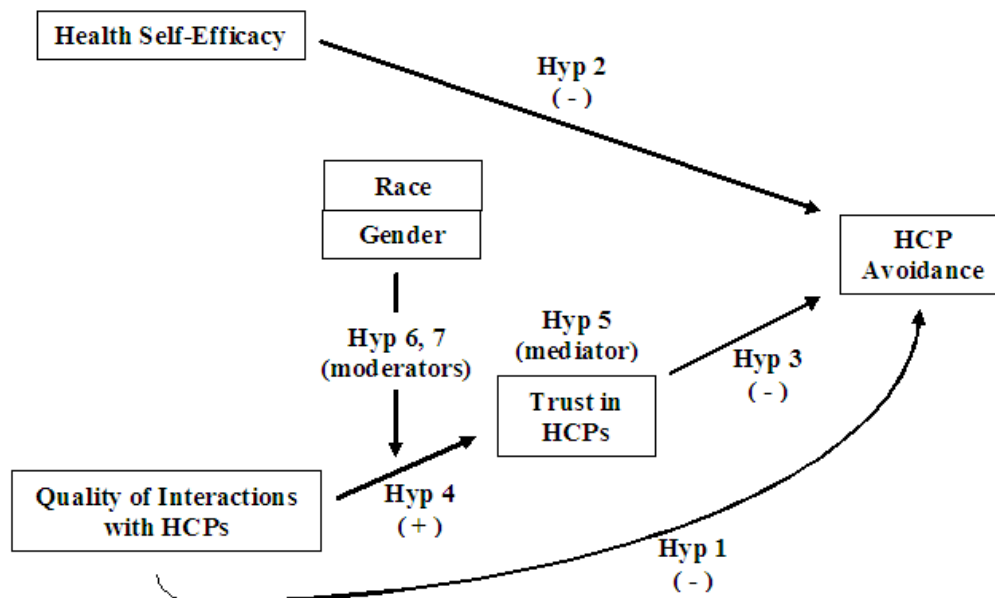
Figure 2. Design of hypothesized associations among variables.

Analyses Testing Potential Control Variables: Age, Education, and Household Income

Prior to conducting the regression analyses, bivariate comparison tests (using HCP avoidance as the dependent variable) were conducted to determine if each of the proposed control variables would be appropriate to include as such in the regression analyses. The analysis plan was to see whether the effects of the predictor variables proposed in the hypotheses remained after controlling for participant age, level of education, and household income. Those demographic variables would be included as control variables if they were associated with individuals' avoidance of HCPs. First, an independent groups t-test was conducted to test whether there was a significant age difference between those who engaged in versus did not engage in HCP avoidance. This test was found to be statistically significant, $t = 9.53$, $p < .001$, indicating that those who did not engage in HCP avoidance ($M = 56.64$, $SD = 16.73$) had a statistically significant higher mean age than those who did engage in HCP avoidance ($M = 51.89$, $SD = 16.12$).

Second, a chi-square test was conducted to test whether there was a significant relationship between level of education and HCP avoidance. As mentioned in Chapter 2 (Measures section), education is a categorical variable that was collapsed into two groups for the current study, those who were not college graduates and those who were college graduates. The results of the chi-square test indicated that there was a significant relationship between education and HCP avoidance (χ^2 (1) = 24.92, $p < .001$). Based on the conditional probabilities, college graduates were less likely to engage in HCP avoidance than were individuals who had not graduated from college (23.5% versus 29.6%, respectively).

Finally, a chi-square test was conducted to test whether there was a significant relationship between household income and HCP avoidance. As mentioned in the Measures

section in Chapter 2, household income is a categorical variable that was collapsed into two

groups for the current study: participants with an annual household income less than $50,000

versus $50,000 and over. The results of the chi-square indicated that there was a significant

relationship between household income and HCP avoidance (χ^2 (1) = 6.12, p = .013). Based on

the conditional probabilities, participants in the lower income group were more likely to engage

in HCP avoidance (29.5%) than those in the higher income group (26.2%).

Given the results of all three of the above tests, age, education, and household income

were retained as control variables to be included in the multiple regression analyses that tested

the hypotheses. The following sections describe the regression analyses that were conducted

first without the control variables, and then with the control variables included.

Analyses Testing Hypotheses 1, 2, and 3: Main Effects of Quality of Interactions with

HCPs, Health Self-efficacy, and Trust in HCPs on HCP Avoidance

First, as described in the section above regarding the univariate analyses, the Pearson

correlations (Table 5) provided support for hypothesis 1, *the quality of individuals' past*

interactions with HCPs is negatively associated with HCP avoidance, hypothesis 2, *health self-*

efficacy is negatively associated with HCP avoidance, and hypothesis 3, *trust in HCPs is*

negatively associated with HCP avoidance. In order to determine the relative degrees to which

those three characteristics account for variance in HCP avoidance, a logistic multiple regression

analysis was conducted in which HCP avoidance (a dichotomous variable) was regressed

simultaneously on quality of interactions with HCPs, health self-efficacy, and trust in HCPs.

Results of this analysis are reported here based on the logistic regression reporting guidelines set

forth by Peng, Lee, and Ingersoll (2002). The overall logistic regression model was statistically

significant (χ^2 (3) = 300.26, p < .001) (see Table 6). Three goodness-of-fit measures were used.

First, the Hosmer and Lemeshow test yielded a *p*-value less than .05 indicating that this model, while statistically significant, may *not* provide a good fit for the data (χ^2 (8) = 16.180, *p* = .040). The other two were descriptive measures of goodness-of-fit (designed as model strength measures) including the Cox & Snell (R^2 = .052) and the Nagelkerke (R^2 = .075), indicating that this model accounted for between 5.2% and 7.5% of the error in predicting HCP avoidance. Quality of interactions with HCPs, health self-efficacy, and trust in HCPs were each significant predictors of HCP avoidance. The Beta coefficient for quality of interactions with HCPs was -.041, Wald's χ^2 (1) = 12.33, *p* < .001. For every one point increase in quality of interactions with HCPs, the odds of engaging in HCP avoidance *decreased* from one to .96 (= e-$^{.041}$) controlling for health self-efficacy and trust in HCPs. The Beta coefficient for health self-efficacy was -.435, Wald's χ^2 (1) = 110.70, *p* < .001). For every one point increase in health self-efficacy score, the odds of engaging in HCP avoidance *decreased* from one to .65 (= e$^{-.435}$) controlling for quality of interactions with HCPs and trust in HCPs. Finally, the Beta coefficient for trust in HCPs was -.228, Wald's χ^2 (1) = 18.48, *p* < .001). For every one point increase in trust in HCPs, the odds of engaging in HCP avoidance *decreased* from one to .80 (= e^{-228}) controlling for quality of interactions in HCPs and health self-efficacy. Of the study participants, 4,111 (72.9%) did not engage in HCP avoidance and 1,528 (27.1%) did engage in HCP avoidance. The overall correction prediction (correct classification of subjects into these two groups) of this model was 73.4% (see Table 7), representing an improvement over the chance level but only a slightly higher correction prediction than the model with only the constant (72.9%). In spite of the modest correlations among the three predictor variables, each of the three significantly accounted for variance in HCP avoidance, supporting hypotheses 1, 2, and 3. The clinical significance of

the fairly small amount of variation in HCP avoidance explained by these three predictors is considered in the Discussion chapter.

Table 6

Results of Logistic Multiple Regression Analysis Addressing Hypotheses 1, 2, and 3

Predictor	β	SE β	Wald's χ^2 (df = 1)	p-values	e$^{\beta}$ (odds ratio)
Constant	2.134	.186	130.97	< .001	8.446
Quality of interactions with HCPs	-.041	.012	12.33	< .001	.959
Health self-efficacy	-.435	.041	110.70	< .001	.647
Trust in HCPs	-.228	.053	18.48	< .001	.796

Test	χ^2	df	p
Overall model	300.26	3	< .001
Goodness-of-fit test			
Hosmer & Lemeshow	16.18	8	.040

R^2–type indices
   Cox & Snell $R^2 = .052$
   Nagelkerke $R^2 = .075$

Table 7

The Observed and the Predicted Frequencies for HCP Avoidance by Logistic Regression

Regarding Hypotheses 1, 2, and 3 with the Cutoff of 0.50

	Predicted		
Observed	Not true	True	% Correct
Not true (coded as 0)	4036	75	98.2
True (coded as 1)	1426	102	6.7
Overall % correct			73.4

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

Next, in order to determine the potential influence of the current study's control variables for the tests of hypotheses 1 through 3, a hierarchical logistic regression analysis was conducted to predict HCP avoidance, in which the control variables (*age*, *education*, and *household income*) were entered in the first block simultaneously, and then *quality of interactions with HCPs*, health

self-efficacy, and *trust in HCPs* were entered as predictors in the second block simultaneously in order to determine whether these three variables accounted significantly for the classification of individuals as avoidant or not of HCPs after controlling for age, education, and household income. At step one, the logistic regression model (using *age*, *education*, and *household income* as predictors of *HCP avoidance*) was statistically significant (χ^2 (3) = 121.18, $p < .001$) (see Table 8). Age, education, and household income were each significant predictors of HCP avoidance (see Table 8). The Beta coefficient for age was -.020, Wald's χ^2 (1) = 92.25, $p < .001$. For every one-year increase in age, the odds of engaging in HCP avoidance *decreased* from one to .98 (= $e^{-.020}$) controlling for education and household income. The Beta coefficient for education was -.368, Wald's χ^2 (1) = 25.88, $p < .001$. For each point increase in education (0 = non-college graduate, 1 = college graduate), the odds of engaging in HCP avoidance *decreased* from one to .69 (= $e^{-.368}$) controlling for participant age and household income. Finally, the Beta coefficient for household income was -.170, Wald's χ^2 (1) = 5.81, $p < .001$. For each point increase in household income (0 = less than $50k, 1 = $50k and higher), the odds of engaging in HCP avoidance *decreased* from one to .84 (= $e^{-.170}$) controlling for participant age and education. The overall correction prediction (correct classification of subjects into the two groups of HCP avoidance) of this model was 72.4% (Table 9).

Table 8

Results of Logistic Multiple Regression Analysis

Predictor	B	SE β	Wald's χ^2 ($df = 1$)	p-values	e^{β} (odds ratio)
Constant	.314	.125	6.29	.012	1.369
Age	-.020	.002	92.25	< .001	.981
Education	-.368	.072	25.88	< .001	.692
Household income	-.170	.071	5.81	.016	.843

Test			χ^2	df	p
Overall model			121.18	3	< .001
Goodness-of-fit test					
Hosmer & Lemeshow			13.59	8	.093

R^2–type indices
   Cox & Snell $R^2 = .025$
   Nagelkerke $R^2 = .037$

Table 9

The Observed and the Predicted Frequencies for HCP Avoidance by Logistic Regression with

the Cutoff of 0.50

Observed	Predicted Not true	True	% Correct
Not true (coded as 0)	3425	0	100
True (coded as 1)	1308	0	0
Overall % correct			72.4

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

At step two, the logistic regression model (using *age*, *education*, *household income*,
quality of interactions with HCPs, *health self-efficacy*, and *trust in HCPs* as predictors of *HCP*
avoidance) was statistically significant (χ^2 (6) = 333.71, $p < .001$) (Table 10). The Cox and Snell
$R^2 = .068$ and the Nagelkerke $R^2 = .098$, indicating that this model accounted for between 6.8%
and 9.8% of the error in predicting HCP avoidance. In this model, five of the six variables
included were each significant predictors of HCP avoidance; household income was not a
significant predictor (see Table10). The Beta coefficient for age was -.019, Wald's χ^2 (1) =

81.62, $p < .001$. For every one-year increase in age, the odds of engaging in HCP avoidance *decreased* from one to .98 (= e$^{-.019}$) controlling for education, household income, quality of interactions with HCPs, health self-efficacy, and trust in HCPs. The Beta coefficient for education was -.343, Wald's $\chi^2 (1) = 21.40$, $p < .001$. For each point increase in education (0 = non-college graduate, 1 = college graduate), the odds of engaging in HCP avoidance *decreased* from one to .71 (= e$^{-.343}$) controlling for age, household income, quality of interactions with HCPs, health self-efficacy, and trust in HCPs. The Beta coefficient for household income was -.136, Wald's $\chi^2 (1) = 3.52$, $p = .061$. Thus, household income did not reach the level of significance as a predictor of HCP avoidance while controlling for the other variables in this model (age, education, quality of interactions with HCPs, health self-efficacy, and trust in HCPs). The Beta coefficient for quality of interactions with HCPs was -.047, Wald's $\chi^2 (1) = 12.87$, $p < .001$. For every one-point increase in quality of interactions with HCPs, the odds of engaging in HCP avoidance *decreased* from one to .95 (= e$^{-.047}$) controlling for age, education, household income, health self-efficacy, and trust in HCPs. The Beta coefficient for health self-efficacy was -.414, Wald's $\chi^2 (1) = 82.01$, $p < .001$. For every one-point increase in health self-efficacy score, the odds of engaging in HCP avoidance *decreased* from one to .66 (= e$^{-.414}$) controlling for age, education, household income, quality of interactions with HCPs, and trust in HCPs. Finally, the Beta coefficient for trust in HCPs was -.160, Wald's $\chi^2 (1) = 7.38$, $p < .001$. For every one-point increase in level of trust in HCPs, the odds of engaging in HCP avoidance *decreased* from one to .85 (= e$^{-.160}$) controlling for age, education, household income, quality of interactions with HCPs, and health self-efficacy. The overall correct prediction of this model was 73.3% (see Table 11), representing a slight improvement over the prediction of the previous model at step one (72.4%).

Table 10

Results of Logistic Multiple Regression Analysis for Hypotheses 1, 2, and 3 Controlling for

Demographic Variables

Predictor	β	SE β	Wald's χ^2 ($df = 1$)	p-values	e^{β} (odds ratio)
Constant	3.152	.240	173.16	< .001	23.383
Age	-.019	.002	81.62	< .001	.981
Education	-.343	.074	21.40	< .001	.709
Household income	-.136	.073	3.52	.061	.873
Quality of interactions with HCPs	-.047	.013	12.87	< .001	.954
Health self-efficacy	-.414	.046	82.01	< .001	.661
Trust in HCPs	-.160	.059	7.38	.007	.852

Test	χ^2	df	p
Overall model	333.70	6	< .001
Goodness-of-fit test			
Hosmer & Lemeshow	11.09	8	.197

R^2–type indices
   Cox & Snell R^2 = .068
   Nagelkerke R^2 = .098

Table 11

The Observed and the Predicted Frequencies for HCP Avoidance by Logistic Regression for

Hypotheses 1, 2, and 3, Controlling for Demographic Variables with the Cutoff of 0.50

Observed	Predicted Not true	True	% Correct
Not true (coded as 0)	3323	102	97.0
True (coded as 1)	1164	144	11.0
Overall % correct			73.3

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

Overall, based on these results it was concluded that the expected main effects of health

self-efficacy, quality of interactions with HCPs, and trust in HCPs on HCP avoidance were

found. Furthermore, these effects held while controlling for age and education. Thus, the first

three hypotheses of this study were supported, including: hypothesis 1 (*The quality of*

individuals' past interactions with HCPs is negatively associated with their HCP avoidance, or

when quality of interactions with HCPs is higher level of HCP avoidance is lower.); hypothesis 2

(*Health self-efficacy is negatively associated with HCP avoidance, or as health self-efficacy level*

is higher, level of HCP avoidance is lower.), and hypothesis 3 (*Trust in HCPs is negatively*

associated with HCP avoidance, or as level of trust in HCPs is higher, level of HCP avoidance is

lower.)

Analyses Testing Hypothesis 4 and 5: Mediating Role of Trust in HCPs

As reported in the section on the results of the univariate analyses, hypothesis 4, that

more positive quality of interactions with HCPs is positively related to level of trust in HCPs,

was supported by a Pearson correlation of .65 ($p < .001$). Given that quality of interactions with

HCPs and trust in HCPs also are significantly associated with HCP avoidance, three of the

criteria (Baron & Kenny, 1986) were met for demonstrating that trust in HCPs mediates the

association between quality of interactions with HCPs and HCP avoidance, as proposed in

hypothesis 5. The final criterion for mediation requires that when trust in HCPs is controlled the

association between quality of interactions with HCPs and HCP avoidance either becomes non-

significant or decreases significantly. Consequently, a hierarchical logistic regression analysis

was conducted to predict HCP avoidance, in which trust in HCPs was entered first, and then

quality of interactions with HCPs was entered second in order to determine whether it accounted

for significant additional variation in classification of individuals as avoidant or not of HCPs,

after controlling for trust in HCPs.

At step one, with trust in HCPs as the only predictor, the logistic regression model was

statistically significant (χ^2 (1) = 156.19, $p < .001$) (see Table 12). The Cox & Snell (R^2 = .027)

and the Nagelkerke (R^2 = .040) taken together indicated that this model accounted for between

2.7% and 4.0% of the variation in classification of individuals as HCP avoidant or not. Trust in

HCPs was a significant predictor of HCP avoidance; the Beta coefficient was -.492, Wald's χ^2 (1)

= 156.92, $p < .001$ (see Table 12). For every one-point increase in trust in HCPs score, the odds

of engaging in HCP avoidance decreased from one to .61 (= $e^{-.492}$). The overall correction

prediction of this model of those who did and did not engage in HCP avoidance was 73.0% (see

Table 13).

Table 12

Results of Logistic Multiple Regression Analysis Testing Trust as a Mediator between Quality of

Interactions with HCPs and HCP Avoidance

Predictor	B	SE β	Wald's χ^2 $(df = 1)$	p-values	e^{β} (odds ratio)
Constant	.676	.135	25.25	$< .001$	1.966
Trust in HCPs	-.492	.039	156.92	$< .001$	.611
Test			χ^2	df	p
Overall model			156.19	1	$< .001$
Goodness-of-fit test					
Hosmer & Lemeshow			.51	1	.474

R^2–type indices
   Cox & Snell $R^2 = .027$
   Nagelkerke $R^2 = .040$

Table 13

The Observed and the Predicted Frequencies for HCP Avoidance Predicted by Trust in HCPs by

Logistic Regression with the Cutoff of 0.50

Observed	Predicted Not true	True	% Correct
Not true (coded as 0)	4071	40	99.0
True (coded as 1)	1485	43	2.8
Overall % correct			73.0

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

At step two, *quality of interactions with HCPs* was added as a predictor of HCP avoidance. The logistic regression model was statistically significant (χ^2 (2) = 187.36, $p < .001$) (see Table 14). The Cox & Snell ($R^2 = .033$) and the Nagelkerke ($R^2 = .047$) taken together indicated that this model accounted for between 3.3% and 4.7% of the error in predicting HCP avoidance. Trust in HCPs was a significant predictor of HCP avoidance; the Beta coefficient was -.302, Wald's χ^2 (1) = 33.62, $p < .001$ (Table 14). For every one-point increase in trust in HCPs score, the odds of engaging in HCP avoidance decreased from one to .74 (= $e^{-.302}$) controlling for quality of interactions with HCPs. Also, quality of interactions with HCPs was a significant predictor of HCP avoidance above and beyond the prediction of HCP avoidance accounted for by trust in HCPs; the Beta coefficient was -.064, Wald's χ^2 (1) = 31.35, $p < .001$ (see Table 14). For every one-point increase in quality of interactions with HCPs, the odds of engaging in HCP avoidance decreased from one to .93 (= $e^{-.064}$) controlling for trust in HCPs. The overall correction prediction of this model was 73.1% (see Table 15). Of particular interest here is that although this model included a statistically significant degree of prediction of HCP avoidance accounted for by the addition of the quality of interactions with HCPs, the model added essentially no improvement in correct classification over the model tested at step one (with trust in HCPs as the only predictor). Thus, it was concluded that trust in HCPs was indeed a mediator between quality of interactions between HCPs and HCP avoidance, supporting hypothesis 5 (*Trust in HCPs mediates the relationship between quality of interactions with HCPs and HCP avoidance, such that when trust in HCPs is controlled (partialled out) the association between quality of interactions with HCPs and avoidance of HCPs (tested in hypothesis 1) is reduced significantly or becomes non-significant*).

Table 14

Results of Logistic Multiple Regression Analysis Testing for Mediation by Trust in HCPs

Predictor	β	SE β	Wald's χ^2 $(df = 1)$	p-values	e^{β} (odds ratio)
Constant	1.090	.154	50.16	< .001	2.975
Trust in HCPs	.-302	.052	33.62	< .001	.740
Quality of Interactions with HCPs	-.064	.011	31.35	< .001	.938

Test	χ^2	df	p
Overall model	187.36	2	<.001
Goodness-of-fit test			
Hosmer & Lemeshow	3.96	6	.682

R^2–type indices
   Cox & Snell R^2 = .033
   Nagelkerke R^2 = .047

Table 15

The Observed and the Predicted Frequencies for HCP Avoidance by Logistic Regression with

the Cutoff of 0.50

Observed	Predicted Not true	True	% Correct
Not true (coded as 0)	4067	44	98.9
True (coded as 1)	1473	55	3.6
Overall % correct			73.1

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

Next, in order to determine the potential influence of the current study's control variables

on the test of hypothesis 5, a hierarchical logistic regression analysis was conducted to predict

HCP avoidance. This included three steps in which the control variables (*age*, *education*, and

household income) were entered in the first block simultaneously, *trust in HCPs* was entered in

the second block, and *quality of interactions with HCPs* was entered into the third block in order

to determine whether it added to the prediction of HCP avoidance while controlling for trust in

HCPs and the three control variables. At step one (using *age*, *education*, and *household income*

as predictors of *HCP avoidance*), the logistic regression model was statistically significant (χ^2 (3)

= 121.18, $p < .001$) (see Table 16). The Cox & Snell ($R^2 = .025$) and the Nagelkerke ($R^2 = .037$)

taken together indicated that this model with the control variables accounted for between 2.5%

and 3.7% of the variance in predicting HCP avoidance. Each of the three control variables in

this model was a significant predictor of HCP avoidance. The Beta coefficient for age was -.020,

Wald's χ^2 (1) = 92.25, $p < .001$. For every one-year increase in age, the odds of engaging in

HCP avoidance *decreased* from one to .98 (= $e^{-.020}$) controlling for education and household

income. The Beta coefficient for education was -.368, Wald's χ^2 (1) = 25.88, $p < .001$. For each

point increase in education (0 = non-college graduate, 1 = college graduate), the odds of

engaging in HCP avoidance *decreased* from one to .69 (= $e^{-.368}$) controlling for age and

household income. Finally, the Beta coefficient for household income was -.170, Wald's χ^2 (1) =

5.81, $p = .016$. For each point increase in household income (0 = less than \$50k, 1 = \$50k and

higher), the odds of engaging in HCP avoidance *decreased* from one to .84 (= $e^{-.170}$) controlling

for participant age and education. For this model, the overall correct prediction of subjects as

those who engaged versus did not engage in HCP avoidance was 72.4% (Table 17).

Table 16

Results of Logistic Multiple Regression Analysis Predicting HCP Avoidance from the Control

Variables

Predictor	B	SE β	Wald's χ^2 $(df = 1)$	p-values	e^{β} (odds ratio)
Constant	.314	.125	6.29	.012	1.369
Age	-.020	.002	92.25	$< .001$	.981
Education	-.368	.072	25.88	<.001	.692
Household income	-.170	.071	5.81	.016	.843
Test			χ^2	df	p
Overall model			121.18	3	$< .001$
Goodness-of-fit test					
Hosmer & Lemeshow			13.59	8	.093

R^2–type indices
   Cox & Snell $R^2 = .025$
   Nagelkerke $R^2 = .037$

Table 17

The Observed and the Predicted Frequencies for HCP Avoidance by Logistic Regression

Including the Control Variables, with the Cutoff of 0.50

Observed	Predicted Not true	True	% Correct
Not true (coded as 0)	3425	0	100
True (coded as 1)	1308	0	0
Overall % correct			72.4

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

At step two, the logistic regression model (using *age*, *education*, *household income*, and

trust in HCPs as predictors of *HCP avoidance*) was statistically significant (χ^2 (4) = 221.75, $p <$

.001) (see Table 18). The Cox and Snell $R^2 = .046$ and the Nagelkerke $R^2 = .066$, indicated that

this model accounted for between 4.6% and 6.6% of the variance in predicting HCP avoidance.

Each of the four predictor variables in this model was a significant predictor of HCP avoidance

(see Table 18). The Beta coefficient for age was -.018, Wald's χ^2 (1) = 74.20, p < .001. For

every one year increase in age, the odds of engaging in HCP avoidance *decreased* from one to

.98 (= e$^{-.018}$) controlling for education, household income, and trust in HCPs. The Beta

coefficient for education was -.391, Wald's χ^2 (1) = 28.64, p < .001. For each point increase in

education (0 = non-college graduate, 1 = college graduate), the odds of engaging in HCP

avoidance *decreased* from one to .68 (= e$^{-.391}$) controlling for age, household income, and trust in

HCPs. The Beta coefficient for household income was -.150, Wald's χ^2 (1) = 4.40, p = .036. For

each point increase in household income (0 = less than $50k, 1 = $50k and higher), the odds of

engaging in HCP avoidance *decreased* from one to .86 (= e$^{-.150}$) controlling for participant age,

education, and trust in HCPs. Finally, the Beta coefficient for trust in HCPs was -.438, Wald's χ^2

(1) = 101.20, p < .001. For every one point increase in level of trust in HCPs, the odds of

engaging in HCP avoidance *decreased* from one to .65 (= e$^{-.438}$) controlling for age, education,

and household income. The overall correction prediction of this model was 72.4% (see Table

19), representing no improvement over that of the previous model (72.4%).

Table 18

Results of Logistic Multiple Regression Analysis Predicting HCP Avoidance from Control

Variables and Trust in HCPs

Predictor	β	SE β	Wald's χ^2 ($df = 1$)	p-values	e^{β} (odds ratio)
Constant	1.701	.188	81.91	< .001	5.479
Age	-.018	.002	74.20	< .001	.982
Education	-.391	.073	28.64	< .001	.676
Household income	-.150	.072	4.40	.036	.861
Trust in HCPs	-.438	.044	101.20	< .001	.645

Test			χ^2	df	p
Overall model			221.75	4	< .001
Goodness-of-fit test					
Hosmer & Lemeshow			9.37	8	.312

R^2–type indices
  Cox & Snell $R^2 = .046$
  Nagelkerke $R^2 = .066$

Table 19

The Observed and the Predicted Frequencies for HCP Avoidance by Logistic Regression

Including Control Variables and Trust in HCPs, with the Cutoff of 0.50

	Predicted		
Observed	Not true	True	% Correct
Not true (coded as 0)	3352	73	97.9
True (coded as 1)	1231	77	5.9
Overall % correct			72.4

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

At the third and final step, the logistic regression model (using *age*, *education*, *household*

income, *quality of interactions with HCPs*, *health self-efficacy*, *trust in HCPs, and quality of*

interactions with HCPs as predictors of *HCP avoidance*) was statistically significant (χ^2 (5) =

250.15 $p < .001$) (see Table 20). The Cox and Snell $R^2 = .051$ and the Nagelkerke $R^2 = .074$,

indicated that this model accounted for between 5.1% and 7.4% of the variance in predicting

HCP avoidance. In this model, each of the five independent variables was a significant predictor of HCP avoidance (see Table 20). The Beta coefficient for age was -.018, Wald's χ^2 (1) = 75.76, $p < .001$. For every one-year increase in age, the odds of engaging in HCP avoidance *decreased* from one to .98 (= e$^{-.018}$) controlling for education, household income, trust in HCPs, and quality of interactions with HCPs. The Beta coefficient for education was -.395, Wald's χ^2 (1) = 29.05, $p <.001$. For each point increase in education (0 = non-college graduate, 1 = college graduate), the odds of engaging in HCP avoidance *decreased* from one to .67 (= e$^{-.395}$) controlling for age, household income, trust in HCPs, and quality of interactions with HCPs. The Beta coefficient for household income was -.162, Wald's χ^2 (1) = 5.10, $p = .024$. For each point increase in household income (0 = less than \$50k, 1 = \$50k and higher), the odds of engaging in HCP avoidance *decreased* from one to .85 (= e$^{-.162}$) controlling for age, education, trust in HCPs, and quality of interactions with HCPs. The Beta coefficient for trust in HCPs was -.237, Wald's χ^2 (1) = 16.82, $p < .001$. For every one-point increase in level of trust in HCPs, the odds of engaging in HCP avoidance *decreased* from one to .79 (= e$^{-.237}$) controlling for age, education, household income, and quality of interactions with HCPs. Finally, the Beta coefficient for quality of interactions with HCPs was -.068, Wald's χ^2 (1) = 28.52, $p < .001$. For every one-point increase in quality of interactions with HCPs score, the odds of engaging in HCP avoidance *decreased* from one to .93 (= e$^{-.068}$) controlling for age, education, household income, and trust in HCPs. The overall correction prediction of this model was 72.4% (see Table 21), representing no improvement over that of the previous model (72.4%).

Table 20

Results of Logistic Multiple Regression Analysis Predicting HCP Avoidance from Control

Variables, Trust in HCPs, and Quality of Interactions with HCPs

Predictor	β	SE β	Wald's χ^2 (df = 1)	p-values	e^{β} (odds ratio)
Constant	2.156	.208	107.89	< .001	8.633
Age	-.018	.002	75.76	< .001	.982
Education	-.395	.073	29.05	< .001	.673
Household income	-.162	.072	5.10	.024	.850
Trust in HCPs	-.237	.058	16.82	< .001	.789
Quality of interactions with HCPs	-.068	.013	28.52	< .001	.934

Test			χ^2	df	p
Overall model			250.15	5	< .001
Goodness-of-fit test					
Hosmer & Lemeshow			9.58	8	.296

R^2–type indices
   Cox & Snell R^2 = .051
   Nagelkerke R^2 = .074

Table 21

The Observed and the Predicted Frequencies for HCP Avoidance by Logistic Regression with

the Cutoff of 0.50

	Predicted		
Observed	Not true	True	% Correct
Not true (coded as 0)	3329	96	97.2
True (coded as 1)	1212	96	7.3
Overall % correct			72.4

Not true = I do not engage in healthcare avoidance
True = I do engage in healthcare avoidance

     Overall, based on these results it was concluded that quality of interactions with HCPs

was a significant predictor of trust in HCPs and that trust in HCPs was indeed a mediator

between quality of interactions with HCPs and HCP avoidance. This mediation effect held even

after controlling for age, education, and household income. Thus, these results provided support

for hypothesis 4 (*Quality of interactions with HCPs is positively associated with level of trust in HCPs, or as quality of interactions with HCPs is higher, trust in HCPs is higher.*) and hypothesis 5 (*Trust in HCPs mediates the relationship between quality of interactions with HCPs and HCP avoidance, such that when trust in HCPs is controlled (partialled out) the association between quality of interactions with HCPs and avoidance of HCPs (tested in hypothesis 1) is reduced significantly or becomes non-significant.*)

Analyses Testing Hypotheses 6 and 7: Moderating Effects of Race and Gender

Within this study a separate set of multiple regression analyses were run in order to test a sub-set of variables from the larger model. Specifically, hypotheses 6 and 7 were designed to test whether two variables, race and gender, operate as moderators between quality of interactions with HCPs and trust in HCPs. For this sub-analysis additional regression models were run; table 22 and 23 summarize these results.

To test the potential moderating effect of race on the relationship between quality of interactions with HCPs and trust in HCPs, a hierarchical linear multiple regression analysis was conducted entering the predictor variables *quality of interactions with HCPs* and *race/ethnicity* (a variable that was collapsed into two categories of Whites and minority race participants, as described in the Measures section) into the first block, and then adding the interaction term comprised of these two variables into the second block. For the first step, the regression model was statistically significant ($R = .649$, $R^2 = .420$; $F (2, 5239) = 1901.48$, $p < .001$) showing that quality of interactions with HCPs and race/ethnicity together were significant predictors of trust in HCPs, accounting for 42.0% of the variance in trust in HCPs. The standardized regression coefficient (Beta) for quality of interactions with HCPs was .646 ($t (5239) = 61.42$, $p < .001$), indicating that more positive interactions with HCPs were associated with greater trust in HCPs,

controlling for race/ethnicity. The standardized regression coefficient (Beta) for race/ethnicity

was -.037 (t (5239) = -3.56, $p < .001$), meaning that (because race was coded as 0 = White, 1 =

minority race), trust in HCPs was higher for White individuals than for minority individuals,

controlling for their reports of quality of interactions with HCPs. For the second regression

model, which included these two variables and the interaction term (the product of quality of

interactions with HCPs and race/ethnicity), $R = .649$, and $R^2 = .421$. The increase in the R^2 from

adding the interaction variable was .001 F (1, 5238) = 2.96, $p = .085$). This model indicated that

the interaction between quality of interactions with HCPs and race/ethnicity was not a significant

predictor of trust in HCPs. The overall model accounted for 42.1% of the variance in trust in

HCPs, virtually the same amount as the model tested at step one. Thus, the results of this analysis

did not support hypothesis 6 (*race moderates the positive association between quality of*

interactions with HCPs and trust in HCPs, such that the association is stronger for White

participants than for non-White or minority participants).

Table 22

Results of Hierarchical Multiple Regression Analysis Testing Moderation by Race/Ethnicity

Model	R	Adjusted R^2	Change Statistics				
			R Square Change	F Change	$df1$	$df2$	Sig. F Change
1	.649	.420	.420	1901.48	2	5239	< .001
2	.649	.421	.001	2.96	1	5238	.085

Model 1: Quality of interactions with HCPs, Race/ethnicity
Model 2: Quality of interactions with HCPs, Race/ethnicity, Interaction term (Quality of interactions with HCPs *
Race/ethnicity)

To test the potential moderating effect of gender, a second hierarchical linear multiple

regression analysis was conducted entering the predictor variables *quality of interactions with*

HCPs and *gender* into the first block, then adding the interaction between these two variables

into the second block. The first regression model was statistically significant ($R = .654$ $R^2 =$

.428, F (2, 5631) = 2104.65, $p < .001$) showing that quality of interactions with HCPs and gender together significantly predicted level of trust in HCPs, accounting for 42.8% of the variance in trust in HCPs. The standardized regression coefficient (Beta) for quality of interactions with HCPs was .654 (t (5631) = 64.86, $p < .001$), meaning that quality of interactions with HCPs was positively related to level of trust in HCPs, controlling for gender. The standardized regression coefficient (Beta) for gender was -.045 (t (5631) = -4.43, $p < .001$) meaning that, with gender coded as 1 = male and 2 = female, trust in HCPs was higher among males than among females, controlling for quality of interactions with HCPs. This association was the opposite of the expected direction, as trust in HCPs was expected to be greater among females. In the second regression model, which also included the interaction term (the product of the quality of interactions with HCPs and gender), the addition of the interaction term as a predictor accounted for a very small increase in the variance in trust in HCPs that was accounted for. The increase in R^2 between models 1 and 2 was .001, although the change in R^2 was significant due to the large sample size; F (1, 5230) = 8.44, $p = .004$. The overall model accounted for virtually the same amount of variance in trust in HCPs as the model tested at step one, without the interaction effect. The standardized regression coefficient (Beta) for quality of interactions with HCPs was .556 (t (5630) = 15.71, $p < .001$), the Beta for gender was -.189 (t (5630) = -3.72, $p < .001$), and the Beta for the interaction variable was .181 (t (5630) = 2.90, $p = .004$. The results of this analysis indicated that hypothesis 7 (*Gender moderates the positive association between quality of interactions with HCPs and level of trust in HCPs, such that the association is stronger for male participants than for female participants*) was only weakly supported. Although the moderation effect was statistically significant, it only accounted for a very small amount of variance in trust, one tenth of one percent. Therefore, the effect was statistically significant but

not deemed clinically significant. Given that hypothesis 6 was not supported and hypothesis 7

was very weakly supported, no further analyses were conducted to determine the potential

influence of the control variables on the hypothesized moderation effects.

Table 23

Results of Hierarchical Multiple Regression Analysis for Gender as a Moderator

Model	R	Adjusted R^2	Change Statistics				
			R Square Change	F Change	$df1$	$df2$	Sig. F Change
1	.654	.428	.428	2104.65	2	5631	.001
2	.655	.429	.001	8.44	1	5230	.004

Model 1: Quality of interactions with HCPs, Gender
Model 2: Quality of interactions with HCPs, Gender, Interaction term (Quality of interactions with HCPs * Gender)

In summary, there were seven hypotheses tested in this study. Table 24 summarizes the

hypotheses that were tested and whether or not they were supported:

Table 24

Summary of Hypotheses and Findings

Hypothesis 1	The quality of individuals' past interactions with HCPs is negatively associated with their HCP avoidance, or when quality of interactions with HCPs is higher level of HCP avoidance is lower.	Supported
Hypothesis 2	Health self-efficacy is negatively associated with HCP avoidance, or as health self-efficacy level is higher, level of HCP avoidance is lower.	Supported
Hypothesis 3	Trust in HCPs is negatively associated with HCP avoidance, or as level of trust in HCPs is higher, level of HCP avoidance is lower.	Supported
Hypothesis 4	Quality of interactions with HCPs is positively associated with level of trust in HCPs, or as quality of interactions with HCPs is higher, trust in HCPs is higher.	Supported
Hypothesis 5	Trust in HCPs mediates the relationship between quality of interactions with HCPs and HCP avoidance, such that when trust in HCPs is controlled (partialled out) the association between quality of interactions with HCPs and avoidance of HCPs (tested in hypothesis 1) is reduced significantly or becomes non-significant.	Supported

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Hypothesis 6	Race moderates the positive association between quality of interactions with HCPs and trust in HCPs, such that the association is stronger for White participants than for non-White or minority participants (Blacks/African-Americans, Hispanics, and Asians).	Not supported
Hypothesis 7	Gender moderates the positive association between quality of interactions with HCPs and level of trust in HCPs, such that the association is stronger for male participants than for female participants.	Supported

Figure 9 illustrates the observed effects found among the main study variables, in relation to the study's hypothesized associations among the variables. Specifically, this figure displays the standardized regression coefficient found for each of the seven study hypotheses at the final step of each analysis (i.e., with control variables included in the analysis) with the exception of the coefficients for hypotheses 6 and 7 that were not based on inclusion of the control variables:

Figure 9. Observed effects among variables.
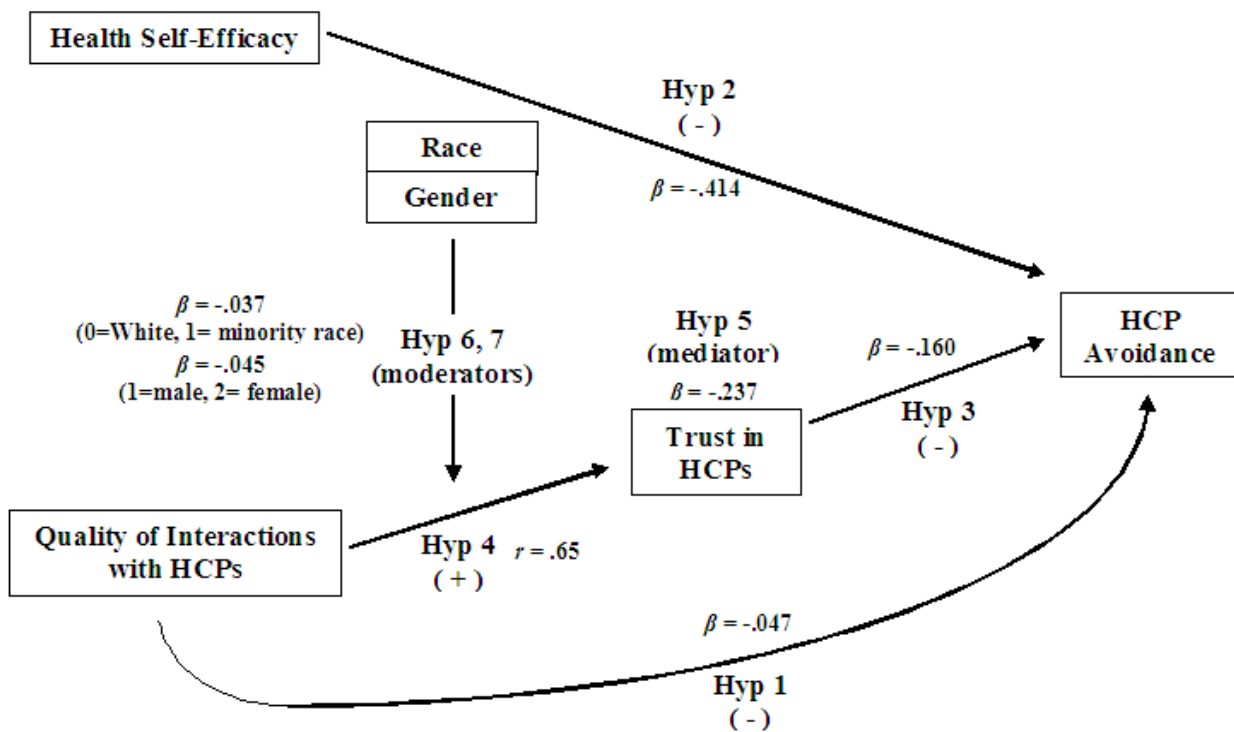
Note: Pearson's *r* provided for hypothesis 4

Chapter 4: Discussion

Findings

The purpose of this study was to examine factors influencing individuals' avoidance of healthcare providers in a national sample of U.S. adults with healthcare insurance. There were three major goals of this study. First, the study investigated the degrees to which three characteristics that individuals bring to the context of seeking care from health professionals – their level of *health self-efficacy*, the *quality of their past interactions with HCPs*, and their overall *trust in HCPs* to take care of their health – predicted avoidance of HCPs. Second, the study tested whether individuals' levels of trust in HCPs are a mediator of the association between the quality of interactions with HCPs and the degree to which individuals avoid HCPs. Finally, this study aimed to determine whether two demographic variables, *race/ethnicity* and *gender*, moderate the relationship between quality of interactions with HCPs and trust in HCPs. The analyses also tested the hypotheses both with and without controlling for subjects' age, education, and income.

Overall, the results provided support for the expected relationships of health self-efficacy, quality of interactions with HCPs, and trust in HCPs with HCP avoidance, such that all three of these variables did indeed act as significant predictors of HCP avoidance in the expected directions, while controlling for age, education and income, and each of the three accounted for unique variance in the presence versus absence of HCP avoidance. The results of this study also provided support for the hypothesis that trust in HCPs would act as a mediator of the association between quality of interactions with HCPs and HCP avoidance. However, the results did not provide support for race/ethnicity and gender as significant moderators of the relationship between quality of interactions with HCPs and trust in HCPs. Although the hierarchical multiple

regression analysis indicated that the gender-by-quality of interactions with HCPs interaction effect was significant, the interaction variable only accounted for a tenth of a percent more of the variance in trust in HCPs, a clinically negligible moderator effect. The following is a detailed discussion of the findings pertaining to each of these three major goals.

Main Effects of Quality of Interactions with HCPs, Health Self-efficacy, and Trust in HCPs on HCP Avoidance

The first hypothesis of this study was that the quality of individuals' past interactions with HCPs would be negatively associated with HCP avoidance. Indeed, correlational findings provided support for this hypothesis, revealing a statistically significant negative relationship between these two variables. Furthermore results of a logistic regression analysis showed that as scores representing the quality of interactions with HCPs increased in level of positivity, the odds of engaging in HCP avoidance progressively decreased for participants (controlling for individuals' health self-efficacy and their trust in HCPs), and that the effect remained even after controlling for age, education, and household income. A core concept of Bandura's Social Learning Theory (SLT) (Bandura, 1977a, 1977b; Bandura & Walters, 1963) is that people's likelihood of engaging in specific behaviors in large part depends on the expectancies that they have developed through prior experiences with the same or similar situations. Thus, the present finding that as the positive quality of individuals' past interactions with HCPs increased their likelihood of engaging in HCP avoidance decreased was as hypothesized, and it is consistent with SLT.

Beyond theory, this finding was also consistent with previous literature in this area. Prior research studies have shown that individuals' previous negative experiences with systems of healthcare and with HCPs (e.g., feeling disrespected, embarrassed, uncomfortable; perceiving

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discriminatory treatment in care delivery) are associated with greater levels of healthcare

avoidance (Blomberg et al., 2008; Byrne, 2008; Facione, 2002; Larkey et al., 2001). For

example, it has been found that patient perceptions of not being heard or one's HCP not spending

enough time with them (both of which were included in the measurement of quality of

interactions with HCPs in the current study) predicted later healthcare avoidance in a primary

care setting (Federman et al., 2001). On the other hand, previous studies have shown that high

quality interactions with HCPs lead to lower avoidance, higher treatment participation rates, and

even better emotional health during recovery from initial symptoms and illness (Beach, et al.,

2006; Moore et al., 2004; Stewart et al., 2000). Thus, the findings of this study are consistent

with previous research, as quality of interactions with HCPs appeared to have the same effect on

HCP avoidance for participants in this study as those in previous studies. However, because this

study had a cross-sectional design, causality could not be determined and even though it is

suggested that past interactions with HCPs produced this effect, the reverse may be true as well

(i.e., not engaging in HCP avoidance led to higher quality of interactions with HCPs, perhaps

through effects stemming from increased contact with HCPs).

This study's second hypothesis was that health self-efficacy would be negatively

associated with HCP avoidance. The bivariate correlational finding provided support for this

hypothesis, showing a statistically significant relationship in the expected direction between

these two variables. In addition, the logistic regression analysis indicated that with higher

participant health self-efficacy scores, the odds of individuals engaging in healthcare avoidance

were progressively lower, and that this effect remained after controlling for age, education, and

household income, as well as for quality of past interactions with HCPs and trust in HCPs. Self-

efficacy is a major concept within SLT and is posited to have an effect on the degree to which

individuals are likely to engage in particular behaviors. In regard to stressful situations, Bandura asserted that in general people will approach and try to handle situations that they perceive are within their capability to handle, and they will avoid situations that they perceive are beyond their capability. When applied to healthcare needs and challenges, this conception of self-efficacy is consistent with the findings of this study regarding health self-efficacy, as the higher levels of health self-efficacy predicted lower levels of HCP avoidance.

The support found for the second hypothesis of this study was consistent not only with SLT, but also with previous research that has found that those with higher health self-efficacy levels are more likely to engage in preventive health behaviors (Gebhardt et al., 2001). As noted previously in the Literature Review section of the current paper, there are mixed findings in the literature about whether health self-efficacy leads to increased or decreased healthcare avoidance, as some prior findings have indicated that individuals who engage in self-treatment seek *less* assistance from HCPs (Larkey et al., 2001; Moser et al., 2006). Furthermore, it has been argued that self-efficacy can act as either a motivating or inhibiting factor in seeking information about one's own health (Case et al., 2005). Overall, health self-efficacy has been recognized as a prime factor in influencing individuals' coping behaviors in response to health symptoms not just in SLT, but also within the Health Belief Model (NCI, 2005). However, given the various research findings there is a clear need for further research to determine how it specifically impacts healthcare avoidance. It is likely the case that health self-efficacy differentially influences healthcare avoidance for individuals based on their perceptions regarding appropriate health-related actions to take in response to health symptoms and perhaps based on the seriousness of symptoms. For example, whereas one person may respond to a persistent sore throat by making an appointment with his or her primary care physician and

interpret this symptom as an indicator of a throat infection, another may respond to the same symptom by treating it with home remedies (e.g., herbal teas) and interpret it as an indicator of allergy problems or voice strain. In contrast, with more serious symptoms (e.g., coughing up blood) most people may respond by at least an attempt to obtain care from a healthcare professional. Furthermore, levels of health self-efficacy may interact with individuals' beliefs about how self-sufficient people in general, or the individual himself or herself in particular, "should" be, in determining the degree to which people's self-efficacy is expressed through self-care versus seeking out HCPs as resources.

Although the present study found that higher levels of self-efficacy were associated with a lower likelihood of HCP avoidance, the same consideration regarding the cross-sectional study design must be acknowledged as with the previous hypothesis. Because causality could not be determined, it may be the case that higher levels of HCP avoidance led to decreased health self-efficacy levels. For instance, perhaps more frequent contact with HCPs increases an individual's efficacy expectancies about his or her ability to care for their health (e.g., if one views contact with HCPs as an essential component to caring for their health). Alternatively, less frequent contact with HCPs may lead to lower health efficacy expectancies because those with less contact are receiving less healthcare information and individualized healthcare attention. Based on the SLT concept of *reciprocal determinism*, it is most likely the case that health self-efficacy and HCP contact reciprocally influence one another.

The third hypothesis of this study, that trust in HCPs would be negatively associated with HCP avoidance, was also supported by bivariate correlational findings. Additionally, the logistic multiple regression analysis supported this hypothesis, showing that higher scores on the measure of trust in HCPs were associated with a lower likelihood that individuals would engage

in HCP avoidance, and that this effect remained after controlling for age, education, and household income, as well as for quality of interactions with HCPs and level of health self-efficacy. In the context of SLT, this finding likely held true for a very basic reason, because as trust in HCPs increased this likely reflected individuals' higher generalized expectancies that HCPs would care for their healthcare needs properly. Previous studies have found that as levels of trust in HCPs increase, individuals are significantly more likely to experience positive health outcomes such as achieving a better mental health status, recovering better from illness, and keeping up to date on cancer screenings (Bechel et al., 2000; Ling et al., 2006; Stewart et al., 2000). Furthermore, higher trust levels in HCPs have been shown to promote information exchange and collaboration between patients and HCPs (Finney Rutten et al., 2006). However, previous research has not examined a direct relationship between trust in HCPs and HCP avoidance, as it was tested in the current study, although the literature provided strong suggestions that there is such a link between trust in HCPs and HCP avoidance, given the numerous studies that have incorporated trust as an element of the quality of interactions with HCPs. Overall, further studies, especially using longitudinal designs that can better identify causal direction, are needed to test the direct relationship between trust in HCPs and HCP avoidance. Although in this study a significant relationship was found in the anticipated direction, the current findings could not determine causality.

The Mediating Role of Trust in HCPs

In addition to examining the main effects of the factors described above on HCP avoidance, it also investigated whether individuals' levels of trust in HCPs mediated the relationship between the quality of interactions with HCPs and HCP avoidance. To this end, two hypotheses were tested. First, hypothesis four was that quality of interactions with HCPs would

be positively associated with level of trust in HCPs. This hypothesis was supported by

correlational findings showing that individuals' more positive interactions with HCPs were

associated with higher levels of trust in HCPs. This finding was consistent with previous

research showing that high quality interactions with HCPs are associated with patients having

high levels of trust in HCPs (Finney Rutten et al., 2006; Halbert et al., 2006; Torke et al., 2004).

The second hypothesis tested in order to ascertain the potential mediating role of trust in HCPs in

the study model was hypothesis five, that trust in HCPs would mediate the relationship between

quality of interactions with HCPs and HCP avoidance, such that when trust in HCPs is controlled

the association between quality of interactions with HCPs and avoidance of HCPs would be

reduced significantly or would become non-significant. The hierarchical logistic multiple

regression analysis showed that trust in HCPs significantly predicted the likelihood of HCP

avoidance (higher levels of trust in HCPs were associated with lower odds of participants

engaging in HCP avoidance), and that this effect remained after controlling for the quality of

interactions with HCPs. In fact, adding quality of interactions with HCPs as a predictor in the

logistic regression model along with trust in HCPs did not yield any additional improvement in

predicting HCP avoidance over having trust in HCPs as the sole predictor of HCP avoidance.

Thus, it was concluded that trust in HCPs acted as a mediator variable as expected. In the

context of SLT, the mediation finding came out as expected because within this theory

environmental factors (quality of interactions with HCPs) and personal factors (cognitions such

trust in HCPs) are said to influence one another and produce behavioral outcomes (engagement

in HCP avoidance). Specifically, quality of interactions with HCPs was expected to influence

trust in HCPs (a generalized expectancy regarding behavior of HCPs), which in turn would

influence the likelihood of engagement in HCP avoidance. Indeed, this mediation effect was supported.

This finding is consistent with the expectation set forth by SLT (that a person's prior interactions with the environment shape expectancies regarding future interactions) as well as previous research studies that have shown that high quality interactions with HCPs increase trust levels in HCPs, and in turn lead to improved patient health outcomes (Finney Rutten et al., 2006; Kraetschmer et al., 2004). What was less clear in the literature is how low quality interactions contribute to subsequent healthcare avoidance, as this has been shown to be the case (Blomberg, et. al., 2008, Federman et al., 2001), yet it appears that the process by which this occurs has been examined. The current study provides support for a cognitive mediation process (a key aspect of SLT) whereby the quality of interactions with HCPs influences healthcare avoidance through the effect on trust in HCPs, but further studies are warranted before definitive conclusions are drawn.

The Moderating Effects of Race and Gender

A major goal of this study was to determine whether race/ethnicity and gender each acted as moderators of the relationship between quality of interactions with HCPs and trust in HCPs. Hierarchical linear multiple regression analyses were conducted to test two hypotheses. The first of these was hypothesis six: *Race moderates the positive association between quality of interactions with HCPs and trust in HCPs, such that the association is stronger for White participants than for non-White or minority participants (Blacks/African-Americans, Hispanics, and Asians).* Results of this study showed that although both quality of interactions with HCPs and race/ethnicity were significant predictors of trust in HCPs, the interaction variable created from the product of these two variables was not. Thus, there was no support for race/ethnicity as moderator in the relationship between quality of interactions with HCPs and trust in HCPS. The

second hypothesis regarding a moderation effect was hypothesis seven: *Gender moderates the positive association between quality of interactions with HCPs and level of trust in HCPs, such that the association is stronger for male participants than for female participants.* The results indicated that quality of interactions with HCPs and gender were each significant predictors of trust in HCPs, and the interaction between the two variables also was significant, providing some evidence of a moderation effect. However, within the hierarchical multiple regression analysis the model that included the interaction term was statistically significant but determined to not be clinically significant given that virtually no additional variance in the dependent variable of trust in HCPs was accounted for beyond the previous model that included the two variables as independent predictors.

Prior evidence has shown that racial/ethnic minority group members and males commonly experience more negative interactions with HCPs than White and female individuals do (Blanchard & Lurie, 2004; Johnson et al., 2004). Additionally, research has shown that racial/ethnic minority group members and males generally have significantly lower levels of trust in HCPs than do Whites and females (Bonds, 2004; Brodie et al., 1999; Kraetschmer et al., 2004; Wiltshire et al., 2011), and that low quality interactions with HCPs are the primary predictor of low trust in HCPs among African Americans even after sociodemographic variables (gender, marital status, education, income level, and health insurance status) are controlled (Halbert et al., 2006). Thus, the above-mentioned findings showing that quality of interactions with HCPs and race/ethnicity were each significant predictors of trust in HCPs are consistent with the findings of previous studies, as these associations operated in the expected directions, with quality interactions with HCPs having a significant positive association with trust levels in HCPs, and trust in HCPs being significantly higher for White individuals than for minority individuals.

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However, the finding that gender was a significant predictor of trust in HCPs, and specifically that trust in HCPs was significantly higher among males than among females, was not consistent with the above-mentioned prior research findings. This association was found to be the opposite of the expected direction, as trust in HCPs was actually expected to be greater among females. This may be the case because the measure of trust in HCPs in the current study was not robust, as this variable could only be constructed using one survey question due to the nature of the HINTS data. Thus, it may be the case that a more precise measure of trust in HCPs would have yielded similar results as previous studies, with significantly higher trust levels being found among female participants. The findings that neither of the interaction terms (race/ethnicity-by-quality of interactions with HCPs and gender-by-quality of interactions with HCPs) were clinically significant predictors of trust in HCPs was not surprising given that there exists a lack of consistent findings in the literature regarding the relationships between trust in HCPs and demographic variables such as race and gender. The possibility for moderation was explored in the current study but there was not great existing research support to expect that these moderation effects would necessarily be found. That said, it is recommended that future studies of factors which may contribute to trust in HCPs carefully examine variables like race/ethnicity and gender to determine how they may differentially impact the relationship between patient-provider interactions and trust levels in HCPs.

Limitations

This study had several notable limitations regarding generalizability, measures, and design. One limitation of this study was the generalizability of the findings to the broader U.S. population. As noted in the Method chapter (Sample section) of this document, the sub-sample from the 2007 HINTS that was used in the present study is demographically dissimilar to the

general U.S. population in regard to age, race, and gender, in addition to differing from the U.S. population in excluding individuals who had not interacted with HCPs and who lacked some form of health insurance. Specifically, the current sample was older and contained higher proportions of Whites and females than the broader U.S. population based on recent census data (U.S Census Bureau, 2010a, b). Therefore, the findings of this study must be interpreted with caution in light of these differences. Despite these differences between the sample and general population, it is worth noting that the current sample was similar to the larger U.S. population with respect to education, income, and marital status. Furthermore, although only those participants with some form of health insurance coverage were included in the final study sample, the rate of such persons within the entire HINTS sample was nearly identical to that within the larger U.S. population.

Second, there were limitations pertaining to the measures used in this study. As a whole, the variables in this study varied somewhat in how specific they were. For example, three of the four main study variables pertained to interactions one has with HCPs including the independent variable, *quality of interactions with HCPs*, mediator variable, *trust in HCPs*, and dependent variable, *HCP avoidance*. However, among these three variables, the first two specifically measured participants' interactions with and trust levels in HCPs over the 12 months prior to survey participation (e.g., *During the past 12 months, how often did they make sure you understood the things you needed to do to take care of your health?*), whereas the last variable was more general and measured participant engagement in HCP avoidance in general, without asking participants to report retrospectively about a specific time period. The measurement of the independent variable of *health self-efficacy* also lacked time specificity because participants were asked about their health-self efficacy levels overall. Here again there was no reference to a

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particular time frame (e.g. past 12 months) included in the survey question. Thus, a limitation of this study was the varying degrees of specificity among the measures. However, assessing health self-efficacy as a generalized expectancy that individuals bring to a variety of situations that they encounter in life is consistent with SLT, which includes such generalized expectancies as well as more situation-specific expectancies.

Another limitation regarding the measures was the fact that three of the four main study variables could only be constructed using one HINTS question. These included health self-efficacy, trust in HCPs, and HCP avoidance. The remaining variable, quality of interactions with HCPs, was a composite variable that included five survey questions. However, given the nature of the HINTS data most of the variables were composed of just one survey question and thus lacked the precise level of measurement (and potential variance in a sample's scores on each measure) that comes with variables constructed of several questions.

Of particular note, there were two variables in the current study that presented unique measurement concerns. The first was the dependent variable, *HCP avoidance*. Within the HINTS data this variable was recorded as a dichotomous variable, as participants were forced into the choices of "true" or "not true" when asked whether they *ever* engaged in HCP avoidance. However, in real world scenarios this variable would more accurately be represented as a scale (continuous) variable, as healthcare avoidance is not such a simple phenomenon that one either engages in (always) or does not (ever). Rather, levels of avoidance likely exist (e.g., I avoid very often, I avoid sometimes, I seldom avoid). The lack of such gradations likely results in significant imprecision in measuring HCP avoidance. Thus, this was a measurement limitation and can be addressed in future studies with a Likert-scale measurement of this variable.

The other variable in this study that presented a unique measurement concern was race/ethnicity. The measurement of this variable within HINTS did not allow for teasing apart race from ethnicity, but rather it was recorded as a single construct. For example, the minority categories included "Hispanic" and "Non-Hispanic Black or African-American." However, just within these two categories there may have been people in the sample who did not identify ethnically as American, but did identify racially as Hispanic or Black. This presents a potential measurement problem because apart from race, one's ethnic and cultural background may influence their interactions with HCPs, particularly if there are vast differences in health beliefs/behaviors or language barriers.

Finally, there were limitations with regard to this study's design. The most obvious limitation is that given the cross-sectional nature of the HINTS data, causality could not be ascertained when considering influences on HCP avoidance. In order to do so, future studies on this topic would need a design that better allows for such inferences (e.g., longitudinal designs) although given the nature of this topic experimental designs would be unethical or not feasible in most cases. Another design limitation was that due to the available data, potential predictors of HCP avoidance could not be incorporated into the study because although they were contained in the HINTS, they were not consistently included across the three waves. For example, variables related to family and social support were considered during the design of this study as possible predictors of HCP avoidance but they could not be included given the data set's structure.

Implications

The findings of this study hold important implications for theory, research, practice, and policy with the goal of decreasing healthcare avoidance and advancing public health goals among the U.S. population. Both the questions answered as well as those raised within the

current study provide key information that can be used by family health professionals and healthcare practitioners. The following are important considerations in each of the above-mentioned areas.

Theory Implications

Social Learning Theory (Bandura, 1977a, 1977b; Bandura & Walters, 1963) was used as the guiding theory for the current study. Each of the findings appeared to fit well with this theory. First, the finding that as the quality of interactions with HCPs increased in level of positivity, the odds of engaging in HCP avoidance decreased for participants was consistent with a core concept of SLT that people's likelihood of engaging in specific behaviors in large part depends on the expectancies that they have developed through prior experiences with the same or similar situations. Second, the finding that the higher participants' health self-efficacy scores were, the lower the likelihood of engaging in healthcare avoidance fits well within SLT given that the theory states that self-efficacy directs affects approach and avoidance behaviors. Specifically, Bandura asserted that people approach and try to handle situations that they perceive are within their capability, and they will avoid situations that they perceive are beyond their capability. Third, the finding that the higher the participants' trust in HCPs was, the lower the likelihood of engaging in HCP avoidance fits well with SLT because as trust in HCPs increased most likely so too did individuals' generalized expectancies that HCPs would care for their healthcare needs properly.

The fourth and fifth findings of the current study were that as individuals' quality of interactions with HCPs increased, levels of trust in HCPs significantly increased, and that trust in HCPs mediated the relationship between quality of interactions with HCPs and HCP avoidance. Both of those findings are consistent with SLT because the theory states that environmental

factors and personal factors interact with and influence one another and produce behavioral outcomes. The specific expectation for the mediation effect (quality of interactions with HCPs would influence trust in HCPs, which in turn would influence the likelihood of engagement in HCP avoidance) was not as clearly laid out by SLT, but it was expected based in part on previous literature and indeed supported in the current study. Finally, the sixth and seventh findings of the current study were that race/ethnicity and gender did not act as clinically significant moderators of the relationship between quality of interactions with HCPs and trust in HCPs, although the effect involving gender was statistically significant. SLT provided some reason to expect that the moderation hypotheses would be supported, because based on the concept of *reciprocal determinism* it posits that personal factors (e.g., race/ethnicity, gender) may interact with environmental factors (e.g., interactions with HCPs) to produce behavioral outcomes (e.g., HCP avoidance). The statistically significant moderation effect involving gender did indicate such a person-environment interaction, but overall the present results suggest that there may be other characteristics (including other possible person factors) that were not assessed in this study but that may moderate the effect of interactions with HCPs and individuals' trust in HCPs.

Because there is little explicit mention of theory in previous studies that have examined the process of healthcare avoidance, it is unclear which theoretical frameworks researchers have relied on to design studies on this topic. However, several theories from a range of fields may be useful in this area. For example, information-seeking theories from the field of communication, behavioral theories from health education, and social cognition theories from health psychology have all been noted for their potential usefulness in examining healthcare avoidance (Armitage & Conner, 2000; Byrne, 2008). Nevertheless, not only is there a lack of a standard accepted

definition or measurement instrument for the concept of healthcare avoidance within the research

literature, but there is a notable absence of clear statements about the role of theory within this

body of literature. Based on the antecedents of healthcare avoidance that have typically been

examined in previous studies (e.g., sociodemographic variables including race, gender,

education, and health insurance status, cognitive/emotional factors, health beliefs and behaviors),

it seems reasonable to conclude that many studies in this area are designed based on the same

theoretical framework that provided guidance for the current study, namely SLT. Given the

findings of the current study, specifically the findings that quality of interactions with HCPs,

health self-efficacy, and trust in HCPs are all significant predictors of healthcare avoidance, it

appears that SLT should continue to be the primary guiding theory used to advance research on

this topic. The central tenet of SLT is that human behavior can be explained and predicted by

the interaction of personal, behavioral, and environmental factors, and healthcare avoidance

(which is a behavior as well as a process) can likely be explained well by variables that fall into

these three categories of factors. SLT enriched the present study by shaping the inclusion of

both prior interactions with HCPs and individuals' subjective internal cognitions (self-efficacy

and trust) as predictors of HCP avoidance. Thus, it is recommended that future studies use SLT

in combination with existing research findings to provide direction about the variables that

should be examined as a part of the healthcare avoidance process, and that researchers should be

explicit about their use of this theory in order to help research consumers understand their study

design and findings.

Furthermore, theories such as SLT should encourage researchers to study variables

beyond those that may be *antecedents* to healthcare avoidance, because the theory points to the

study of factors that may be included in public health interventions to decrease healthcare

avoidance once it becomes a pattern, such as accurate health information (e.g., information about the consequences of engaging in healthcare avoidance). Specifically, SLT makes it clear that behaviors can be influenced and modified through reinforcing consequences and exposure to information. Thus, even without fully understanding the process that leads to healthcare avoidance, theories like SLT can help researchers shed more light on how this phenomenon of avoidance can be significantly reduced.

Moreover, SLT can be very useful in advancing knowledge about this topic to the extent that it can encourage researchers, particularly those within the field of family science, to study *social* variables that may play a role in healthcare avoidance. For example, we know that there is a transmission process of health behaviors and beliefs that occurs within families through mechanisms such as modeling of behavior and explicit parent-child training efforts (e.g., educating one's children about the dangers of drinking alcohol) (Lau, Quadrel, & Hartman, 1990; Marshall, Jones, Ramchandani, Stein, & Bass, 2007). Therefore, one potential research direction suggested by SLT is the study of how healthcare avoidance may be a learned behavior (influenced by related learned beliefs or expectancies) or a part of a larger pattern of health behaviors that is learned within one's family and constitutes a risk for repeated avoidance across generations within particular families. Thus, although HCP avoidance has been studied primarily at a population level or in terms of characteristics of individuals, SLT provides important guidelines for family science research on interpersonal influences on avoidance behavior.

Research Implications

As a whole, the literature on healthcare avoidance spans several disciplines (e.g., health education, psychology, sociology, and nursing and medicine). With one topic spanning so many

fields there is great potential for examining this public health challenge from a variety of different angles, leading to a richer understanding of predictors and interventions for decreasing healthcare avoidance. However, the disadvantage of this trend toward multiple perspectives is that researchers have rarely collated the findings from these fields in a comprehensive way in which comparisons can be made, with the exception of a recent review (Byrne, 2008). As a result, it is more difficult to approach the study of this topic in a multidisciplinary manner even though doing so would yield the greatest potential for significant research advances. Therefore, it is argued here that a critical task for future researchers is to incorporate theories, methods, and findings from fields both within and outside of their own when studying healthcare avoidance. For example, a researcher within the field of family science may consider designing a study of healthcare avoidance using SLT in tandem with a more commonly used family science theory such as the ecological framework in order to explore family contextual variables that may affect healthcare avoidance (e.g., family members' social support of members' active use of healthcare resources). Variables such as social support from family members were considered during the design of the current study but could not be included given data limitations within the HINTS 2007 wave. Another way in which family researchers can contribute to knowledge regarding interpersonal factors influencing HCP avoidance would involve collaboration with colleagues from the medical field, taking into account the common socialization of nurses, physicians, and other medical professionals into roles that may limit the professionals' ability to form positive alliances with patients, leading to patient experiences of negative interactions with HCPs.

Also related to this point, future researchers should also consider examining healthcare avoidance using multi-level data to address the influence of others beyond the individual patient in the patient's engagement in avoidance. For example, several studies have examined

interactions with HCPs as a significant predictor of active healthcare participation (Beach et al., 2006; Blanchard & Lurie, 2004; Federman et al., 2001; Moore et al., 2004). However, most studies have either measured these interactions from the perspective of the patient, as was done in the current study (e.g., Blomberg et al., 2008; Ok et al., 2008), *or* from the perspective of the HCP (van Ryn & Burke, 2000). At least one study has measured the quality of patient-provider interactions using *both* patient reports and researcher observer ratings, but the two sources were used as predictor variables independent of each other (Stewart et al., 2000). No studies were identified within the literature review for the current study that employed methods to examine the interplay between patient and HCP perceptions of the quality of patient-provider interactions, although the SLT concept of *reciprocal determinism* (a process of continuous, mutual action and feedback between personal, behavioral, and environmental factors) suggests that this is necessary to gain a complete picture of how these interactions affect healthcare avoidance.

In addition to examining multiple perspectives on patient-provider interactions, it is suggested that future studies also use multi-level data to develop studies examining family influences on healthcare avoidance. For example, using family data such as couple or parent-child dyadic data may be useful to determine if individuals' HCP avoidance is influenced by the health beliefs and behaviors of other family members (i.e., if family members beliefs and health-related actions increase or decrease the likelihood of individuals engaging in healthcare avoidance). Previous research findings provide evidence that family involvement may indeed significantly affect healthcare avoidance, as one study has shown that symptom consultation with a non-relative (e.g., a co-worker or friend) decreased the likelihood of healthcare delay among study participants, whereas consultation with a family member (e.g., a spouse) increased the likelihood of delay in response to cardiac symptoms (Moser et al., 2006).

Clearly, it is important for public health and policy researchers and to continue to study populations of persons who do not have healthcare insurance, to find ways through policy development to increase coverage for all Americans. However, an assumption of the current study was that increasing healthcare coverage is only a part of the solution to advancing public health in the U.S., as we know that healthcare avoidance continues to be a problem even after people have health insurance coverage. Thus, it is recommended that barriers to healthcare access be studied further among insured populations. The focus of the current study was on psychologically-based determinants of healthcare avoidance (i.e., health self-efficacy and trust in HCPs) and an environmentally-based factor (quality of interactions with HCPs), and the findings showed that these were significant predictors of avoidance. However, this same population likely faces barriers to access in spite of having forms of insurance, as avoidance may occur due to unavailability of other resources that enable individuals to obtain healthcare when needed (e.g., time off from one's job, funds to pay co-pay fees, childcare, and transportation). Indeed, one cannot assume that having health insurance removes access or resource barriers to obtaining healthcare.

Practice Implications

The findings of this study suggest two important points of intervention for decreasing the likelihood of healthcare avoidance among the U.S. population. These include targeting interactions with HCPs and health self-efficacy. First, given that the quality of interactions with HCPs had a significant negative relationship with HCP avoidance, a key way to help reduce such avoidance is to find ways to increase the quality of patient-provider interactions. As noted previously, one of the major aims of Healthy People 2010 (carried over to Healthy People 2020) was to improve the quality of patient-provider interactions by targeting four specific behaviors

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displayed by HCPs during clinical encounters: listening carefully, explaining things in a way that can be understood, showing respect, and spending enough time with a patient (U.S. Department of Health and Human Services, 2003, 2011). These same behaviors were included in the composite variable used in the current study to measure the quality of interactions with HCPs, and higher scores on this variable were associated with lower odds of participants engaging in healthcare avoidance. Thus, HCPs including doctors, nurses, nurses' aides, and other healthcare professionals who come into contact with patients during clinical encounters can all help decrease healthcare avoidance by attending to these behaviors. More attention to these factors in the education and training of HCPs may have significant benefits for decreasing avoidance of HCPs. In particular, the benefit of increased trust in HCPs may develop from an increased focus on patient-provider interactions, as high quality interactions with HCPs lead to higher levels of trust among patients in their providers (Finney Rutten et al., 2006; Halbert et al., 2006; Torke et al., 2004). Additionally, trust in HCPs has found to be engendered by patient perceptions that one's physician demonstrates technical competency during clinical encounters, gender concordance between patients and physicians, patient choice over one's physician, and a longer relationship with one's physician (Bonds, et al., 2004; Kao et al., 1998; Thom, 2001).

Previous studies and public health initiatives such as Healthy People 2020 have not clearly acknowledged that efforts toward creating high quality patient-provider interactions may also be the responsibility of patients, not only HCPs, as high quality interactions are mutually dependent on both parties. Nevertheless, it is argued here that ways to help patients contribute to high quality clinical encounters be created, as well as ways to help HCPs contribute to them. For example, public health professionals could devise public service announcements (PSAs) detailing specific strategies that patients can use to communicate with their HCPs (e.g., a list of

specific questions to ask one's provider when presented with a new medication regimen). One

such initiative has been identified: AHRQ's "Questions Are the Answer" ad campaign (AHRQ,

2012). This campaign features a website with tools such as "The 10 Questions You Should

Know" to help patients effectively communicate with their HCPs, as well as communication

strategies to consider before, during, and after one's healthcare appointment. Furthermore, the

campaign runs television public service announcements featuring HCPs singing lines such as

"we're not magicians, we can't read your mind" to encourage patients to communicate more

openly with their HCPs.

An additional point of intervention made clear by the findings of this study involves

health self-efficacy levels of patients, as they were found to be significantly associated with the

likelihood of healthcare avoidance. Within the health psychology literature, health self-efficacy

is recognized as a key factor in determining coping health behaviors that individuals engage in to

respond to symptoms (Case et al., 2005; NCI, 2005). At higher levels, this factor has been

shown to increase the likelihood of healthcare participation and treatment adherence (Curtin et

al., 2008; Tromp et al., 2005), whereas at lower levels it has been shown to increase the

likelihood of healthcare avoidance (Ni et al., 1999). Thus, improving health self-efficacy levels

is clearly one way to help address the problem of healthcare avoidance. Indeed, increasing self-

efficacy has been proven to be an effective intervention for helping patients manage serious

health conditions such as arthritis and diabetes (Marks, Allegrante, & Lorig, 2005; Norris,

Engelgau, & Venkat Narayan, 2001). Some of the primary characteristics of successful "self-

efficacy enhancing interventions" for individuals with chronic diseases include involving family

members and significant others in a patient's treatment, encouragement and reinforcement of

desirable health behaviors, and fostering self-appraisal of one's emotional responses to health-

related issues. Thus, it is suggested that public health professionals consider these characteristics and design interventions to increase health self-efficacy levels of the broader population, not just those already diagnosed with chronic conditions.

In addition to these two points of intervention, SLT offers another consideration for practice implications. A particularly useful idea from SLT for the study of healthcare avoidance is that regarding the adoption of desirable behavior, in this case desirable *health* behavior. According to Bandura, behavioral reinforcement is not necessary for strengthening appropriate behaviors, as it is "considered a facilitative rather than a necessary condition because factors other than response consequences can influence what people attend to" (Bandura, 1977b, p. 37). Therefore, general health education about healthcare avoidance may be an important point of intervention toward advancing the public health goal of decreasing this phenomenon (and conversely, the goal of increasing treatment participation) as people can learn appropriate responses to health symptoms by being informed of the benefits of attaining preventative and treatment healthcare, as well as by experiencing the consequences of engaging in healthcare avoidance. Furthermore, SLT points to interventions at the family level, to enhance beliefs and actions conveyed by members of an individual's family that may increase his or her engagement in health-promoting behavior.

Policy Implications

Based on the findings in the previous literature and the findings of the current study regarding healthcare avoidance in the United States, there is a key consideration offered here for those responsible for creating and reworking public policies that affect U.S. healthcare, specifically those implementing healthcare reform. On March 23, 2010, U.S. President Barack Obama signed into law the *Affordable Care Act*, a law intended to produce significant and wide

reaching changes within the American healthcare system (The White House, 2012). A major

emphasis of this law is to increase access to healthcare for Americans through measures such as

extending the age through which young adults can remain covered under their parents' health

insurance plans and providing ways for Americans with pre-existing conditions to more readily

gain health insurance coverage. Indeed, these are important measures and will likely benefit the

health of thousands and perhaps millions of Americans. However, it is recommended here that

greater policy attention be placed on not only increasing access to health insurance coverage as a

way to improve our nation's health, but also on increasing participation in healthcare among

those who do have insurance coverage, thereby reducing healthcare avoidance. I believe that the

Affordable Care Act would better serve American society as a whole with the inclusion of

targeted measures to understand why people engage in healthcare avoidance when health

insurance coverage is no longer a barrier (i.e., research focused on healthcare avoidance) and

address the factors that may account for people's engagement in healthcare avoidance (i.e.,

practice efforts such as those described earlier in this chapter). Whatever the measures, policy

must address the fact that active avoidance of healthcare occurs at significant rates within

populations of insured Americans and that increasing the number of insured persons will only go

so far in getting people needed health attention and advancing U.S. public health goals.

In summary, the findings of this study suggest the following implications for theory,

research, practice, and policy toward the goal of reducing healthcare avoidance:

Theory:

- In many studies on the topic of healthcare avoidance, there is no mention of the role of

  theory in guiding research, although most studies appear to be based on SLT. SLT is

well suited for this topic and should continue to be used to advance research on healthcare avoidance.

- SLT can encourage researchers, particularly family science researchers, to examine social factors that influence healthcare avoidance (e.g., the intergenerational transmission of health behaviors and beliefs within families).

Future Research:

- Researchers should incorporate theories, methods, and findings from fields both within and outside of their own when studying healthcare avoidance.

- Researchers should examine healthcare avoidance using multiple perspectives on HCP interactions beyond the perspective of patients (e.g., provider and research observer ratings).

- Researchers should use multi-level data to develop studies examining *family* influences on healthcare avoidance (e.g., couple data).

- Researchers should give more attention to access and resource factors that may play a role in healthcare avoidance for insured populations, as we cannot assume that having health insurance removes these potential barriers to obtaining healthcare.

Practice:

- Increasing the quality of patient-provider interactions may reduce healthcare avoidance; responsibility for this should be shared between HCPs and patients.

- Improving health self-efficacy levels of patients may reduce healthcare avoidance (e.g., involving family members and significant others in treatment plans has been shown to increase health self-efficacy levels for populations of persons with chronic conditions).

Policy:

- Public policy measures such as those stemming from the Affordable Care Act of 2010 must address the fact that avoidance occurs at significant rates within populations of insured Americans and that increasing the number of those with health insurance will not address the active avoidance that occurs within such populations.

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