STARS

University of Central Florida
STARS

Electronic Theses and Dissertations, 2004-2019

2013

The Effect Of Public Information Sources On Satisfaction With Patient Search For A Physician

Michael Loyal
University of Central Florida

Part of the Public Affairs Commons

Find similar works at: https://stars.library.ucf.edu/etd

University of Central Florida Libraries http://library.ucf.edu

This Doctoral Dissertation (Open Access) is brought to you for free and open access by STARS. It has been accepted for inclusion in Electronic Theses and Dissertations, 2004-2019 by an authorized administrator of STARS. For more information, please contact STARS@ucf.edu.

STARS Citation

Loyal, Michael, "The Effect Of Public Information Sources On Satisfaction With Patient Search For A Physician" (2013). *Electronic Theses and Dissertations, 2004-2019*. 2871.
https://stars.library.ucf.edu/etd/2871

Showcase of Text, Archives, Research & Scholarship

THE EFFECT OF PUBLIC INFORMATION SOURCES
ON SATISFACTION WITH PATIENT SEARCH FOR A PHYSICIAN

by

MICHAEL C. LOYAL
M.A. Webster University, 2007

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Doctoral Program in Public Affairs
in the College of Health and Public Affairs
at the University of Central Florida
Orlando, Florida

Fall Term
2013

Major Professor: Thomas T.H. Wan

ABSTRACT

The purpose of this research study is to examine the effect of public information sources on an individual's satisfaction with the search process undertaken to select a physician. A quasi-experimental research design was adopted to randomly divide the medical staff of a large central Florida medical group into control and intervention groups of approximately 77 physicians each. The intervention involved insertion of the website address to online physician report cards on to each intervention group physician's profile in the physician directory on the medical group's website. After two months, data were collected consisting of all individuals who had scheduled first-time appointments with one of the medical group's physicians during the two-month intervention period. A random sample of patients was drawn from each group and sample members were mailed a 62-item questionnaire along with a cover letter, summary of the research and postage-paid reply envelope. A total of 706 questionnaires were mailed and 61 completed questionnaires were returned, an 8.64% response rate.

Intent-to-treat analysis was conducted using independent-samples t-tests to compare the research study's continuous variables' mean scores for control and intervention group participants. The analysis revealed no significant difference in scores for control and intervention groups with the exceptions that the control group was somewhat more committed to conducting a search and selecting a new physician. The control group said the physician's communications skills influenced their satisfaction with the search and selection of a new physician quite a lot while the intervention group said physician communication skills somewhat influenced their satisfaction with search and selection.

Results of the covariance structure analysis demonstrated that information use and level of commitment to search and select a new physician independently predict search satisfaction. As information use and search commitment increase, a patient's satisfaction with the search increases as well. Furthermore, as information use increases, the variety of information sources relied upon or used also increases. The findings support the alternative hypothesis that the positive or direct effect of physician report cards is demonstrated in the time and cost of patient search for a physician for both intervention and control groups. One other alternative hypothesis was partially supported, i.e., the effect of household income is confirmed in patient search and satisfaction in selecting a physician. The alternative hypotheses that proposed that physician report cards are more likely to be used to search for a medical specialist and that physician experience, office location and accepted insurance effect patient search and selection of a physician were not tested. Two other alternative hypotheses were rejected. The research findings also indicated that predictors of health care information search satisfaction vary based upon the environment and contextual factors in which the search is conducted.

To my wife Brenda, whose love and compassion continue to inspire me and without whose unwavering support this dissertation would not have been possible.

ACKNOWLEDGMENTS

So many people have contributed their knowledge, insight, experience and valuable time in helping to make this dissertation possible. I have benefitted enormously from their kindness and generosity and can never hope to express the full measure of my gratitude for their help and support. First, I wish to acknowledge and thank Thomas Wan, PhD, my committee chair, professor and mentor. His understanding and comprehension of the health care industry served as my guide and inspiration on this incredible journey. I also wish to thank and express my deep regard for the members of my dissertation advisory committee: the late Jacqueline Byers, PhD, Myron Fottler, PhD, Adam Golden, MD, MBA, and Alice Noblin, PhD. I had the great pleasure and honor to experience their teaching and am especially grateful for their critiques, suggestions and their patience. Any errors or inaccuracies in this work are entirely my own. I wish to acknowledge Margaret Mlachak and Michele Pozdoll in the Doctoral Program in Public Affairs office, who kept me on track and helped me understand and meet the program's many administrative requirements.

Special thanks go to Nicole Pulido, Chelle Simmons, Diane Winter and John Williamson for making it possible to access the medical practice's patient data. Will Graves, MBA, Stan Mikalonis, PhD and Gavin Putzer, MD, PhD were kind enough to provide personal references, which allowed me to start on this trek and my fellow doctoral students helped to sustain me along the way. Sandy Hice provided invaluable editing and proofreading expertise. Our children, Cameron, Olivia and Nicholas, deserve my deepest thanks. They endured nearly

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS/ABBREVIATIONS

AGFI	Adjusted Goodness of Fit index
AIDS	Acquired Immunodeficiency Syndrome
ALS	Amyotrophic Lateral Sclerosis
AMOS	Analysis of Moment Structures
ANOVA	Analysis of Variance
BMHSU	Behavioral Model of Health Service Use
CMIN/DF	The likelihood ratio/degrees of freedom
CMIS	Comprehensive Model of Information Seeking
CMS	Centers for Medicare and Medicaid Services
GFI	Goodness of Fit Index
HBM	Health Belief Model
HCA	Hospital Corporation of America
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
HEDIS	Health Plan Employer Data and Information Set
HIAM	Health Information Acquisition Model
HIM	Health Information Model
HINTS	Health Information National Trends Survey
HIPAA	Health Insurance Portability and Accountability Act
HISB	Health Information Seeking Behavior

IBM	International Business Machines
IRB	Institutional Review Board
MAR	Missing at Random
MCAR	Missing Completely at Random
MSA	Metropolitan Statistical Area
PPACA	Patient Protection and Affordable Care Act
RMSEA	Root Mean Square of Error Approximation
SCI	Spinal Cord Injury
SPSS	Statistical Package for the Social Sciences
URL	Uniform Resource Locator

CHAPTER ONE: INTRODUCTION

Individuals seek information in order to increase knowledge, reduce uncertainty and facilitate decision making (Erdem & Keane, 1996; Kim, Ferrin & Rao, 2007; Kolstad & Chernew, 2009; Raju, Lonial & Mangold, 1995). Other reasons for information seeking may be asserted as well; knowing reasons behind certain actions, desiring respect, wanting assurance, or for the pure utility of doing so (Kim et. al., 2007; Manson, 2010; Schement & Curtis, 1995).

The cost in terms of time and expense spent searching for information may vary depending on the problem the individual is attempting to solve or the issue to be addressed (Friedman & Savage, 1948; Murray, 1991). For example, obtaining show times for a newly released film may take just a few minutes leafing through a newspaper or logging onto a theater's website. At the opposite end of the search spectrum, identifying colleges for one's child to attend, discovering the right house to buy in a desired neighborhood, or finding a doctor who specializes in rare medical disorders may require significant expense and time (days to months of reading published reports and articles, arranging site visits and interviews).

The magnitude of the search effort often depends on a market's turbulence (i.e., the frequency of new brands introduced in the market), the availability of information, socioeconomic factors, the information seeker's past experience, the amount of risk and uncertainty that is at stake, and the level of trust the information seeker places in the information source (Arrow, 1963; Erdem & Keane, 1996; Friedman & Savage, 1948; Kolstad & Chernew, 2009; Stephens, Xu, Volk, Scholl, Kamin, Holden & Stroud, 2008). The sheer volume of information consumed by Americans, on average approximately 100,500 words per person per

day (Bohn & Short, 2009), supports the assertion that the United States has embraced and is fully engaged in an era of information.

<center>The Rise of the Information Economy</center>

Lallana (2003) defined an information economy as an economy where production and competition among all individuals and organizations depends on their ability to "generate, process and efficiently apply knowledge-based information" (p. 13). That this definition accurately reflects the United States today is due in part to the foresight of America's founders, who desired the "freest possible dissemination of knowledge" as well as the protection of intellectual property (Schement & Curtis, 1995). They reconciled these seemingly opposing goals with the establishment of the copyright statute of 1790, which protected the creation, purchase and sale of information and established the foundation for the nation's nascent publishing industry (Schement & Curtis, 1995). The legislation's effect was dramatic. Thirty years before the adoption of the copyright statute American colonists could choose among 17 newspapers. By 1850, the United States boasted 254 daily newspapers with a total circulation of 758,000 readers (Schement & Curtis, 1995).

Advances in mid and late 19th century communications technology, including the invention of the telegraph, telephone, camera roll film and the film projector, similarly transformed information into a business tool that promoted industrialization, management innovations in organization, production and distribution, and the growth of American markets

(Schement & Curtis, 1995). Information production and consumption paralleled the nation's

economic expansion to the point where goods and services affected by advertising accounted for

34% of the United States' Gross National Product in 1980 (Schement & Curtis, 1995; van der

Wurff & Bakker, 2008). Between 1980 and 2008, the hours of information Americans

consumed grew at a rate of 2.6 percent each year (Bohn & Short, 2009).

Information Consumption and Health Literacy in the United States

Americans spend considerable time each day, on average about 11.8 hours, consuming

information from a variety of sources, including television, print media, radio, telephone,

computers, movies and music (Bohn & Short, 2009). See Table 1. Not all the information

consumed, however, can be considered useful, i.e. used in decision making or to increase

knowledge. Computer games, movies and recorded music account for 1.41 hours or nearly 12

percent of the information consumed in a day (Bohn & Short, 2009). Regardless, the sheer

volume of information available to Americans is staggering: 3.6 zettabytes (3.6×10^{21} bytes in

2008) (Bohn & Short, 2009). In order to make the best use of this enormous and complex

amount of information, individuals must be information literate, i.e., able to recognize when

information is needed and possessing the capability to locate, evaluate and use effectively the

needed information (American Library Association, 1989). At stake, according to the Final

Report issued by the Presidential Committee on Information Literacy (1989) is nothing less than

personal empowerment, social justice and the survival of democratic institutions (American

Library Association, 1989).

Table 1. Hourly Information Consumption

Hours Per Day	Delivery Media
4.91	All Television
2.22	Radio
0.73	Telephone
0.6	Print
1.93	Computer
0.93	Computer Games
0.03	Movies
0.45	Recorded Music

Note: From "How Much Information? 2009 Report on American Consumers," by R. E. Bohn and J. E. Short, 2009.

Health Literacy

Health literacy is the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions (Institute of Medicine, 2004, p. 1). Health literacy has in recent years been studied by researchers in a variety of areas, including knowledge of chronic disease (Gazmararian, Williams, Peel & Baker, 2003), patient information needs (Attfield, Adams & Blandford, 2006), consumer education material reading level (Eysenbach & Jadad, 2001) and physician overestimation of patient literacy (Fisher Wilson, 2003; Kelly & Haidet, 2007). Kutner (2006) found that 36 percent, or about 87 million United States adults, have basic or below basic health literacy (Kutner, Greenberg, Jin & Paulsen, 2006; Vernon, Trujillo, Rosenbaum, DeBuono, 2007). The financial toll of low health literacy, as evidenced in poorer health status, increased hospitalizations, bad disease outcomes and higher mortality, has been estimated to range between

$106 billion and $238 billion annually (Vernon et. al., 2007). The significance of health literacy

and the necessity to provide consumers with health care information in plain language free of

medical jargon is reflected in the Patient Protection and Affordable Care Act, where 30 sections

pertain to health literacy (Missouri Foundation for Health, 2011) and the passage in October

2010 of the Plain Writing Act, which mandates that federal agencies must write all new or

substantially revised documents in plain writing (Sunstein, 2011).

Health Reform, Transparency and Information Sources

Many speculate that passage of the Patient Protection and Affordable Care Act (PACA)

will lead to increased consumer activism as providers improve transparency, new sources of

quality and customer service information become available, and consumers strive to make

informed health care decisions and assume greater responsibility for their health care utilization

(Ackerman, 2008; Alpay, Verhoef, Xie, Te'eni & Zwetsloot-Schonk, 2009; Harris, 2003;

Marshall, Shekelle, Davies & Smith, 2003). Cost, quality and access are important factors in the

delivery of health care services (Kissick, 2003) and contribute to a patient's desire to make an

informed decision about the selection of a health care provider. In May 2006, the director of the

Agency for Healthcare Research and Quality testified before the Joint Economic Committee's

hearing on "Arming Health Care Consumers with Better Information and Incentives." She

assured the committee of the Administration's and the Department of Health and Human

Services' commitment to ensure that consumers can easily obtain understandable information

about health care quality and price (Arming Health Care Consumers, 2006).

Public officials are not alone in voicing this sentiment. A November 2007

Commonwealth Fund/Modern Health Care survey found that seventy-five percent of health care

opinion leaders said that increased quality and price transparency are important or very important

to improving the U.S. health care system (Shea, Shih & Davis, 2007). On March 28, 2008, the

Centers for Medicare and Medicaid Services (CMS) published on its Hospital Compare website

the results of the Hospital Consumer Assessment of Healthcare Providers and Systems Survey

(HCAHPS) which asks patients 27 questions about their hospital experience, including the

communication skills of physicians and nurses. In December 2010, CMS launched the Physician

Compare website, although the website at present does not include performance information or

ratings.   The CMS' Physician Quality Reporting System uses financial incentives and payment

adjustments to encourage and promote the reporting of quality information by eligible providers.

By 2015, "payment adjustments" will be applied to providers who do not report quality data

(Physician Quality Reporting System, n.d.).

<u>The Research Problem</u>

Consumers today have multiple sources to search for information about physicians in

order to select a physician for medical care and treatment. See Table 2. Sources include printed

materials as well as electronic access through the Internet, mobile applications or broadcast

media (Smith, 2005). Consumers also rely on interpersonal relationships to find information

about a physician (Andersen & Newman, 1973; Murray, 1991).

Table 2. Health Care Information Sources

Print	Broadcast	Internet	Interpersonal Relationships
Advertising	Advertising	Government Websites	Family
Direct Response	Radio Programs	Health Care Report Cards	Friends
Journal Articles	Television Programs	Podcasts	Physicians
Out-of-Home		Provider Websites	Nurses
Promotional Materials		Social Media	Ancillary Health Care Providers

Printed materials include direct-to-consumer advertising, health publications, newspaper advertisements, brochures, promotional materials, journal articles and other non-professional articles and directories. The Internet offers information seekers websites, blogs, social networking sites, podcasts and databases maintained by local, state or federal governments and agencies. By 2007, 35 percent of the U.S. adult population used the Internet to search for a health care provider (Cantor, Coa, Crystal-Mansour, Davis, Diopko, Sigman, 2009). Television includes commercials, infomercials (paid, program-length promotional vehicles) and physician waiting room videos delivered via cable networks.

During the past 15 years, no fewer than three national research studies surveyed American consumers' about their health information seeking behavior. In 2001, the Community Tracking Study, a longitudinal study of health system change and its effects sponsored by the Robert Wood Johnson Foundation (Robert Wood Johnson Foundation, n.d.), interviewed nearly

60,000 individuals in sixty randomly selected metropolitan and nonmetropolitan areas across the

United States. Seven items asked respondents the question "During the past 12 months, did you

look for or get information about a PERSONAL health concern on the …" concluding with the

following sources: Internet; friends or relatives; TV or radio; books or magazines; somewhere

else other than your doctor, other health care professionals, or health care organization; health

care professional (excluding physicians); and health care organization (Robert Wood Johnson

Foundation, n.d.).

In 2003, the National Cancer Institute conducted a nationwide, cross-sectional survey of a

nationally representative sample of American adults that became the Health Information

National Trends Survey (National Cancer Institute, n.d.). The biennial survey includes health

communication questions and the 2007 survey asked respondents how much they would trust

information from health care professionals, family or friends, the internet, television and

newspapers or magazines. See Table 3.

Table 3. Trust in Information Sources about Health or Medical Topics (%)

Trust Level	Doctor or other health professional	Family or Friends	Radio	Internet	Television
A lot	68.2	15.5	3.6	18.9	6.3
Some	25.6	47.2	30.1	48.3	35.6
A little	5.1	31.5	39.5	17.4	38.8
Not at all	0.8	5.4	24.8	10.7	18.6

Note: From "What does HINTS tell is about … Health Communication," by Health
Information National Trends Survey 2007 Data. Reprinted with permission from the
National Cancer Institute.

The 2007 HINTS data reveal that an estimated 68.2 percent of the United States population said they trust information about health or medical topics received from a doctor or other health care professional (Hesse & Moser, 2007). Radio was the least trusted source of information with only 3.6 percent. Only 6.3 percent of adult Americans responded that they trusted television a lot (Hesse & Moser, 2007).

The Department of Education's 2006 report on adult health literacy in the United States examined how individuals obtained information about health issues from printed and written media, the Internet, radio and television, family, friends and coworkers and health care professionals based on one of four levels indicating health literacy: Below Basic, Basic, Intermediate and Proficient (Kutner et al., 2006). In general, a larger percentage of adults with Basic, Intermediate or Proficient health literacy obtained health information from written sources while a higher percentage of adults with Below Basic and Basic health literacy received a lot of their health information from radio and television (Kutner et al., 2006). Study results showed that as the level of health literacy increased, a higher percentage of adults obtained health information from family members, friends or coworkers (Kutner et al., 2006).

The Search for a Physician

The search for and selection of a physician can be a time-consuming process that involves awareness, attitude and intention requiring high involvement, high risk, expense, and much information (O'Brien, 1971; Perreault & McCarthy, 2005). It also is characterized by

consumers' lack of knowledge about their illness or full understanding of whom among various

medical specialists has the training and experience to treat their condition (Arrow, 1963; Kolstad

& Chernew, 2009).

Arrow (1963) wrote that this "informational inequality (between patient and doctor) …

leads to the setting up of a relationship of trust and confidence, one which the physician has a

social obligation to live up to" (p. 965). But because the patient does not have the same

knowledge of medicine as the doctor (*information asymmetry*), one cannot be sure one is

receiving the best care. The patient must trust that the doctor is serving one's best interests

(Kolstad & Chernew, 2009; Leisen & Hyman, 2004).   And the way the patient goes about

establishing that trust factor is by spending considerable time and expense (cost) searching for a

doctor or a hospital using information sources.

A Proposed Model of Information Search Satisfaction

Consumers use information sources to acquire knowledge about various health issues,

including physicians, which raises an important question: do the programs, materials and

activities by the groups and organizations referenced above convey accurate and useful health

care performance information to patients? Furthermore, are patients satisfied with varying

sources of information enabling them to select a desirable physician for care and if they are, do

they use the information? Figure 1 below presents a proposed model of the health care provider

search and selection process by a patient and the effects of internal and external (or endogenous

and exogenous) variables on patient satisfaction with information sources (Aday & Andersen, 1974; Andersen, 1995; Andersen & Newman, 1973; Harris, 2003; Heskett, Jones, Loveman, Sasser & Schlesinger, 1994; Kolstad & Chernew, 2009). Formal information sources include professionally produced marketing, communications and information materials. The model proposes that a patient's desire or need for health care services are influenced by one's relationship with his or her existing provider, health status, and use of health care services, such as the emergency department, imaging or laboratory services. These factors can lead to the decision to either seek a new provider or maintain the status quo.

If the patient concludes that he or she must find a new physician, the patient will begin a search and rely on both produced and interpersonal information sources in arriving at the selection of a new provider (Murray, 1991). The patient's satisfaction with the information sources will depend on whether they meet or exceed the patient's expectations. If they do, then the patient is likely to consider his or her information needs are satisfied, schedule an appointment with the physician, or recommend the physician to a family member or friend.

Health
Service
Use

Formal/Produced
Information
Sources

Health
Status

Need for
Provider
Service

Search for
and Selection
of Physician

Satisfaction with
Information
Sources

Relationship
with
Provider

Interpersonal
Information
Sources
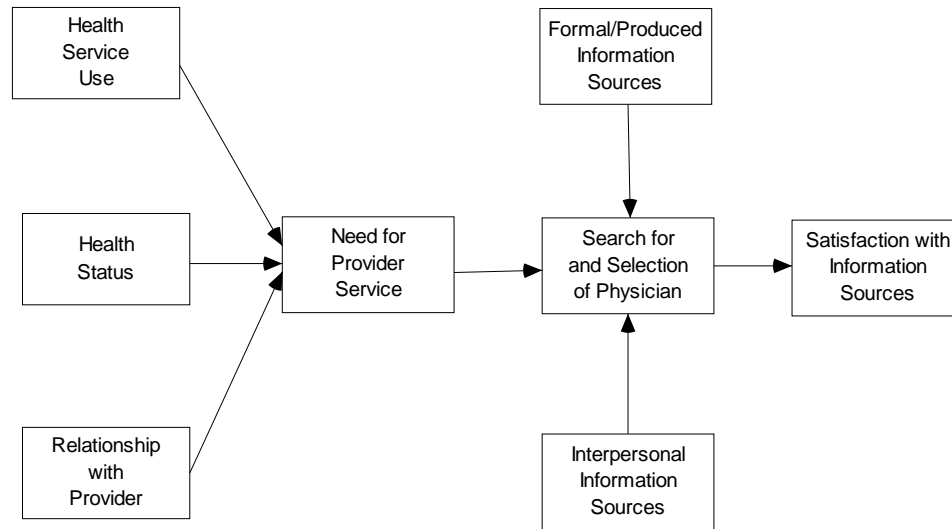
Figure 1. Effects of Internal and External Variables on Patient Satisfaction with Information Sources Used in the Search for a Physician. Adapted from "A Framework for the Study of Access to Medical Care," by L. Aday and R. Andersen, 1974, *Health Services Research*, 9(3), p. 212; "Revisiting the Behavioral Model and Access to Medical Care," by R. Andersen, 1995, *Journal of Health and Social Behavior*, 36, p. 8; "Societal and Individual Determinants of Medical Care Utilization in the United States," by R. Andersen and J. Newman, 1973, *The Milbank Memorial Fund Quarterly, Health and Society*, 51(1), p. 101; "Putting the Service-Profit Chain to Work," by J.Heskett, T. Jones, G. Loverman, W. Sasser, Jr., and Schlesinger, 1994, *Harvard Business Review*, March-April, p. 166. Copyright 1994 by the President and Fellows of Harvard College; "Quality and Consumer Decision Making in the Market for Health Insurance and Health Care Services" by J. Kolstad and Michael E. Chernew, 2009, *Medical Care Research and Review*, 66(1), p. 31S.

Significance of the Study

In 2006 an estimated 963.6 million visits were made to office-based physicians, an average of about 307 visits for every 100 persons (Cherry et al., 2008). New patient visits accounted for 110.4 million or 12.2 percent of total office visits. Some visits might take a few minutes while others take longer. Prolonged physician search almost certainly results from patients' uncertainty about the quality of medical care they are seeking and for which they will

pay (Arrow, 1963). The costs involved in a comprehensive information search are real and may result in delays in care, complicated decision making and information overload (Johnson, 1997). If use of and satisfaction with public information sources reduces the percentage of patients requiring prolonged physician search, the time saved would be substantial and could improve health care outcomes.

Schmidt & Spreng (1996) developed a model of external consumer information search which organizes the determinants of information search into the categories of 1) ability to search, 2) motivation to search, 3) costs to search, and 4) benefits of search. Subsequent research drawing on the Schmidt & Spreng's (1996) model studied financial markets, banking, retirement plans, travel and tourism, credit cards, online gaming, services in general, and online shopping to name a few. However, a search of 36 articles citing Schmidt and Spreng failed to disclose any research related to satisfaction with patient search for a physician. Given that the Patient Protection and Affordable Care Act envisions an additional 30 million American gaining access to health care by 2018, identifying efficient and effective physician search methods with which patients are satisfied grows in significance.

This study, therefore, fills the gap in patient search research regarding patient or consumer satisfaction with physician search process. This is accomplished through a quasi-experimental research design involving individuals who scheduled first-time appointments with physicians employed by a multi-specialty medical group practice located in central Florida. In order to test the effects of information sources on individuals' satisfaction with their physician

search, the principal investigator developed an intervention involving an additional information source randomly assigned to physician's profiles on the group practice's website.

<u>Research Questions</u>

The research questions address specifically defined aspects of patient search and satisfaction with the search:

1. Do physician report cards affect patient satisfaction with search (time and financial cost) for a physician compared to other information sources?

2. Do physician report cards affect patient search for a primary care physician (i.e. internal medicine, family medicine, pediatrician or obstetrician/gynecologist) differently than for a specialist physician as compared to other information sources?

3. Do patients with chronic medical conditions (i.e. asthma, diabetes, thyroid disease, urinary incontinence, etc.) use physician report cards differently than patients with acute medical conditions (i.e. fever, injury, short-term illness) compared to those who use other sources of information?

4. Do gender, age, race, ethnicity, education and socioeconomic status affect patient use of physician report cards in searching for a physician compared to other information sources?

5.	Compared to other information sources, do patients regard physician report cards as measures of a physician's clinical quality or service quality?

6.	Does physician gender, age, experience, board certification, medical school, residency or fellowship reputation, office location, appointment availability, accepted insurance and office staff affect patient satisfaction in searching for a physician?

Obtaining answers to these questions help to determine whether physician report cards enhance patient satisfaction as compared to other information sources and leads to improved access to providers and better patient satisfaction. In short, are health care report cards and other information sources really useful tools that benefit users or are they in reality a means to an end, i.e. a revenue generator for the organizations that produce them or a quality improvement resource for the physicians and organizations at whom they are targeted?

<div align="center">Chapter Summary</div>

Chapter One identifies reasons why individuals search for information and describes how information search behavior can be affected by various internal and external variables. The chapter provides a historical context for the rise of the information economy in the United States and Americans' dependence on information as measured by how much information is consumed by consumers through various information media. The chapter then discusses health literacy and its effect on health status and health care treatment and how health literacy influences the choice or preference among various information sources. Finally, the chapter proposes research

questions to study the effect of information sources on patients' satisfaction with their search for

a new physician.

CHAPTER TWO: THEORY & LITERATURE REVIEW

The purpose of this chapter is to review the information search and satisfaction

conceptual models that provide the theoretical foundation or framework for this research and to

review relevant literature involving the effect of public information sources on patients' search

for a physician. The theoretical framework section discusses models that describe health

information search behavior and individual or consumer satisfaction as it relates to health

information search.

The literature review section examines research involving consumers or patients use of

public information sources such as the Internet, newspapers, television, family and friends or

physicians and other health care professionals and their role or effect in the search by individuals

for health care information, including the selection of a physician. Particular attention is given to

research on physician report cards, since their influence on satisfaction with patient search for a

physician is an important independent variable in the research design described in Chapter Three.

Information Search Defined

Johnson (1997) defined information seeking as "the purposive acquisition of information

from selected information carriers" (Johnson, 1997, p.4). The word "purposive" suggests that

information search is an intentional behavior, which may not always be the case (Longo, 2005).

In addition to active information seeking, health information seeking behavior (HISB) must also

include passive searching, a phenomenon which occurs when people discover information that

they had no intent to seek or search for as they go about the activities of their daily life such as browsing through a magazine or watching a television program (Longo, 2005). In contrast, Berger (2002) characterized passive information seeking (albeit within a personal interaction context) as a strategic rather than unintentional action.

Unlike some researchers (Moore & Lehmann, 1980; Punj & Stelin, 1983; Srinivasan & Ratchford, 1991) who defined and addressed information search within a pre-purchase framework of durable and nondurable goods such as automobiles or bread, Schmidt and Spreng (1996) take a broader perspective. Their definition applies regardless of whether consumption or use relates to a specific or imminent purchase that is being considered (Schmidt & Spreng, 1996). Beatty and Smith (1987) defined information search more narrowly as "the degree of attention, perception, and effort directed toward obtaining environmental data or information related to the specific purchase under consideration. The focus is directed toward active rather than passive search due to the ambiguity and difficulty of measuring passive search" (p. 85).

Information Search Conceptual Models

Three theoretical perspectives characterize consumer information search models (Schmidt & Spreng, 1996). These include psychological, economics and consumer information and processing approaches (Srinivasan, 1990). The psychological perspective focuses on motivation, and in particular, goal-orientation, which has been identified as an important driver for conducting information search (Srinivasan, 1990). According to Srinivasan (1990) different

motivation levels can affect information search. An individual may conduct an information search in order to find the best possible alternative and will do so "as long as the net utility is positive" (p. 172). Another individual with the same information search goal, however, may stop searching once a satisfactory alternative has been found and concluding that continued search is not worthwhile (Srinivasan, 1990).

The economics stream addresses information search in terms of costs, benefits and utility maximization (Srinivasan, 1990). Search costs include money expenditures or price associated with the search as well as the amount of time expended (Stigler, 1961). The amount of search will vary among individuals based on an individual's switchpoint or reservation utility, which Srinivasan (1990) defines as the utility level which forms the boundary between continuing to search and stopping search (p. 168).

The consumer information and processing perspective emphasizes the role of memory in search and is characterized by internal search and external search (Srinivasan, 1990). Attaining goals at various stages of the search process provides the motivation to continue searching that ultimately results in information acquisition and decision-making (Srinivasan, 1990). Schmidt and Spreng (1996) argued that the consumer information and processing perspective may be subsumed into the psychological perspective because the former involves both motivation and ability (particularly the constraints) to search (p. 247). Table 4 identifies health care information search conceptual models associated with the theoretical approaches discussed above.

Table 4. Health Care Information Search Conceptual Models

Name	Author(s)	Date	Theoretical Approach	Industry
Health Information Acquisition Model	Freimuth, Stein & Kean	1989	Psych.; Economics	Healthcare
Comprehensive Model of Information Seeking	Johnson	1997	Consumer Information Processing; Psych.	Healthcare
Health Information Model	Longo et al.	2001-2010	Consumer Information Processing	Healthcare

Both the Health Information Acquisition Model and the Comprehensive Model of Information Seeking emerged from consumers' search for information about cancer and cancer treatment. Similarly, the Health Information Model is a revised and expanded version of an earlier model developed in a study that examined health care information use by women with breast cancer (Longo, Patrick & Kruse, 2001). Johnson (2005) and Longo (2001) both draw upon elements from the Health Belief Model (HBM), while Freimuth, Stein and Kean (1989) incorporate components from Lenz's (1984) six-step information-gathering process.
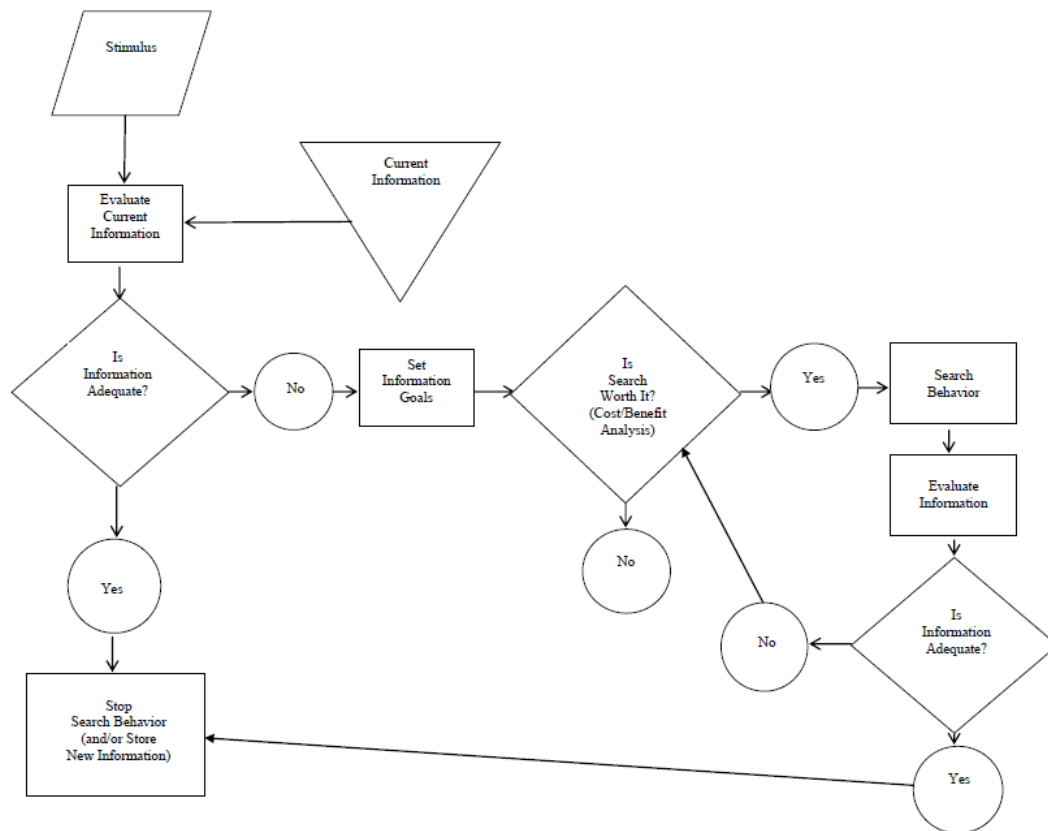
Figure 2. The Health Information Acquisition Model depicting the Information Search Process. Adapted from "Searching for Health Information. The Cancer Information Service Model," by V.S. Freimuth, J.A. Stein and T.J. Kean, 1989, *University of Pennsylvania Press,* p. 8. Copyright 1989 by University of Pennsylvania Press. Reprinted with permission of the University of Pennsylvania Press. See Appendix A.

Freimuth et al. (1989) developed the Health Information Acquisition Model based in part on a survey of 7,500 callers to the National Cancer Institute's Cancer Information Service. See Figure 2. Those responses, combined with data gleaned from 1.5 million information seekers during the period from 1983-1986, contributed to the model's formulation and the researchers' goal to synthesize existing research and contribute to the body of knowledge in the field of information search (Freimuth et al., 1989). Their six-step model drew upon the earlier work of

Lenz (1984), who described the information search process as a "subcomponent of the decision

process, which precedes the enactment of discretionary health behavior" (p.61). See Table 5.

Interestingly, Manson (2010) later argued that patients' information search may not be for the

sole purpose of decision-making, but rather as a result of some patients' desire to obtain

information for its content or by others who engage in the process because it informs them, while

for others the occasion of informing provides meaning or value (p. 836).

Table 5. Six Steps of the Information Search Process

Lenz (1984)	Freimuth et al. (1989)
1. Stimulus	1. Stimulus
2. Goal Setting	2. Set Information Goals
3. Decision to Seek Information Actively	3. Cost/Benefit Analysis
4. Search Behavior	4. Search Behaviors
5. Information Acquisition & Codification	5. Evaluate Information
6. Decision regarding the adequacy of the information required	6. Is Information Adequate (decision point)

Regardless of the underlying motivation for seeking information, search begins with

stimulus (Freimuth et al., 1989; Lenz, 1984). Lenz (1984) argued that stimuli can be either

internal, e.g. illness symptoms, or external, experienced by reading a newspaper advertisement

promoting health screenings or a friend's comments regarding a recent medical procedure (p.62).

According to Freimuth et al. (1989) the stimulus provokes an assessment as to whether the level

of knowledge stored in internal memory (Bettman, 1979) is sufficient, in which case no external

search takes place. If the assessment uncovers a gap or discrepancy in internal memory and a

determination is made that new information is required, the external search process begins (Freimuth et al., 1989, p. 9).

External search commences with the *formulation of information goals* that limits or constrains information search (Bettman, 1979; Freimuth et al., 1989; Lenz, 1984). These goals might include the immediacy with which the information is to be obtained, the length of time devoted to search, the number information sources to be investigated, or the number of alternatives to be searched (Freimuth et al., 1989; Lenz, 1984). Bettman (1979) proposed that goal setting contributes to search direction, i.e. which pieces of information are sought (p. 135).

At some point during the search the person will ask whether continuing to search is worth the effort (Freimuth et al., 1989). The decision to halt or continue searching is influenced by "the amount and type of prior information and the anticipated *cost-benefit* ratio of engaging in active search" (Lenz, 1984, p. 62). Costs may include the time and money spent searching, delays in decision making, confusion and frustration, emotional distress or decreased credibility from revealing weakness or ignorance, while benefits may include increased knowledge, greater control, satisfaction or diminished concerns or anxiety (Freimuth et al., 1989; Lenz, 1984). Freimuth et al. (1989) found in their research of callers to the Cancer Information Service that as many as one-third of the population may stop searching at the cost- benefit stage (p. 198).

Freimuth et al. (1989) proposed that the fourth step in information search, *search behavior*, is characterized by the extent and method of the search. Extent involves the number of alternatives investigated (scope) as well as the number of dimensions (depth) of an alternative that is investigated (Lenz, 1984). During search, for example, the scope of a person's

23

investigation may include published materials, electronic and broadcast media and the opinions of others. The types of sources investigated indicate the depth of the search. Published materials, for example, might include books, magazines, journals or direct mail. Method of search, according to Lenz (1984), involves impersonal sources (inanimate objects such as books or strangers) and personal sources including family, friends or a person's medical provider (p. 63). Subsequent health care-focused studies (Carlsson, 2000; Cutilli, 2010; Kenkel, 1990; King & Haefner, 1988; Wagner, Hu & Hibbard, 2001) have produced mixed results regarding patient preference for personal or impersonal methods, indicating variables such as age, gender and education may influence which sources of information patients prefer.

The fifth and sixth steps of the Health Information Acquisition Model involve a continuous *evaluation of information* by the searcher. Each bit of new information serves as a stimulus and is compared to previously obtained information and a cost/benefit ratio is determined (Freimuth et al., 1989). The cycle repeats itself until a *decision point* or level of desired certainty is achieved and the searcher can make a decision (p.12). Freimuth et al. (1989) and Lenz (1984) acknowledged that other factors that can't be rationally analyzed can influence the length of a search. Boredom, frustration, fatigue, and difficulties finding information can prematurely shorten search while curiosity, interest and adherence to search goals can prolong search (Lenz, 1984).

Setting information search goals (e.g. when search will begin and identifying which sources to consult) and evaluating search progress using cost/benefit analysis are principal

characteristics of the Health Information Acquisition Model. These steps justify placing the

model within the psychological and economics perspectives of information search theory.
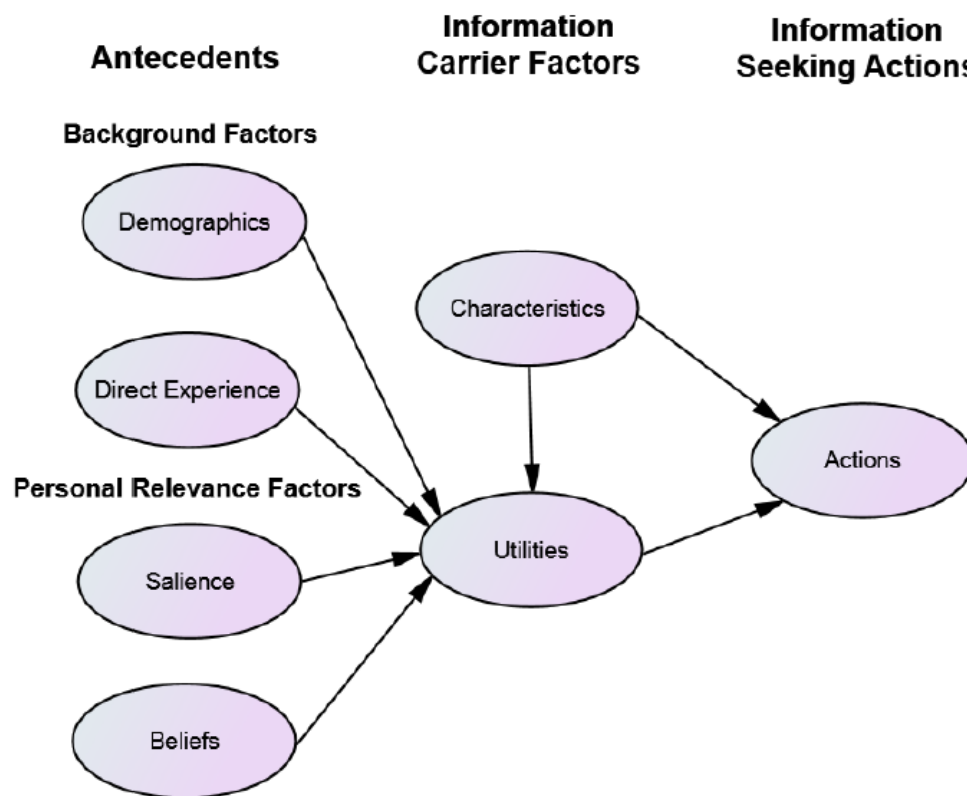
Figure 3. Comprehensive Model of Information Seeking. Adapted from *Cancer-Related Information Seeking*, by J.D. Johnson, 1997, Hampton Press, Inc, p. 34. Copyright 1997 by Hampton Press, Inc. Reprinted with permission of Hampton Press, Inc. See Appendix A.

Johnson (1997) developed the Comprehensive Model of Information Seeking (CMIS)

partly in response to the societal trend whereby consumers increasingly "pull" information from

a source (e.g. a product or service manufacturer or provider) rather than relying or depending on

the source to "push" the information to them via traditional communication and marketing

channels (p. 173). Cancer patients, like all consumers, are embedded in an information field that

provides the psychological, demographic and environmental context of their information

seeking, and stimulates the desire to search (Johnson, 1997; Savolainen, 2008). Psychological

contextual elements may include one's beliefs, personal experience, satisfaction and the

perceived applicability of information to a problem (salience) (Johnson, 1997, p. 71).

Demographic variables include age, race and gender while service and product providers, along

with information providers and sources, comprise the environmental context of the information

field (Johnson, 1997).

The CMIS arranges these variables into three classes: Antecedents, Information Carrier

Factors, and Information Seeking Action. Antecedents supply the motivation to seek health

information while Information Carrier Factors structure the seeker's intention to seek

information from specific sources (Johnson, 1997). Information Seeking Actions focus on

outcomes and reflect the strategies the searcher undertakes to acquire information, such as by

observing an event (passive), reading a magazine article (active), or talking to a friend or doctor

(interactive) (Berger, 1979; Johnson, 1997).

Johnson (1997) acknowledged the influence of the Health Belief Model (HBM) in

developing the CMIS. Chew, Palmer and Kim (1998) described the fundamental principle

behind the HBM:

> The basic premise of the HBM is that preventive health behavior is a function of
> readiness to act (perceived susceptibility and perceived seriousness) and efficacy of the
> recommended response (perceived benefits and perceived barriers). Depending on the
> disease, type of health service promoted, and individual's situation, different factors or
> combination of factors have accounted for major portions of the variation in taking
> preventive health steps (Rosenstock, 1974). In addition, demographic and sociographic
> variables such as age, gender, education, and income have modified disease prevention

behaviors (Hayes & Ross, 1987; Rosenstock, 1974). (p. 229).

Elements from the Behavioral Model of Health Service Use (Andersen & Newman, 1973; Andersen, 1995) parallel those in the HBM's modifying factors as well as the background factors and the personal relevance factors found in the CMIS's antecedents stage. Andersen and Newman (1973) proposed that health services selection and utilization can be viewed as a type of individual behavior that results from the influence of societal determinants, health services and individual determinants (1973). Andersen and Newman (1973) argued societal determinants of health care utilization are technology and norms; health services systems include resources and organization and individual determinants consist of predisposing factors (age, sex, marital status, education, race/ethnicity, occupation, beliefs, knowledge), enabling factors (family, community resources, accessibility) and perceived and diagnosed illness level reflecting the need for care factor (Andersen & Newman, 1973). Indeed, several of Andersen and Newman's individual determinants, e.g. beliefs, knowledge and community resources, fit within the latent variables Harris (2003) identified as essential elements in patient search.

Johnson (1997) proposed that search begins because of the perception that a gap exists in existing knowledge (p. 110). Information carriers bridge the gap between "contextual situation and the desired situation" or outcomes (Wilson, 1999, p.253). Dervin (1999) described this bridging of the gap between one time-space moment and another as Sense-Making (p. 739). For their part, information searchers chose to seek information from a particular information carrier due to its credibility and intentions (Pettigrew, Fidel & Bruce, 2001, p. 60). In terms of an information source's credibility and intentions, Johnson (1997) argued that interpersonal or face-

to-face communication is the preferred mode of communication, especially in the instance when a health professional serves as the information source (p. 128).

Like Freimuth et al. (1989), Johnson (1997) acknowledged that modifying factors such as the satisfactions or utilities obtained from various sources affect the scope and depth of search (p. 110; Lenz, 1984). Other modifying factors include the searcher's social economic status, search style, i.e. level of selectivity, age, experience, and personality type (pp. 115-116; 129). After developing a questionnaire to test the CMIS and administering it to engineers and other technical service providers, Johnson "concluded that the model presented a general framework for information seeking but that it required the incorporation of additional contextual factors" (Pettigrew et al., p.61).

The CMIS placement within the psychological and consumer information and processing frameworks is clearly supported. The model's recognition of underlying imperatives to seek information as an antecedent to search provides the motivation for seeking information – a key element found in the psychological model. Similarly, the influence of the Health Belief Model's knowledge and prior experience modifying factors and the satisfactions or utilities associated with information carriers correspond with the consumer information and processing perspective's emphasis on memory and reservation utility.

Variables Influencing Patient/Consumer Information-Seeking Behaviors Behavior and Information Use

Contextual	Personal
Health status, health care structure, delivery of care, information environment, information seeking for self, family member, or friend at risk or with current medical problem, interpersonal social supports, networks	Demographic factors, socioeconomic factors, health history, genetics, stress, education, culture, language, attitudes, behaviors, current health status, cognitive ability, interpersonal communication motives

Health Information Behavior

Active Information Seeking
- Patient/consumer is *not aware* of available information in traditional mass media, new media, or through personal interactions.
- Patient/consumer is aware of information but *does not attempt to access it.*
- Patient/consumer is aware of information and *attempts to access it.*
- Patient/consumer accesses information but is *not able to use it.*
- Patient/consumer accesses information and is *able to use it.*
- Patient/consumer accesses information but *does not use it to make personal health care decisions.*
- Patient/consumer accesses information and *uses it to make personal health care decisions.*

RELATIONSHIPS

Passive Receipt of Information
- Consumer/patient *does not receive* information through traditional mass media, new media, or personal interactions.
- Consumer/patient *receives* information through traditional mass media, new media, or personal interactions.
- Consumer/patient receives information but *does not use it.*
- Consumer/patient receives information and *uses it.*
- Consumer/patient receives information but *does not use it to make personal health care decisions.*
- Consumer/patient receives information and *uses it to make personal health care decisions.*

Patient/Consumer Outcomes
- Empowerment/Locus of Control
- Satisfaction
- Activities of Daily Living
- Health Outcomes

Figure 4. Health Information Model (2010). Adapted from "Health Information Seeking, Receipt, and Use in Diabetes Self-Management," by D.R. Longo, S.L. Schubert, B.A. Wright, J. LeMaster, C.D. Williams & J.N. Clore, 2010*, Annals of Family Medicine*, p. 337. Copyright 2010 by Annals of Family Medicine. Reprinted with permission of Annals of Family Medicine, Inc. See Appendix A.

The Health Information Model's evolution reflects the principal author's growing recognition and understanding of health information seeking behavior. The original conceptual model emerged from Longo et al.'s (2001) review of the literature relating to the use of health care information by breast cancer patients. The researchers selected breast cancer largely because of the disease's prevalence, the size of the survivor group, and the extensive media

coverage the disease receives (Longo et al., 2001). Their review revealed a knowledge gap about the sources of information relied upon by breast cancer patients and how they use the information (p. 414). The initial model's first two dimensions include contextual variables (health status, health care structure, delivery of care, and information environment factors) and personal variables (demographics, patient information preferences, patient attitudes and behaviors) that are associated with five information types: the disease process; self-care and self-management strategies; specific services and treatments for breast cancer; the quality of health care providers and sites of care; and quality of health care plans and other insurance coverage (Longo et al., 2001). Longo et al. argued that including health care information types in the model is critical to the analysis because they enable researchers to consider the "synergistic effects" of each individual information source on the total affect of a similar message (p. 415). The third dimension describes the patient's awareness or lack of awareness of health care information, the patient's intent or ability to access the information, and the patient's use or non-use of the information, which leads to the fourth dimension – patient empowerment/locus of control and satisfaction (Longo et al., 2001).

Longo (2005) published an expanded Health Information Model four years later following a pilot study involving a survey of 121 women previously diagnosed with breast cancer. Data analysis discovered an inconsistency in the "logical progression of answers" from 48 of the women. Further investigation identified several flaws in the original model, including a failure to recognize that some women did not intentionally seek health information, but became interested in a topic when presented with health information while casually reading a newspaper, listening to the radio or watching television. Longo (2005) described this phenomenon as

passive receipt of information. Researchers also discovered that the lack of a specific time frame for survivors to recall their cancer experience created inconsistencies in survivor responses (p. 191).

Longo (2005) responded to the finding with changes to the model. Chief among these was a modification of the dimension focused on the types of health care information consulted or used. In its place were two distinct dimensions relating to the phases of information use: *active* information seeking and *passive* information seeking (p.192). Additional contextual and personal variables were inserted as was explicit wording pertaining to awareness and receipt of information. The new contextual variable involved information seeking for self, family member or friend "either at risk or with current medical problem" (Longo, 2005, p. 192). Personal factors expanded to include health history, genetics, family medical history, education, culture, language and current health status. The additions in each category not only reflect the findings of empirical research but also the realities of societal changes such as an aging population (seeking help for a family member or friend), growing ethnic populations (culture), and advances in medicine (genetics). The patient outcomes dimension was relabeled to Patient/Consumer outcomes, which indicated Longo's (2005) proposal that researchers distinguish between *patients* and *consumers* "in order to better understand the nature, type, source and use of health information by healthy consumers" (p. 191). Two variables were added as well to the Patient/Consumer outcomes: activities of daily living and health outcomes. According to Longo (2005), the new "patient-centered" model takes into account the information needs not only of cancer outpatients but also patients treated in the hospital who may choose not to seek information (p. 193).

Longo, Schubert, Wright, LeMaster, Williams and Clore (2010) later applied the Health Information Model to diabetic patients (p. 335). The research studied 46 participants who attended focus groups and completed a questionnaire. The themes that emerged from analysis of the data resulted in the addition of several variables in the Behavior and Information Use dimension (Figure 4). Within the contextual category, *interpersonal social supports, networks* reflected participants' reliance on family and friends to help them understand and use information about diabetes (p. 338). Newly added personal variables included *stress, cognitive ability* and *interpersonal communication motives.* Longo et al. (2010) reported many participants said they experienced information overload after diagnosis and the volume and complexity of the information had a paralyzing effect (p. 338). The researchers also identified participants' need for "clear, simple communications" regardless of education level, and participants often mentioned information they received from health professionals, particularly nurse practitioners, diabetes educators and dietitians, as being the most useful and informative (p. 338).

Longo et al. (2010) claimed the revised Health Information Model is unlike other models of information seeking behavior because it captures the "nonlinear interplay" between active and passive information seeking (p. 339). Furthermore, it depicts the importance of relationships patients have with family, friends and health professionals as they search for and process information.

The Health Information Model's acknowledgement of the role passive receipt of information plays in the search process parallels the consumer information and processing

32

perspective's recognition of internal information and justifies its placement in that category. The model's inclusion of personal communication motives and information seeking for self, family and friends at risk of disease reflect the goal-orientation and motivation variables present in the psychological theoretical stream and confirms its identification in that conceptual stream as well.

<div align="center">Consumer Satisfaction</div>

Much of the satisfaction research conducted since the 1970s has been concerned with product (durable and non-durable goods) purchases or life satisfaction (subjective well being) (Churchill & Surprenant, 1982; Diener, Emmons, Larsen & Griffen, 1985; Homburg, Koschate & Hoyer, 2006; Mano & Oliver, 1993; Oliver, 1993; Tse & Wilton, 1988). However, the growth of the service sector during the last two decades of the twentieth century resulted in customer satisfaction research examining the distinction between products and services (Parasuraman, Zeithaml & Berry, 1985; Szymanski & Henard, 2001). Further division of the customer satisfaction construct occurred with the introduction of *information satisfaction* by Spreng, MacKenzie and Olshavsky (1996), who observed and echoed Cardozo (1965) that product and service providers disseminated vast amounts of information about their offerings in the forms of advertising, selling, packaging and other forms of communications which influence consumers' expectations and feelings (Cardozo, 1965; Spreng et al., 1996; Woodruff, Cadotte & Jenkins, 1983). Such an expansion of the satisfaction construct is of particular significance given the increasing use of the Internet for online health information search. By 2010, 59% of adults in the United States sought information on the Internet on any of 15 health topics (Fox, 2011).

Consumer Satisfaction: An Elusive Construct

Investigators have conducted voluminous customer satisfaction studies since the 1970s (Churchill & Surprenant, 1982; Woodruff et al., 1983). Interest in the construct generated 500 studies by the 1970s and continued at such a rapid pace that by the early 1990s as many as 15,000 customer satisfaction articles had been published (Parker & Matthews, 2001). The absence of a uniform definition of consumer satisfaction, according to Giese and Cote (2000), prevents researchers from selecting an appropriate definition for a particular context, developing valid measures of satisfaction, and comparing and interpreting empirical results (p. 1). Despite these shortcomings, the consumer satisfaction construct has evolved during the past 50 years as reflected in research devoted to explaining and understanding it. This next section will review important developments in this evolutionary process.

The Disconfirmed Expectations Model of Consumer Satisfaction

The dominant paradigm of consumer satisfaction research has been disconfirmation of expectations or expectancy-disconfirmation (Churchill & Surprenant, 1982; Homburg, Koschate & Hoyer, 2006; Parker & Mathews, 2001; Spreng, MacKenzie & Olshavsky, 1996; Westbrook & Reilly, 1983). According to Tse, Nicosia and Winton (1990), the paradigm "describes product-performance-specific antecedents to satisfaction" (p. 180). Consumer satisfaction is the result of consumers' perceptions of the difference between their perceptions of product or service performance and their expectations of what that performance should be (Parker & Mathews,

2001). The model includes four constructs: expectations, performance, disconfirmation and

satisfaction (Churchill & Surprenant, 1982).
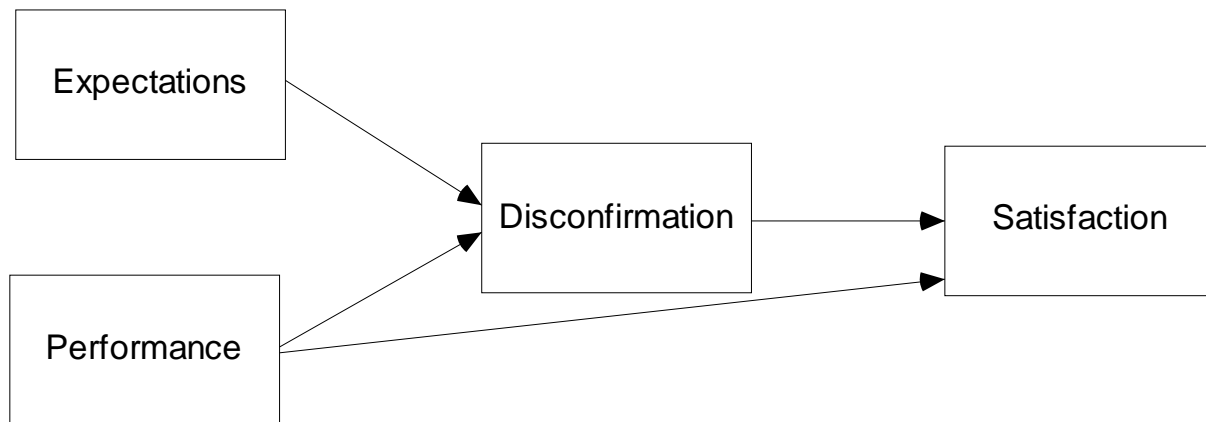
Figure 5. A Simplified Model of the Four Constructs Comprising the Expectancy
Disconfirmation Paradigm. Adapted from "An Investigation Into the Determinants of Customer
Satisfaction," by G.A. Churchill , and C. Surprenant, 1982, *Journal of Marketing Research, 19*,
p. 492. Copyright 1982 by the American Marketing Association; "The Expectancy
Disconfirmation Model of Satisfaction," by R.L. Oliver, 1997, *Satisfaction A Behavioral
Perspective on the Consumer,* p. 110. Copyright 1997 by The McGraw-Hill Companies, Inc.;
"Disconfirmed Expectations Theory of Consumer Satisfaction: An Examination of
Representational and Response Language Effects," by R.K. Teas, and K.M. Palan, 2003, *Journal
of Consumer Satisfaction, Dissatisfaction and Complaining Behavior, 16,* p. 83. Copyright 2003
by the Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior, Inc.

Expectations

Expectations reflect a consumer's anticipated performance of a product or service before

an exchange takes place (Churchill & Surprenant, 1982; Oliver & Swan, 1989a). Cardozo

(1965) demonstrated in his experiment of non-durable goods (writing pens) that under certain

conditions, expectations serve as guidelines against which consumers evaluate products (p. 249).

The consequence of a product's failure to live up to those expectations could lead to a product

failing to sell, failing to generate repeat sales, or stimulating unfavorable word-of-mouth communication (p. 249). Subsequent research further refined expectation and its role in the paradigm.

> The satisfaction literature suggests consumers may use different "types" of expectations when forming opinions about a product's anticipated performance. Miller (1977) identified four types of expectations: ideal, expected, minimum tolerable and desirable. Day (1977) distinguished among expectations about the nature of the product or service, expectations about the costs and efforts in obtaining benefits, and expectations of social benefits or costs. (Churchill & Surprenant, 1982, p. 492)

Woodruff et al. (1983) proposed replacing expectations with experienced-based norms. Expectations, they suggested, limit the consumer's set of experiences to those concerned with the brand actually purchased or used, which results in satisfaction or dissatisfaction depending on what the consumer believes about that specific brand (p. 301). Norms, on the other hand, derived from experiences consumers have with evoked sets or brands they are familiar with leads to judgments about those brands and ultimately to the choice of a standard for evaluating brand performance (p. 301).

Performance

Early studies testing the expectancy disconfirmation paradigm regarded performance (perceived, actual or direct) as "the standard of comparison" for measuring disconfirmation (Churchill & Surprenant, 1982, p. 492) while other researchers suggested product performance is the most crucial determinant of satisfaction evaluation (Tse, Nicosia & Wilton, 1990). As Figure 5 depicts, performance may be mediated by disconfirmation as well as having a direct affect on

satisfaction (Churchill & Surprenant, 1982; Oliver, 1993; Tse & Wilton, 1988). Experiments

involving durable goods (video disc players and hand-held miniature record players) indicated

that direct performance accounts for 88% of the variation in satisfaction for the video disc

players and perceived performance explained 65% of the variance in satisfaction for the

miniature record players (Churchill & Surprenant, 1982; Tse & Wilton, 1988). However, a

meta-analysis of 50 customer satisfaction empirical studies by Szymanski and Henard (2001)

found the mean correlations between performance and satisfaction to be .34, slightly higher than

the .27 mean correlations between expectations and satisfaction (p. 23).

<u>Disconfirmation</u>

Disconfirmation is the degree to which expectations are unmet (Brown, Venkatesh,

Kuruzovich & Massey, 2008, p. 54). Disconfirmation ranges from negative to positive, where

negative disconfirmation occurs when expectations exceed actual outcomes and positive

disconfirmation results when actual outcomes exceed expectations (Westbrook & Reilly, 1983).

At the point where expectation and performance match or are equal, confirmation results (Oliver,

1977).

According to Churchill & Surprenant (1982) the magnitude or strength of the

disconfirmation generates satisfaction or dissatisfaction (pp. 492-493). They argued that

disconfirmation is the difference between expectation and performance, although in their

experiment involving durable (a video disc player) and non-durable (plants) goods, only

performance determined satisfaction for the video disc player while for the non-durable goods,

expectations and performance directly affect satisfaction in addition to their indirect impact

37

through disconfirmation (p. 500). Oliver (1977) found a similar response, although for a durable good in a quasi-experimental field study of student reactions to a new automobile, i.e. that disconfirmation can be a significant predictor of satisfaction, i.e. "post exposure affect and intention to buy," and may be considered independent of product performance and expectations (p. 485).

Satisfaction

As noted above, consumer satisfaction researchers have produced a plethora of satisfaction definitions. A problem with this approach, however, is that such research-driven definitions often vary from context to context and may result in different interpretations of the construct by different researchers or consumers (Giese & Cote, 2000). Consumer satisfaction has been conceptualized as emotional or cognitive responses to confirmation/disconfirmation (Giese & Cote, 2000; Woodruff et al., 1983). Oliver (1993) described the expectancy disconfirmation paradigm as "primarily cognitive in nature because the comparison process in disconfirmation judgments requires the deliberative processing of information" (p. 428). Westbrook & Reilly (1983) argued that consumer satisfaction is an emotional response, or outcome, to product or service experiences and proposed the value-percept disparity model to explain consumer satisfaction/dissatisfaction. The process of evaluating a product or service involves estimating the relationship of an object or condition to an individual's values, and emotions result when value judgments are made (Westbrook & Reilly, 1983).

Consumer satisfaction also has been viewed as a process and as an outcome (Parker & Mathews, 2001; Tse et al., 1990). Cardozo's (1965) laboratory experiment demonstrated that the

38

evaluative process concerned the difference between what students expected and what they received and that the amount of effort expended and their level of expectation affected their (cognitive) evaluation of the product and the shopping experience. Tse et al. (1990) identified six dimensions involved in the consumer satisfaction process: motivating force underlying the process, post-purchase activities and feedbacks, consumer, product, time, and situational influences satisfaction (p. 181). Tse et al. (1990) urged investigators to examine consumer satisfaction as a process involving a consumer's consumption or usage within contexts that occur over time (p. 190).

Giese & Cote (2000) recognized that developing a generic definition of consumer satisfaction is impractical because "innumerable contextual variables" influence how satisfaction is viewed (p. 15). Following a literature review, and group and individual interviews, Giese and Cote (2000) identified the following components of consumer satisfaction which are applicable regardless of consumer type or situation and can serve as a framework in allowing researchers to develop "context-relevant definitions and measures":

1. summary affective response which varies in intensity;

2. satisfaction focus around product choice, purchase and consumption; and

3. time of determination which varies by situation, but is generally limited in duration.
    (Giese & Cote, 2000, p. 15).

Evolution of the Consumer Satisfaction Construct

The evolution of the consumer satisfaction construct has been nearly constant since the publication of Cardozo's 1965 article. In addition to investigators' recognition of satisfaction as a process that includes affective or emotional attributes, other modifications or challenges to the construct, particularly the expectancy disconfirmation paradigm, include consideration for experience, affect, equity, product attributes, and desire. As stated above, Woodruff et al. (1983) proposed that experience-based norms replace expectations in the paradigm. In addition to Westbrook & Reilly (1983), multiple studies have suggested that emotion or affect are necessary antecedents to satisfaction (Homburg, Koschate & Hoyer, 2006; Mano & Oliver, 1993; Oliver, 1993; Parker & Mathews, 2001). Oliver (1993) found in a study evaluating automobiles and course evaluation materials that both disconfirmation and affective responses affect satisfaction, although disconfirmation proved more influential than affective response (interest and joy). Homburg et al. (2006) also found positive relationships between cognition and satisfaction and affect and satisfaction. In addition, their study involving German marketing graduate students disclosed that the influence of cognitive factors on satisfaction increases over time while the influence of affect factors decreases (p. 25).

Equity is generally thought of as fairness, social justice and, in a marketing environment, an effect resulting from a transaction. Oliver and Swan (1989a) demonstrated in a field study of new car buyers that equity and disconfirmation are separate and distinct processes and that satisfaction is sensitive to both (p. 34). According to Oliver and Swan (1989b), consumer equity involves consideration of inputs to evaluate net outputs, whereas disconfirmation involves

outcomes only (p. 375). These findings, however, conflict with those of Tse and Wilton (1988), who, in their study of a test market trial for a hand-held miniature record player, found that equity had no direct effect on dependent variables and insignificant indirect effects on satisfaction (p. 208). However, Szymanski & Henard's (2001) meta-analysis on customer satisfaction found equity strongly related to satisfaction on average and considered it of central relevance to consumers' satisfaction levels (p. 28). Likewise, in their study of consumer's satisfaction with health care public services, Vinagre and Neves (2010) found that relational (doctor/patient relationship issues) and processual justice (organization's procedural issues) influence satisfaction and along with positive emotions (which are completely mediated by these justice constructs) explain 70% of the variance in their model (p. 221).

Oliver (1993) extended earlier research involving satisfaction with functional elements of a product, e.g. the number of cylinders in an automobile's engine or the number of drawers in a writing desk, known as the attribute basis of satisfaction. He found that attribute satisfaction affects overall satisfaction directly and that merging affect, disconfirmation and attribute satisfaction 85 percent of variance was explained (pp. 427-428). Spreng, MacKenzie and Olshavsky (1996) included attribute satisfaction in their reexamination of the determinants of consumer satisfaction and introduced desires, desires congruency, expectation congruency, and information satisfaction in their conceptual model of the satisfaction formation model (pp. 15-17). Information satisfaction is "a subjective satisfaction judgment of the information used in choosing a product" which in turn is affected by desires congruency and expectations congruency, i.e. the "consumer's subjective assessment of the comparison between his or her desires/expectations and the performance received" (Spreng et al., 1996, pp. 17-18). A field

41

study involving a camcorder and subjects recruited from a local church supported hypotheses that attribute and information satisfaction had significant positive effects on overall satisfaction and explained 56 percent of the variation (p. 23). Findings also supported the model's hypotheses that expectations congruency and desire congruency had a significant effect on attribute satisfaction and also affected information satisfaction (p. 23). Perhaps the most significant aspect of the Spreng et al. (1996) model and the identification of information satisfaction is its application to a firm's communication efforts (p. 28). Inaccurate or misleading advertising may result in consumer dissatisfaction with the information, which may lead to lower overall satisfaction and negative word-of-mouth communication (p. 28).

Finally, Szymanski & Henard (2001) in their meta-analysis of consumer satisfaction research findings addressed concerns about the use of students as research participants. Specifically, they questioned whether students' cognitive abilities were "less solidified" and as a consequence their satisfaction assessments were guided less by expectations, disconfirmation and affect (p. 29). In an earlier study involving students, their parents, a consumer panel, and a cross section of adults between the ages of 18-23 who had not attended college, Burnett and Dunne (1986) found significant differences between the groups and concluded that the use of students as research subjects is appropriate only when students are the subject group of interest (p. 341). However, the convenience associated with using students suggests the practice of including them in consumer satisfaction research will most likely continue (Burnett & Dunne, 1986).

Online Consumer Satisfaction

The rise of the Internet led to adaptations and new models to explain online or e-services consumer satisfaction. Ha (2006) argued that attribution (the conscious or unconscious process of seeking the cause for satisfaction or dissatisfaction) is a direct outcome variable of customer satisfaction (along with word-of-mouth, repurchase and loyalty) as well as a mediator to repurchase (p. 144). Ha (2006) explained that his attribution process model differed from Oliver's in two ways: (a) the customer experience was being accumulated over time rather than on a transaction-specific basis, and (b) cognitive and affective responses coexist in consumer's satisfaction evaluation (p. 145).

Lankton and Wilson (2006) incorporated the direct-effects model of customer satisfaction (expectations and performance *jointly* contribute to satisfaction) and social cognitive theory (individual behavior results from a reciprocal relationship among personal factors, behavior and the environment (p. 88)) to identify factors that influence expectations and satisfaction among users of e-health services. In a survey of registered users of a large health care provider's e-health service the researchers found that participation, self-efficacy, enjoyment and Internet experience significantly predict expectations within the framework of their theoretical model, which also explained 67% of the variance in satisfaction (pp. 99-100).

Bliemal and Hassanein (2006) studied consumer satisfaction with online or e-health information retrieval. The researchers recruited 170 subjects to conduct an experiment that tested the impact of four health care-related website factors: website specific content, content quality, technical adequacy and appearance, which the researchers hypothesized influenced the

overall satisfaction antecedents of information quality, trust beliefs, and satisfaction with system

quality (p. 71). The results revealed that the second order constructs all had significant positive

effect on overall satisfaction with online health information retrieval. In addition, technical

adequacy and content quality were found to be the main determinants of consumer satisfaction

with online health information retrieval (p. 73). Lee, Park and Widdows (2009) also found a

positive relationship between perceived quality and satisfaction and repeated search behavior in

e-health information. More specifically, they defined perceived quality as being comprised of

four dimensions: relevance, credibility, timeliness and clarity (p. 163). Relevance and credibility

were found to have strong relationships with satisfaction while the relationship between

timeliness was relatively weaker and the effect of information clarity was not significant,

suggesting online information searchers understand the information they are seeking regardless

of clarity or that searchers do not care how information is presented since all websites provide

the same level of information clarity (p. 170).

<center>Consumer Satisfaction Summary</center>

Consumer satisfaction appears to mean different things to different people (Parker &

Mathews, 2001). Despite the existence of a variety of definitions and interpretations, the

expectancy disconfirmation paradigm has enjoyed widespread application and scrutiny among

investigators. The model continues to evolve with researchers advocating such changes as

replacing expectations with experienced-based norms and adding constructs such as desires,

affects, equity, product attributes, and information satisfaction. In an attempt to avoid the

<center>44</center>

proliferation of different interpretations of the construct, Giese and Cote (2000) advanced a

conceptual framework that states consumer satisfaction is a summary affective response of

varying intensity of a time-specific point of determination and limited duration directed toward

focal aspects of product acquisition and/or conception (p. 15).

Health Information Search Literature Review: Sources and Satisfaction

Health care information source preferences differ among groups (Burkell, Wolfe, Potter

& Jutai, 2006). In addition to interpersonal sources such as physicians, nurses, family and

friends, other sources include provider-produced print materials (e.g. brochures, newsletters,

fliers), newspaper articles, television and radio programs, and the Internet. Consumers searching

for health information are increasingly turning to the Internet (Bliemel & Hassanein, 2006; Fox,

2011; Kogan, Zeng, Ash & Greenes, 2001; Tustin, 2010; Taha, Sharit, Czaja, 2009). Data from

the Pew Research Center's Internet & American Life Project 2010 Survey revealed that 59% of

all adults in the United States have gone online searching for information on a variety of health

topics ranging from specific disease treatment to tracking their own health data (Fox, 2011).

Increased consumer online search for health care information also has stimulated parallel

increases in the number of research studies involving health care information search. Between

1978 and 2010 the health information seeking literature included 648 studies (Anker, Reinhart

and Feeley, 2011). After applying certain exclusion (e.g. passive and general information search,

non-empirical and qualitative studies, and studies omitting adequate information about study

measures) and inclusion criteria, Anker et al. (2011) identified 129 articles for their review of

patient information seeking (pp. 347-349). Of these, 21 articles included measures of

information sources/channels and 21 articles addressed measures of satisfaction with health

information seeking. Table 6 summarizes the articles Anker et al. (2011) identified as those

focused on sources/channels in health information seeking. Table 7 provides a summary of the

articles pertaining to satisfaction in health information seeking.

Table 6. Literature Review: Health Information Search Sources

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Health Information Sources Utilized: Findings
Burkell, Wolfe, Potter & Jutai	2006	Canadian spinal cord injury patients	Descriptive	Not applicable	Not applicable	207	SCI specialists most common source; Internet comparatively accessible; concerns about Internet information quality
Cegala, Bahnson, Clinton, David, Gong, Monk, Nag & Pohar	2008	Prostate cancer survivors	Correlational	Information sources used	Prostate cancer diagnosis	75	69.9% of respondents accessed one to two information sources before diagnosis; Physicians were the dominant information source before and after diagnosis
Chio, Montuschi, Cammarosano, Mercanti, Cavallo, Ilardi, Ghiglione, Mutani & Calvo	2007	ALS patients and caregivers	Causal Comparative	Communication preferences	Demographics, disease duration, distress after diagnosis	60	Internet most frequently checked source outside of healthcare system; reliability rated low
Czaja, Manfredi & Price	2003	Cancer patients	Case-control	Information seeking; health behavior outcomes	Contextual & structural; predisposing; enabling; reinforcing	519	Desire for information and desire for involvement in medical care are independent factors

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Health Information Sources Utilized: Findings
Ferguson & Valenti	1991	Environmental and health risk takers	Experiment	Concern; information seeking	Message format; risk target; message source	506	For high adventurousness, neither source, target nor format affect information seeking or concern
Fogel, Albert, Schnabel, Ditkoff & Neugut	2002	Women with breast cancer	Causal Comparative	Psychological benefits associated with internet use	Invasive breast cancer diagnosis within previous three years; patient < 65 years old	188	42% used the Internet to obtain breast health information; Internet use associated with greater social support and less loneliness
Gray, Armstrong, DeMichele, Schwartz & Hornik	2009	Colon cancer patients	Correlational	Information seeking	Targeted therapies for colon cancer	633	Relationship between information seeking and awareness of targeted therapy; Internet and newspapers/ magazines associated with awareness but not with receipt of target therapy; information from other physicians associated with hearing about and receiving target therapy
Hibbard, Greenlick, Jimison, Kunkel & Tusler	1999	Consumers	Quasi-experimental	Use of self-care resources	Utilization, health status, access to care, self-care behaviors	2,919	Medical reference book was the most used (67%) self-care resource;

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Health Information Sources Utilized: Findings
Kliman & Vukelich	1985	Parents of first-born infants	Qualitative	Infant behavioral growth expectations; information sources used; needed information	First-time parents of newborns born in early summer 1983	40 (20 pairs of parents)	Parents rely on more than one source of information; mothers and fathers rely on different childrearing information sources
Khoo, Bolt, Babl, Jury & Goldman	2008	Parents presenting at a pediatric emergency department	Descriptive	Not applicable	Not applicable	360	52% of parents sought health information for their children on the Internet, but only 10% of parents "greatly trusted" the Internet
Levesque, Cummins, Prochaska & Prochaska	2006	New Medicare enrollees	Causal Comparative	Pros and cons of comparing Medicare plans	Stage of change	239	Significant relationship between stage of change and information-seeking behaviors
Lu, Wirrell & Blackman	2005	Families of children with epilepsy	Qualitative	Not applicable	Not applicable	84	Parents seek a wide variety of information sources, including internet sites, books and other families whose members have had seizures

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Health Information Sources Utilized: Findings
Meissner, Anderson, Odenkirchen (Abstract only)	1990	Cancer patients, significant others, general public using Cancer Information Service	Causal comparative (?)	Article not available	Article not available	Article not available	Significant others differ from general public in their source of referral to CIS
Moseley, Freed & Goold	2011	Parents	Descriptive	How closely parents followed advice from each information source	Socio-demographics; child's health insurance status	543	Parents seek information about their children's health from a variety of sources, but follow their pediatricians advice most closely
Muha	1998	Cancer Information Service users	Descriptive	Not applicable	Not applicable	2,489	59% of callers to CIS did not use other information sources; those who did most frequently used health professionals (44.65%) and a library or bookstore (40.4%)

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Health Information Sources Utilized: Findings
Roach, Lykins, Gochett, Brechting, Graue & Andrykowski	2009	Cancer survivors and healthy controls	Causal Comparative	Information seeking behavior, information source preference, satisfaction and trust with source, groups' knowledge of resources	Cancer diagnosis	2,731	No differences between cancer survivor group and non-cancer control group regarding information sources consulted; preferred information sources include Internet, print media and healthcare providers
Shi, Nakamura & Takano	2004	Middle-aged urban men	Correlational	Health information seeking, health values, health practices	Middle-aged urban men	334	Seeking out health information independently related to positive changes in health practices
Talosig-Garcia & Davis	2005	Minority breast cancer patients	Descriptive	Information sources used	Socio-demographics	287	Top information sources included books, brochure, pamphlets; doctors and other health professionals; spouse, partner, family and friends

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Health Information Sources Utilized: Findings
Warner & Procaccino	20 07	Adult women 18 years and older	Causal Comparative	Information sources used	Web users and non-web users	133	Web users are more active health information seekers and their likelihood to use specific health information sources(top three ranked) include doctor, medical/health books and world-wide web site

While Anker et al. (2011) examined the measures and methods used to study health information seeking, defined the specific measure type (e.g. information sources/channels utilized and satisfaction with health information sources), and identified the response scale used in each study (dichotomous or Likert), this literature review summarizes and analyzes the findings in order to identify trends or gaps in health information search and satisfaction research and to lend support for the research that is the subject of this dissertation. Respondents/research subjects in the health information sources/channels studies (Table 6) included individuals with spinal cord injuries, amyotrophic lateral sclerosis, cancer, parents, caregivers, risk takers, men and women. Among the information sources/channels and satisfaction reviewed, eight studies (42%) involved health information seeking among cancer patients or caregivers and two in particular included callers to the National Cancer Institute's Cancer Information Service. Seven studies analyzed data from the National Cancer Institute's Health Information National Trends Survey, a nationally representative survey conducted biennially.

The study findings summarized in Table 6 indicate that preferred health information sources differ across groups and support the observation that results cannot be generalized across populations (Burkell et al., 2006). For example, parents in general seek health information for their children from a wide variety of sources, but follow the advice of their pediatricians most closely (Moseley, Free & Goold, 2011). Kliman & Vukelich (1985), however, found that mothers and fathers of first-born infants differ on their childrearing information sources. And a majority (52%) of parents who took their child to a pediatric emergency department searched the Internet for child health information, but only 10% of parents trusted the Internet (Khoo, Bolt, Babl, Jury & Goldman, 2008).

Similarly, 42% of women with breast cancer reported using the Internet to find breast health information and associated the process with greater social support and less loneliness (Fogel, Albert, Schnabel, Ditkoff & Neugut, 2002), while minority breast cancer patients preferred books, brochures, pamphlets, doctors and other health professionals (Talosig-Garcia & Davis, 2005). Information source preference also differed among study respondents with chronic illnesses. Spinal cord injury patients said spinal cord injury specialist physicians were their most common source of information, although they reported that the Internet was accessible (Burkell et al., 2006). Individuals with amyotrophic lateral sclerosis said the Internet was the most frequently checked source for information outside of the health care system (Chio, Montuschi, Cammarosano, Mercanti, Cavallo, Ilardi, Ghiglione, Mutani & Calvo, 2007). Both the SCI and ALS respondents expressed concerns about the quality and reliability of information from the Internet.

As with the studies associated with health information seeking sources, the studies in Table 7 that examined health information seeking satisfaction included a wide variety of research subjects: nationally representative sample of adults (HINTS), Canadian cancer patients, internal medicine patients who use the Internet, students, Internet users with stigmatized and chronic illnesses, and callers to a Dutch AIDS information hotline. In general, dissatisfaction associated with negative cancer information seeking resulted because the search required too much time, was often frustrating, and raised concerns about the quality of the information (Arora, Hesse, Rimer, Viswanath, Clayman & Croyle, 2007). Burke Beckjord et al. (2008) reported similar findings, i.e., a suboptimal search experience among cancer information seekers. They found that those worried about a cancer diagnosis and reporting higher levels of negative affect (e.g.

depression) had the most difficulty obtaining and understanding cancer information (Burke Beckjord et al., 2008). The study also found a positive association between years of education and a better experience searching for cancer information (p. 254).

In contrast, several studies report satisfaction with health information seeking using the Internet. Berger, Wagner and Baker (2005) found no significant difference in satisfaction with information found on the Internet between respondents with stigmatized illnesses (anxiety, depression, herpes or urinary incontinence) and respondents with chronic illnesses such as cancer, heart disease, diabetes and back pain. Both groups were equally satisfied with the amount of time, trustworthiness and ease of understanding in searching for information on the Internet (p. 1824). Ybarra and Suman (2008) found similar results in a nationally representative survey of Americans age 12 and older: 70% of respondents in each age and sex group reported being satisfied with the information found, and that the on-line search experience is generally positive and reinforces the patient-provider relationship (p. 518).

Studies reporting mixed results of Internet health information search satisfaction serve as a counterweight to these supportive studies. Diaz, Griffith, Ng, Reinert, Friedmann and Moulton (2002) found that among patients in an internal medicine practice, both users and non-users of the Internet rated physicians and nurses as the most useful source of health information. These findings were partially supported by Pecchioni & Sparks (2007), who found that students reported doctors and nurses are more satisfying sources of health information as compared to family members who reported the Internet as more satisfying in the search for information.

Tustin (2010) examined health information search satisfaction with the Internet by studying the effects of interpersonal communication between patient and physician. Results indicate dissatisfaction among cancer patients and cancer survivors with unmet information needs, empathy and quality of time provided by the physician at the time of diagnosis to be negatively correlated with using the Internet as the preferred information source (Tustin, 2010, p. 11). Internet health information search satisfaction also is associated with an individual's belief in one's ability or skills in using the Internet. Internet users reported greater success at finding health information and a higher level of usefulness than non-Internet users (Warner & Procaccino, 2007). Rains (2008) on the other hand found that Internet self-efficacy, i.e. one's own ability to complete tasks and reach goals, completely mediated the relationship between Web experience and perceived success of information search (p. 13).

Table 7. Literature Review: Health Information Search Satisfaction

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Satisfaction with Health Information Search: Findings
Arora, Hesse, Rimer, Viswanath, Clayman & Croyle	2008	Nationally representative sample of adults	Correlational	Cancer information seeking	Socio-demographics	6,369	Negative cancer information search experience included: search required too much effort (47.7%); expressed frustration (41.3%); and had concerns about the quality of the information (57.7%)
Ashbury, Findlay, Reynolds, McKerracher	1998	Canadian cancer patients	Descriptive	Not applicable	Not applicable	913	Of patients searching for information about managing fatigue, only 56% reported finding good information; 23% of respondents very dissatisfied with information they received about complementary therapies
Burke Beckjord, Finney Rutten, Arora, Moser & Hesse	2008	Cancer information seekers	Correlational	Cancer worry; symptoms of depression	Attention to health information; cancer information-seeking experiences	2,627	Higher levels of negative affect had most difficulty obtaining and understanding cancer information; common for those seeking cancer information to have sub-optimal experience; more years of education associated with better experiences searching for cancer information

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Satisfaction with Health Information Search: Findings
Berger, Wagner & Baker	2005	Internet users with stigmatized and chronic illnesses	Causal Comparative	Use of the internet for health; at least monthly use of the internet for health	Stigmatized illness; chronic illness	7,014	Both groups equally satisfied with the length of time, trustworthiness and ease of understanding in searching for health information on the internet
Bos, Visser, Tempert & Schaalma	2004	Callers to Dutch AIDS information hotline	Descriptive	Satisfaction; information needs	Socio-demographics	309	97% of callers were quite satisfied or very satisfied with helpline services
Bright, Fleisher, Thomsen, Morra, Marcus & Gehring	2005	Cancer Information Service Users	Descriptive	Not applicable	Not applicable	6,019	77.7% of respondents reported that CIS was very helpful in understanding information from the internet
Chio, Montuschi, Cammarosano, Mercanti, Cavallo, Ilardi, Ghiglione, Mutani & Calvo	2008	ALS patients and caregivers	Causal Comparative	Communication preferences	Socio-demographics, disease duration, distress after diagnosis	60	ALS patients reported that medical meetings and television were the most reliable information sources
Diaz, Griffith, Ng, Reinert, Friedmann & Moulton	2002	Internal medicine practice patients who use the internet	Descriptive	Internet use for health information	Patient Socio-demographics	512	Physician or nurse rated most useful source of health information by both users and non-users of internet

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Satisfaction with Health Information Search: Findings
Hay, Coups & Ford	2006	Adults 45 years and older	Causal Comparative	Information overload	Socio-demographics	2,949	Young, Spanish-speaking respondents who reported information overload had higher comparative risk for colon cancer
Hesse, Arora, Burke Beckjord & Finney Rutten	2008	Cancer survivors	Correlational	Information seeking, information source, source use , information-seeking experience	Socio-demographics	865	44.6% of cancer information seekers expressed worry over the quality of the information they obtained
Ling, Klein & Dang	2006	Adults 51 years and older	Correlational	Channel reliance; channel credibility; internet usage	Socio-demographics	2,670	95.4% of respondents who were up-to-date on their colo-rectal cancer screening and 88.4% of those who were not up-to-date expressed some to a lot trust in receiving cancer information from the doctor or other healthcare professional compared to other sources

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Satisfaction with Health Information Search: Findings
Pecchioni & Sparks	2007	Students	Causal Comparative	Information satisfaction; information importance	Information salience; socio-demographics	168	Patients reported that doctors and nurses are more satisfying sources of information; family members reported the Internet as more satisfying in their search for information
Rains	2007	Nationally representative sample of adults	Correlational	Trust in information sources	Education; age; cancer risk; attention to health information	3,982	Increased Web use associated with mistrust in traditional sources of information
Rains	2008	Students 18 years of age and older	Correlational	Internet self-efficacy; information gathering attitude; search success; intent to use Web for future research	Web experience; Internet health locus of control; information involvement; behavioral involvement	157	Internet self-efficacy completely mediated the relationship between web experience and perceived success of information search

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Satisfaction with Health Information Search: Findings
Roach, Lykins, Gochett, Brechting, Graue & Andrykowski	2009	Cancer survivors and healthy controls	Causal Comparative	Information seeking behavior, information source preference, satisfaction and trust with source, groups' knowledge of resources	Cancer diagnosis	2,731	Cancer survivors and non-cancer survivors differed in their satisfaction with information found; cancer survivors were more negative about their recent cancer-information seeking experience than non-cancer survivors
Talosig-Garcia & Davis	2005	Minority breast cancer patients	Descriptive	Information sources used	Patient socio-demographics	287	75% of respondents found information they received at time of diagnosis to be adequate; 83% reported information from doctor very helpful compared to 46% from Internet and 44% from television/radio
Tustin	2010	Cancer patients and survivors	Correlational	Reliance on the internet	Satisfaction with care	178	Dissatisfied patients rated the internet more highly than they did their oncologist; satisfaction with information provided at diagnosis was negatively associated with using the internet as the preferred source of information

Author	Year	Research Focus	Research Design	Dependent Variable	Independent Variable	Sample Size	Satisfaction with Health Information Search: Findings
Vanderpool, Kornfeld, Finney Rutten & Squiers	2009	Nationally representative sample of adults	Causal Comparative	Information-seeking experience	Socio-demographics	5,344	Spanish-speaking Hispanics seeking cancer information reported search required a lot of effort, was frustrating, information was hard to understand and had minimal confidence in obtaining cancer information
Warner & Procaccino	2007	Women	Causal Comparative	Information sources used	Web users and non-web users	133	Web users reported greater success at finding health information and a higher level of usefulness than non Web users
Wathen	2006	Canadian women age 45-65, current or former HRT users	Causal comparative	Information seeking	Socio-demographics	305	Most women rated the sources (physicians, mass media, informal sources, books, libraries) of HRT information as generally useful
Ybarra & Suman	2008	Nationally representative sample age 12 years and older	Causal Comparative	Internet health-information seeking experience	Age, sex	2,007	7 out of 10 respondents within each age and sex category reported being satisfied with information found; on-line information seeking experience is generally positive and reinforces the patient-provider relationship

The majority of the health information search studies cited above relied on cross-sectional designs through the use of surveys or structured interviews (Anker et al., 2011). Such designs provide a "snapshot" of a single point in time (Cooper & Schindler, 2011). Ferguson & Valenti (1991) employed an experimental design in their study of communicating with environmental and health risk takers. In their experiments, they manipulated their message format (newspaper or government brochure) and message target (child or adult) in order to identify differences in perspectives among adventurous, impulsive and rebellious risk takers.

These studies, while illustrative of the purpose, methods and subjects of research dedicated to health information seeking, represent only a fraction of the total work dedicated to this topic. The increase in consumers' preference and use of Internet and mobile applications as health information sources has sparked considerable research. For example, Koch-Weser, Bradshaw, Gualtieri and Gallagher (2010) investigated whether online health information seekers differ in their information source preferences, their confidence in seeking it, and their communication experience with health care providers (p. 280). Bivariate and multivariate analysis revealed that seeking information on the Internet first instead of other information sources such as mass media, family and friends, and printed media is associated with younger age, higher education, higher income, and having children in the household (p. 283). They also want access to their own medical information electronically, which Koch-Weser et al., (2010) suggested indicates a desire to bypass traditional medical record gatekeepers and willingness to adopt personal health records (p. 291). Cooley and Madupu (2009) studied the information sources baby-boomers utilized when selecting a physician. Focus groups and interviews revealed that consumers prefer objective sources of information such as the Internet when

searching for information for loved ones and someone else and that overall satisfaction depends on their level of satisfaction with the information source (p. 54).

The Patient-Centric Phenomenon in Health Care

What patients do with the health information they seek and assimilate from various sources does make a difference to their health (Hibbard, 2004). The swell in the availability of health information, traditionally controlled and safeguarded by health professionals (Bodenheimer, Lorig, Holman & Grumbach, 2002; Fottler, Ford & Heaton, 2010), serves as one of two pillars in what has been referred to as patient-centric care.

Patient-centric care reflects the influence of health care consumerism, an orientation that encourages patients to be more involved with, take greater responsibility for, and assume a greater share of the cost of managing their health because of the increasing availability of information and consumers' access to it (Cohen, Grote, Pietrazek & Laflamme, 2010; Howgill, 1998). The availability and accessibility of information, therefore, is the first pillar supporting patient-centric care. Herzlinger (2002) argued that in order for employees to make "reasoned choices about their coverage and care, they need reliable, objective information" (p. 50). Providing facts about illness or a medical condition, however, is insufficient in enabling patients to make informed decisions (Hibbard, 2004). Ha and Lee (2011) found a positive, significant association between health literacy and trust in information sources and concluded that consumers who are confident in their health information search are likely to be more

knowledgeable about health and to engage in health behavior (p. 19). Therefore, understanding

the health information that is being sought and using it to make informed choices and decisions

is essential for consumers to participate in and manage their health care (Bodenheimer et al.,

2002; Hibbard, 2004).

The second pillar of patient-centered care involves health care delivery where ideally,

according to rules proposed by the Institute of Medicine (2001), knowledge is shared and

information flows freely, decision-making is evidenced based, and transparency is necessary, i.e.

information is made available that describes the organization's safety performance, evidenced-

based practice and patient satisfaction (p. 4). Current efforts to provide such information include

the National Committee for Quality Assurance's Health Plan Employer Data and Information Set

(HEDIS), the Centers for Medicare and Medicaid Services Hospital Compare website and the

Agency for Healthcare Research and Quality's Hospital Consumer Assessment of Healthcare

Providers and Systems Survey (HCAHPS). Herzlinger (2002) called upon organizations to

provide user ratings of insurers and providers and quality of care data in order to facilitate the

shift to patient-centered care (p. 50) and private firms including The Leapfrog Group, Truven

Health Analytic and HealthGrades are among a crowd of firms now doing so. An important

finding of Ha and Lee (2011), that consumer self-confidence in health information search is

linked to trust in health professionals, family and friends and the Internet, but not in mass media

such as newspapers and magazines (pp. 19-20), perhaps helps explain a portion of the ongoing

controversy about provider ratings and health care report cards: are online report cards that allow

consumers to rate and comment about a provider an electronic extension of word-of-mouth

communication and therefore worthy of patient trust and a contributor to consumer self-

confidence in health information search? Or do consumers regard provider ratings and report

cards as information-oriented resources focused on health care processes rather than outcomes

and therefore providing little value in promoting consumers' involvement and management of

their own health (Ha & Lee, 2011; Hibbard, 2004; Sepucha, Fowler & Mulley, 2004)?

Health Care Report Cards

Of all the various public information sources individuals may refer to or rely upon while

searching for a physician, none may be more controversial than health care report cards. In the

1980s, the Health Care Financing Administration, the forerunner to today's Centers for Medicare

and Medicaid Services, initiated a new source of health care information – public reporting or

health care quality report cards (Marshall et al., 2003). Since then, the number and variety of

health care report cards have multiplied, not only in the United States, but other countries as

well, including Great Britain, the Netherlands, Germany and others (Marshall et al., 2003). In

the United States, public reporting is driven by the market and is highly variable in what and how

it measures and how it is presented (Marshall et al., 2003).

The Department of Health and Human Services' The Health Care Report Card

Compendium defines report cards as a wide variety of information sources and tools that enable

consumers to compare the quality and, in some cases, other characteristics of health plans or

providers (Health Care Report Card Compendium, n.d.). Longo et al. (1997) described report

cards as guides based on provider performance that include practice profiles and comparative

data and argued that since their first appearance in the 1980s, health care report cards have received mixed responses from consumers, providers, legislators, and regulators (Longo et al., 1997, p. 1579).

In the United States, healthcare report cards measure process or outcomes (Werner & Asch, 2005) and originate from several sources: the federal government, state governments, commercial enterprises and not-for-profit organizations. Within the Department of Health & Human Services, the Centers for Medicare and Medicaid Services generates six report cards: Hospital Compare, Nursing Home Compare, Physician Compare, Dialysis Facility Compare, Home Health Compare, and Medicare Plan Finder. Hospital Compare provides general search options as well as search by medical conditions (heart attack, heart failure, chronic lung disease, pneumonia, diabetes in adults and chest pain) and surgical procedures. Nursing Home Compare incorporates a star-rating system for overall efficiency, health inspections, and nursing home staffing and quality measures.

The Health Care Report Card Compendium listed 221 report cards, 108 of which are state-operated (the contract that supports the Talking Quality website expired on June 27, 2012 and the site currently is unavailable). With a few exceptions, all can be accessed via the Internet. For example, Florida's Agency for Health Care Administration manages six report cards which allow consumers to compare health plans, hospitals and ambulatory surgery centers, physicians, nursing homes, prescription drug prices and hospice providers (FloridaHealthFinder.gov, n.d.). Among not-for-profit report cards, the National Committee for Quality Assurance's Health Plan Employer Data and Information Set (HEDIS), a tool used by health plans to measure care and

service performance, is arguably the best known (National Committee for Quality Assurance, n.d.).

Commercial report card systems, such as HealthGrades, publish information on physicians, hospitals and nursing homes. Physician report cards generally include a physician profile, patient ratings, practice location map, and hospital affiliations. Some report card vendors offer additional provider information that can be purchased and includes such items as sanctions history, board certification, comparison to other physicians, or a recognition program based on the awarding of stars. HealthGrades no longer charges a user fee for in-depth provider information, relying instead on advertising revenue and programs it sells to health care providers. Angie's List, on the other hand, requires payment of a membership fee to access their health care provider ratings. Whether report cards effect patients' satisfaction with their search for physicians is the focus of this dissertation.

Physician Report Cards: Criticism and Controversy

Controversy has accompanied the growth in public reporting systems almost from the outset. Providers, hospitals and physicians have complained that report cards are misleading and do not convey accurate information (Barr, Bernard, Sofaer, Giannotti, Lenfestey & Miranda, 2008). Chief among their concerns is the failure of report card creators to account for, or to adequately adjust for, differences in the acuity of patients through risk or severity adjustment (Barr et al., 2008; Marshall et al., 2003). Despite publicly expressed misgivings about the

accuracy of report cards, hospitals have used the data internally to improve quality of care and

internal data systems (Ferris & Torchiana, 2010; Marshall et al., 2003). Table 8 summarizes

health care report card research.

Public reporting of health care provider performance in report cards has been driven

largely by concerns for provider accountability, clinical quality, patient safety, and controlling

costs (Faber, Bosch, Wollersheim, Leatherman & Grol, 2009; Kolstad & Chernew, 2010;

Marshall et al., 2003). Unacceptable variation in the quality of care has resulted in providers,

regulators, payers, employers, and consumers adopting report cards in order to maintain

performance standards and stimulate improvement and to establish provider accountability

through performance indicators (Marshall, 2003; Marshall, Romano & Davies, 2004; Mason &

Street, 2006; Garcia-Lacalle, 2008).

Table 8: Summary of Health Care Report Card Research

Author	Year	Research Topic	Study Methodology	Sample Size	Key Findings
Barr, Bernard, Sofaer, Giannotti, Lenfestey & Miranda	2008	Physicians' Views on Public Reporting of Hospital Quality Data	Physician Interviews	56	Providers claim healthcare report cards are misleading and do not provide accurate information.
Faber, Bosch, Wollersheim, Leatherman & Grol	2009	Public reporting in healthcare: how do consumers use quality-of-care information? A systematic review	Literature review	14	CAHPS positively influence consumer's choices of health plans when in easy-to-read format.
Farley, Short, Elliot, Kanouse, Brown & Hays	2002	Effects of CAHPS Health Plan Performance Information on Plan Choices by New Jersey Medicaid Beneficiaries	Experiment	5,217	CAHPS reports did not reduce New Jersey Medicaid beneficiaries' auto-assignment rates, influence beneficiaries' plan choices or modified beneficiaries' perceptions of the enrollment process
Ferris & Torchiana	2010	Public Release of Clinical Outcomes Data -- Online CABG Report Cards	Descriptive	Not applicable	Public reporting can be performed without alienating physicians; public reporting will become an expected reality

Author	Year	Research Topic	Study Methodology	Sample Size	Key Findings
Fung, Yee-Wei, Mattke, Damberg & Shekelle	2008	Systematic Review: The Evidence That Publishing Patient Care Performance Data Improves Quality of Care	Literature review	45	Effect of public reporting on outcomes provide mixed signals to consumers and report card usefulness remains unknown.
Garcia-Lacalle	2008	A bed too far; the implementation of freedom of choice policy in the NHS	Retrospective, survey	27 hospitals, 400 patient surveys each	Human dimension and hospital dimension do not explain how patients assess the quality of Andalusian hospitals
Glance, Dick, Osler &Mukamel	2006	Accuracy of Hospital Report Cards Based on Administrative Data	Retrospective, cohort	648,866	Administrative quality data used to produce quality report cards but lacking a data-collection date stamp can result in mis-identifying hospital quality outliers
Hibbard & Jewett	1996	What Type of Quality Information Do Consumers Want in a Health Care Report Card?	Focus groups	3 groups; 104 participants	Consumers prefer patient ratings and desirable-event indicators because they provide information about interpersonal aspects of care and are linked to health outcomes

Author	Year	Research Topic	Study Methodology	Sample Size	Key Findings
Hofer, Hayward, Greeenfield, Wagner, Kaplan & Manning	1999	The Unreliability of Individual Physician "Report Cards" for Assessing the Costs and Quality of Care of a Chronic Disease	Cohort survey	3,642	More than 60% of variation in the median patient-visit rate profile is due to error from chance variation
Jha & Epstein	2006	The Predictive Accuracy of the New York State Coronary Artery Bypass Surgery Report-Card System	Retrospective, cohort	31 hospitals; 168 surgeons	No evidence patients using report cards to drive market share to higher-performing providers
Krumholz, Rathore, Chen, Wang & Radford	2002	Evaluation of a Consumer-oriented internet healthcare report card; the risk of quality ratings based on mortality data	Secondary, retrospective	3,363 hospitals; 141,914 patients	Hospital report card lacking in discriminating between individual hospitals performance; ratings insufficient in enabling informed choices by public
Longo, Land, Schramm, Fraas, Hoskins & Howell	1997	Consumer Reports in Health Care	Secondary, retrospective	82	Consumer reports may assist consumers in making informed healthcare choices and in stimulating improvement in hospital services and quality levels

Author	Year	Research Topic	Study Methodology	Sample Size	Key Findings
Marshall, Romano & Davies	2004	How do we maximize the impact of the public reporting of quality of care?	Descriptive	Not applicable	Consumers are in favor of public reporting; strategies to maximize effectiveness and consideration of the environment where reporting occurs must be considered
Marshall, Shekelle, Davies & Smith	2003	Public Reporting On Quality In The United States and The United Kingdom	Descriptive	Not applicable	Maximizing the benefits of public reporting requires mandatory reporting, tailoring of the data, broadening the scope of data, ensuring adequate risk adjustment, increasing public interest and using incentives
Mason & Street	2006	Publishing outcome data: is it an effective approach?	Literature review	Not applicable	Publication of performance data provides marginal benefits and costs to do so are rarely evaluated
McLoughlin & Leatherman	2003	Quality of financing: what drives design of the health care system?	Descriptive	Not applicable	Use of financial incentives to improve care and change healthcare systems requires concurrent use of performance indicators

Author	Year	Research Topic	Study Methodology	Sample Size	Key Findings
Reid, Friedberg, Adams, McGlynn & Mehrotra (Abstract only)	2010	Associations Between Physician Characteristics and Quality of Care	Secondary, retrospective	10,408 physicians; 1.13 million adults	Three physician characteristics associated with higher performance: being female, board certification, graduation from a domestic medical school
Robinowitz & Dudley	2006	Public Reporting of Provider Performance: Can Its Impact Be Made Greater	Literature review	Not applicable	Increasing the value of public reporting requires focusing on usefulness of data without sacrificing accuracy and validity
Shea, Shih & Davis	2007	Health care opinion leaders' view on the quality and safety of health care in the United States	Survey	214	59% of respondents called for public reporting of provider performance on quality measures
Werner & Asch	2005	The Unintended Consequences of Publicly Reporting Quality Information	Descriptive	Not applicable	The value of publicly reported quality data is for the most part unproven and may result in unintended consequences, e.g. physicians avoiding sick patients in order to improve quality ranking

Efforts to implement report cards in the United States may also lead to unintended consequences (Werner & Asch, 2005). In order to improve quality ratings, physicians might refuse to treat the sickest patients. This was the case in New York where coronary artery bypass graft (CABG) mortality rates fell after the state began publishing its CABG report card. Other studies taking place during the same period revealed cardiac surgeons were turning away the sickest patients in states with CABG report cards in order to avoid poor outcomes and lower ratings (Werner & Asch, 2005).

Additional unintended consequences of health care report cards include physicians who are encouraged to reach target levels for medical procedures or interventions even though they may not be appropriate for some patients as well as ignoring or refusing to consider patient preferences and comprising their own clinical judgment (Werner & Asch, 2005). A recently published study from the RAND Corporation examined the care provided by 10,000 Massachusetts physicians in 2004 and 2005 and found that information often included in report cards such as board certification or malpractice claim payments are not good predictors of whether a physician will deliver quality care (Reid, Friedberg, Adams, McGlynn & Mehrotra, 2010).

Despite providers' opposition to report cards, concerns about medical errors and increased awareness of patient safety and quality have contributed to growing demand for health care performance data and transparency in provider performance (McLoughlin & Leatherman, 2003; Shea, Shih & Davis, 2007). Earlier this decade The Institute of Medicine asserted that public reporting will increase transparency, accountability, and quality (Robinowitz & Dudley, 2006).

A Wall Street Journal/Harris Interactive poll reported that 60% of Americans support the report card concept for grading hospital and physician quality (Bright, 2008). The survey also found that 44% of the participants say they would be "very likely" to refer to health plan data rating physician trust, communication, and medical knowledge in selecting a provider. Forty-seven percent said they would be "somewhat" likely to consider that information.

However, the Commonwealth Fund/Modern Healthcare survey found that consumers have not rushed to use the information nor are doctors quite sure how to respond to or act on the data (Ackerman, 2008). It also is unclear whether the information on these sites is prompting providers to improve quality and reduce prices. Some providers have responded by requesting their patients sign waivers preventing them from posting negative comments on websites such as RateMDs.com and Angie's List (Smith, 2009).

Fung (2008) concluded that "studies of the effect of public reporting on outcomes provide mixed signals, and the usefulness of public reporting in improving patient safety and patient-centeredness remains unknown because few studies assessed these end points" (Fung, Yee-Wei, Mattke, Damberg, Shekelle, 2008, p. 121). However, Reid's (2010) findings that publicly reported physician characteristics such as malpractice claim payments and board certification are poor substitutes for clinical quality indicators may signal that more studies examining the usefulness of physician report cards are underway.

Summary of Health Care Report Card Research

Despite concerns about their validity and accuracy, health care report cards are likely here to stay despite questions about their accuracy and unintended consequences (Marshall, Shekelle, Davies & Smith, 2003; Werner & Asch, 2005). Fung et al. (2008) stated that more research is needed, especially in comparing and contrasting different reporting systems and in designing a reporting system appropriate for its purpose. Fung et al. (2008) also called for research on the effect of report card design and implementation on the report's impact as well as empirical studies designed to explore causality regarding public reporting and its influence on the quality of care delivered by providers. Ideally, such studies should be conducted involving group practices having three or more physicians, since 56 percent of 2006 patient visits were to practices of this size (Cherry, Hing, Woodwell & Rechtsteiner, 2008). Additionally, new research should examine empirical data obtained through a controlled, cross-sectional study (Fung et al., 2008).

Health Care Report Cards as Indicators of Quality and Decision Aids

The need for tools that allow consumers the opportunity to conduct "thorough inspections" to determine if their provider is adhering to best practice standards has contributed to the rise in health care report cards. Private and public organizations (e.g. HealthGrades and California's The Healthcare Quality Report Card) make the results of these quality efforts available for inspection through the report cards they produce. Not surprisingly, a report card's

accuracy and usefulness continues to be scrutinized and questioned (Hofer, 1999; Barr, Bernard, Sofaer, Giannoti, Lenfestey & Miranda, 2008).

In summary, much of the health care report card research has been concerned with the validity and accuracy of health care report cards (Barr et al., 2008), their influence on consumer choice (Faber et al., 2009; Jha & Epstein, 2006), whether they improve the quality of care (Fung et al., 2008), whether they are able to discriminate between individual hospital performance (Krumholz et al., 2002), and what type of quality information consumers want and how they use the information (Hibbard & Jewett, 1996; Reid et al., 2010). Regardless of their acceptance or rejection by health care providers, payers, regulators and consumers, report cards will continue to serve as an important information source for consumers and patients. The health care industry's move toward transparency about costs and performance in place of ambiguity, outcomes instead of output, and patient needs over provider requirements ensures not only report cards' continued existence and growth but also further refinements, e.g. considering the patient's contextual environment when searching for information about a physician (Gao, McCullough, Agarwal & Jha, 2012; Shaller, Kanouse & Schlesinger, 2013; Shannon, 2013). This research addresses the effect of physician report cards and other information sources on patients' *satisfaction* with the search and physician selection process – an area that has not been adequately addressed in the health care quality or the consumer information search literature.

<center>Research Study's Guiding Theoretical Frameworks</center>

Of the various information search models and consumer satisfaction theories presented above, the present study relies primarily on Longo et al.'s Health Information Model and the expectancy disconfirmation model of consumer satisfaction in formulating the hypotheses presented below as well as methods and analyses used to support or reject the hypotheses. The Health Information Model reflects the complexity of the search process, recognizes the influence of contextual and personal influencers, and specifically identifies satisfaction as an outcome of the search process. The expectancy disconfirmation model informs the study's conceptualization of consumer satisfaction. Oliver's (1993) interpreted satisfaction as "primarily cognitive in nature because the comparison process in disconfirmation judgments requires the deliberative processing of information" (p. 428). Cardozo's (1965) experimental finding that the amount of effort expended by consumers and their level of expectation affected their (cognitive) evaluation of the product and the shopping experience further informs the study's understanding of consumer satisfaction.

<center>Hypotheses</center>

The theoretical concepts of health care information search and consumer satisfaction, together with the review of the literature pertaining to satisfaction with health care information search and health care report cards, form an integrated theoretical framework for the alternative hypotheses that will be tested in this research:

H$_{a1}$:   Physician report cards have a direct or positive effect on the time and cost of

          patient search for a physician.

H$_{a2}$:   Physician report cards are more likely to be used to search for medical specialists.

H$_{a3}$:   Health status has a direct or positive effect on patient use of physician report cards

          in searching for a physician.

H$_{a4}$:   Patient gender, age, household income, education and Internet use effect patient

          search and satisfaction in selecting a physician.

H$_{a5}$:   Patients regard physician report cards as measures of physician's clinical quality

          or service quality.

H$_{a6}$:   Physician experience, office location, and accepted insurance effect patient search

          and selection of physician.

Chapter Summary

Chapter Two defined information search and identified three conceptual models of information search formulated and applied to the health care industry: Health Information Acquisition Model, Comprehensive Model of Information Seeking, and the Health Information Model.

The consumer satisfaction construct was the next focus of the chapter, which examined the evolution of the disconfirmed expectations paradigm and reviewed online or Internet consumer satisfaction research as well as studies involving health care information search and satisfaction.

The third area discussed in the chapter examined the construct of patient-centered care and its role in stimulating health care quality and improving consumer's health care literacy and decision-making through public reporting of process and outcome data. A review of the literature describing the proliferation of health care report cards, their effectiveness and unintended consequences followed and contributed to the recognition of a gap in the research involving the effects of report cards and other information sources on satisfaction with patients' search for a physician. The chapter concluded with identification of the information search and consumer satisfaction theories informing study design and analysis and the formulation of six alternative hypotheses, which the present research is designed to prove falsifiable.

CHAPTER THREE: MATERIALS AND METHODS

The purpose of this chapter is to present the research design, population sample, data collection methods, survey instrument, and data analysis used in answering the research questions presented in Chapter One and to test the hypotheses posed in Chapter Two. As described in the sections that follow, the research examines the effect of information sources on patients' satisfaction with the search for a physician. The principal investigator surveyed patients who scheduled first-time appointments with physicians and analyzed their responses through application of descriptive statistics, intent-to-treat significance testing to compare groups, and covariance structure analysis.

Setting, Population and Sample

The research population consisted of adults age 18 years and older who scheduled first-time appointments for themselves or their dependents with physicians of a not-for-profit, multi-specialty medical group practice with medical offices in Lake, Orange, Osceola or Seminole counties. The medical group employs approximately 250 physicians who at the time the research was conducted practiced in 33 medical specialties. The medical group is a subsidiary of a faith-based health care system that owns and operates hospitals and other patient-care facilities in Colorado, Florida, Georgia, Illinois, Kansas and Texas. The medical group also is a sister organization to the health care system's hospital organization headquartered in central Florida. The hospital's institutional review board (IRB) approved the principal investigator's

application to conduct human subject research (Appendix B). The University of Central Florida

IRB also granted its approval to conduct the human subject research (Appendix C).

The selection of the central Florida medical group is representative of purposive and

convenience sampling in that the physicians are necessary in order to conduct the research and

the researcher was granted permission by the medical group's president, and subsequently, the

hospital's IRB, to implement the study intervention (see Methodology section below) and collect

patient data based on the principal investigator's previous employment with the medical group.

Research Design

The research was accomplished using a quasi-experimental posttest-only nonequivalent

group design. The design notation for this study is

$$X\ O_1$$

$$O_2$$

where X equals the intervention and O_1 represents the intervention group and O_2 represents the

control group. Such a design has generally not been used in social science research because of

the threat the treatment and control groups are not equivalent (Mark & Reichardt, 2009); there is

a chance participants are different, even though participants in each group scheduled a first-time

appointment with a physician employed by the medical group, but they cannot be randomly

assigned to either group because the principal investigator had no knowledge of who they were

before they became a patient. In order to control for self-assignment bias and lack of group

equivalency inherent in this design, one-half of the medical group's physicians were randomly assigned to the intervention group and one-half were assigned to the control group. Physician extenders, i.e. advance practice nurses and physician assistants, and hospital-based physicians such as radiologists, hospitalists, critical care physicians and neo-natal intensive care physicians were excluded from the intervention and control groups because such physicians are typically assigned to patients during hospital treatment rather than being chosen by the patient. Physician assignment to either the intervention group or the control group was accomplished by printing the physician name on a slip of paper, folding the paper over to conceal the name and then placing the slip of paper in an opaque container. Upon drawing the first name, a penny was flipped and allowed to fall to the ground. If the "Heads" side landed up, the physician was assigned to the intervention group or to the control group if the "Tails" side landed up. The process was repeated until all the physicians were assigned to either the control group or the intervention group. A total of 78 physicians were randomly assigned to the intervention group and 77 physicians were randomly assigned to the control group.

Methodology

The medical group maintains a website and a section of the website includes a directory of all the group's physicians. The directory includes a photo of the physician, the medical specialty, practice name, telephone number, address, practice website address or uniform resource locator (URL), whether the physician is board certified, where the physician performed his/her residency, and whether he/she completed a fellowship. The study intervention involved

the addition of the Web address or URL of a national producer of physician and hospital online report cards to the website directory profiles of the medical group physicians randomly assigned to the intervention group. The directory profiles of the medical group physicians randomly assigned to the control group did *not* display the Web address or URL of a national producer of physician and hospital report cards.

The report card producer was chosen from among 200 report cards on the AHRQ's Report Card Compendium due to the amount and nature of information included in its physician profile, which is accessible at no cost; the website's popularity (it received 4.5 million visits in October 2010 compared to 2.4 million to another report card producer's website, and 2.06 million visits to http://hhs.gov) and its standing in the health care industry as the producer of highly regarded annual reports on patient safety and top ranked hospitals in the United States. The intervention appeared on the medical group directory profiles between January 1, 2011 and April 25, 2011. Upon receipt of research project approval from the hospital's IRB, the medical group's associate director for data management was asked to provide patient records in an Excel spreadsheet based on the following criteria: 1. individuals over 18 years of age who scheduled a first-time appointment (either for the individual or a dependent) with a medical group physician; 2. the individual scheduled the appointment between February 25, 2011 and April 25, 2011 (this time period was selected in order to reduce maturation threats resulting from extended IRB approval, which necessitated delays in distributing surveys to the sample); 3. patient record included last name, first name, street number, street name, city, state, zip code; 4. the physician with whom the patient scheduled the appointment. A total of 9,529 patient records were delivered to the

study's secondary investigator on separate Excel 2010 (version 14.0) spreadsheets – 4,529

patient records in the intervention group and 5,000 patient records in the control group.

Sample Size Determination

Dillman, Smyth and Christian (2009) provided the formula used to calculate the size of the

study sample. The formula considers four factors in determining sample size: margin of error

(i.e., one-half desired confidence interval width), confidence level, variation within the

population with respect to the characteristic of interest, and size of the population from which the

sample is to be drawn (pp. 55-56).

$$N_s = \frac{(N_p)(p)(1-p)}{(N_p - 1)(B/C)^2 + (p)(1-p)}$$

N_s = completed sample size
N_p = the size of the population
p = the proportion of the population expected to choose one of the two response
    categories (i.e., used report cards in searching for a physician or did not use report
    cards)
B = margin of error
C = Z score associated with the confidence level (1.96 corresponds to the 95% level)
    (Dillman et al., 2009, p. 56)

Given that not all items in the questionnaire are dichotomous (yes/no) and variation in the

control and intervention populations are likely very broad, the value for $p = .50$ assumes

maximum heterogeneity in the populations (p. 57). The margin of error adopted for the research

is .05 and the confidence level is 95% and the corresponding Z score is 1.96. Therefore, the

control group sample size totaled 357 first-time patients and the intervention group sample size

totaled 355 patients, resulting in a combined sample of 712 first-time patients. Patient records

comprised of name and address for each group were randomly selected using Excel (for Mac)

2008 (version 12.3.2) RandBetween, which generates random whole numbers between a range of

specified numbers. In order to avoid duplication, a large range was selected and the low-end

number was set at 1,000,000 and the high-end number at 10,000,000.   Running the application

produced a randomly generated whole number for each patient record in the control group.

These numbers were then rank ordered and the first 357 records were selected to represent the

control group sample. The process was repeated to determine the 355 records that made up the

intervention group sample. After obtaining the sample member records, the names and addresses

of members in each group were reviewed and records with partial or incomplete addresses were

eliminated. Five incomplete records were subsequently removed from the intervention group

and one record was deleted from the control group, which resulted in a final total mailing to 706

sample members.

Instrument Design and Development

The unit of analysis of this study is the individual. A 62-item questionnaire (Appendix

D) was developed to survey participants in the control and intervention groups who had recently

scheduled first-time appointments with physicians employed by the medical group practice

(Table 9). "Not Applicable" item responses were coded with the same numerical score as

"Neither Agree nor Disagree" responses. The instrument consisted of 11 factors or variables

designed to elicit responses from patients about their search of public information sources and

their satisfaction with the search process as indicated by scheduling an appointment with a new

physician, referring family and friends to the physician or fulfillment of the patient's needs.

Table 9. Questionnaire Structure and Item Description

Questionnaire Factor	Item Number	Description	Code
	1	Relied on variety of information resources	Infovar
	2	Relied on hospital & physician marketing	Hosdoc
Information Source Reliance	3	Relied on family & friend referrals	Famfri
	4	Relied on doctors & nurses referrals	Docnur
	5	Relied on internet physician report card	Rptcrd
	6	Search with intent to change physician	Newdoc
	7	Search for alternative to physician	Altdoc
Intent to Change Physician	8	Search for higher quality medical care	Qualmed
	9	Search for timely medical appointment	Timappt
	10	Search to accommodate life change	Lifechng
	11	Perceived to be in excellent health	Exhlth
	12	Have chronic medical condition	Chrnmed
Health Status Perception	13	Sudden illness	Sudill
	14	Concerns about ability to function physically	Physfunc
	15	Concerns about ability to function mentally	Mentfunc
	16	Concerns about ability to fulfill roles	Myrole
	17	Physician experience	Docexp
	18	Physician practice location	Pracloc
	19	Physician medical insurance acceptance	Medins
	20	Physician office staff	Offstff
Physician Consideration	21	Physician communication skills	Comskil
	22	Schedule timely appointment	Schdappt
	23	Physician age	Docage
	24	Physician board certification	Bdcrt
	25	Physician medical school reputation	Medrep
	26	Physician gender	Docsex

Questionnaire Factor	Item Number	Description	Code
	27	Search satisfaction indicated by referrals to family and friends	Satref
Search Satisfaction Indicators	28	Search satisfaction indicated by scheduling appointment with physician	Satschd
	29	Search satisfaction indicated by fulfillment of needs	Satnds
Information Use Rating	30	Rate information sources	Rtinfo
	31	Satisfaction with hospital/physician marketing	Satmkt
Information Sources Search Satisfaction	32	Satisfaction with recommendations from family & friends	Recfam
	33	Satisfaction with recommendations from physicians/nurses	Recdoc
	34	Satisfaction with physician report cards and ratings	Satrptcd
	35	Committed to conducting search	Srchsel
	36	Committed to considering another physician	Anthdoc
Commitment and Importance of Changing Physician	37	Importance of delivery of quality	Qltydlv
	38	Importance of timely appointment	Impappt
	39	Importance of life changes	Lfechng
	40	Rate overall health	Ovrhlth
Health Status Rating	41	Health problems limit physical activities	Hlthprob
	42	Personal problems prevent usual work	Persprob
	43	Difficulty with daily work	Difwrk
	44	Physician experience influence search satisfaction	Expsat

Questionnaire Factor	Item Number	Description	Code
	45	Physician office location influence search satisfaction	Locsat
	46	Physician medical insurance influence search satisfaction	Inssat
	47	Physician office staff influence search satisfaction	Offsat
Influence on Search Satisfaction	48	Physician communication skills influence search satisfaction	Comsat
	49	Physician timely appointment influence search satisfaction	Aptavail
	50	Physician age influence search satisfaction	Docagesat
	51	Physician board certification influence search satisfaction	Bdcrtsat
	52	Physician medical school reputation influence search satisfaction	Repsat
	53	Physician gender influence search satisfaction	Sexsat
	54	Respondent Gender	GenMF
	55	Respondent Age Range	Agecat
	56	Respondent Race/Ethnicity	Raceethn
	57	Respondent medical/health insurance	Hlthins
Respondent Sociodemographics	58	Respondent education level	EdLev
	59	Respondent marital status	Marstat
	60	Respondent's definition of physician quality	Docqual
	61	Respondent's Internet usage	Intsrcs
	62	Respondent household income	Hhinc

Factors and Latent Constructs in Patient Search Contributing to Questionnaire Development

In her study of the process by which patients search for a physician, Harris (2003) identified three latent factors or variables: information use, consideration of another physician and willingness to switch physicians (p. 713). The indicators of information use include formal sources (e.g. physician report cards, marketing literature, newspaper articles, etc.), family and friends and doctors and nurses acting as referral sources. In her study, intent to change physician includes whether the patient considered another doctor during the search process and the likelihood or willingness that the patient would switch to another doctor (p. 719).

These constructs, information use and intent to change physician, parallel the revised health belief model's constructs of cues to action (media campaigns, physician referrals, magazines, etc.) and perceptions and modifying factors Janz and Becker (1984) formulated and which fall under the predisposing (e.g. age, gender, health status, education) and enabling determinants (e.g. information source, health insurance), respectively, in the framework for health service utilization developed by Andersen and Newman (1973, pp. 108-109).

Factors Influencing Patient Search and Physician Selection

Bornstein, Marcus and Cassidy (2000) found in a survey of health care specialty patients, shoppers and members of a women's organization that patients desire information about health care quality and they want to be able to easily gather or obtain the information. Leisen and Hyman (2004) found in a study of 214 patients that "patients' trust in their physician correlates

positively with the length of their relationship and satisfaction with their physician" (p. 990) and that patients' awareness of their physicians' opportunistic behaviors (e.g. overbooking and cash-only payment policies) produces mixed effects on patients' trust and satisfaction (Leisen & Hyman, 2004).

A physician's expertise and the role of his or her office staff were found to be statistically significant in relation to patients' intent to recommend the physician to family and friends in a study of 163 residents of a large city in the Midwest (Arora, Singer & Arora, 2004). In the experiment, respondents were asked to view eight different black and white advertisements that reflected three study variables: communication style, office and staff, and expertise (Arora et al., 2004). In contrast to the researchers' expectations, the main effects of physician communication style and office staff-related variables (e.g. wait times, parking availability and same-day versus same week appointment availability) were not significant (Arora, Singer & Arora, 2004).

Biorn and Godager (2008) used a panel data set for 484 Norwegian general practitioners to study the influence of quality on choice of general practitioners. One indicator of quality is patient excess mortality and using structural equation modeling, the researchers found that quality has a positive effect on demand (Biorn & Godager, 2008).

Survey Administration

Before surveying sample members, the survey questionnaire was pretested for internal consistency or inter-item reliability by administration to a small, convenience group (n = 16) of

individuals. This pilot group consisted of adults over 18 years of age randomly selected from

among the medical group's corporate office staff. The respondents were instructed to complete

the questionnaire from the perspective of having scheduled a first-time appointment with a

physician following a search of information sources. Analysis of the pretest responses using

PASW Statistics GradPack 18 yielded a Cronbach's coefficient alpha of .793, which is

considered acceptable (Pallant, 2010).

A mail survey was used to collect data from sample members. The original mail survey

design was based on The Tailored Design Method (Dillman, Smyth and Christian, 2009), which

involves mailing a series of contact letters and postcards to sample members in order to boost

response rate, reduce survey error, and build positive social exchange (p.16). The package

included five mailings to sample members. The first mailing, a pre-notice letter, served as an

introduction to the study and informed sample members that they would soon have the

opportunity to complete a questionnaire concerning their recent search for and selection of a

physician. The second contact mailing included a cover letter, questionnaire, a research

summary describing who was conducting the research and contact information, and a postage-

paid reply envelope. Mailing number three was a postcard reminding sample members to

complete and return the questionnaire if they had not already done so. The fourth mailing served

to remind sample members once again to complete and return the questionnaire and included

another postage-paid envelope. The fifth mailing consisted of a letter with a final appeal to

sample members who had not responded to do so, a copy of the questionnaire and a postage-paid

reply envelope.

The research involved no more than minimal risk to respondents and participation was completely voluntary. The university's IRB approved the research study as exempt from regulation and made no changes to the research protocol submitted by the principal investigator. The hospital IRB, however, mandated two changes to the research protocol: the addition of a sub-investigator and restrictions in the number of mailings to sample members.

The inclusion of a sub-investigator was required in order to comply with the hospital's policy regarding patient protected health information and Health Insurance Portability and Accountability Act (HIPAA) requirements. A medical office staff member was recruited to serve as the research study's sub-investigator and subsequently completed all required human subject research training required by the hospital IRB. The sub-investigator also maintained all sample member data and signed the introduction letter that accompanied the questionnaire in the survey mailing to sample members.

The hospital IRB's restriction as to the number of contact mailings that could be sent to sample members significantly changed the research study's data collection methodology. Instead of the planned five-stage mailing associated with the Tailored Design Method (Dillman et al., 2009), the hospital IRB limited patient contact to one mailing consisting of a cover letter (Appendix E), summary of research (Appendix F), questionnaire and postage-paid reply envelope (Appendix G). The IRB's rationale behind its decision was that sample member participation "is voluntary and should they not return the survey after the first contact, that is their choice to not participate. You cannot continue to request their participation." The hospital IRB did approve the inclusion of a one-dollar financial incentive in the mailing, but as the

research was self-funded, budget limitations did not allow the principal investigator to include an incentive.

Sample Members Response to the Survey Mailing

A total of 706 questionnaires were mailed via first-class postage to sample members on May 28, 2011. Within thirty days the survey achieved a response rate of 6.9%. In an effort to boost sample member response, the principal investigator sought approval from the hospital IRB to mail a postcard (Appendix H and Appendix I) to sample members. The postcard thanked sample members who had returned the questionnaire and encouraged those who had not to do so by either: (a) calling the principal investigator to request a replacement questionnaire, (b) returning the previously mailed questionnaire in the postage-paid envelope included in the original survey mailing, or (c) by completing the questionnaire online at a password-protected website. The questionnaire was duplicated on Survey Monkey, a provider of Web-based surveys, and could be accessed by sample members at http://inforesourcessurvey.com. Separate questionnaire-access passwords were created for sample members in the control group and sample members in the intervention group.

The hospital IRB conducted an expedited review and approved the principal investigator's request to mail the reminder post cards to sample members. After deleting sample member addresses that had been returned as undeliverable following the initial mailing, a total of 341 intervention and 345 control postcards were mailed on July 28, 2011. By September 30,

2011, two intervention sample members telephoned and requested duplicate questionnaires and one control group sample member completed the questionnaire online. The number of questionnaires returned by this date totaled 62; 32 from the control group and 30 from the intervention group. One intervention group sample member returned a blank questionnaire (as directed in the survey cover letter to indicate a decision not to participate) and that questionnaire was not included in the questionnaire analysis. The final survey response rate was 8.64%.

<u>Data Analysis</u>

Preliminary data analysis was performed using IBM SPSS Version 20.0. When necessary, the data file was split in order to perform analysis on the control and intervention groups separately. In addition to conducting a descriptive analysis of the data, frequencies for each variable were run to determine the presence of errors (i.e., values falling outside the possible range of scores) and the strength and direction of the relationship among variables were measured by obtaining Pearson's product-moment correlation and Spearman rank order correlation for ordinal data (Pallant, 2010). Independent-samples t-tests were performed to compare the mean scores of the control and intervention groups, which allowed the principal investigator to test the assumption of control and intervention group differences for each specific outcome variable. Such intent-to-treat analyses are generally associated with experimental studies where data are analyzed as randomized, "regardless of what treatment was actually received," i.e. measuring an intervention's effect even though compliance among the study's participants was not perfect (Atkins, 2007, p. 698). Such is often the case in clinical trials, where

participants drop out or choose to take the comparison treatment rather than the randomly

assigned treatment (Atkins, 2007). Chi-square test for independence tested the relationships

among the study's categorical variables.

Covariance structural analysis in IBM SPSS AMOS Version 21.0 was applied to explain

causal relationships between latent variables and observed variables and for hypothesis testing.

AMOS stands for Analysis of Moment Structures, i.e. the analysis of mean and covariance

structures (Byrne, 2001; Bacon, 2009). See Table 10 for the operational definitions and

measurement instruments for the study vehicles.

Table 10. Operational Definition and Measurement Instruments for Study Variables

Construct	Variable	Control	Type	Role	Scale	Data Source	Prior Use In Literature
Latent	Information Use	No	Endogenous	Enabling	Interval	Questionnaire	Harris, 2003
Latent	Intent to change Physician	No	Endogenous	Predisposing	Interval	Questionnaire	Harris, 2003
Latent	Health Status	No	Endogenous	Predisposing	Interval	Questionnaire	Wan, 2002
Latent	Search Satisfaction	No	Endogenous	Enabling	Interval	Questionnaire	Friedman & Savage, 1948
Observed	Referrals to Family & Friends	No	Endogenous	Satisfaction Indicator	Interval	Questionnaire	Tu & Lauer, 2008
Observed	Appointments Scheduled	No	Endogenous	Satisfaction Indicator	Interval	Questionnaire	Bornstein, Marcus & Cassidy, 2000
Observed	Needs Fulfillment	No	Endogenous	Satisfaction Indicator	Interval	Questionnaire	Aday & Andersen, 1974
Observed	Physician Experience	No	Exogenous	Predisposing	Interval	Questionnaire	Reid, Friedberg et al., 2010
Observed	Physician Location	No	Exogenous	Enabling	Interval	Questionnaire	Aday & Andersen, 1974
Observed	Physician Accepts Insurance	No	Exogenous	Enabling	Nominal	Questionnaire	Andersen & Newman, 1973

Construct	Variable	Control	Type	Role	Scale	Data Source	Prior Use In Literature
Observed	Physician Office Staff	No	Exogenous	Predisposing	Interval	Questionnaire	Arora, Singer & Arora, 2004
Observed	Physician Communication	No	Exogenous	Predisposing	Interval	Questionnaire	Arora, Singer & Arora, 2004
Observed	Physician Appointment Availability	No	Exogenous	Enabling	Interval	Questionnaire	Aday & Andersen, 1974
Observed	Physician Age	No	Exogenous	Predisposing	Ratio	Questionnaire	Bornstein, Marcus & Cassidy, 2000
Observed	Physician Board Certification	No	Exogenous	Predisposing	Nominal	Questionnaire	Reid, Friedberg et al., 2010
Observed	Medical School Reputation	No	Exogenous	Predisposing	Ordinal	Questionnaire	Reid, Friedberg et al., 2010
Observed	Physician Gender	No	Exogenous	Predisposing	Nominal	Questionnaire	Reid, Friedberg et al., 2010
Observed	Referral from Doctors & Nurses	No	Exogenous	Enabling	Nominal	Questionnaire	Tu & Lauer, 2008

Construct	Variable	Control	Type	Role	Scale	Data Source	Prior Use In Literature
Observed	Hospital & Physician Marketing	No	Exogenous	Enabling	Ordinal	Questionnaire	Getzen, 1984
Observed	Family/Friend Referral	No	Exogenous	Enabling	Nominal	Questionnaire	Tu & Lauer, 2008
Observed	Physician Report Card	No	Exogenous	Enabling	Ordinal	Questionnaire	Fung, 2008
Observed	Perceived Health	No	Endogenous	Illness Level	Interval	Questionnaire	Wan, 2002; Andersen & Newman, 1973
Observed	Physical Functioning	No	Endogenous	Illness Level	Interval	Questionnaire	Wan, 2002; Andersen & Newman, 1973
Observed	Mental Functioning	No	Endogenous	Illness Level	Interval	Questionnaire	Wan, 2002; Andersen & Newman, 1973
Observed	Role Functioning	No	Endogenous	Illness Level	Interval	Questionnaire	Wan, 2002; Andersen & Newman, 1973
Observed	Patient Age	Yes	Exogenous	Predisposing	Ordinal	Questionnaire	Andersen & Newman, 1973

Construct	Variable	Control	Type	Role	Scale	Data Source	Prior Use In Literature
Observed	Patient Gender	Yes	Exogenous	Predisposing	Nominal	Questionnaire	Andersen & Newman, 1973
Observed	Patient Race	Yes	Exogenous	Predisposing	Nominal	Questionnaire	Andersen & Newman, 1973
Observed	Patient Ethnicity	Yes	Exogenous	Predisposing	Nominal	Questionnaire	Andersen & Newman, 1973
Observed	Patient Income	Yes	Exogenous	Enabling	Ordinal	Questionnaire	Andersen & Newman, 1973
Observed	Patient Insurance	Yes	Endogenous	Enabling	Nominal	Questionnaire	Andersen & Newman, 1973
Observed	Patient Education	Yes	Endogenous	Predisposing	Nominal	Questionnaire	Andersen & Newman, 1973
Observed	Patient Search	No	Endogenous	Enabling	Interval	Questionnaire	Harris, 2003
Observed	Consider Another Physician	No	Endogenous	Enabling	Interval	Questionnaire	Harris, 2003
Observed	Switch Physician for Quality	No	Endogenous	Enabling	Interval	Questionnaire	Harris, 2003
Observed	Lack of Timely Appointment	No	Endogenous	Enabling	Interval	Questionnaire	Harris, 2003

Construct	Variable	Control	Type	Role	Scale	Data Source	Prior Use In Literature
Observed	Life Change	No	Endogenous	Predisposing	Interval	Questionnaire	Harris, 2003

Covariance structure analysis merges both factor analysis and structural equation models into one model that "simultaneously estimates latent variables from observed variables and the structural relations among the latent variables" (Wan, 2002, p. 155). Coefficients generated by covariance structure models also are analogous to regression coefficients in multiple regression (Schoenberg, 1989). In addition, covariance structure analysis eliminates the need for the investigator to perform preliminary analysis involving data reduction, construction of an index measure and multiple regressions as well as permitting the incorporation of multiple 'indicators' of 'latent' variables or constructs (p. 426). It also is a large sample technique where the rule of thumb calls for a minimum of 200 cases or 5-20 times the parameters to be estimated (Lei & Wu, 2007, p. 36).

As with the larger family of structural equation models, the covariance structure model is composed of a measurement model that shows the links between the latent variables (i.e., phenomena which are not directly observable such as satisfaction or health status) and their observed measures or indicators (Byrne, 2001) and the structural model which depicts the causal relationships among the latent variables (Wan, 2002). Observed variables also are associated with an error term, which represents measurement error and a residual term, and corresponds "with error in the prediction of endogenous factors from exogenous factors" (Byrne, 2001, p. 9).

AMOS facilitates specification of causal relationships of the research study variables through path diagrams The hypothesized covariance structure model presented in Figure 6 depicts the proposed effect of observed and control variables on latent variables of patient

satisfaction with the search for a physician. The unidirectional arrows in the diagram indicate

exogenous or endogenous variables that "cause" another variable (Byrne, 2001; Noblin, 2010).
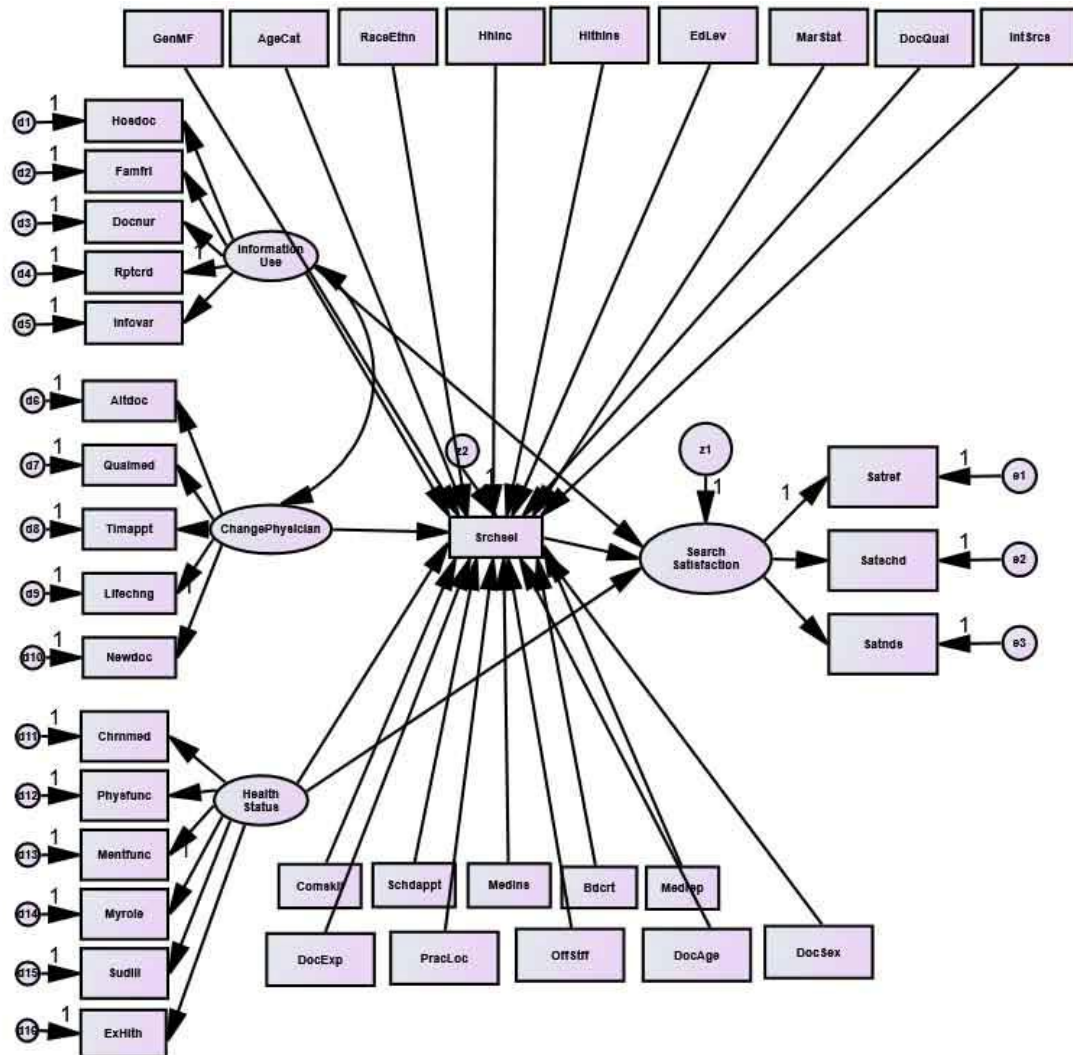
Figure 6. Hypothesized Model for Information Sources Effects on Patient Satisfaction with Search for Physician Exogenous or Endogenous Variables that 'Cause' Another (Byrne, 2001; Noblin, 2010).

As shown in Figure 6, *Information Use, Intent to Change Physician* and *Health Status*

"cause" *Search Satisfaction*. In addition to having a direct impact, the three factors also are

mediated by the individual's *Search and Selection*, which also "causes" *Search Satisfaction.*

Other predisposing and enabling determinants include such things as a respondent's gender, age,

household income and physician traits such as communication skills, experience and office

location. The double-headed arrow represents covariance or correlation between a pair of

factors. In the initial model, covariance is hypothesized between *Information Use* and *Intent to*

Change Physician.

According to Wan (2002), the covariance structure model is based on the following

assumptions:

1. It is assumed that variables are measured from their means.

2. Common and unique factors are assumed to be not correlated.

3. It is assumed that unique factors and residuals in equations are uncorrelated
   across equations.

4. Exogenous variables and residuals in equations are assumed to be uncorrelated.

5. It is assumed that none of the structural equations is redundant or duplicative
   (pp. 81-82).

Data were entered and analyzed using IBM SPSS 21.0 to identify relationships among

variables as well as to provide descriptive statistics relating to demographic characteristics of the

sample (Noblin, 2010). Goodness of Fit Index (GFI) statistics indicated the usefulness of the

model (Wan, 2002). CMIN/DF is a likelihood ratio (Chi-squared divided by degrees of freedom)

with a preferred value of less than 4 that tests the null hypothesis "that the sample covariance is drawn from a population characterized by the hypothesized covariance matrix" (p.82). GFI ranges between 0 and 1 and measured the amount of variances and covariances jointly accounted for by the model (p. 82). Adjusted Goodness of Fit Index (AGFI) with a range between 0 and 1 measured goodness of fit while considering the degrees of freedom available (p. 82). For both GFI and AGFI the larger the value the better. RMSEA (root mean square error of approximation) measured the degree of model adequacy based on population discrepancy with a preferred range of less than .05 (p.82).

Chapter Summary

Chapter Three presented the research design, population sample, data collection methods, survey instrument and data analysis used in answering the research questions presented in Chapter One and to test the alternate hypotheses posed in Chapter Two, which examine the effect of physician report cards on patients' satisfaction with the search for a physician. It accomplishes this by surveying a purposive sample of 706 randomly selected consumers who scheduled first-time appointments with employed physicians of a central Florida multispecialty medical group practice who were randomly assigned to a control group and an intervention group. The intervention consisted of the application and display of the URL of a health care report card provider to the intervention group physician profiles on the medical group's website. Sixty-two questionnaires were returned. One blank questionnaire was excluded from analysis, as it demonstrated the respondent's desire not to participate in the survey by returning the blank

questionnaire as instructed. The survey achieved a response rate of 8.64 percent. Data analysis

included descriptive statistics to examine normality of the data, correlation to test the strength

and direction of the relationship among variables, independent samples t-tests in order to

compare the mean scores of the control and intervention groups, and covariance structural

analysis to explain causal relationships between latent variables.

CHAPTER FOUR: RESULTS

The purpose of the study is to examine the effects of information sources on individuals' satisfaction with their physician search. This chapter presents the results of the data analysis of the relationship between independent variables, which is accomplished through a quasi-experimental research design involving individuals who scheduled first-time appointments with physicians employed by a multi-specialty medical group practice located in central Florida. In order to test the effects of information sources on individuals' satisfaction with their physician search, an intervention involving an additional information source, the website address of a national producer of physician and hospital report cards, was displayed on the Intervention group physician profiles that are part of the group practice's website. The remaining randomly selected patients were assigned to a control group.

A discussion of missing data is presented first, followed by a section on descriptive statistics (minimum, maximum, mean, standard deviation, skewness and kurtosis). In the third section, independent-samples t-tests were used to compare mean scores and to test the assumption of control versus intervention group differences in outcome variables. The fourth stage in the analysis used Pearson product-moment correlation and Spearman rank order correlation to identify and select variables for inclusion in the proposed covariance structure model. In the final analysis, covariance structure models are specified and re-specified through application of goodness of fit statistics (Lopez-Littleton, 2011) and the results of H_{a1}, H_{a2}, H_{a3}, H_{a4}, H_{a5} and H_{a6} testing are presented.

Missing Data Analysis

Missing data are problematic and endemic in social science research (Acock, 2005; Widaman, 2006). According to Widaman (2006), missing values or data occur because participants fail to register a response to a particular item (item nonresponse) or they fail to answer all items in a questionnaire (pp. 43-44). Missing data are generally classified as missing by definition, missing at random, missing completely at random, and nonignorable missingness (pp. 45-46). Missing by definition occurs when respondents are excluded because they are not a part of the subpopulation being studied (Acock, 2005). For example, in this study, a non-patient or a person who was not accountable for the care a patient received, would be excluded from the investigation. Missing at random (MAR) are variables where the likelihood of missing data on the variable is not related to the respondent's score on the variable (p. 1014). Missing completely at random (MCAR) variables are designated as such when the probability of missing data on an outcome variable is unrelated to the value of the variable itself or to values of any of the remaining variables (Widaman, 2006). Nonignorable missingness results "if the missing values on Y_j are related to Y_j even after controlling statistically other variables in the data set" (p. 45). It is important to understand which type of missing variables describes one's data because doing so dictates which method is to be used to replace, or impute values.

Missing value analysis was performed using IBM SPSS Version 20, which revealed 128 missing continuous (interval and ordinal) values, or 3.7% of the total number of continuous variables. According to Widaman (2006), missing data at a low level, i.e. generally less than 10 percent, is so minor that single imputation is in order (p. 61). The benefits associated with single

imputation include formation of a single data set, power maximization (since no observations are

deleted, although this can lead to a weakness as well due to underestimating the standard errors

and overestimating the level of precision in the process), and exhibition of "all trends that were

present in the nonmissing values" (Acock, 2005, p. 1019; Widaman, 2006, p. 52). Another

weakness associated with single imputation is the chance that unusual imputations may result

from the imputation process because of the introduction of a stochastic or random component,

which could affect the representativeness of the data set (Widaman, 2006). Multiple imputation,

on the other hand, "resolves the representativeness problem" by computing multiple data sets

that converge on full representativeness as the number of imputed data sets increases (p. 53).

Multiple imputation also allows the researcher to pool parameter estimates to obtain an improved

parameter estimate (Acock, 2006, p. 1019). A drawback to multiple imputation is that it requires

multiple steps that may lead to errors.

The first step in the single imputation process was to test the hypothesis that the missing

data are MCAR. The null hypothesis is that the data are missing completely at random (IBM,

2011). A significance value greater than .05 would result in one failing to reject the null

hypothesis and concluding that the missing data are MCAR. Running Little's MCAR Test in

IBM SPSS Version 20 resulted in a significance level of .556, therefore failing to reject the null

hypothesis and concluding that the data are MCAR.

Following the determination that the data are MCAR, IBM SPSS Version 20's

expectation maximization algorithm was applied to the dataset to replace the missing values with

predicted values. Expectation maximization is a form of maximum likelihood method for

finding parameter estimates.

> This method assumes a distribution for the partially missing data and bases inferences on
> the likelihood under that distribution. Each iteration consists of an E step and an M step.
> The E step finds the conditional expectation of the "missing" data, given the observed
> values and current estimates of the parameters. These expectations are then substituted
> for the "missing" data. In the M step, maximum likelihood estimates of the parameters
> are computed as though the missing data had been filled in. "Missing" is enclosed in
> quotation marks because the missing values are not being directly filled in. Instead,
> functions of them are used in the log-likelihood. (IBM, 2011, p. 7)

Application of the EM algorithm was applied by each factor subscale (see Table 9 above)

because items from the same subscale should have higher correlations and therefore increase the

accuracy of the predictive values (IBM, 2011). The factor subscales were then merged to form a

complete dataset.

<div align="center">Descriptive Statistics</div>

Univariate analysis (see Appendix J) of the intervention and control group's dataset's

continuous, nominal and ordinal variables using IBM SPSS Version 20 Shapiro-Wilk tests of

normality revealed Sig. values of .000, therefore suggesting a violation of the assumption of

normality (Pallant, 2010, p. 63). However, the presence of non-normal data in social science

research is not uncommon (Micceri, 1989; Yuan and Bentler, 2000; Hau and Marsh, 2004).

Univariate normality was then examined using skewness and kurtosis. According to Curran,

West and Finch (1996), the normal distribution is characterized by skewness and kurtosis equal

<div align="center">112</div>

to 0 (p.17). Univariate skewness values of 2 and kurtosis values of 7 indicate significant

nonnormality and are problematic (Curran, et al., 1996).

Table 11 presents findings for skewness and kurtosis values for all study variables,

regardless of group. All values fall within the acceptable range for skewness and kurtosis with

the exception of *Race and Ethnicity* (skewness -2.154), which is not an uncommon in physician

visits and health care utilization (Dunlop, Manheim, Song and Chang, 2002; Fiscella, Franks,

Doescher and Saver, 2002). Consequently, these nominal variables were not transformed.

Table 11. Skewness and Kurtosis Normality Test

Variable Description	Code	Skewness	Kurtosis
Variety of info sources	INFOVAR	-.501	-1.086
Hospital and physician marketing	HOSDOC	.135	-.954
Family and Friends	FAMFRI	-.420	-.976
Doctors and nurses	DOCNUR	-.851	-.380
Physician report card	RPTCRD	.147	-.742
Changing to a new physician	NEWDOC	-.001	-.325
Consider an alternative physician	ALTDOC	-.128	-.396
Obtain higher quality medical care	QUALMED	-.390	-1.013
Schedule more timely appointment	TIMAPPT	-.092	-.504
Change in personal life	LIFECHNG	-.107	-.971
In Excellent Health	EXHLTH	-.035	-.662
Chronic medical condition	CHRNMED	.108	-.984
Sudden Illness	SUDILL	-.019	-.961
Ability to function physically	PHYSFUNC	.027	-.752
Ability to function mentally	MENTFUNC	.315	-.237
Fulfill my roll in family, job	MYROLE	.419	-.306
Doc experience in treating condition	DOCEXP	-.463	-.687
Practice location	PRACLOC	-.316	-.939

Variable Description	Code	Skewness	Kurtosis
Medical insurance acceptance	MEDINS	-.982	.435
Office Staff	OFFSTFF	.003	-.711
Doctor communication skills	COMSKIL	-.586	-.864
Ability to schedule timely appointment	SCHDAPPT	-.706	-.541
Doctor's age	DOCAGE	.482	-.533
Doctor board certification	BDCRT	-.785	-.549
Medical school reputation	MEDREP	.089	-.912
Doctor's gender	DOCSEX	.144	-.715
Referring doc to family and friends	SATREF	-.879	.242
Scheduling an appointment	SATSCHD	-.778	.189
Fulfillment of needs	SATNDS	-.901	.668
Rate information sources	RTINFO	-.670	-.016
Satisfaction with doc marketing	SATMKT	.042	-1.568
Satisfaction with family and friends recommendation	RECFAM	-.283	-1.787
Satisfaction with doctor and nurses recommendation	RECDOC	-1.112	-.434
Satisfaction with physician report card	SATRPTCD	.164	-1.822
Search and selection commitment	SRCHSEL	-.534	-.500

Variable Description	Code	Skewness	Kurtosis
Considering another doctor commitment	ANTHDOC	-.594	-.458
Delivery of quality importance	QLTYDLV	-1.811	3.562
Scheduling timely appointment importance	IMAPPT	-1.256	2.764
Life changes importance	LFECHNG	.501	-.996
Rate overall health	OVRHLTH	-.829	-.021
Health problems limit usual physical activities	HLTHPROB	.583	-.781
Personal or emotional problems prevent activities	PERSPROB	1.403	1.343
Difficulty doing daily work	DIFWRK	.709	-.499
Physician's experience influence satisfaction	EXPSAT	-.859	-.077
Office location influence satisfaction	LOCSAT	-.326	-1.074
Insurance acceptance satisfaction	INSSAT	-.666	-.784
Office staff influence satisfaction	OFFSAT	-.373	-.879
Doctors communications skills influence satisfaction	COMSAT	-.975	.540

Variable Description	Code	Skewness	Kurtosis
Timely appointment availability	APTAVAIL	-.442	-.738
Doctors age affect satisfaction	DOCAGESAT	.449	-.968
Board Certification affect satisfaction	BDCRTSAT	-.517	-.453
Medical School Reputation affect satisfaction	REPSAT	.064	-1.042
Doctor gender affect satisfaction	SEXSAT	.829	-.628
Age category	AGECAT	-.724	-.069
Highest level of education	EDLEV	.113	-1.115
How often use and access Internet	INTSRCS	.763	.065
Household income	HHINC	.178	-1.242
What is your gender	GENMF	-.407	-.848
Race and ethnicity	RACEETHN	-2.154	3.528
Health insurance	HLTHINS	1.120	1.421
Marital status	MARSTAT	.186	-.893
Describe physician quality	DOCQUAL	-1.077	-.213

Respondents Relative Representativeness of Sample Population

An important question is whether the research study's 61 respondents are relatively

representative of the sample drawn during the two-month intervention period from the medical

practice groups' new patient population. A direct comparison is not possible, since demographic

and psychographic data were not included in the new patient data file provided by the group

medical practice to the research study's principal investigator. An alternate approach for

determining the representativeness of the respondents is to compare respondent demographic

characteristics to those of the population within the Orlando, Florida metropolitan statistical area

(MSA). The Orlando MSA (Demographic Detail Report, n.d.) consists of Lake, Orange,

Osceola and Seminole counties, which corresponds to the group medical practice's primary

service area, defined as the geographic area from which 80% percent of its patients originate.

Table 12 compares respondent demographic characteristics to those of the Orlando MSA

population.

Table 12. A Comparison of Respondent and Orlando MSA Demographic Characteristics

Variable	Respondents	Frequency	Percent	Orlando MSA % (2011 Estimates)*
Gender	Male	19	31.1	49.5
	Female	38	62.3	50.5
Age Category	0 to 25	3	4.9	33.4
	26 to 40	6	9.8	29.3
	41 to 55	13	21.3	14
	56 to 70	23	37.7	17
	71 and older	16	26.2	6.3
Race & Ethnicity	Asian	3	4.9	4.1
	Black or African American	4	6.6	16.3
	Hispanic or Latino	9	14.8	26.4
	White	44	72.1	69.9
Highest Level of Education	Less than High School	3	4.9	11.7
	High School Diploma	13	21.3	29.9
	Some college	15	24.6	19.8
	Associate's Degree	7	11.5	10.2
	Bachelor's Degree	13	21.3	19.4
	Master's Degree or above	8	13.1	9
Marital Status	Single, Never Married	8	13.1	26.1
	Married	31	50.8	57.8
	Divorced	8	13.1	10.7
	Widowed	12	19.7	5.5
Household Income	$20,000 or less	14	23	20
	$20,001 to $35,000	12	19.7	11.8
	$35,001 to $50,000	8	13.1	15.5
	$50,001 to $100,000	12	19.7	33.2
	$100,001 or more	7	11.5	19.6

*Variables not matched precisely

Comparing respondent descriptive frequencies to the Orlando MSA demographic estimates revealed similarities between the populations. The respondent population is largely female (62.3%), while the Orlando MSA female population is slightly larger than the male population (50.5% compared to 49.5%); 62.7% of the population is 40 years of age or younger compared to the respondent group. Furthermore, 63.9% of the respondent group is 56 years of age or older compared to 23.3% of the MSA population, The respondents are predominantly Caucasian (72.1%) as is the Orlando MSA population (69.9%). One-half of the respondent population (50.8%) is married, while the Orlando MSA married population is slightly higher at 57.8%. Respondents and Orlando MSA population compare favorably in education as well, with 21.3% of the respondents holding bachelor's degrees compared to 19.4% for the Orlando MSA population. In household income, 23% of respondents earned $20,000 or less, while 20% of Orlando MSA population earned that amount. Likewise, 13.1% of respondent household income ranged between $35,001 to $50,000 and the same income group for the Orlando MSA reached 15.5%.

The difference in ages between the respondents and the Orlando MSA population is largely due to the exclusion of respondents less than 18 years old. Another explanation for the age disparity is that it is not that unusual, given that older adults and the elderly are more likely to utilize health care services than younger adults (Schappert & Burt, 2006). With the exception of the difference in ages between the respondents and the Orlando MSA population, the respondents are generally representative of the Orlando MSA population from which the research study sample was drawn.

In describing physician quality, 63.9% of the population said it included all of the definitions included in item 60: clinical outcomes, customer/patient satisfaction, service that exceeds expectations, and how highly rated by other patients, physicians, insurers and government. Responses to individual descriptions of quality included exceeds expectations (18%), patient satisfaction (9.8%), and clinical outcomes (3.3%). None of the respondents defined physician quality solely as how highly rated the physician is.

Intent-to-Treat Analysis

Intent-to-treat analysis allowed the principal investigator to conduct significance testing for each specific outcome or dependent variable. This was accomplished by comparing the intervention group to the control group through an independent-samples t-test, which compared the research study's continuous variables' mean scores for control and intervention group participants (Pallant, 2010). There was no significant difference in scores for control and intervention groups (Appendix K), with two exceptions: (a) respondents' commitment to conducting a search and selecting a new physician, and (b) the influence of the physician's communications skills on the respondents' satisfaction with the search and selection of a new physician. Regarding commitment to conducting a search and selecting a new physician, the control group ($M = 3.84$, $SD = 1.138$) was somewhat more committed to conducting a search and selecting a new physician than the intervention group ($M = 2.79$, $SD = 1.346$; $t(59) = 3.289$, $p = .002$, two-tailed), who expressed very little commitment to conducting a search and selecting a new physician. The magnitude of the difference in the means (mean difference = 1.047, 95% *CI*:

.410 to 1.684) was very large (eta squared = .15). Respondents in the control group said the physician's communications skills influenced their satisfaction with the search and selection of a new physician quite a lot (M = 4.18, SD = 1.003), while the intervention group said physician communication skills somewhat affected their satisfaction with search and selection (M = 3.62, SD = 1.146; $t(59)$ = 2.026, p = .047, two-tailed). In this instance, the magnitude of the difference in the means (mean difference = .558, 95% *CI*: .007 to1.108) was moderate (eta squared = .065).

Chi-square Test for Independence

A Chi-square test for independence was run to explore the relationships between the categorical variables within the control and intervention groups (see Table 13). The analysis indicated no significant association between the control or intervention groups and age, race and ethnicity, health insurance, level of education, marital status, description of physician quality, Internet access and use, household income or gender.

Table 13. Chi-square test for independence between Control and Intervention Groups and Categorical Variables

Variable	Pearson Chi-Square Value	Df	Asymp. Sig. (2-sided)	Valid Cases (n)
Age	8.613[a]	4	0.072	61
Race & Ethnicity	4.318[b]	3	0.229	60
Health Insurance	6.774[c]	3	0.079	61
Highest Level of Education	9.143[d]	7	0.243	61
Marital Status	5.353[e]	4	0.253	60
Describe Physician Quality	3.590[f]	4	0.464	59
Internet Access & use	7.124[g]	4	0.129	61
Household Income	18.206[h]	12	0.11	61
Gender	1.406[i]	2	0.495	58

a 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.43.
b 6 cells (75.0%) have expected count less than 5. The minimum expected count is 1.40.
c 4 cells (50.0%) have expected count less than 5. The minimum expected count is .95.
d 10 cells (62.5%) have expected count less than 5. The minimum expected count is .48.
e 6 cells (60.0%) have expected count less than 5. The minimum expected count is .48.
f 6 cells (60.0%) have expected count less than 5. The minimum expected count is .46.
g 4 cells (40.0%) have expected count less than 5. The minimum expected count is .95.
h 20 cells (76.9%) have expected count less than 5. The minimum expected count is .48.
i 2 cells (33.3%) have expected count less than 5. The minimum expected count is .48.

Correlation Analysis

Pearson product-moment correlations measure the relationship between two continuous variables and is expressed as a range between -1 to +1 (Gliner & Morgan, 2000). Correlation coefficients, expressed as r, of .50 or above are considered to be strong positive relationships while correlation coefficients of -.50 and above indicate a strong negative relationship between two variables (Gliner & Morgan, 2000, p. 253; Pallant, 2010). Small or weak correlations,

regardless of the direction, i.e. positive (+) or negative (-), generally fall in a range between .10 to .29, and medium or moderate correlation values range between .30 to .49 (Pallant, 2010). For ordinal scale variables, as in the present study age categories (AGECAT), levels of education (EDLEV), Internet use (INTSRCS) and household income (HHINC), Spearman's rho is the statistic most commonly used and is applied here (Gliner & Morgan, 2000). Pearson product-moment and Spearman's rho correlation coefficients, along with p-values, were calculated for the study variables (Appendix L and Appendix M, respectively).

<center>Latent Variable Correlations</center>

The latent variable *Search Satisfaction*, indicated by SATREF, SATSCHD and SATNDS, demonstrated statistically significant, moderate and strong correlations between SATREF-SATSCHD (r=.491), SATREF-SATNDS (r=.431) and SATSCHD-SATNDS (r=.512). All indicators were retained for further analysis (Lopez-Littleton, 2011). See Table 14.

Table 14. Correlation Matrix of Latent Variable Search Satisfaction (Pearson Correlation [P Value])

	Referring doc to family and friends (SATREF)	Scheduling an appointment (SATSCHD)	Fulfillment of needs (SATNDS)
Referring doc to family and friends (SATREF)	1.000		
Scheduling an appointment (SATSCHD)	.491**	1.000	
Fulfillment of needs (SATNDS)	.431**	.512**	1.000

 ** Correlation is significant at the 0.01 level (2-tailed).
 *Correlation is significant at the 0.05 level (2-tailed).

The latent variable *Information Use*, measured by INFOVAR, HOSDOC, FAMFRI, DOCNUR and RPTCRD, confirmed a weak, statistically significant correlation with INFOVAR-HOSDOC (r=.297), moderate, statistically significant correlations with INFOVAR-RPTCRD (r=.375), HOSDOC-DOCNUR (r=.346), and HOSDOC-RPTCRD (r=.404), and a strong, significant correlation with INFOVAR-FAMFRI (r=.641). Weak, non-significant correlations were demonstrated with HOSDOC-FAMFRI (r=.177), FAMFRI-RPTCRD (r=.180), and DOCNUR-RPTCRD (r=.190). A weak, inverse correlation was demonstrated with FAMFRI-DOCNUR (r=-.208). FAMFRI, however, was retained for hypothesis testing. See Table 15.

Table 15. Correlation Matrix of Latent Variable Information Use (Pearson [P Value])

	Variety of info sources (INFOVAR)	Hospital and physician marketing (HOSDOC)	Family and Friends (FAMFRI)	Doctors and nurses (DOCNUR)	Physician Report Card (RPTCRD)
Variety of info sources (INFOVAR)	1.000				
Hospital and physician marketing (HOSDOC)	.297*	1.000			
Family and Friends (FAMFRI)	.641**	.177	1.000		
Doctors and nurses (DOCNUR)	.060	.346**	-.208	1.000	
Physician Report Card (RPTCRD)	.375**	.404**	.180	.190	1.000

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

The latent variable *Intent to Change Physician*, measured by NEWDOC, ALTDOC, QUALMED, TIMAPPT and LIFECHNG, demonstrated a strong correlation between NEWDOC-ALTDOC (r=.562) and ALTDOC-LIFECHNG (r=.534), moderate, significant correlation between NEWDOC-QUALMED (r=.303), NEWDOC-TIMAPPT (r=.359), NEWDOCLIFECHNG (r=.456), ALTDOC-QUALMED (r=.390), ALTDOC-TIMAPPT (r=.311), QUALMED-LIFECHNG (r=.340), and TIMAPPT-LIFECHNG (r=.329).

QUALMED-TIMAPPT demonstrated a weak, positive correlation (r=.257). All correlations

were statistically significant and retained for hypothesis testing. See Table 16.

Table 16. Correlation Matrix of Latent Variable Intent to Change Physician (Pearson [P Value])

	Changing to a new physician (NEWDOC)	Consider an alternative physician (ALTDOC)	Obtain higher quality medical care (QUALMED)	Schedule more timely appointment (TIMAPPT)	Change in personal life (LIFECHNG)
Changing to a new physician (NEWDOC)	1.000				
Consider an alternative physician (ALTDOC)	.562**	1.000			
Obtain higher quality medical care (QUALMED)	.303*	.390**	1.000		
Schedule more timely appointment (TIMAPPT)	.359**	.311*	.257*	1.000	
Change in personal life (LIFECHNG)	.456**	.534**	.340**	.329**	1.000

 **Correlation is significant at the 0.01 level (2-tailed).
 *Correlation is significant at the 0.05 level (2-tailed).

The latent variable *Health Status*, measured by EXHLTH, CHRNMED, SUDILL,

PHYSFUNC, MENTFUNC, MYROLE, confirmed strong, statistically significant correlations

with CHRNMED-PHYSFUNC (r=.515), SUDILL-MENTFUNC (r=.528), PHYSFUNC-

MENTFUNC (r=.541), PHYSFUNC-MYROLE (r=.616), and MENTFUNC-MYROLE (r=.605).

See Table 17. Moderate, statistically significant correlations were confirmed between

CHRNMED-MENTFUNC (r=.414), CHRNMED-MYROLE (r=.363), SUDILL-PHYSFUNC

(r=.324), and SUDILL-MYROLE (r=.395). Weak, non-significant and in two instances, inverse

correlations were demonstrated between EXHLTH-CHRNMED (r=-.150), EXHLTCH-SUDILL

(r=.185), EXHLTH-PHYSFUNC (r=-.061), EXHLTH-MENTFUNC (r=.234), and EXHLTH-

MYROLE (r=.008). Subsequently, EXHLTH was removed from the latent variable Health

Status and from further analysis. A weak, non-significant correlation between CHRNMED-

SUDILL (r=.064) was demonstrated, but SUDILL and CHRNMED were retained for further

analysis. See Table 17.

Table 17. Correlation Matrix of Latent Variable Health Status (Pearson [P Value])

	In Excellent health (EXHLTH)	Chronic medical condition (CHRNMED)	Sudden illness (SUDILL)	Ability to function physically (PHYSFUNC)	Ability to function mentally (MENTFUNC)	Fulfill my roll in family, job (MYROLE)
In Excellent health (EXHLTH)	1.000					
Chronic medical condition (CHRNMED)	-0.150	1.000				
Sudden illness (SUDILL)	0.185	.064	1.000			
Ability to function physically (PHYSFUNC)	-0.061	.515**	.324*	1.000		
Ability to function mentally (MENTFUNC)	0.234	.414**	.528**	.541**	1.000	
Fulfill my roll in family, job MYROLE)	0.008	.363**	.395**	.616**	.605**	1.000

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

Observed Variable Correlations

Observed demographic or predisposing variables include gender (GENMF), age (AGECAT), race/ethnicity (RACEETHN), education (EDLEV), marital status (MARSTAT), description of physician quality (DOCQUAL) and enabling determinants, which include household income (HHINC), health insurance (HLTHINS), and Internet usage (INTSRCS). See Table 18. A weak, significant correlation was measured between household income and commitment to conducting a search and selecting a physician, HHINC-SRCHSEL ($r=.283$). Correlations between the other observed demographic variables and conducting a search and selecting a physician were weak and non-significant. Similar weak, non-significant measurements were obtained between observed demographic variables and search satisfaction, as indicated by referring a physician to family and friends (SATREF), scheduling an appointment with a physician (SATSCHD), and fulfillment of needs (SATNDS). As a consequence, all demographic variables other than HHINC were removed from the model.

Table 18. Correlation Matrix of Observed Predisposing and Enabling Variables (Spearman [PValue])

Variables	Referring doc to family and friends (SATREF)	Scheduling an appointment (SATSCHD)	Fulfillment of needs (SATNDS)	Search and selection commitment (SRCHSEL)
What is your gender (GENMF)	-.247	-.042	-.251	-.026
Age category (AGECAT)	-.074	-.081	-.103	-.054
Race and Ethnicity (RACEETHN)	.108	.059	-.115	.148
Health Insurance (HLTHINS)	.007	-.037	.101	-.189
Highest Level of Education (EDLEV)	.035	-.063	.017	.033
Marital Status (MARSTAT)	.044	.024	-.151	.001
Describe Physician Quality (DOCQUAL)	-.012	-.069	.042	.124
How often use and access Internet (INTSRCS)	.152	.017	.210	.125
Household income (HHINC)	.054	-.002	-.017	.283*

Variables	Referring doc to family and friends (SATREF)	Scheduling an appointment (SATSCHD)	Fulfillment of needs (SATNDS)	Search and selection commitment (SRCHSEL)

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

Exogenous or independent physician variables include physician experience (DOCEXP), practice location (PRACLOC), medical insurance acceptance (MEDINS), office staff (OFFSTFF), physician communication skills (COMSKIL), schedule timely appointment (SCHDAPPT), physician age (DOCAGE), physician board certification (BDCRT), medical school reputation (MEDREP), and physician gender (DOCSEX). Small and non-significant measurements were demonstrated between commitment to search and select a new physician (SRCHSEL) and the 10 physician variables above. Five of the 10 physician variables demonstrated moderate to strong correlations with SATREF, SATSCHED AND SATNDS, indicators of the latent variable Search Satisfaction, and were retained for model analysis: MEDINS-SATSCHD (r=.314), MEDINS-SATNDS (r=.256), COMSKIL-SATREF (r=.411), COMSKIL-SATNDS (r=.374), SCHDAPPT-SATREF (r=.307), SCHDAPPT-SATNDS (r=.520), BDCRT-SATREF (r=.319), BDCRT-SATSCHD (r=.414), BDCRT-SATNDS (.342), and MEDREP-SATREF (r=.279). See Table 19.

Table 19. Correlation Matrix of Exogenous Physician Practice Variables (Pearson [PValue])

Variable	Doc experience in treating condition (DOCEXP)	Practice location (PRACLOC)	Medical insurance acceptance (MEDINS)	Office Staff (OFFSTFF)	Doctor communication skills (COMSKIL)	Ability to schedule timely appointment SCHDAPPT)	Doctor's age (DOCAGE)	Doctor board certification (BDCRT)	Medical school reputation (MEDREP)	Doctor's gender (DOCSEX)
Referring doc to family and friends (SATREF)	0.131	0.246	0.209	0.252	.411**	.307*	0.234	.319*	.279*	0.232
Scheduling an appointment (SATSCHD)	0.162	0.151	.314*	0.005	0.222	0.159	0.156	.414**	0.2	0.197
Fulfillment of needs (SATNDS)	0.143	0.189	.256*	0.224	.374**	.520**	0.232	.342**	0.234	0.123
Search and selection commitment (SRCHSEL)	0.069	-0.068	0.181	-0.057	0.157	-0.062	0.003	0.013	-0.071	-0.119

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

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

Covariance Structure Analysis

Validating the hypothesized covariance structural model presented in Figure 6 proved problematic given the large number of estimated parameters (148) and the small sample of 61 cases. Reducing the number of parameters by more than one-half resulted in a model that fit the data (see Appendix N), but which was highly complex, raising concerns as to the adequacy of the data to justify the model. In order to achieve a parsimonious model that is adequate in handling covariance structure modeling, the model was reduced by eliminating the *Intent to Change Physician* and *Health Status* constructs and retaining *Information Use* and *Search Satisfaction* constructs. The proposed covariance structural model was validated through confirmatory and exploratory factor analysis of the measurement models and fitting the structural model through the use of AMOS 21.0 structural equation modeling software.

Measurement Model for Information Use

Confirmatory and exploratory factor analysis was applied to the measurement models in order to test alternate hypotheses and to establish that the proposed indicators measure the model's latent variables of *Information Use* and *Search Satisfaction* by explaining variation and covariation (Albright & Park, 2009; Garson, 2009; Wan, 2002). Confirmatory factor analysis allows for the imposition of "substantively meaningful constraints on the model …(that) determine(s) which pairs of common factors are correlated, which are affected by a unique factor and which pairs of unique variables are correlated" (Wan, 2002, p. 89).

Figure 7 presents the standardized regression coefficients of the proposed measurement model for *Information U se*.
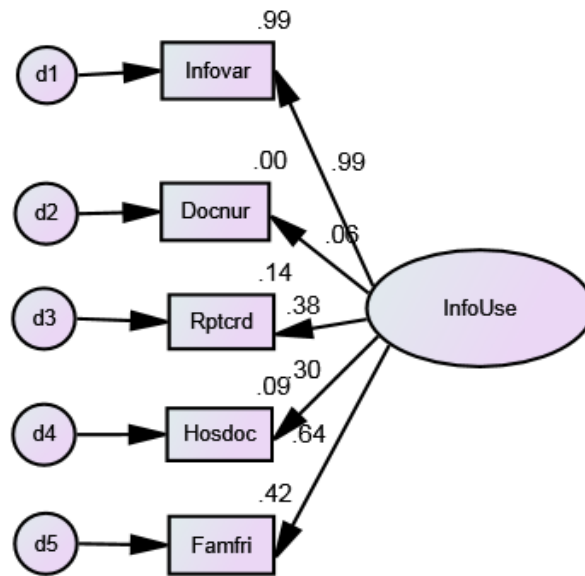
Figure 7. Proposed Measurement Model for Information Use

Table 20 presents the standardized regression coefficients as well as Unstandardized Estimates, Standard Error, Critical Ratio, and P-Values. Statistical significance is demonstrated among all specified observed and latent variable paths at the .01 and .05 levels with the exception of INFOUSE-DOCNUR, where the standardized regression coefficient of 0.059 was not statistically significant at the .05 level. However, the variable was retained in the model based on studies that have demonstrated consumer and patient preferences for physicians and other medical providers as sources of health care information (Cegala et al, 2008; Moseley, Freed & Goold, 2011; Muha, 1998).

Table 20. Default Measurement Model Results for Information Use

			Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate
Rptcrd	<---	InfoUse	0.307	0.13	2.352	0.019	0.378
Docnur	<---	InfoUse	0.054	0.121	0.452	0.652	0.059
Infovar	<---	InfoUse	1.000				0.994
Hosdoc	<---	InfoUse	0.252	0.126	2.001	0.045	0.3
Famfri	<---	InfoUse	0.603	0.195	3.095	0.002*	0.645

$p \leq .05$
$*p \leq .01$

The usefulness of the default measurement model is indicated by its goodness of fit, i.e. how well the default model fits the observed values and whether it is to be accepted or rejected (Cantiello, 2008). Table 21 presents goodness of fit statistics for the default measurement *Information Use* model.

Table 21. Goodness of Fit Statistics for Default Measurement Model Information Use

Statistic	Model Output
CMIN/DF	4.459
P-Value	0
GFI	0.87
AGFI	0.611
RMSEA	0.24

According to Wan (2002), the CMIN/DF by convention should be less than 4 or 5 and the model meets this requirement. However, the model failed to achieve conventional minimums among P-Value (>.05), GFI (>.90), AGFI (>.90), and RMSEA (<.05), which supported the need to revise the model to achieve a better fit with the data. Examination of modification indices followed, which demonstrated evidence of model misfit (Byrne, 2001). Moderate to large indices, i.e. greater than 4.0 for this model, indicated that variables should be correlated with each other (Cantiello, 2008). Figure 8 represents the revised *Information Use* measurement model after adopting modification indices that made sense theoretically, e.g., the correlation variance between relying on a variety of information sources and family and friends, doctors and other health professionals (Gray, Armstrong, DeMichele, Schwartz & Hornik, 2009; Talosig-

Garcia & Davis, 2005). Longo et al.'s (2010) Revised Health Information Model illustrates such

theoretical support as its contextual category, specifically *delivery of care, information*

environment and *interpersonal social supports, networks,* reflects participants' reliance on

family and friends, medical professionals, and a variety of information sources to help them

understand and use information about diabetes (p. 338).
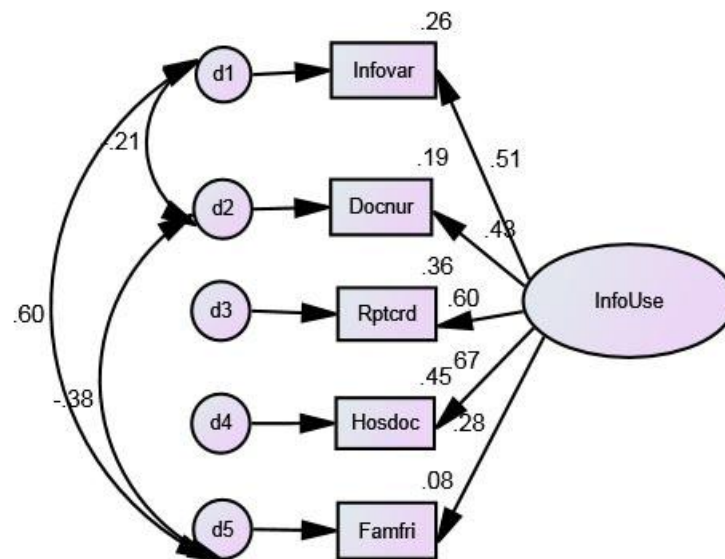
Figure 8. Revised Measurement Model Results for Information Use

Table 22 presents the revised measurement model's Unstandardized and Standardized

Coefficients, Standard Error, Critical Ratio, and P-Values. The data revealed moderate to strong,

statistically significant standardized regression coefficients, with the exception of reliance on

family and friends for information (INFOUSE-FAMRI = .278), which demonstrated a weak,

statistically significant regression coefficient. A moderate, statistically significant regression

coefficient resulted for reliance on doctors and nurses for information (INFOUSE-DONUR =

.434), while strong, statistically significant regression coefficients were measured for reliance on a variety of information sources (INFOUSE-INFOVAR = .515), physician report cards (INFOUSE-RPTCRD = .599), and hospital and physician marketing (INFOUSE-HOSDOC = .674).

Table 22. Revised Measurement Model Results for Information Use

			Unstandardized Estimates	S.E.	C.R.	P	Standardized Estimates
Infovar	<---	InfoUse	1				0.515
Docnur	<---	InfoUse	0.773	0.382	2.021	0.043	0.434
Rptcrd	<---	InfoUse	0.939	0.37	2.537	0.011	0.599
Hosdoc	<---	InfoUse	1.093	0.435	2.513	0.012	0.674
Famfri	<---	InfoUse	0.501	0.237	2.12	0.034	0.278

p ≤ .05 level

Table 23 presents goodness of fit statistics for the revised *Information Use* measurement model. All indices, with the exception of AGFI, fell within goodness of fit statistics requirements (Wan, 2002). While the AGFI statistic of .89 is below the .9 minimum, AGFI can be influenced by sample size (Byrne, 2001).

Table 23. Goodness of Fit Statistics for Revised Measurement Model Information Use, Intent to Change Physician and Health Status

Statistic	Model Output
CMIN/DF	1.137
P-Value	0.321
GFI	0.985
AGFI	0.89
RMSEA	0.048

Table 24 presents squared multiple correlations for the observed variables of *Information Use*. The R^2 estimate represents "the portion of the variance that is explained by the predictors of the variable in question" (Byrne, 2001, p. 163). Therefore, the predictors of INFOVAR explained 26.5% of its variance with 73.5% of the variance explained by other sources of variability that are not due to INFOUSE. Similarly for the other variables, only weak to moderate estimates indicate the portion of variance explained by the predictors for FAMFRI (7.7%), HOSDOC (45.5%), RPTCRD (35.9%), and DONUR (18.8%).

Table 24. Revised Model Squared Multiple Correlations

Variable	R^2 Estimate
Infovar	0.265
Hosdoc	0.455
Famfri	0.077
Rptcrd	0.359
Docnur	0.188

Measurement Model for Search Satisfaction

Figure 9 presents the revised measurement model for the latent variable *Search Satisfaction* along with standardized regression coefficients. The proposed or default measurement model of the latent variable and its observed variables SATREF, SATSCHD and SATNDS was just-identified, i.e. zero degrees of freedom, and therefore not able to be rejected (Byrne, 2001). This required the inclusion of an additional exogenous variable. Based on the literature (Diaz et al., 2002; Ling, Klein & Dang, 2006; Pecchioni & Sparks, 2007) and statistically significant correlations between the influence of a physician's experience on satisfaction (EXPSAT) and *Search Satisfaction's* observed variables scheduling an appointment (EXPSAT-SATSCHD = .253) and fulfillment of needs (EXPSAT-SATNDS = .263), the observed variable of a physician's experience and its influence on satisfaction with search and selection of a physician, EXPSAT, was included in the model. Table 25 presents the standardized regression coefficients as well as unstandardized estimates, standard error, critical ratio and p-values. Statistically significant and moderate and strong regression coefficients are demonstrated among SEARCH SATISFACTION-SATREF (.621), SESARCH

SATISFACTION-SATSCHD (.771), SEARCH SATISFACTION-SATNDS(.682), and

SEARCH SATISFACTION-EXPSAT (.308) at the .05 and .00l levels.
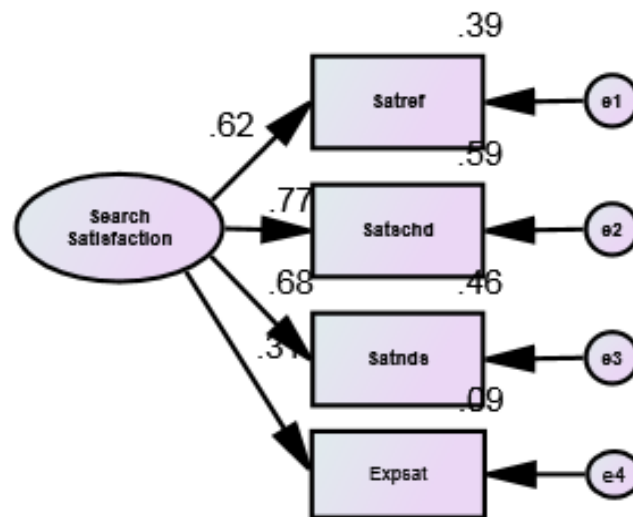
Figure 9. Revised Measurement Model for Search Satisfaction

Table 25. Revised Measurement Model Results for Search Satisfaction

			Unstandardized Estimates	S.E.	C.R.	P	Standardized Estimates
Satref	<---	Search Satisfaction	1				0.621
Satschd	<---	Search Satisfaction	1.101	0.304	3.625	***	0.771
Satnds	<---	Search Satisfaction	1.04	0.284	3.656	***	0.682
Expsat	<---	Search Satisfaction	0.544	0.275	1.977	.048*	0.308

*p ≤ 05
***p ≤ .001

Goodness of fit statistics indicated a good fitting model, with a CMIN/DF score of .783, P-Value equal to .457, GFI and AGFI at .988 and .938, respectively, and RMSEA at .000. Table 26 presents the squared multiple correlations for the variables in the revised measurement model. It reveals that predictors of scheduling an appointment with a physician, SATSCHD, explained 59.5% of its variance. In contrast, the predictors of EXPSAT explained only 9.5% of its variance, while predictors of SATNDS and SATREF explained 46.4% and 38.5% of their variances, respectively.

Table 26. Search Satisfaction Squared Multiple Correlations for the Revised Model

Variable	R^2 Estimate
Expsat	0.095
Satnds	0.464
Satschd	0.595
Satref	0.385

Covariance Structure Model for Effects of Public Information
Sources on Satisfaction with Patient Search for a Physician

Figure 10 presents the proposed covariance structure model depicting the effects of public information sources on satisfaction with patient search for a physician. Goodness of fit statistics obtained from an analysis of the model determined that the data did not fit the model. CMIN/DF equaled 1.670, however P-Value was .011, well below the recommended P-Value greater than .05. GFI (.874), AGFI (.776), and RMSEA (.106) values also fell outside conventionally accepted standards, thereby indicating poor model fit.

144
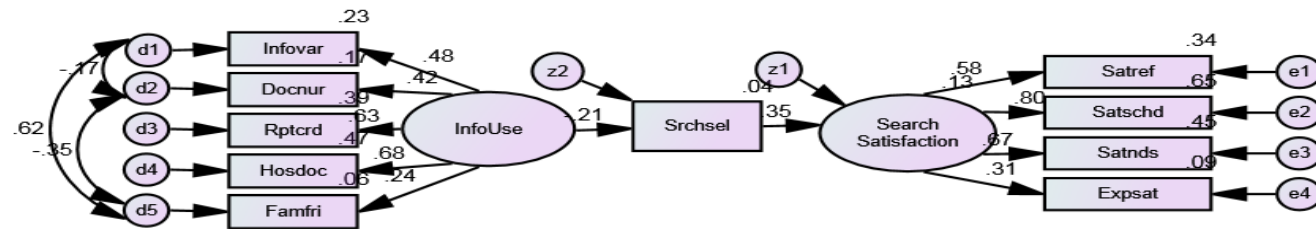
Figure 10. Proposed Covariance Structure Model of the Effect of Information Sources on Satisfaction with Patient Search for a Physician

In order to improve model fit without increasing the number of covariances in the model, the exogenous variable household income (HHINC) was added to the model and indicated with a regression path to the dependent variable SRCHSEL. Household income represents a personal variable Longo et al. (2010) theorized as influencing consumer information seeking and information use. A regression path also was inserted from the construct *Information Use* to *Search Satisfaction* based on Woodruff et al.'s (1983) proposition that expectations be replaced by experience-based norms in the disconfirmed expectations model. The modification resulted in a revised model that fits the data reasonably well with Chi-square of 48.61 and 39 degrees of freedom. See Figure 11. Model fit results reveal the CMIN/DF for this model was 1.246 and P-Value equaled .139. The GFI and AGFI were .885 and .805, respectively, and RMSEA was .064. The lower GFI and AGFI indexes reflect the influence of a large number of degrees of freedom compared to sample size, which results in lower values (Hooper, Coughlin & Mullen, 2008). Likewise, the RMSEA of .064 pushes the limit of acceptability but still indicates a fair fit (Byrne, 2001; Hooper et al., 2008).
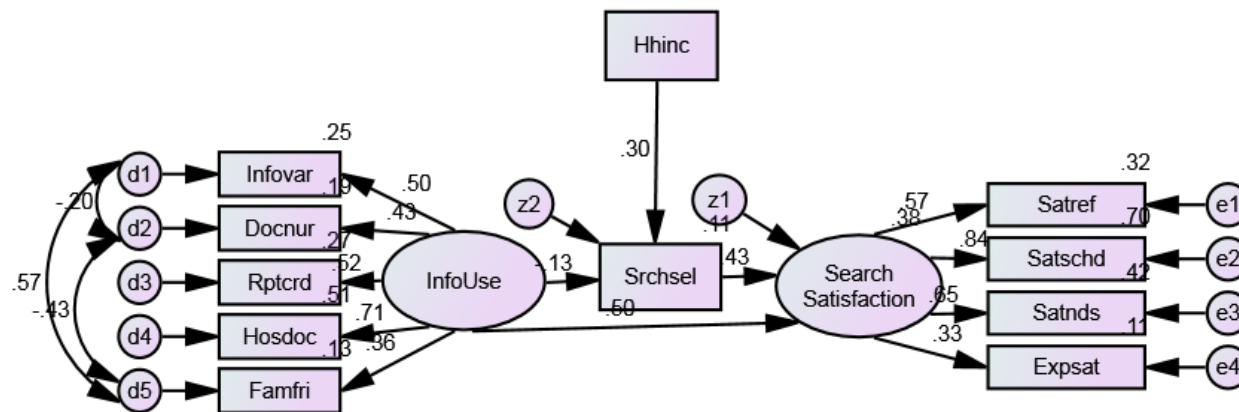
Figure 11. Revised Covariance Structure Model of the Effect of Information Sources on Satisfaction with Patient Search for a Physician

Table 27 presents the Unstandardized and Standardized Estimates of the revised covariance structure model. Statistical significance is demonstrated for specified observed and latent variable paths at the .01, .05 and .001 levels. Regression weights fixed at 1 were not estimated. The unstandardized regression weight for INFOVAR was fixed at 1.0, an operational requirement for structural equation modeling. A similar constraint was applied for SATREF and is indicated with the number one in the Unstandardized Estimates column in Table 27.

Table 27. Revised Covariance Structure Model Results of the Effect of Information Sources on Satisfaction with Patient Search for a Physician

			Unstandardized Estimates	S.E.	C.R.	P	Standardized Estimates
					-		
Srchsel	<---	InfoUse	-0.249	0.282	0.882	0.378	-0.134
Srchsel	<---	Hhinc	0.291	0.12	2.425	0.015	0.297
Search Satisfaction	<---	Srchsel	0.205	0.076	2.688	0.007*	0.433
Search Satisfaction	<---	InfoUse	0.438	0.209	2.095	0.036	0.500
Hosdoc	<---	InfoUse	1.19	0.441	2.699	0.007	0.714
Rptcrd	<---	InfoUse	0.842	0.335	2.514	0.012	0.522
Docnur	<---	InfoUse	0.791	0.381	2.075	0.038	0.432
Infovar	<---	InfoUse	1				0.500
Satref	<---	Search Satisfaction	1				0.566
Satschd	<---	Search Satisfaction	1.312	0.348	3.77	***	0.835
Satnds	<---	Search Satisfaction	1.087	0.305	3.569	***	0.649
Expsat	<---	Search Satisfaction	0.631	0.299	2.113	0.035	0.326
Famfri	<---	InfoUse	0.661	0.233	2.84	0.005*	0.356

$p \leq .05$ level
*$p \leq .01$ level
***$p \leq .001$ level

149

Standardized regression of the observed variables on the *Information Use* factor revealed statistically significant standardized regression coefficients: INFOUSE-SEARCH SATISFACTION = .500, INFOUSE-RPTCRD = .522, INFOUSE-INFOVAR = .500, INFOUSE-HOSDOC = .714, INFOUSE-DOCNUR = .432, and INFOUSE-FAMFRI = .356. Additionally, the observed variables on the *Search Satisfaction* factor demonstrated statistically significant, moderate and strong standardized regression coefficients: SEARCH SATISFACTION-SATREF = .566, SEARCH SATISFACTION-SATSCHD = .835, SEARCH SATISFACTION-SATNDS = .649, and SEARCH SATISFACTION-EXPSAT = .326. Household income had a statistically significant, weak standardized regression on search selection (HHINC-SRCHSEL = .297). The data also revealed a statistically significant, moderate standardized regression coefficient between search selection and *Search Satisfaction* (SRCSEL-SEARCH SATISFACTION = .433). Table 28 presents the revised covariance structure model's squared multiple correlations for the model's observed and latent variables.

Table 28. Revised Covariance Structure Model Squared Multiple Correlations

Variable	Estimate
Srchsel	0.106
Search Satisfaction	0.379
Expsat	0.106
Satnds	0.421
Satschd	0.698
Satref	0.320
Infovar	0.250
Docnur	0.187
Rptcrd	0.273
Hosdoc	0.509
Famfri	0.067

The higher the R^2 estimate, the more confidence one has in the equation being studied (Cantiello, 2008). In the revised covariance structure model, the predictors of the latent variable *Search Satisfaction* explain 37.9% of the variable's variance. The predictors of INFOVAR explain 25% of its variance. The predictors of SRCHSEL explain only 10.6% of its variance and the predictors of RPTCRD 27.3% of its variance. The R^2 estimate for HOSDOC was the strongest among the variables, with its predictors explaining 50.9% of its variance.

The research findings validate the measurement model of information use with five indicators, while "the correlated measurement errors suggest that these indicators have shared common variance, not accounted for by the construct" (Wan, 2002, p. 196). The proposed covariance structure model of the effect of public information sources on satisfaction with patient search for a physician does not fit well with the sample data, despite search selection's (SRCHSEL) statistically significant prediction of variation in *Search Satisfaction* (Wan, 2002). The revised model is a better fit to the data. It reveals that *Information Use* directly and significantly predicts variation in *Search Satisfaction*. Cooley and Madupu (2009) reported similar finding in their study of baby boomers. Focus groups and interviews revealed that consumers prefer objective sources of information such as the Internet when searching for information for loved ones and someone else, and that overall satisfaction depends on their level of satisfaction with the information source (p. 54). The revised model also demonstrates that one's commitment to searching for and selecting a physician (SRCHSEL) significantly predicts variation in *Search Satisfaction*, which supports Cardozo's (1965) findings that the amount of effort expended by subjects in the experiment and their level of expectation affected satisfaction.

Hypothesis Testing

Based on the covariance structural analysis performed above, each alternative hypothesis is tested and is either rejected or accepted, i.e. fail to reject.

Hypothesis 1

H_{a1}:   Physician report cards have a direct of positive effect on the time and cost of patient search for a physician.

In the proposed model, the effect of *Information Use* on S*earch Satisfaction* is mediated through the observed variable search selection (SRCHSEL). The revised model includes a direct regression path between *Information Use* and *Search Satisfaction*. This path generated a strong, positive, significant (0.500) effect of *Information Use* on *Search Satisfaction.*   Therefore, by the transitive property of equality (If a = b, and b = c, then a = c) physician report cards (RPTCRD), as a statistically significant indicator of *Information Use* (regression coefficient of .522), share this same relationship with *Search Satisfaction* and its statistically significant indicator SATNDS (regression coefficient of .649). In other words, relying on physician report cards results in search satisfaction as indicated by spending less time and money during the search for a physician. Therefore, the alternative hypothesis is supported. Inclusion of this hypothesis was based on a review of Freimuth et al. (1989), Lenz (1984) and Longo et al. (2010) information search and health information acquisition theory.

<center>Hypothesis 2</center>

H$_{a2}$:   Physician report cards are more likely to be used to search for medical specialists.

The alternative hypothesis was not tested. The necessity to reduce the number of estimated parameters in the hypothesized model eliminated the latent constructs of *Intent to Change Physician* and *Health Status.* As a result, testing the effect of physician report cards on the search for medical specialists could not be accomplished given the number of cases included in the study. The hypothesis was included because health information search theoretical models such as those developed by Freimuth et al. (1989) Johnson (1997) and Longo (2010) were based on research involving individuals with cancer and diabetes.

<center>Hypothesis 3</center>

H$_{a3}$:   Health status has a direct or positive effect on patient use of physician report cards in searching for a physician.

The alternative hypothesis is rejected. Although the findings indicate a strong, statistically significant, positive regression coefficient (.522) for *Information Use* in the prediction of reliance on physician report cards (RPTCRD), the revised model and data do not permit the principal investigator to assume that health status is inherent in or contributes to information use, although previous research (see Table 6) and Longo et al.'s (2010) Health Information Model (see Figure 4) include health status as a principle factor in the research or

<center>153</center>

theory. This hypothesis was included based on a review of Wan's (2002) multivariate modeling approaches to evidenced-based health care management and Andersen and Newman's (1973) framework of health services utilization.

Hypothesis 4

H_{a4}:   Patient gender, age, household income, education and Internet use effect patient

search and satisfaction in selecting a physician.

The alternative hypothesis is partially supported. Household income (HHINC) demonstrated a weak, statistically significant, regression coefficient (.297) in predicting the search and selection (SRCHSEL) of a physician. None of the other demographic observed variables, GENMF, AGECAT, RACEETHN, HLTHINS, EDLEV, MARSTAT, DOCQUAL or INTSRCS, achieved statistical significance in the revised covariance structural model. This hypothesis was included based on a review of Longo et al.'s (2010) Health Information Model and Johnson's (1997) Comprehensive Model of Information Seeking, both of which include demographic factors as important variables influencing health information search.

Hypothesis 5

H_{a5}:   Patients regard physician report cards as measures of physician's clinical quality

or service quality.

The alternative hypothesis is rejected. Respondents' definition of physician quality was not included in the proposed covariance structure model because it failed to achieve statistical significance. The Expectancy Disconfirmation Paradigm was the basis for including this hypothesis. Although quality as a construct was not specifically addressed in this research, expectancy is a factor in the satisfaction paradigm (see Fig. 5) and customer expectations of quality also help determine customer perceived quality as demonstrated in the quality equation $Qe = Qed - Qee$, where Qe equals perceived quality, Qed is the quality of the actual experience, and Qee is quality expected (Fottler et al., 2010, p.47).

Hypothesis 6

H_{a6}:   Physician experience, office location, and accepted insurance effect patient search and selection of a physician.

The alternative hypothesis was not tested. The observed variables of physician experience, office location and accepted insurance were removed from the proposed model in order to reduce the number of estimated parameters. Therefore, the effect of physician experience, office location, and accepted insurance was not tested due to the number of cases included in the study. This hypothesis was included to test Arrow's (1963) application of agency theory in medical care and its effect on physician selection by a patient as well as Longo et al.'s (2010) Health Information Model, which among contextual variables influencing search are health care structure and delivery of care.

Chapter Summary

This chapter opened with an analysis of missing data and application of the expectation maximization algorithm to replace missing values. Descriptive statistics were run and normality of the data set was assessed. The study's control and intervention groups were analyzed using Independent-samples t-tests in an intent-to-treat analysis to determine if the groups were significantly different. The relationship between categorical variables in the control and intervention groups was analyzed by applying the Chi-square test for Independence. Correlation analysis involved both Pearson product-moment correlations and Spearman rho analysis for continuous and categorical variables, respectively. In the next section of the chapter, covariance structure analysis was performed, first by examining goodness of fit for measurement models and then for the combined structural model. The resulting model achieved an acceptable fit with the data and the final section of the chapter examined the study alternative hypotheses, and determined that one alternative hypothesis was retained and another hypothesis was partially retained.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

Research Study Summary

The purpose of this research study is to examine the effect information sources have on an individual's satisfaction with the search process undertaken to select a physician and resulting in the scheduling of an appointment with the physician, referring a friend or family member to a physician, or fulfilling needs such as reducing the amount of time and money searching for a physician. In order to pursue the research, a quasi-experimental research design was adopted in which a large central Florida medical group's medical staff was randomly divided into control and intervention groups of approximately 77 physicians each. The intervention involved insertion of the website address of the provider of online physician report cards onto each intervention group physician profile in the physician directory of the medical group's website. The report card website address did not appear on the profiles of the physicians in the control group. After two months, data were collected consisting of all individuals who had scheduled first-time appointments with one of the medical group's physicians during the two-month intervention period. A random sample of patients was drawn from each group and sample members were mailed a 62-item questionnaire along with a cover letter, summary of the research and postage-paid reply envelope. A total of 706 questionnaires were mailed and 61 completed questionnaires were returned, an 8.64% response rate.

The results from data analysis were presented in Chapter Four and included missing data analysis, descriptive statistics, assessment of sample normality and representativeness, intent-to-treat analysis using independent-samples t-test and chi-square test for independence, and

correlation analysis. Finally, covariance structure analysis was utilized to construct a model of the effects of public information sources on satisfaction with patient search for a physician. After revising default measurement and structural models, a final model was proposed which required further manipulation until goodness of fit with the data was achieved. Following model acceptance, an analysis of the study's six alternative hypotheses was conducted resulting in failure to reject H_{a1}, partial support for H_{a4}, and rejection of H_{a3}, H_{a5} and H_{a6}. H_{a2} could not be tested.

On the question of whether a significant difference exists between respondents in the control group and those in the intervention group who were exposed to the Web address of the physician report card provider, the analysis revealed no significant difference between the groups. In other words, the presence or lack thereof of a physician report card Web address on a physician profile made no difference, despite the finding that the control group was somewhat more committed to conducting a search and selecting a new physician. Neither group relied on report cards in their search (Control, M = 2.66, S.D. = 1.208; Intervention, M = 2.40, S.D. = 1.113). Explanations as to why the control group was somewhat more committed to conducting a search are speculative without further research. However, it might be that control group respondents were searching for a specialist physician or were searching for information about a serious illness or condition while intervention respondents on the whole focused their search on primary care physicians or common, less serious illnesses.

1.   Do physician report cards affect patient satisfaction with search (time and financial

cost) for a physician compared to other information sources?

Yes. The data revealed that as information use increases, use of a variety of information

sources such as hospital and physician marketing, family and friends, doctors and nurses and

physician report cards also increase. And as indicated above, information use has a significant

and strong effect on physician search satisfaction. The effect of report cards on satisfaction with

patient search for a physician supports the conclusions of studies that report consumers favoring

public reporting of quality data (Marshall, Romano & Davies, 2004; Shea, Shih & Davis, 2007).

Other studies, however, question the usefulness and efficacy of physician report cards. Werner

and Asch (2005) found that the value of publicly reported quality data is largely unproven, while

Fung et al. (2008) reported the usefulness of report cards remains unknown. Kolstad & Chernew

(2009) concluded that report cards are difficult for consumers to understand and remember.

More recently, Lawthers and Kirby (2012), citing research on CAHPS information and a Kaiser

Family Foundation study, found that consumers lack awareness of and fail to pay attention to

quality reports (p. 5).

2.   Do physician report cards affect patient search for a primary care physician (i.e.

internal medicine, family medicine, pediatrician or obstetrician/gynecologist)

differently than for a specialist physician as compared to other information sources?

The revised covariance structure model does not address this question due to sample size restrictions placed on the model.

3.   Do patients with chronic medical conditions (i.e. asthma, diabetes, thyroid disease, urinary incontinence, etc.) use physician report cards differently than patients with acute medical conditions (i.e. fever, injury, short-term illness) compared to those who use other sources of information?

The revised covariance structure model does not address this question because the latent variable *Health Status* was removed from the proposed model due to the small sample size. Correlation analysis, however, did find a moderate, statistically significant association between reliance on physician report cards and a chronic medical condition, RPTCRD-CHRNMED (r = .322) while no significant association was demonstrated between report cards and sudden illness, RPTCRD-SUDILL (r = .120). Only hospital and physician marketing (HOSDOC) and doctors and nurses (DOCNUR) demonstrated similar significant correlations with sudden and chronic illness, HOSDOC-CHRNMED (r = .314) and DOCNUR-SUDILL (r = .278).

4.   Do gender, age, race, ethnicity, education and socioeconomic status affect patient use of physician report cards in searching for a physician compared to other information sources?

Only household income (HHINC) demonstrated a statistically significant (although weak) regression coefficient (.297) in predicting the search and selection (SRCHSEL) of a physician. The revised model did not demonstrate any effects of household income or other

demographic variables on reliance on information sources in searching for a physician. The data

did indicate a significant, weak, negative association between reliance on hospital and physician

marketing and age, HOSDOC-AGECAT (r = -.264), and a significant, moderate relationship

between reliance on doctors and nurses for health information, and race and ethnicity,

DOCNUR-RACEETHN (r = .341). These findings are noteworthy for health care and health

plan marketers. In late 2013 these organizations will begin marketing newly formed health

insurance exchanges required by the Affordable Care Act. The knowledge that older citizens are

less likely to respond to hospital and physician marketing, that physicians and nurses are relied

upon by non-white race and ethnic groups, and that the effect of household income on health

care information search is significant will guide marketers in the selection and use of information

sources to sell their insurance products more effectively and efficiently.

5. Compared to other information sources, do patients regard physician report

cards as measures of a physician's clinical quality or service quality?

No. A negative, non-significant association was demonstrated between reliance on

physician report cards and the importance of the delivery of quality care descriptions of

physician quality, RPTCRD-QLTYDLV (r = -.157). The associations between other information

sources and delivery of quality care also were statistically insignificant, INFOVAR-QLTYDLV

(r = .044); HOSDOC-QLTYDLV (r = -.060); FAMFRI=QLTYDLV (r = -.047); and DOCNUR-

QLTYDLV (r = .004). These findings corroborate the research of Ha & Lee (2011), Hibbard

(2004) and Sepucha, Fowler & Mulley (2004) that consumers regard provider ratings and report

cards as information-oriented resources focused on health care processes rather than outcomes

and may be ineffective in promoting consumers' involvement and management of their own health. The finding also may reflect lower health literacy among respondents, which Ha and Lee (2011) associated with trust in information sources. Policy makers therefore may need to focus efforts on raising health literacy before disseminating information and data to consumers who do not understand it or trust the sources from where it originated.

6.   Does physician gender, age, experience, board certification, medical school,

residency or fellowship reputation, office location, appointment availability, accepted

insurance, and office staff affect patient satisfaction in searching for a physician?

The revised covariance structure model does not address the question of physician traits and characteristics and whether they predict patient satisfaction in searching for a physician. However, the data revealed a variety of associations between physician variables and search satisfaction. The strongest correlation was demonstrated between fulfillment of needs and ability to schedule a timely appointment, SATNDS-SCHDAPPT (r = .520)   Physician communication skills displayed a significant, moderate association with patient satisfaction indicated by referring the doctor to family and friends, COMSKIL-SATREF (r = .411).

Covariance Structure Model

The results of the covariance structure analysis show that patients' use of information sources and the level of commitment to search and select a new physician do separately predict search satisfaction. As information use and search commitment increases by one standard deviation, satisfaction with the search increases as well (*Information Use-Search Satisfaction* =

.500; SRCHSEL-*Search Satisfaction* = .433). These findings support key elements of both

information search and satisfaction theories. Freimuth et al. (1989) proposed setting search goals

and evaluating search progress through such means as cost/benefit analysis until a decision point

is reached about whether to continue searching (p.12). Likewise, Cardozo (1965) found that the

amount of effort expended and level of expectation affected cognitive evaluation and the

shopping experience.

The covariance structure model also demonstrates that as the information use increases,

its observed variables or indicators increase as well, i.e. the variety of information sources,

physician report cards, hospital and physician marketing, physician and nurse referrals and

referrals from family and friends. The findings revealed the strongest indicator of information

use to be hospital and physician marketing. Reliance on family and friends to provide physician

referrals was shown to be a moderate indicator of information use, contradicting research that

found health information seekers often turn to interpersonal sources when seeking information

(Johnson, 1997; Lu, Wirrell & Blackman, 2005; Talosig-Garcia & Davis, 2005).

Strong, statistically significant relationships also are demonstrated between search

satisfaction and its indicators: referring family and friends to a physician, scheduling an

appointment with a physician, and spending less time and money searching for a physician or

finding a physician devoted to patient satisfaction. These results support the interpretation of

satisfaction as an outcome as opposed to a process (Parker & Mathews, 2001; Tse et al., 1990).

Information use was found not to be a predictor of search and selection of a physician, but

information use was found to be a predictor of search satisfaction independent of commitment to

conducting a search and selecting a physician. Household income had a weak, positive, statistically significant relationship with the search and selection of a physician. The influence of household income in physician search corroborates Johnson's (1997) and Longo et al.'s (2010) theories of the influence socioeconomic factors have on information search. Fox and Duggan (2013) found that households with income of $75,000 or more had a high likelihood of searching online for a medical diagnosis. The finding not only supports the present study's results regarding the effects of household income on search, it also provides an explanation for the low Internet use by both control (M = 2.31, SD = 1.148) and intervention (M = 1.83, SD = 0.92) group respondents, whose mean incomes ranged from $20,000-$50,000.

Discussion

That information variety, referrals from family and friends, hospital and physician marketing, referrals from physicians and nurses and reliance on physician report cards demonstrate significant predictive relationships with search satisfaction was expected, given the research findings presented above. An explanation as to why so many sources of information predict search satisfaction may be distilled to the following: identification of statistically significant predictors of health care information search satisfaction varies based upon the environment and contextual factors in which the search is conducted (Pettigrew, Fidel & Bruce, 2001; Tse et al., 1990) and results cannot be generalized (Burkell et al., 2006). Environmental and contextual factors include demographic, direct experience, salience and beliefs antecedents developed by Johnson (1997); social determinants, availability of health services and

predisposing and enabling factors proposed by Andersen and Newman (1973) in their model of health services utilization; Longo et al.'s (2010) contextual and personal variables; and the attributes of the information source (Oliver, 1993).

Giese & Cote (2000) observed that crafting a single, all-inclusive definition of consumer satisfaction is impractical due to context and the number of variables involved. A similar conclusion applies to the sources of health information search satisfaction. For example, student patients reported doctors and nurses are more satisfying sources of information while their family members reported the Internet as more satisfying (Pecchioni & Sparks, 2007). Likewise, more than 500 patients of an internal medicine practice who use the Internet rated physicians and nurses as the most useful source of information by both users and non-users of the Internet (Diaz et al., 2002), whereas Ybarra and Suman (2008) found seven out of 10 respondents within various age groups and gender said they were satisfied with information they found while seeking health information on the Internet.

An unexpected finding was the absence of Internet usage as a predictor of search and search satisfaction, especially in light of the amount of research devoted to the Internet and information search. This absence may be due in part to the research study's methodology. As described in Chapter 3, the intervention consisted of inserting the Web address of a prominent health care report card provider of online physician profiles located on the medical group practice's website. According to Koch-Weser et al. (2010), seeking information on the Internet first rather than other sources is associated with younger age, higher education, higher income and having children in the household (p. 283). The study data for the most part support Koch-

Weser et al.'s findings: correlation analysis revealed a significant, moderately negative relationship between Internet use and age (INTSRCS-AGECAT, $r = -.399$); and a weak, significant relationship between Internet use and education level (INTSRCS-EDLEV, $r = .268$). Internet use and household income were not significantly correlated and showed only a weak relationship (INTSRCS-HHINC, $r = .107$). The respondents in this study's sample population were largely female (62.3%), between 56-70 years of age (37.7%), 44.4% were on Medicare, and only about one-third had bachelor's or master's degrees. The data leads to the conclusion that the research study's randomly selected respondents do not fit the characteristics of typical, use-the-Internet-first information searchers. In retrospect, setting up the intervention on web-based physician profiles was not conducive to the research design. However, given that physicians in the medical group practiced in more than 30 medical specialties ranging from pediatrics to geriatrics and from family medicine to neurosurgery, it was assumed that a broad range of demographic characteristics, including Internet use, would have been achieved through the random assignment of physicians and random selection of sample respondents. Instead, nearly 66% of respondents reported no or very little Internet access and use.

The revised covariance structure model of patient search satisfaction depicted in Figure 11 is far more parsimonious than the hypothesized models depicted in Figure 6 and Appendix O. It reflects the distillation of underlying theories of information search and consumer satisfaction, especially Longo et al.'s (2010) Health Information Model and Johnson's (1997) seven-factor Comprehensive Model of Information Seeking. The Health Information Model is particularly germane to this research study. It encompasses both active and passive information seeking, depicts information seeking as nonlinear, and shows the importance of relationships patients

have with family, friends and health professionals as they search for and process information. As with all such models, this structural model represents *one* solution depicting the links among the latent variables present in the effects of public information sources on satisfaction with patient search for a physician. It is not the only model that could describe the process. In another version, an indicator of patient search satisfaction might include discovery of a positive rating or review of the physician's performance or timely completion of the search.

Policy Implications

Since the passage of the Patient Protection and Affordable Care Act in March 2010, federal and state lawmakers, regulators, private insurers, health care providers, businesses, and consumers have been involved in planning, implementing and participating in the changes in health care delivery dictated by the law. Changes to date have included access to insurance for those with pre-existing conditions, providing small businesses with health insurance tax credits, and free preventive care for seniors, to name just of few of the law's effects. Beginning October 2013, open enrollment in the health insurance marketplace begins, followed in January 2014 with the start of the health insurance exchanges. In 2015, the method for paying physicians changes from volume based fee-for-service to payment based on the value or quality of care delivered. However, a recent study found that 90% of Americans do not know when they will be able to begin shopping for health insurance on the new exchanges and only 10% reported that they are knowledgeable about the health care reform law (Jordan, 2013). Information and information sources are tools (Weiss, 2002) which will play a significant role in ensuring

consumer, insurer, business, and provider awareness and comprehension of the PPACA-mandated program and reforms, as well as the decision whether or not to participate in them. Selecting the appropriate sources for disseminating health care change information to audiences will be vitally important. Consumers will need to know which physicians they can use with new insurance options. Therefore, each insurer may need to become responsible for providing the information in a factual manner and likely report card data should be included for those consumers who want to reference this source. However, as this research study and others have shown, no single information source will be used, accessed or trusted by consumers due to the contextual characteristics of health information search. To effectively and efficiently communicate to a national audience, policy makers must identify the various segments of the population they want to reach, tailor messages to those segments, choose the appropriate information sources to convey the information, and constantly measure whether the information sources are effective in increasing public awareness and understanding of the PPACA law's provisions. A thorough review by policy makers of the Health Information Model can serve as the foundation for designing and implementing a PPACA communication plan that provides consumers with the information they need to make informed choices.

Limitations

Covariance structure analysis is generally perceived to be dependent on large samples (Byrne, 2001). As a consequence, a small-sample model may underestimate parameters and overestimate model goodness of fit, although the revised covariance structure model in this study

achieved a Chi-square of 48.61 and 39 degrees of freedom, indicating a well-fitted model (Byrne, 2001). Nevertheless, the small sample size limits the generalizability of this research to the patient population of the central Florida medical group practice from which it was drawn, although small sample size is often characteristic of research in some fields such as health care and medical research (Cudeck & Henly, 1991). While the results of this research could not be widely generalizable, the study does examine a common process conducted by people everywhere on a daily basis: searching for and selecting a physician based on information obtained from a variety of sources. In 2007, about 25 million US adults reported looking for a new primary care physician during the previous 12 months (Tu & Lauer, 2008). One solution to increase study sample size would be to lengthen the intervention period from two months to six months, thereby increasing the pool of patients from which to draw the representative sample and improving survey participation and generalizability. This approach, however, could increase the risk of maturation threats. Another option would be to recruit patients from the medical group practices associated with national health care organizations such as Hospital Corporation of America (HCA), Catholic Health East, Adventist Health or Ascension Health. Randomly selecting and assigning participants from a nationwide pool would improve external validity and generalizability. Changing study design to experimental with random assignment of participants from quasi-experimental also would improve generalizability even with a small sample because random assignment minimizes bias and promotes internal validity and inferring causation (Gliner & Morgan, 2000).

Another limitation concerns the patient-contact restrictions imposed by the medical group practice's affiliated hospital institutional review board. The hospital institutional review board

prevented the researcher from using Dillman et al.'s (2009) process for ensuring a significant response to a mailed survey questionnaire. The basis for their denial were concerns that a series of five mailings advocated by Dillman et al. (2009) might infringe on patient privacy or constitute a form of badgering. Such a position if widely adopted by hospitals and health care institutions could prove a threat to researchers' open access to patients and lead to wider use of research subjects who are self-selective or large convenience samples, such as research panels with paid respondents, which may prove a threat to a study's external validity due to the absence of random assignment of respondents.

Concerns about patient privacy infringement or the appearance of badgering patients with repeated mailing could be alleviated by including the survey questionnaire among new patient registration materials. New patients are aware that a substantial amount of paperwork is required when seeing a physician for the first time, so the possibility of patients raisings concern about the questionnaire are less likely. An additional benefit gained by such an approach is that responses to the questionnaire are given more near to the time when the search for the physician was conducted, thereby mitigating history and maturation threats associated with participating in a survey months after the event occurred.

The length of the questionnaire, 62 items, also may have limited or reduced response rate because of respondents' concerns about the amount of time required to complete the instrument or because respondents' became fatigued while answering the items and decided to abandon the effort. Performing principal component analysis or factor analysis should be performed to determine whether the number of variables in the questionnaire can be reduced. While the study

questionnaire included an item related to Internet use, social media was not specifically

identified or referenced. Between 2005 and 2009 social media use in the United States

quadrupled (Chou, Hynt, Beckjord, Moser & Hesse, 2009). Use by consumers and institutions

of social media instruments such as Facebook, YouTube, Flickr, Twitter, Pinterest, Instagram

and others suggest the study may have benefited by listing these services rather than assuming

respondents would interpret Internet usage as including social media. Adopting a research

design that includes Internet and mobile application data collection would likely increase

response rates among younger patients.

The amount of time between sample respondents' searching and scheduling an

appointment and their completing the survey questionnaire, as long as three months for some

respondents, could also pose a maturation threat to internal validity. The passage of time might

cause some respondents not to fully recall the level and type of satisfaction they experienced

when successfully conducting their search for a physician. Maturation threats to internal validity

may be reduced by including information search satisfaction items in widely used patient

satisfaction studies such as those conducted by Press Ganey, Avatar Solutions, HealthStream or

HCAHPS. Such questionnaires are typically mailed to patients within weeks of their visit to a

provider rather than months, thereby capitalizing on the likelihood respondents will have better

recollection of their search experience.

<u>Recommendations</u>

Interest in health care information search and consumer satisfaction will grow and expand as the health care industry continues its transformation from its role as a vendor of health care to providers being accountable for the health of patients and consumers. Implementation of the Patient Protection and Accountable Care Act (PPACA) continues with the formation of health exchanges, emphasis on population health management, and provider reimbursement based on patient outcomes rather than the volume of procedures performed. In such a universe, providers must seek every advantage in gaining patient satisfaction, trust and loyalty, including a better understanding of patients' search for a provider. As Shaller, Kanouse and Schlesinger (2013) reported, the information hospitals, physicians and insurance companies produce for public consumption must be more than compilations of performance measures. Providers must design and disseminate information that is targeted to different audiences and which incorporates the "emotional heuristics and cognitive limitations" of consumers and patients (p. 17). Organizations such as HealthGrades, 1-800-Doctors, iTriage and ZocDoc are already doing so. Not only do they provide physician ratings, these organizations also facilitate the scheduling of appointments with physicians and produce predictive models to aid hospitals and providers in targeting specific consumer segments for marketing efforts.

Conducting a research study with a nationally represented sample based on the design and methodology similar to the present study would provide valuable information on these new health care information sources. Future research involving satisfaction with physician search also should include physician extenders or mid-level providers such as nurse practitioners and

physician assistants. The rise in retail providers located in stores such as Sam's Wholesale Club

and Walgreens stores warrants an examination of patients' search satisfaction with these

providers compared to hospitals, medical clinics, and physician medical practices. Under the

program or process known as meaningful use, the CMS has offered incentives in the form of

large cash payments to hospitals and medical practices for implementing electronic medical

records and interactive patient portals that permit consumers access to their medical records.

The effects of these new information sources also should be studied in order to determine if they

stimulate consumer engagement and whether they affect patient information search satisfaction

by improving access and reducing the time and expense associated with the search. Further

research examining the effect of physician communication skills on patient search satisfaction

also should be explored given the anticipated surge of new patients generated by the health

insurance requirements of the PPACA. Whereas previous studies, e.g. Bartlett, Grayson, Barker,

Levine, Golden and Libber (1984) and Woolley, Kane, Hughes and Wright (1978), have been

concerned with patient satisfaction with the care delivered, new research should be focused on

how doctors communicate and the effect this has on patients' satisfaction with their search for a

physician.

   The present research involved patients of physicians practicing in a large, multispecialty

group practice. It would be of interest if findings in similarly designed studies of specialty

practices were repeated in order to determine if search satisfaction varies from one medical

specialty to another. Finally, research leading to formulation of a "satisfaction with physician

search" framework similar to Giese & Cote's (2001) framework for defining consumer

satisfaction would help researchers overcome the influence or threat of environmental context in future search satisfaction research.

Chapter Summary

Chapter Five opened with a summary of the research study's purpose, design, methodology and data analysis. It also provided answers to the six research questions posed in Chapter One. The findings of the covariance structure analysis that patients' use of information sources and level of commitment to search and select a new physician separately predict search satisfaction were presented as were the findings that the strongest indicators of information use are hospital and physician marketing. A discussion followed regarding the prediction of search satisfaction by numerous information sources and the conclusion that identification of statistically significant predictors of health care information search satisfaction varies based upon the environment and contextual factors in which the search is conducted.

The section on policy implications discussed the impact the PPACA-mandated insurance exchanges will have on consumers and the information sources the public will rely upon to identify which physicians they can use with new insurance options. Insurers will be responsible for providing physician information to consumers and report card data should be included for those consumers who want to reference this source. The research study's limitations were addressed and solutions proposed for future research, including increasing the intervention period and recruiting and surveying patients from national health care organizations. The restrictions placed by the hospital IRB also were discussed in this section as was the length of the questionnaire and the absence of social media as a specific information source.

Recommendations for future research included conducting the present study with a nationally represented sample, studying the effect of physician communication skills on patient search satisfaction, and performing a similarly designed study involving medical specialty practices to determine if search satisfaction varies from one medical specialty to another.

Searching for a physician is a common practice and this study design analyzes information sources patients actually made rather than analyzing intentions. In this regard, the findings contribute to: 1) the central role of employing an integrated theoretical framework for studying how patients select information sources for finding their physicians; 2) empirical validation of both measurement and structural (causal) models specified for this investigation; and 3) formulation of practical changes in the design and implementation of information sources people use in searching for a physician. The study generates valuable information to substantiate the debate over how people conduct a search and their satisfaction with the search process.

APPENDIX A:

COPYRIGHT PERMISSIONS

From: hamptonpr1@aol.com [hamptonpr1@aol.com]
Sent: Thursday, February 21, 2013 10:24 AM
To: MLoyalMktg@knights.ucf.edu
Subject: Re: Permission to reproduce copyrighted material

Dear Mr. Loyal

Please let this email serve as permission for you to reprint the illustration that appeared in Cancer-Related Information Seeking in your dissertation. This permission covers your dissertation and any revisions thereof only. It does not extend to any other form of publication. Please give full credit to our publication with the addition of the following: Reprinted with the Permission of Hampton Press, Inc.

Sincerely,
Barbara Bernstein
President
-----Original Message-----
From: MLoyalMktg <MLoyalMktg@knights.ucf.edu>
To: hamptonpr1 <hamptonpr1@aol.com>
Cc: MLoyalMktg <MLoyalMktg@knights.ucf.edu>
Sent: Wed, Feb 20, 2013 1:32 pm
Subject: Permission to reproduce copyrighted material

February 20, 2013
Hampton Press
307 Seventh Avenue
Suite 506
New York, NY 10001
To whom it may concern:
I am completing a doctoral dissertation at the University of Central Florida entitled "The Effect of Public Information Sources on Satisfaction with Patient Search for a Physician." I would like your permission to reprint in my dissertation excerpts from the following:
Johnson, J.D. (1997). Cancer-Related Information Seeking. Cresskill, NJ: Hampton
Press, Inc.

The excerpt to be reproduced is the illustration entitled "Comprehensive Model of Information Seeking" that appears on page 34 in the text.
The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages. These rights will in no way restrict replication of the material in any form by you or by others authorized by you. Your signing of this letter will also confirm that you own or your company owns the copyright to the above-described material.
If these arrangements meet with your approval, please sign this letter where indicated below and return it to me as an attachment to an email or by fax. My email and fax numbers are as follows:
eMail: MLoyalMktg@knights.ucf.edu
Fax: 727-519-1278

Thank you for your attention in this matter.

Sincerely,
Michael C. Loyal
PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:
By:_____
Typed name and address below signature line
Date:_____

From: Robin Gotler <AnnFamMed@case.edu>
Sent: Tuesday, October 02, 2012 6:26 PM
To: Michael Loyal
Cc: Claire Zimmerman
Subject: Re: Permission to reprint figure (ANNALSFM Feedback Form)

Dear Michael,

Thank you for your inquiry. According to our policies, you can utilize
a portion of a copyrighted work, such as the figure from the Longo
article, "as is" for purposes of non-profit research and education.
Please credit the source in your work.

Best of luck with your dissertation.

Sincerely,

Robin Gotler, Editorial Coordinator
Annals of Family Medicine

On 10/1/2012 8:20 PM, Michael Loyal wrote:
> --
> Comments sent via ANNALS OF FAMILY MEDICINE Feedback Page
> --
>   TO: annalsfm-feedback@highwire.stanford.edu
>   NAME: Michael Loyal
>   EMAIL: MLoyalMktg@knights.ucf.edu
>   IP ADDRESS: 68.207.231.73
>   HOSTNAME: 73-231.207-68.tampabay.res.rr.com
>   PREVIOUS PAGE: http://annfammed.org/site/misc/contacts.xhtml
>   BROWSER: Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64;
Trident/5.0), Ann Fam Med
>   PROMOTIONAL USE: Granted
>   SESSION ID: ATXv5pP7fFFZmkan4NLKbA
> --
> COMMENTS:
> I am writing to request permission to reprint a figure, "Variables Influencing
Patient/Consumer Information-Seeking Behaviors," for use in my doctoral
dissertation. The figure appeared in the following article:
>
> Longo, D.R., Shubert,S.L., Wright, B.A., LeMaster, J., Williams, C.D. & Clore,

179

J.N. (2010). Health Information Seeking, Receipt and Use in Diabetes
Self-Management. Annals of Family Medicine, p. 337.
>
> I am a doctoral candidate at the University of Central Florida's Doctoral
Program in Public Affairs. The chair of my doctoral committee is Thomas T.H
Wan, PhD. The title of my dissertation is "The Effect of Public Information
Sources on Satisfaction with Patient Search for a Physician."
>
> Thank you for your consideration.
>
> Michael C. Loyal
> 407-314-13242
> MLoyalMktg@knights.ucf.edu

29 October 2013

Michael Loyal
1590 Cherry Blossom Terrace
Heathrow FL 32746

UPP Publication: Searching for Health Information (1989) Freimuth et. all "The Health Information Acquisition Model"
(1989), pp 8, Figure 1.1

Thank you for requesting permission to use material from the publications of the University of Pennsylvania Press. The Press is pleased to grant you nonexclusive permission to use material from the work cited above, as requested in your communication of 2/20/2013, to be published in a Doctoral Candidate Dissertation, by Michael C. Loyal.
Unless specifically provided otherwise, this permission does not extend to the use of the material in any other edition or by any other means of reproduction; nor does this permission cover book clubs, translations, abridgments, or selections that may be made of the publication. No subsequent use may be made without additional approval. This permission is subject also to the following terms:

1. You must give full credit to the source of this reprinted material, citing author, title, copyright date, pages used, and the statement "Reprinted with permission of the University of Pennsylvania Press."
This permission does not apply to any part of the selection that is independently copyrighted or that bears a separate source notation.

2. This permission extends to one edition only of your publication and all identical reprints of that edition. It will be necessary for you to reapply for permission to use this material in any revised or enlarged edition or, unless stated otherwise, for a change in binding style (e.g., from hardcover to paperback). Unless explicitly stated otherwise, this permission does not apply to the use of our material in any digital or other nonprint form.

3. This permission includes Braille, large type, or other forms of your work distributed by nonprofit organizations solely for use by the visually handicapped and provided no fees are charged. The limitations listed in item 2, above, do not apply to such use.

4. This contract is valid, and rights granted, only if the nonrefundable fee of US$0.00 is paid according to the terms shown on the accompanying invoice, with reference to invoice number PERM2556.

5. Rights granted: one-edition nonexclusive world rights in English only .

6. Special conditions: permission granted to scan the images requested.

Sincerely,

Jaime Estrada
Rights and Permissions
University of Pennsylvania Press
On 2/20/2013 1:13 PM, feedback-forms@www.upenn.edu wrote:
> Name=Michael Loyal
> Address line 1=1590 Cherry Blossom Terrace Address line 2=
> City=Heathrow State=FL
> Zip=32746
> Country=
> Email=MLoyalMktg@knights.ucf.edu
>
> UPP title=Searching for Health Information. The Cancer Informatin
> service Model Author/editor=Freimuth, V.S., Stein, J.A. & Kean, T.J.
> Chapter Title=The Health Information Acquisition Model Chapter
> Author=Freimuth, V.S., Stein, J.A. & Kean, T.J.
> Year of Publication=1989
> Page numbers=8
> Page count=1
> Word count=0
> Illustrations=The Health Information Acquisition Model
>
> Your Publisher=Doctoral Dissertation, University of Central Florida
> Your Title=Doctural Candidate Author Of Your Publication=Michael C.
> Loyal Page Length=205 Publication Date=May 2013 Print Run=Unknown List
> Price=Unknown Electronic Rights=Yes Rights Requested=The requested
> permission extends to any future revisions and editions of my dissertation,
including non-exclusive world rights in all languages. These rights will in no
way restrict replication of the material in any form by you or by others
authorized by you. Your signing of this letter will also confirm that you own
or your company owns the copyright to the above-described material.
> Additional Comments=The title of my dissertation is "The Effect of Public
Information Sources on Satisfaction with Patient Search for a Physician."
>
> Thank you for your consideration.
>
>
> --
> Form submitted on 02/20/2013, 13:13.

APPENDIX B:

FLORIDA HOSPITAL IRB APPROVAL LETTERS

Florida Hospital
Institutional Review Board
212 E. Winter Park Street
Orlando, FL 32804
Telephone: (407) 303-5581
Fax: (407) 303-3638
FWA: 00002060

April 18, 2011

Michael C Loyal, MA
1590 Cherry Blossom Terrace
Heathrow FL 32746

Dear Mr. Loyal:

FH #: 2805-3650
Title: The Effect of Public Information Sources on Satisfaction with Patient Search for a Physician
Documents submitted for study approval: IRB Application dated 4/8/11; Protocol Version 3; UCF Approval letter;
Subject Questionnaire; Physician interview questions; Summaries of research - physician and patient; Physician
contact letter; Subject contact letter MLM

Florida Hospital IRB Expedited Initial Approval Date: 04/13/11
FH IRB Expiration Date: 04/10/12
Informed Consent Waived based on: 21 CFR 56.109(c) (1)
Meeting Date for FH IRB Notification: 04/26/11

NOTE: This study may not be initiated without approval of the Florida Hospital Office of Research Administration.

The Florida Hospital IRB granted expedited approval to the study noted above, based on categories approved in 21 CFR 56.110 and 45 CFR 46.110. Unless the informed consent requirement was waived, you are required to use the IRB approved informed consent. The Florida Hospital IRB has approved the above noted informed consent/authorization for use. * Note: should the informed consent be revised, it must be approved by the IRB prior to use and will supersede the above noted approved consent/authorization.

Prior to the expiration dated noted above, the IRB must be made aware of the status of your project(s). A progress report will be required. [21 CFR 56.109 (f)] If the project has not been completed, you may request renewed approval.

It is your responsibility to remain in compliance with all applicable state and federal regulations regarding research as well as adhering to the Florida Hospital IRB *Handbook for the Protection of Human Research Subjects*.

You are reminded that a change in the study requires resubmission and approval of the IRB prior to initiation of the change in the study or informed consent.

It is the responsibility of the principal investigator to report to the Chair of the Institutional Review Board within 10 days, and in writing, any related unanticipated problems involving risks to subjects or others, such as adverse reactions to biological drugs, radio-isotopes or to medical devices.

Florida Hospital Institutional Review Board complies with federal and state regulations and GCP guidelines. Failure of the principal investigator or members of his/her research team to abide by the Florida Hospital IRB *Handbook for the Protection of Human Research Subjects* or failure to abide by FDA/OHRP Regulations governing this research may result in suspension and/or termination of this study.

Florida Hospital Institutional Review Board has the authority to review all documentation and the informed consent process for studies approved through the Florida Hospital IRB.

Laura Orem

Laura Orem, CIP, CIM
IRB Administrator
IRB Member
Florida Hospital IRB

184

DATE: July 21, 2011

TO: Michael Loyal
FROM: Florida Hospital Institutional Review Board (IRB)

PROJECT TITLE: [238259-2] The Effect of Public Information Sources on Satisfaction with
                   Patient Search for a Physician
SPONSOR: None
REFERENCE #:   2805-3650
SUBMISSION TYPE: Other

ACTION: APPROVED
APPROVAL DATE: July 21, 2011
EXPIRATION DATE: April 10, 2012
REVIEW TYPE: Expedited Review

Note: If this is an expedited or exempt action, the full IRB will be made aware on August 9, 2011.

Thank you for your submission of Other materials for this project. The Florida Hospital IRB has
APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study
design wherein the risks have been minimized. All research must be conducted in accordance with this
approved submission.

This submission has received Expedited Review based on the applicable federal regulations. Material
reviewed for this submission includes:

- Cover Sheet - Change Request Form (UPDATED: 06/24/2011)
- Letter - Contact Reminder Post Card Version 3.0 (UPDATED: 07/16/2011)
- Protocol - Research Protocol, Version 4.0 (UPDATED: 06/27/2011)
- Questionnaire/Survey - Website Questionnaire (page 1 of 7) (UPDATED: 07/16/2011)

Please remember that informed consent is a process beginning with a description of the study and
assurance of participant understanding followed by a FHIRB approved signed consent form. Informed
consent must continue throughout the study via a dialogue between the researcher and research
participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by the FHIRB prior to
initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED (WHICH INCLUDES SERIOUS AND UNEXPECTED) PROBLEMS involving risks to
subjects or others must be reported promptly to this office. Please use the appropriate reporting forms for
that submission. All FDA and sponsor reporting requirements should also be followed.

APPENDIX C:

UNIVERSITY OF CENTRAL FLORIDA IRB APPROVAL LETTER

2805-3650 UCF IRB Approval

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Michael C. Loyal**

Date: **February 11, 2011**

Dear Researcher:

On 2/11/2011, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	The Effect of Public Information Sources on Satisfaction with Patient Search for a Physician
Investigator:	Michael C Loyal
IRB Number:	SBE-11-07407
Funding Agency:	
Grant Title:	
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Joseph Bielitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 02/11/2011 08:47:22 AM EST

IRB Coordinator

Page 1 of 1

187

APPENDIX D:

QUESTIONNAIRE

Information Sources and the Search for a Physician Questionnaire

Instructions: Please circle one answer for each statement below relating to your most recent search for a physician that resulted in scheduling an appointment with an FPMG physician.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Not Applicable
	SD	D	NA/D	A	SA	N/A

START HERE

1.	I relied on a variety of information sources while searching for a physician.	1	2	3	4	5	N/A
2.	I relied on hospital and physician marketing more than other sources of information while searching for a physician.	1	2	3	4	5	N/A
3.	I relied on family and friend referrals more than other sources of information while searching for a physician.	1	2	3	4	5	N/A
4.	I relied on physician and nurse referrals more than other sources of information while searching for a physician.	1	2	3	4	5	N/A
5.	I relied on an internet physician report card more than other sources of information while searching for a physician.	1	2	3	4	5	N/A
6.	I conducted my search for a new physician with the intent of changing to a new physician.	1	2	3	4	5	N/A
7.	I conducted my search for a new physician in order to consider an alternative to my previous physician.	1	2	3	4	5	N/A
8.	I conducted my search for a new physician in order to obtain higher quality medical care.	1	2	3	4	5	N/A
9.	I conducted my search for a new physician in order to schedule a more timely medical appointment.	1	2	3	4	5	N/A
10.	I conducted my search for a new physician in order to accommodate a recent change in my personal life.	1	2	3	4	5	N/A
11.	I perceived my health to be excellent during the period when I conducted my search for a new physician.	1	2	3	4	5	N/A
12.	I conducted my search for a new physician because I have a chronic medical condition.	1	2	3	4	5	N/A
13.	I conducted my search for a new physician because of a sudden illness.	1	2	3	4	5	N/A
14.	I conducted my search for a new physician because of concerns about my ability to function physically.	1	2	3	4	5	N/A
15.	I conducted my search for a new physician because of concerns about my ability to function mentally.	1	2	3	4	5	N/A
16.	I conducted my search for a new physician because of concerns about my ability to fulfill my role in my family, in my job or in my community.	1	2	3	4	5	N/A
17.	I searched for and selected a new physician based on his or her experience treating my medical condition.	1	2	3	4	5	N/A

Please Continue on the Next Page

189

Instructions: Please circle one answer for each statement below.

CONTINUE HERE

		SD	D	NA/D	A	SA	N/A
18.	I searched for and selected a new physician based on the location of his or her medical practice.	1	2 ,	3	4	5	N/A
19.	I searched for and selected a physician based on his or her acceptance of my medical insurance.	1	2	3	4	5	N/A
20.	I searched for and selected a physician based on his or her office staff.	1	2	3	4	5	N/A
21.	I searched for and selected a physician based on his or her communication skills.	1	2	3	4	5	N/A
22.	I searched for and selected a physician based on the ability to schedule a timely appointment.	1	2	3	4	5	N/A
23.	I searched for and selected a physician based on his or her age.	1	2	3	4	5	N/A
24.	I searched for and selected a physician based on his or her board certification.	1	2	3	4	5	N/A
25.	I searched for and selected a physician based on his or her medical school reputation.	1	2	3	4	5	N/A
26.	I searched for and selected a physician based on his or her gender.	1	2	3	4	5	N/A
27.	My satisfaction with the search and selection of a physician is indicated by my referring family and friends to the physician I selected.	1	2	3	4	5	N/A
28.	My satisfaction with the search and selection of a physician is indicated by my scheduling an appointment with that physician.	1	2	3	4	5	N/A
29.	My satisfaction with the search and selection of a physician is indicated by the fulfillment of my needs (such as spending less time and money during the search, or finding a physician devoted to patient satisfaction).	1	2	3	4	5	N/A

Instructions: For the following questions, please check the box corresponding to the choice that best represents your answer.

30. Overall, how would you rate the information sources you used during your search for and selection of a physician?
- ❑ Excellent
- ❑ Very good
- ❑ Good
- ❑ Fair
- ❑ Poor
- ❑ Very poor

31. During your search and selection of a physician how satisfied were you with hospital or physician marketing and advertising?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Did not have access to hospital and physician marketing and advertising

Please Continue on the Next Page

Instructions: For the following questions, please check the box corresponding to the choice that best represents your answer.

CONTINUE HERE

32. During your search and selection of a physician how satisfied were you with recommendations and referrals from family and friends?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Did not have access to family and friends hospital and physician marketing and advertising

33. During your search and selection of a physician how satisfied were you with recommendations and referrals from physicians, nurses or other medical professionals?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Did not have access to physicians, nurses or other medical professionals?

34. During your search and selection of a physician how satisfied were you with physician report card information and ratings?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Did not have access to physician report cards information and ratings.

35. When you formed an intent to change your physician how committed were you to conducting a search and selecting a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

36. When you formed an intent to change your physician how committed were you to considering another physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

37. When you formed an intent to change your physician how important was the delivery of quality care?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

Please Continue on the Next Page

Instructions: For the following questions, please check the box corresponding to the choice that best represents your answer.

CONTINUE HERE

38. When you formed an intent to change your physician how important was the ability to schedule a timely appointment?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

39. When you formed an intent to change your physician how important were recent changes in your life (such as a job change, graduation from college or a move to a new house)?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

40. How would you rate your overall health during the period just before you began your search and selection of a new physician?
- ❑ Excellent
- ❑ Very good
- ❑ Good
- ❑ Fair
- ❑ Poor
- ❑ Very poor

41. How much did physical health problems limit your usual physical activities (such as running and walking or climbing) during the period just before your search and selection of a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

42. How much did personal or emotional problems keep you from doing your usual work, school or other daily activities during the period just before your search and selection of a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

Please Continue on the Next Page

CONTINUE HERE

43. How much difficulty did you have doing your daily work, both at home and away from the home, because of your physical health during the period just before you began your search and selection of a new physician?

- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Could not do daily work

44. How much did the physician's experience influence your satisfaction with the search and selection of a new physician?

- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

45. How much did the location of the physician's office influence your satisfaction with the search and selection of a new physician?

- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

46. How much did the medical insurance accepted by the physician influence your satisfaction with the search and selection of a new physician?

- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

47. How much did the physician's office staff influence your satisfaction with the search and selection of a new physician?

- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

48. How much did the physician's communication skills influence your satisfaction with the search and selection of a new physician?

- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

Please Continue on the Next Page

Instructions: For the following questions, please check the box corresponding to the choice that best represents your answer.

CONTINUE HERE

49. How much did the availability of a timely appointment influence your satisfaction with the search and selection of a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

50. How much did physician age influence your satisfaction with the search and selection of a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

51. How much did physician board certification influence your satisfaction with the search and selection of a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

52. How much did physician medical school reputation influence your satisfaction with the search and selection of a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

53. How much did physician gender influence your satisfaction with the search and selection of a new physician?
- ❑ Not at all
- ❑ Very little
- ❑ Somewhat
- ❑ Quite a lot
- ❑ Extremely

54. What is your gender?
- ❑ Male
- ❑ Female

Please Continue on the Next Page

Instructions: For the following questions, please check the box corresponding to the choice that best represents your answer.

CONTINUE HERE

55. Which of the following age categories describes you?
- ❑ 25 years of age or younger
- ❑ 26-40 years of age
- ❑ 41-55 years of age
- ❑ 56-70 years of age
- ❑ 71 years or older

56. What is your race/ethnicity?
- ❑ American Indian or Alaska Native
- ❑ Asian
- ❑ Black or African American
- ❑ Native Hawaiian or other Pacific Islander
- ❑ Hispanic or Latino
- ❑ White

57. What type of medical/health insurance do you have?
- ❑ Private medical/health insurance
- ❑ Medicare
- ❑ Medicaid
- ❑ Uninsured

58. What is the highest level of education you have completed?
- ❑ Less than high school
- ❑ High school diploma
- ❑ Some college
- ❑ Associate's degree (AS and/or AA)
- ❑ Bachelor's degree
- ❑ Master's degree or above

59. What is your current marital status?
- ❑ Single, never married
- ❑ Partnered
- ❑ Married
- ❑ Separated
- ❑ Divorced
- ❑ Widowed

60. How would you define or describe physician quality?
- ❑ Clinical outcomes
- ❑ Customer/patient satisfaction
- ❑ Service that exceeds expectations
- ❑ How highly rated (for example by other patients, physicians, insurers, government)
- ❑ All of the above
- ❑ Other (please specify)_____

Please Continue on the Next Page

Instructions: For the following questions, please check the box corresponding to the choice that best represents your answer.

61. How often do you access and use the Internet to find sources for medical or health information?

❏ Not at all (0 hours per week)
❏ Very little (fewer than 2 hours per week)
❏ Somewhat (between 2 to 5 hours per week)
❏ Quite a lot (between 5 to 7 hours per week)
❏ Extremely (more than 7 hours per week)

62. Which of the following broad categories best describes your household income from all sources in 2011?

❏ $20,000 or less
❏ $20,001 to $35,000
❏ $35,001 to $50,000
❏ $50,001 to $100,000
❏ $100,101 or more

** Thank you for your time in completing this questionnaire. **

Please share any additional comments you have in the box provided below.

Please insert the completed questionnaire in the accompanying envelope and mail. *No postage is necessary.*

APPENDIX E:

COVER LETTER

FLORIDA PHYSICIANS
M E D I C A L   G R O U P

May 23, 2011

Diana Ramos
13025 Waterford Wood Cir
Orlando, Fl 32828
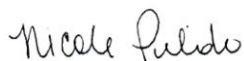
Dear Diana Ramos:

On behalf of Florida Physicians Medical Group (FPMG), I would like to take this opportunity to thank you for choosing one of its board-certified physicians for your recent medical appointment.

We value the comments, suggestions and concerns we receive from our patients, which help us to improve the quality of our services. Although FPMG routinely surveys its patients regarding their satisfaction with the medical care and treatment they receive, the enclosed questionnaire is being sent to a select group of FPMG patients. This questionnaire is part of a research study. An explanation of this study is also enclosed.

Your response is voluntary. If you choose to complete the questionnaire, please return it in the postage-paid envelope.

Sincerely,

Nicole Pulido
Administrative Assistant
FPMG

APPENDIX F:

SUMMARY OF RESEARCH

SUMMARY OF RESEARCH

Title of Project: The Effect of Public Information Sources on Satisfaction with Patient Search for a Physician

Principal Investigator: Michael C. Loyal, MA

Faculty Supervisor: Thomas T. H. Wan, PhD,

Purpose of the research study: The purpose of this research is to examine the effect public information sources such as advertising, word-of-mouth referrals from family and friends, and physician report cards have on patient's satisfaction with the process of searching for a physician. This research is being conducted with the cooperation and support of Florida Physicians Medical Group (FPMG), which provided the principal investigator with patient contact information. You are being invited to take part in this research study because your name was randomly selected from among individuals who recently scheduled an appointment with an FPMG physician. Your participation in this research is voluntary. If you choose to not participate, your relationship with your doctor will not change.

What you will be asked to do in the study: You will be asked to complete the enclosed questionnaire and mail it back in the postage-paid envelope that is provided.

Time required: We expect that it will not take more than 30 minutes to complete the questionnaire.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, or think the research has hurt you, please contact Michael Loyal, Graduate Student, Doctoral Program in Public Affairs, College of Health and Public Affairs, (407) 314-1342 or Dr. Thomas Wan, Faculty Supervisor, Doctoral Program in Public Affairs at (407) 823-0170 or by email at twan@mail.ucf.edu.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida and Florida Hospital involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB and FH IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246, (407) 823-2901 or Florida Hospital Institutional Review Board, 212 East Winter Park Street, Orlando, FL 32804, (407) 303-5581.

1 of 1

APPENDIX G:

RETURN ENVELOPE

Information Resources Survey
C/O M. Loyal - I
P.O. Box 950699
Lake Mary, FL 32795-0699

APPENDIX H:

INTERVENTION GROUP REMINDER POSTCARD

The research study questionnaire, *Information Sources and the Search for a Physician Questionnaire*, was mailed to you recently.

If you have already filled out the questionnaire and mailed it in the postage-paid envelope that was included, thank you very much! If you have not completed the questionnaire, please consider doing so today so we can include your responses in this important research involving new FPMG patients.

To request a replacement questionnaire to fill out, please call 407-314-1342 or log on to *http://inforesourcessurvey.com* and enter the password listed below. Please be assured that no identifying information of any kind will be recorded or retained:

1. Click on the word **Survey** at the top of the page
2. Enter Password: Questions-Answers
3. Click the *Submit Password* button
4. Click on the appropriate response for each item

 We value and very much appreciate your willingness to participate in this study.

Sincerely,
Nicole Pulido, Administrative Assistant, FPMG

APPENDIX I:

CONTROL GROUP REMINDER POSTCARD

The research study questionnaire, *Information Sources and the Search for a Physician Questionnaire*, was mailed to you recently.

If you have already filled out the questionnaire and mailed it in the postage-paid envelope that was included, thank you very much! If you have not completed the questionnaire, please consider doing so today so we can include your responses in this important research involving new FPMG patients.

To request a replacement questionnaire to fill out, please call 407-314-1342 or log on to *http://inforesourcessurvey.com* and enter the password listed below. Please be assured that no identifying information of any kind will be recorded or retained:

1. Click on the word **Questionnaire** at the top of the page
2. Enter Password: Survey-Response
3. Click the *Submit Password* button
4. Click on the appropriate response for each item

We value and very much appreciate your willingness to participate in this study.

Sincerely,
Nicole Pulido, Administrative Assistant, FPMG

APPENDIX J:

UNIVARIATE ANALYSIS BY CONTROL AND INTERVENTION GROUPS

Group		N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Control	Variety of info sources	32	1	5	3.72	1.326	-0.773	0.414	-0.472	0.809
	Hospital and physician marketing	32	1	4	2.41	1.012	-0.126	0.414	-1.111	0.809
	Family and Friends	32	1	5	3.56	1.294	-0.433	0.414	-0.998	0.809
	Doctors and nurses	32	1	5	3.75	1.368	-0.887	0.414	-0.27	0.809
	Physician Report Card	32	1	5	2.66	1.208	0.018	0.414	-0.778	0.809
	Changing to a new physician	32	1	5	2.97	1.257	0.062	0.414	-0.659	0.809
	Consider an alternative physician	32	1	5	2.85	1.161	0.047	0.414	-0.423	0.809
	Obtain higher quality medical care	32	1	5	3.69	1.306	-0.579	0.414	-0.866	0.809
	Schedule more timely appointment	32	1	5	2.88	1.238	0.034	0.414	-0.571	0.809
	Change in personal life	32	1	5	2.84	1.322	-0.052	0.414	-1.203	0.809
	In Excellent Health	32	1	5	3.16	1.247	-0.208	0.414	-0.769	0.809
	Chronic medical condition	32	1	5	2.79	1.412	0.167	0.414	-1.2	0.809
	Sudden Illness	32	1	5	2.69	1.33	0.269	0.414	-0.908	0.809
	Ability to function physically	32	1	5	2.88	1.289	0.054	0.414	-0.918	0.809
	Ability to function mentally	32	1	5	2.28	1.085	0.365	0.414	-0.42	0.809
	Fulfill my roll in family, job	32	1	5	2.41	1.132	0.39	0.414	-0.116	0.809
	Doc experience in treating condition	32	1	5	3.59	1.341	-0.47	0.414	-0.848	0.809
	Practice location	32	1	5	3.2	1.203	-0.411	0.414	-0.548	0.809

Group		N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
	Medical insurance acceptance	32	1	5	4.09	1.028	-1.137	0.414	1.189	0.809
	Office Staff	32	1	5	2.63	1.241	0.114	0.414	-0.971	0.809
	Doctor communication skills	32	1	5	3.41	1.432	-0.652	0.414	-0.866	0.809
	Ability to schedule timely appointment	32	1	5	3.24	1.314	-0.655	0.414	-0.715	0.809
	Doctor's age	32	1	5	2.41	1.21	0.313	0.414	-1.065	0.809
	Doctor board certification	32	1	5	3.66	1.494	-0.786	0.414	-0.844	0.809
	Medical school reputation	32	1	5	2.81	1.33	0.016	0.414	-1.249	0.809
	Doctor's gender	32	1	5	2.52	1.138	0.092	0.414	-0.842	0.809
	Referring doc to family and friends	32	1	5	3.87	1	-0.739	0.414	0.651	0.809
	Scheduling an appointment	32	2	5	4.03	0.933	-0.554	0.414	-0.616	0.809
	Fulfillment of needs	32	1	5	3.77	0.973	-0.597	0.414	0.634	0.809
	Rate information sources	32	1	5	3.74	1.216	-0.71	0.414	-0.282	0.809
	Satisfaction with doc marketing	32	0	4	1.96	1.493	-0.241	0.414	-1.381	0.809
	Satisfaction with family and friends rec	32	0	4	2.45	1.794	-0.549	0.414	-1.611	0.809
	Satisfaction with doctor and nurses rec	32	0	4	3.07	1.545	-1.471	0.414	0.455	0.809
	Satisfaction with physician report card	32	0	4	1.99	1.801	0.051	0.414	-1.908	0.809

Group	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
Search and selection commitment	32	1	5	3.84	1.138	-0.926	0.414	0.552	0.809
Considering another doctor commitment	32	1	5	3.52	1.268	-0.803	0.414	-0.193	0.809
Delivery of quality importance	32	1	5	4.24	1.053	-1.928	0.414	4.053	0.809
Scheduling timely appointment importance	32	1	5	3.78	0.907	-0.628	0.414	1.262	0.809
Life changes importance	32	1	5	2.5	1.561	0.542	0.414	-1.231	0.809
Rate overall health	32	0	5	3.47	1.344	-1.121	0.414	1.2	0.809
Health problems limit usual physical activities	32	1	5	2.34	1.428	0.691	0.414	-0.816	0.809
Personal or emotional problems prevent activities	32	1	5	1.65	1.065	1.626	0.414	2.06	0.809
Difficulty doing daily work	32	1	5	2.09	1.304	0.84	0.414	-0.472	0.809
Physician's experience influence satisfaction	32	1	5	3.8	1.331	-1.091	0.414	0.215	0.809
Office location influence satisfaction	32	1	5	2.99	1.346	-0.143	0.414	-1.217	0.809
Insurance acceptance satisfaction	32	1	5	3.63	1.495	-0.855	0.414	-0.673	0.809
Office staff influence satisfaction	32	1	5	3.22	1.283	-0.444	0.414	-0.696	0.809

Group		N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
	Doctors communications skills influence sat	32	1	5	4.18	1.003	-1.181	0.414	1.429	0.809
	Timely appointment availability	32	1	5	3.48	1.327	-0.436	0.414	-0.946	0.809
	Doctors age affect satisfaction	32	1	4	2.17	1.183	0.406	0.414	-1.41	0.809
	Board Certification affect satisfaction	32	0	5	3.43	1.412	-0.849	0.414	-0.029	0.809
	Medical School Reputation affect sat	32	0	5	2.63	1.326	-0.207	0.414	-1.113	0.809
	Doctor gender affect satisfaction	32	1	4	1.79	1.081	0.985	0.414	-0.529	0.809
	What is your gender	30	1	2	1.7	0.466	-0.92	0.427	-1.242	0.833
	Age category	32	2	5	3.75	0.984	-0.542	0.414	-0.57	0.809
	Race and Ethnicity	32	2	6	5.5	1.191	-2.32	0.414	4.072	0.809
	Health Insurance	32	1	3	1.44	0.564	0.834	0.414	-0.282	0.809
	Highest Level of Education	32	1	6	4	1.388	-0.156	0.414	-0.913	0.809
	Marital Status	31	1	6	3.68	1.4	0.389	0.421	-0.486	0.821
	Describe Physician Quality	32	1	5	4.09	1.329	-0.974	0.414	-0.687	0.809
	How often use and access internet	32	1	5	2.31	1.148	0.561	0.414	-0.051	0.809
	Household income	32	1	5	3.23	1.302	-0.145	0.414	-1.196	0.809
	Valid N (listwise)	30								
Intervention	Variety of info sources	29	1	5	3.08	1.512	-0.221	0.434	-1.451	0.845

Group	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
Hospital and physician marketing	29	1	5	2.74	1.379	0.064	0.434	-1.268	0.845
Family and Friends	29	1	5	3.12	1.372	-0.405	0.434	-1.087	0.845
Doctors and nurses	29	1	5	3.79	1.292	-0.847	0.434	-0.392	0.845
Physician Report Card	29	1	5	2.4	1.113	0.276	0.434	-0.536	0.845
Changing to a new physician	29	1	5	2.96	1.01	-0.146	0.434	0.363	0.845
Consider an alternative physician	29	1	5	2.89	1.04	-0.389	0.434	-0.208	0.845
Obtain higher quality medical care	29	1	5	3.32	1.317	-0.226	0.434	-1.003	0.845
Schedule more timely appointment	29	1	5	3.02	1.074	-0.238	0.434	-0.27	0.845
Change in personal life	29	1	5	3.07	1.223	-0.14	0.434	-0.605	0.845
In Excellent Health	29	1	5	2.79	1.013	0.006	0.434	-0.385	0.845
Chronic medical condition	29	0	5	2.89	1.423	0.047	0.434	-0.688	0.845
Sudden Illness	29	1	5	3.31	1.105	-0.161	0.434	-0.859	0.845
Ability to function physically	29	1	5	2.93	1.163	0.006	0.434	-0.424	0.845
Ability to function mentally	29	0	5	2.43	1.208	0.252	0.434	-0.008	0.845
Fulfill my roll in family, job	29	1	5	2.92	1.224	0.422	0.434	-0.53	0.845
Doc experience in treating condition	29	1	5	3.61	1.113	-0.458	0.434	-0.453	0.845
Practice location	29	1	5	3.42	1.4	-0.336	0.434	-1.223	0.845

Group		N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
	Medical insurance acceptance	29	1	5	3.57	1.228	-0.828	0.434	-0.02	0.845
	Office Staff	29	1	5	3.09	1.139	-0.028	0.434	-0.218	0.845
	Doctor communication skills	29	1	5	3.41	1.355	-0.532	0.434	-0.803	0.845
	Ability to schedule timely appointment	29	1	5	3.68	1.29	-0.855	0.434	-0.155	0.845
	Doctor's age	29	1	5	2.49	1.178	0.724	0.434	0.202	0.845
	Doctor board certification	29	1	5	3.74	1.214	-0.747	0.434	-0.113	0.845
	Medical school reputation	29	1	5	2.72	1.195	0.176	0.434	-0.306	0.845
	Doctor's gender	29	1	5	2.65	1.173	0.195	0.434	-0.539	0.845
	Referring doc to family and friends	29	1	5	3.75	1.244	-0.923	0.434	-0.115	0.845
	Scheduling an appointment	29	1	5	3.79	1.047	-0.939	0.434	0.613	0.845
	Fulfillment of needs	29	1	5	3.85	1.156	-1.165	0.434	0.925	0.845
	Rate information sources	29	1	5	3.83	1.002	-0.544	0.434	0.423	0.845
	Satisfaction with doc marketing	29	0	4	1.59	1.615	0.353	0.434	-1.593	0.845
	Satisfaction with family and friends rec	29	0	4	2.03	1.802	-0.016	0.434	-1.913	0.845
	Satisfaction with doctor and nurses rec	29	0	4	2.69	1.561	-0.834	0.434	-0.928	0.845
	Satisfaction with physician report card	29	0	4	1.69	1.774	0.299	0.434	-1.805	0.845

Group		N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
	Search and selection commitment	29	0	5	2.79	1.346	-0.161	0.434	-0.678	0.845
	Considering another doctor commitment	29	0	5	2.93	1.334	-0.447	0.434	-0.434	0.845
	Delivery of quality importance	29	0	5	4	1.225	-1.754	0.434	3.613	0.845
	Scheduling timely appointment importance	29	0	5	3.65	1.142	-1.567	0.434	3.231	0.845
	Life changes importance	29	0	5	2.27	1.361	0.379	0.434	-0.827	0.845
	Rate overall health	29	1	5	3.15	1.329	-0.591	0.434	-0.897	0.845
	Health problems limit usual physical activities	29	1	5	2.32	1.197	0.388	0.434	-0.86	0.845
	Personal or emotional problems prevent activities	29	1	4	1.68	0.889	1.054	0.434	0.042	0.845
	Difficulty doing daily work	29	1	5	2.18	1.136	0.568	0.434	-0.4	0.845
	Physician's experience influence satisfaction	29	1	5	3.65	1.109	-0.566	0.434	-0.334	0.845
	Office location influence satisfaction	29	1	5	3.28	1.333	-0.558	0.434	-0.727	0.845
	Insurance acceptance satisfaction	29	1	5	3.52	1.276	-0.419	0.434	-0.897	0.845
	Office staff influence satisfaction	29	1	5	3	1.309	-0.318	0.434	-0.998	0.845

Group		N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
	Doctors communications skills influence sat	29	1	5	3.62	1.146	-0.846	0.434	0.175	0.845
	Timely appointment availability	29	1	5	3.43	1.147	-0.5	0.434	-0.334	0.845
	Doctors age affect satisfaction	29	1	5	2.21	1.113	0.542	0.434	-0.304	0.845
	Board Certification affect satisfaction	29	1	5	3.08	1.163	-0.167	0.434	-0.674	0.845
	Medical School Reputation affect sat	29	1	5	2.57	1.237	0.429	0.434	-0.852	0.845
	Doctor gender affect satisfaction	29	1	5	2.14	1.246	0.677	0.434	-0.769	0.845
	What is your gender	28	1	3	1.68	0.548	-0.061	0.441	-0.619	0.858
	Age category	29	1	5	3.66	1.261	-0.778	0.434	-0.07	0.845
	Race and Ethnicity	28	2	6	5.39	1.066	-2.07	0.441	3.828	0.858
	Health Insurance	29	1	4	1.93	0.842	0.907	0.434	0.813	0.845
	Highest Level of Education	29	1	6	3.24	1.504	0.505	0.434	-0.861	0.845
	Marital Status	29	1	6	3.48	1.825	0.162	0.434	-1.233	0.845
	Describe Physician Quality	27	1	6	4.33	1.209	-1.269	0.448	0.779	0.872
	How often use and access internet	29	1	4	1.83	0.928	0.941	0.434	0.116	0.845
	Household income	29	1	5	2.24	1.246	0.584	0.434	-0.883	0.845
	Valid N (listwise)	25								

APPENDIX K:

INDEPENDENT-SAMPLES T-TESTS OF

CONTROL AND INTERVENTION GROUPS

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Variety of info sources (INFOVAR)	Equal variances assumed	1.505	.225	1.749	59	.085	.635	.363	-.091	1.362
	Equal variances not assumed			1.738	56.042	.088	.635	.366	-.097	1.368
Hospital and physician marketing (HOSDOC)	Equal variances assumed	4.033	.049	-1.096	59	.277	-.337	.308	-.953	.278
	Equal variances not assumed			-1.080	50.999	.285	-.337	.312	-.965	.290
Family and Friends (FAMFRI)	Equal variances assumed	.028	.868	1.309	59	.196	.447	.341	-.236	1.130
	Equal variances not assumed			1.305	57.546	.197	.447	.342	-.239	1.132
Doctors and nurses (DOCNUR)	Equal variances assumed	.196	.659	-.103	59	.919	-.035	.342	-.719	.648
	Equal variances not assumed			-.103	58.892	.918	-.035	.341	-.717	.646
Physician Report Card (RPTCRD)	Equal variances assumed	.124	.726	.866	59	.390	.259	.298	-.339	.856
	Equal variances not assumed			.870	58.980	.388	.259	.297	-.336	.853
Changing to a new physician (NEWDOC)	Equal variances assumed	1.472	.230	.035	59	.973	.010	.294	-.578	.598
	Equal variances not assumed			.035	58.208	.972	.010	.291	-.572	.592
Consider an alternative physician (ALTDOC)	Equal variances assumed	.375	.543	-.128	59	.898	-.036	.283	-.603	.531
	Equal variances not assumed			-.129	58.995	.898	-.036	.282	-.600	.528
Obtain higher quality medical care (QUALMED)	Equal variances assumed	.004	.947	1.098	59	.277	.369	.336	-.304	1.042
	Equal variances not assumed			1.098	58.312	.277	.369	.336	-.304	1.042
Schedule more timely	Equal variances assumed	.492	.486	-.484	59	.631	-.144	.298	-.741	.452

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
appointment (TIMAPPT)	Equal variances not assumed			-.487	58.898	.628	-.144	.296	-.737	.448
Change in personal life (LIFECHNG)	Equal variances assumed	1.207	.276	-.688	59	.494	-.225	.327	-.880	.429
	Equal variances not assumed			-.691	58.972	.492	-.225	.326	-.877	.427
In Excellent Health (EXHLTH)	Equal variances assumed	1.238	.270	1.242	59	.219	.364	.293	-.222	.950
	Equal variances not assumed			1.255	58.340	.215	.364	.290	-.216	.944
Chronic medical condition (CHRNMED)	Equal variances assumed	.239	.627	-.269	59	.789	-.098	.363	-.825	.629
	Equal variances not assumed			-.269	58.320	.789	-.098	.363	-.825	.630
Sudden Illness (SUDILL)	Equal variances assumed	.929	.339	-1.975	59	.053	-.622	.315	-1.253	.008
	Equal variances not assumed			-1.993	58.582	.051	-.622	.312	-1.247	.002
Ability to function physically (PHYSFUNC)	Equal variances assumed	.829	.366	-.167	59	.868	-.053	.316	-.684	.579
	Equal variances not assumed			-.168	59.000	.868	-.053	.314	-.681	.576
Ability to function mentally (MENTFUNC)	Equal variances assumed	.077	.782	-.493	59	.624	-.145	.294	-.732	.443
	Equal variances not assumed			-.490	56.579	.626	-.145	.295	-.736	.446
Fulfill my roll in family, job (MYROLE)	Equal variances assumed	.014	.908	-1.700	59	.094	-.513	.302	-1.116	.091
	Equal variances not assumed			-1.693	57.196	.096	-.513	.303	-1.119	.094
Doc experience in treating condition (DOCEXP)	Equal variances assumed	2.220	.142	-.043	59	.966	-.014	.317	-.649	.621
	Equal variances not assumed			-.043	58.573	.966	-.014	.314	-.643	.616

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Practice location (PRACLOC)	Equal variances assumed	2.163	.147	-.680	59	.499	-.227	.333	-.894	.440
	Equal variances not assumed			-.675	55.544	.502	-.227	.336	-.900	.446
Medical insurance acceptance (MEDINS)	Equal variances assumed	1.202	.277	1.798	59	.077	.520	.289	-.059	1.098
	Equal variances not assumed			1.782	54.870	.080	.520	.292	-.065	1.104
Office Staff (OFFSTFF)	Equal variances assumed	1.654	.203	-1.484	59	.143	-.454	.306	-1.066	.158
	Equal variances not assumed			-1.490	58.988	.142	-.454	.305	-1.064	.156
Doctor communication skills (COMSKIL)	Equal variances assumed	.141	.709	-.002	59	.999	-.001	.358	-.717	.716
	Equal variances not assumed			-.002	58.884	.999	-.001	.357	-.715	.714
Ability to schedule timely appointment (SCHDAPPT)	Equal variances assumed	.046	.831	-1.335	59	.187	-.446	.334	-1.114	.222
	Equal variances not assumed			-1.336	58.610	.187	-.446	.334	-1.114	.222
Doctor's age (DOCAGE)	Equal variances assumed	.508	.479	-.276	59	.783	-.085	.306	-.698	.528
	Equal variances not assumed			-.277	58.684	.783	-.085	.306	-.697	.528
Doctor board certification (BDCRT)	Equal variances assumed	2.167	.146	-.252	59	.802	-.088	.351	-.790	.614
	Equal variances not assumed			-.254	58.341	.800	-.088	.347	-.783	.607
Medical school reputation (MEDREP)	Equal variances assumed	1.715	.195	.276	59	.784	.090	.325	-.561	.740
	Equal variances not assumed			.277	58.997	.783	.090	.323	-.557	.737
Doctor's gender (DOCSEX)	Equal variances assumed	.011	.918	-.419	59	.676	-.124	.296	-.716	.468

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			-.419	58.014	.677	-.124	.296	-.718	.469
Referring doc to family and friends (SATREF)	Equal variances assumed	1.170	.284	.425	59	.672	.122	.288	-.453	.698
	Equal variances not assumed			.421	53.766	.676	.122	.291	-.461	.706
Scheduling an appointment (SATSCHD)	Equal variances assumed	.091	.764	.942	59	.350	.239	.254	-.269	.746
	Equal variances not assumed			.936	56.414	.353	.239	.255	-.272	.749
Fulfillment of needs (SATNDS)	Equal variances assumed	.147	.703	-.305	59	.761	-.083	.273	-.629	.462
	Equal variances not assumed			-.303	55.006	.763	-.083	.275	-.634	.468
Rate information sources (RTINFO)	Equal variances assumed	1.085	.302	-.318	59	.751	-.091	.287	-.666	.483
	Equal variances not assumed			-.321	58.499	.749	-.091	.284	-.661	.478
Satisfaction with doc marketing (SATMKT)	Equal variances assumed	1.665	.202	.948	59	.347	.377	.398	-.419	1.174
	Equal variances not assumed			.945	57.186	.349	.377	.400	-.423	1.177
Satisfaction with family and friends rec (RECFAM)	Equal variances assumed	.143	.707	.891	59	.376	.411	.461	-.511	1.333
	Equal variances not assumed			.891	58.355	.377	.411	.461	-.512	1.334
Satisfaction with doctor and nurses rec (RECDOC)	Equal variances assumed	.400	.530	.957	59	.343	.381	.398	-.416	1.177
	Equal variances not assumed			.956	58.290	.343	.381	.398	-.416	1.178
Satisfaction with physician report card (SATRPTCD)	Equal variances assumed	.098	.756	.647	59	.520	.297	.458	-.621	1.214
	Equal variances not assumed			.647	58.573	.520	.297	.458	-.620	1.213

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Search and selection commitment (SRCHSEL)	Equal variances assumed	1.100	.299	3.289	59	.002	1.047	.318	.410	1.684
	Equal variances not assumed			3.262	55.132	.002	1.047	.321	.404	1.690
Considering another doctor commitment (ANTHDOC)	Equal variances assumed	.007	.935	1.758	59	.084	.586	.333	-.081	1.253
	Equal variances not assumed			1.753	57.689	.085	.586	.334	-.083	1.255
Delivery of quality importance (QLTYDLV)	Equal variances assumed	.110	.741	.825	59	.412	.241	.292	-.343	.824
	Equal variances not assumed			.819	55.548	.416	.241	.294	-.348	.829
Scheduling timely appointment importance (IMPAPPT)	Equal variances assumed	.396	.531	.470	59	.640	.124	.263	-.403	.650
	Equal variances not assumed			.465	53.407	.644	.124	.266	-.410	.657
Life changes importance (LFECHNG)	Equal variances assumed	.881	.352	.602	59	.550	.227	.377	-.527	.980
	Equal variances not assumed			.606	58.919	.547	.227	.374	-.522	.975
Rate overall health (OVRHLTH)	Equal variances assumed	.101	.752	.933	59	.354	.320	.343	-.366	1.006
	Equal variances not assumed			.934	58.534	.354	.320	.343	-.366	1.005
Health problems limit usual physical activities (HLTHPROB)	Equal variances assumed	1.391	.243	.065	59	.949	.022	.339	-.657	.701
	Equal variances not assumed			.065	58.661	.948	.022	.336	-.651	.695
Personal or emotional problems prevent activities (PERSPROB)	Equal variances assumed	.582	.449	-.103	59	.918	-.026	.253	-.531	.479
	Equal variances not assumed			-.104	58.623	.918	-.026	.250	-.527	.475

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Difficulty doing daily work (DIFWRK)	Equal variances assumed	1.032	.314	-.265	59	.792	-.083	.315	-.713	.546
	Equal variances not assumed			-.266	58.915	.791	-.083	.312	-.708	.542
Physician's experience influence satisfaction (EXPSAT)	Equal variances assumed	.424	.518	.486	59	.629	.153	.315	-.478	.784
	Equal variances not assumed			.490	58.610	.626	.153	.313	-.472	.779
Office location influence satisfaction (LOCSAT)	Equal variances assumed	.072	.790	-.849	59	.399	-.291	.343	-.979	.396
	Equal variances not assumed			-.849	58.519	.399	-.291	.343	-.978	.396
Insurance acceptance satisfaction (INSSAT)	Equal variances assumed	.642	.426	.318	59	.752	.114	.358	-.602	.830
	Equal variances not assumed			.321	58.799	.750	.114	.355	-.597	.824
Office staff influence satisfaction (OFFSAT)	Equal variances assumed	.000	.997	.663	59	.510	.220	.332	-.445	.885
	Equal variances not assumed			.662	58.160	.511	.220	.333	-.446	.886
Doctors communications skills influence sat (COMSAT)	Equal variances assumed	.284	.596	2.026	59	.047	.558	.275	.007	1.108
	Equal variances not assumed			2.013	55.993	.049	.558	.277	.003	1.112
Timely appointment availability (APTAVAIL)	Equal variances assumed	1.499	.226	.163	59	.871	.052	.319	-.587	.691
	Equal variances not assumed			.164	58.881	.870	.052	.317	-.582	.686
Doctors age affect satisfaction (DOCAGESAT)	Equal variances assumed	.756	.388	-.149	59	.882	-.044	.295	-.634	.546
	Equal variances not assumed			-.149	58.909	.882	-.044	.294	-.632	.545

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Board Certification affect satisfaction (BDCRTSAT)	Equal variances assumed	1.164	.285	1.069	59	.289	.356	.333	-.311	1.023
	Equal variances not assumed			1.079	58.499	.285	.356	.330	-.304	1.017
Medical School Reputation affect sat (REPSAT)	Equal variances assumed	.295	.589	.168	59	.867	.055	.329	-.604	.714
	Equal variances not assumed			.169	58.944	.867	.055	.328	-.601	.712
Doctor gender affect satisfaction (SEXSAT)	Equal variances assumed	.884	.351	-1.175	59	.245	-.350	.298	-.946	.246
	Equal variances not assumed			-1.167	55.774	.248	-.350	.300	-.951	.251

APPENDIX L:

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS

Variables	INFOVAR	HOSDOC	FAMFRI	DOCNUR	RPTCRD	NEWDOC	ALTDOC	QUALMED	TIMAPPT	LIFECHNG	EXHLTH	CHRNMED	SUDILL	PHYSFUNC	MENTFUNC	MYROLE	DOCEXP	PRACLOC	MEDINS	OFFSTFF	COMSKIL	SCHDAPPT	DOCAGE	BDCRT	MEDREP	DOCSEX	SATREF	SATSCHD
Variety of info sources (INFOVAR)	1																											
Hospital and physician marketing (HOSDOC)	.297*	1																										
Family and Friends (FAMFRI)	.641**	0.177	1																									
Doctors and nurses (DOCNUR)	0.06	.346**	-0.208	1																								
Physician Report Card (RPTCRD)	.375**	.404**	0.18	0.19	1																							
Changing to a new physician (NEWDOC)	0.237	0.033	.340**	-0.163	0.184	1																						
Consider an alternative physician (ALTDOC)	.256*	0.176	0.212	0.164	0.231	.562**	1																					
Obtain higher quality medical care (QUALMED)	.348**	0.084	.412**	-0.125	0.153	.303*	.390**	1																				
Schedule more timely appointment (TIMAPPT)	0.137	0.039	-0.05	0.088	0.238	.359**	.311*	.257*	1																			
Change in personal life (LIFECHNG)	0.146	0.14	0.135	-0.141	0.008	.456**	.534**	.340**	.329**	1																		
In excellent health (EXHLTH)	.307*	0.14	0.145	-0.102	.257*	.268*	.361**	.437**	0.1	.491**	1																	
Chronic medical condition (CHRNMED)	-0.087	.314*	0.104	0.195	.322*	.256*	.280*	0.074	0.209	0.123	-0.15	1																
Sudden illness (SUDILL)	0.022	0.028	-0.145	.278*	0.12	-0.082	0.079	0.106	.274*	0.197	0.185	0.064	1															
Ability to function physically (PHYSFUNC)	-0.128	0.209	0.021	0.223	0.155	0.068	-0.003	0.135	.302*	0.113	-0.061	.515**	.324*	1														
Ability to function mentally (MENTFUNC)	-0.018	.318*	0.018	.298*	0.212	0.168	0.183	0.128	.297*	0.239	0.234	.414**	.528**	.541**	1													
Fulfil my roll in family, job (MYROLE)	-0.061	.347**	-0.069	0.17	0.05	0.048	0.084	0.25	.297*	0.156	0.008	.363**	.395**	.616**	.605**	1												
Doc experience in treating condition (DOCEXP)	0.113	0.199	0.014	.518**	0.103	-0.134	0.184	0.176	0.075	0.022	0.054	0.146	.287*	.307*	.267*	.416**	1											
Practice location (PRACLOC)	.447**	.352**	.411**	0.06	0.179	0.211	0.11	0.17	0.195	0.236	0.164	-0.046	-0.106	0.031	0.07	-0.084	0.007	1										
Medical insurance acceptance (MEDINS)	.375**	0.212	.253*	0.115	0.13	-0.007	0.012	0.144	0.102	0.059	0.077	-0.07	-0.242	0.022	-0.006	-0.126	0.035	.586**	1									
Office staff (OFFSTFF)	.425**	.383**	.320**	0.028	.306*	0	0.146	0.039	0.179	0.243	0.051	0.113	-0.078	0.105	0.089	0.042	0.078	.536**	.326*	1								
Doctor communication skills (COMSKIL)	.430**	.285*	.417**	-0.021	.256*	0.241	.319*	0.207	0.238	.424**	0.106	0.183	-0.2	0.015	0.011	-0.101	-0.156	.562**	.523**	.719**	1							
Ability to schedule timely appointment (SCHDAPPT)	.327*	.333**	.331**	0.15	0.208	0.089	0.11	0.141	.376**	0.18	-0.096	0.173	0.084	0.231	0.187	0.106	0.078	.547**	.533**	.633**	.680**	1						
Doctor's age (DOCAGE)	.351**	0.249	.317*	0.041	.344**	0.2	.263*	0.196	0.185	.310*	.287*	0.139	-0.02	0.157	0.178	0.134	0.063	.257*	0.207	.719**	.565**	.477**	1					
Doctor board certification (BDCRT)	.548**	.354**	.522**	0.146	.301*	0.036	0.056	0.238	0.021	0.04	0.083	0.25	-0.022	0.192	0.162	0.16	0.18	.410**	.367**	.441**	.483**			1				
Medical school reputation (MEDREP)	.355**	.369**	.353**	0.127	.471**	0.113	.316*	.298*	.257*	.291*	0.136	.299**	-0.013	.299*	.253*	0.122	0.158	.315*	.312*	.697**	.632**	.602**	.776**	.565**	1			
Doctor's gender (DOCSEX)	.266*	.403**	0.181	0.038	.272*	.255*	.414**	0.18	0.216	.469**	0.244	0.091	-0.043	0.029	0.091	0.071	-0.148	.396**	0.247	.526**	.640**	.395**	.569**	.261*	.597**	1		
Referring doc to family and friends (SATREF)	.293*	0.117	.370**	0.082	-0.109	0.085	.280*	.347**	0.135	0.203	0.176	-0.083	-0.067	-0.132	0.014	-0.057	0.131	0.246	0.209	0.252	.411**	.307*	0.234	.319*	.279*	0.232	1	
Scheduling an appointment (SATSCHD)	0.246	.280*	.398**	0.073	0.025	0.192	0.181	.291*	-0.207	.315*	0.219	0.025	-0.082	0.061	0.13	0.089	0.162	0.151	.314*	0.005	0.222	0.159	0.156	.414**	0.2	0.197	.491**	1
Fulfilment of needs (SATNDS)	0.212	0.177	.288**	0.061	-0.096	0.108	0.044	0.165	0.077	0.241	-0.029	0.01	0.073	0.189	0.191	0.149	0.143	0.189	.256*	0.224	.374**	.520**	0.232	.342**	0.234	0.123	.431**	.512**
Rate information sources (RTINFO)	.281*	0.239	.343**	0.141	0.138	0.247	0.135	0.175	0.068	0.08	0.136	0.079	-0.057	0.115	0.133	-0.02	0.171	.317*	0.176	0.199	0.197	0.154	0.078	0.207	0.082	-0.046	.343**	.314*
satisfaction with doc marketing (SATMKT)	0.2	0.221	0.132	-0.027	.308*	-0.105	0.157	0.026	-0.013	0.124	0.133	0.075	0.095	0.003	-0.012	-0.092	0.144	-0.011	0.002	0.186	0.155	0.184	-0.002	0.162	0.217	0.029	-0.104	0.031
satisfaction with family and friends rec (RECDOC)	.326*	0.038	.612**	-0.202	0.068	0.126	0.112	.291*	-0.159	0.046	0.071	-0.061	-0.09	-0.19	-0.125	-0.213	0.031	.274*	0.033	0.166	0.184	0.157	-0.052	0.103	0.061	-0.056	0.138	0.154
satisfaction with doctor and nurses rec (RECDOC)	0.182	0.086	-0.137	.387**	0.023	-0.2	-0.015	-0.164	-0.107	-0.235	-0.214	0.03	0.046	-0.011	-0.103	-0.025	-0.026	-0.096	0.051	0.047	0.11	0.072	-0.099	0.104	-0.06	-0.03	0.005	-0.006
satisfaction with physician report card (SATRPTCD)	0.171	0.142	0.164	0.077	.419**	0.044	0.167	0.121	0.178	-0.02	0.046	0.15	0.027	0.154	0.136	0.108	0.146	-0.008	-0.016	0.174	0.236	0.216	0.127	0.217	.313*	0.141	-0.005	-0.037

Variables	INFOVAR	HOSDOC	FAMFRI	DOCNUR	RFTCRD	NEWDOC	ALTDOC	QUALMED	TIMAPPT	LIFECHNG	EXHLTH	CHRNMED	SUDILL	PHYSFUNC	MENTFUNC	MYROLE	DOCEXP	PRACLOC	MEDINS	OFFSTFF	COMSKIL	SCHDAPPT	DOCAGE	BDCRT	MEDREP	DOCSEX	SATREF	SATSCHD
Search and selection commitment (SRCHSEL)	0.083	-0.164	0.129	-0.079	-0.251	0.141	0.085	0.147	-0.025	0.165	-0.093	0.125	-0.21	0.073	-0.08	0.06	0.069	-0.068	0.181	-0.057	0.157	-0.062	0.003	0.013	-0.071	-0.119	0.047	.327*
Considering another doctor commitment (ANTHDOC)	0.052	-0.088	0.037	-0.123	-.298*	0.142	0.178	0.015	-0.062	.302*	-0.072	-0.107	-.273*	-0.181	-.302*	-0.163	-0.017	0.048	0.106	0.023	.261*	0.02	0.006	-0.003	0.012	0.147	0.205	.298*
Delivery or quality importance (QLTYDLV)	0.044	-0.06	-0.047	0.004	-0.157	-0.155	-0.071	-0.023	-.314*	-0.1	-0.114	-0.01	-0.175	-0.247	-0.184	-0.116	-0.149	-0.038	0.125	-0.002	0.12	0.091	0.004	0.071	-0.095	-0.003	0.063	0.147
Scheduling timely appointment importance (IMPAPPT)	-0.148	-0.084	-0.129	-0.012	-0.117	-0.019	0.027	-0.175	-0.027	0.037	-0.082	-0.028	-0.122	-0.094	-0.142	-0.165	-0.168	0.013	0.185	0.043	0.193	0.175	-0.088	-0.218	-0.093	0.007	-0.027	0.065
Life changes importance (LFECHNG)	0.152	0.12	0.05	-.363**	-0.107	-0.031	0.037	0.104	-0.009	0.176	0.05	-0.201	-.288*	-0.192	-0.199	-0.094	-.326*	0.203	.281*	.254*	0.246	0.113	0.069	-0.134	0.056	0.176	0.001	0.059
Rate overall health (OVRHLTH)	.297*	-0.034	0.052	-0.055	0.165	0.183	0.139	0.061	0.127	0.085	.399**	-.481**	0.049	-.263*	-0.045	-.267*	-0.101	0.126	0.039	0.041	0.028	0.013	0.036	-0.018	-0.018	0.08	0.217	0.082
Health problems limit usual physical activities (HLTHPROB)	-.355**	-0.124	-0.077	0.124	-0.034	-0.03	0.01	-0.016	-0.034	-0.153	-.347**	.395**	-0.091	.439**	0.103	0.192	0.173	-0.172	-0.142	-0.043	-0.103	-0.075	0.009	-0.024	0.039	-0.116	-0.167	-0.109
Personal or emotional problems prevent activities	-0.241	-0.011	-0.098	-0.016	0.008	0.067	0.091	0.023	0.039	-0.143	-.380**	.423**	-0.122	.262*	0.06	.307*	0.109	-.268*	-0.183	-0.075	-0.051	-0.099	-0.12	-0.058	-0.014	-0.079	-.314*	-0.18
Difficulty doing daily work (DIFWRK)	-.287*	-0.015	0.034	0.122	-0.013	-0.189	-0.051	-0.084	-0.174	-0.234	-.307*	.347**	-0.148	.325*	0.089	0.185	0.06	-0.116	-0.126	0.005	-0.05	-0.063	-0.046	0.026	0.021	-0.042	-0.1	-0.05
Physician's experience influence satisfaction (EXPSAT)	0.088	0.135	0.061	.355**	0.135	-0.074	0.243	-0.122	-0.185	0.129	0	0.215	0.056	0.119	0.135	0.018	.361**	-0.206	-0.029	0.066	0.179	0.081	0.169	.351**	.306*	0.084	0.094	.253*
Office location influence satisfaction (LOCSAT)	.285*	0.17	.252*	-0.194	0.074	0.158	0.099	0.051	0.236	.254*	0.194	-0.135	-0.086	-0.138	0.119	-0.056	-0.028	.640**	.341**	.466**	.453**	.391**	0.209	0.076	.259*	-.276*	0.123	-0.025
Insurance acceptance satisfaction (INSSAT)	0.06	0.02	-0.063	-0.128	0.085	0.124	0.099	0.057	0.099	-0.033	0.047	-0.082	-.408**	-0.161	-0.157	-0.067	-0.074	.266*	.532**	0.131	.284*	0.219	0.078	0.038	0.091	0.082	-0.001	0.137
Office staff influence satisfaction (OFFSAT)	0.174	0.118	0.161	0.118	.307*	0.233	0.161	0.048	0.203	-0.016	0.05	0.129	-0.16	0.066	0.091	-0.146	-0.004	.304*	0.223	.350**	.441**	.393**	.278*	0.096	.326*	.346**	0.129	0.012
Doctor communications skills influence sat (COMBAT)	0.22	-0.053	.300*	-0.031	0.168	0.181	0.067	0.049	-0.07	0.112	0.191	0.067	-0.135	0.014	-0.013	-.271*	0.048	.282*	0.214	.307*	.403**	.265*	0.249	0.152	.324*	0.201	0.091	0.151
Timely appointment availability (APTAVAIL)	-0.016	0.242	0.011	-0.04	0.215	0.036	0.059	-0.107	0.153	0.073	-0.029	0.163	-0.221	0.014	0.149	-0.049	-0.147	0.207	0.215	.402**	.478**	.407**	0.209	0.068	.291*	.283*	0.064	-0.044
Doctors age affect satisfaction (DOCAGESAT)	0.052	0.156	-0.044	0.105	0.179	0.01	-0.085	-0.084	-0.034	0.009	-0.066	0.01	-0.121	-0.054	0.031	0.01	-0.133	0.061	0.015	0.226	0.072	0.098	0.221	0.19	.261*	0.092	-0.19	0.035
Board Certification affect satisfaction (BDCRTSAT)	0.221	.275*	0.094	0.216	.357**	0.038	0.101	0.118	-0.086	-0.095	0.063	0.171	-0.175	-0.044	0.08	0.009	0.16	0.018	0.029	0.237	0.137	0.14	.299*	.546**	.348**	0.071	0.049	0.177
Medical school Reputation affect sat (REPSAT)	0.158	.270*	0.043	0.148	.534**	0.168	.287*	0.131	0.232	0.082	0.143	0.224	0.008	0.118	0.25	0.044	0.08	0.103	-0.052	.436**	.313*	.315*	.554**	.310*	.648**	.334**	0.138	0.033
Doctor gender affect satisfaction (SEXSAT)	-0.199	0.124	-0.145	-0.048	0.145	0.018	0.024	-0.156	0.016	0.13	0.026	-0.177	-0.081	-0.229	-0.087	-0.093	-.367**	0.08	-0.135	0.176	0.189	0.102	0.167	-0.104	0.138	.405**	-0.135	-0.056

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Variables	SATNDS	RTINFO	SATMKT	RECFAM	RECDOC	SATRPTCD	SRCHSEL	ANTHDOC	QLTYDLV	IMPAPPT	LFECHNG	OVRHLTH	HLTHPROB	PERSPROB	DIFWRK	EXPSAT	LOCSAT	INSSAT	OFFSAT	COMSAT	APTAVAIL	DOCAGESAT	BDCRTSAT	REPSAT	SEXSAT
Variety of info sources (INFOVAR)																									
Hospital and physician marketing (HOSDOC)																									
Family and Friends (FAMFRI)																									
Doctors and nurses (DOCNUR)																									
Physician Report Card (RPTCRD)																									
Changing to a new physician																									
Consider an alternative physician (ALTDOC)																									
Obtain higher quality medical care (QUALMED)																									
Schedule more timely appointment (TIMAPPT)																									
Change in personal life (LIFECHNG)																									
In excellent Health (EXHLTH)																									
Chronic medical condition (CHRNMED)																									
Sudden illness (SUDILL)																									
Ability to function physically (PHYSFUNC)																									
Ability to function mentally (MENTFUNC)																									
Fulfil my roll in family, job																									
Doc experience in treating condition (DOCEXP)																									
Practice location (PRACLOC)																									
Medical insurance acceptance																									
Office staff (OFFSTFF)																									
Doctor communication skills (COMSKIL)																									
Ability to schedule timely appointment (SCHDAPPT)																									
Doctor's age (DOCAGE)																									
Doctor board certification																									
Medical school reputation																									
Doctor's gender (DOCSEX)																									
Referring doc to family and friends (SATREF)																									
Scheduling an appointment (SATSCHD)																									
Fulfilment of needs (SATNDS)	1																								
Rate information sources (RTINFO)	.384**	1																							
Satisfaction with doc marketing	0.048	0.064	1																						
Satisfaction with family and friends rec (RECDOC)	0.069	0.224	.343**	1																					
Satisfaction with doctor and nurses rec (RECDOC)	0.089	0.09	0.138	0.104	1																				
Satisfaction with physician report card (SATRPTCD)	-0.002	0.031	.541**	0.197	0.221	1																			

227

| Variables	SATINDS	RTINFO	SATMKT	RECFAM	RECDOC	SATRPTCD	SRCHSEL	ANTHDOC	QLTYDLV	IMPAPPT	LFECHNG	OVRHLTH	HLTHPROB	PERSPROB	DIFWRK	EXPSAT	LOCSAT	INSSAT	OFFSAT	COMSAT	APTAVAIL	DOCAGESAT	BDCRTSAT	REPSAT	SEXSAT
Search and selection commitment (SRCHSEL)	.282*	0.102	-0.058	0.066	.295*	0.034	1																		
Considering another doctor commitment (ANTHDOC)	.332**	0.09	0.046	0.119	.258*	-0.128	.627**	1																	
Delivery of quality importance (QLTYDLV)	0.135	-0.245	-0.028	0.055	.373**	0.001	.409**	.309*	1																
Scheduling timely appointment importance (IMPAPPT)	0.075	-0.093	0.081	0.135	0.247	0.151	.405**	0.24	.572**	1															
Life changes importance (LFECHNG)	0.045	0	0.162	0.026	0.065	-0.036	0.236	.277*	0.201	0.165	1														
Rate overall health (OVRHLTH)	0.112	.340**	0.04	0.079	-0.059	-0.052	-0.214	0.032	-0.168	-0.028	0.048	1													
Health problems limit usual physical activities (HLTHPROB)	-0.054	-0.156	-0.09	-0.189	-0.102	0.036	0.043	-0.184	-0.073	-0.062	-0.111	-.384**	1												
Personal or emotional problems prevent activities	-.267*	-0.234	0.04	0.075	0.048	0.224	0.193	0.006	0.066	0.092	-0.005	-.446**	.500**	1											
Difficulty doing daily work (DIFWRK)	-.262*	-0.174	0.055	0.061	0.064	0.108	-0.07	-0.201	-0.062	-0.034	-0.043	-.426**	.598**	.512**	1										
Physicians experience influence satisfaction (EXPSAT)	.263*	0.139	0.124	-0.093	0.219	0.122	0.085	0.142	-0.02	-0.086	-0.242	0.002	0.161	0.039	0.081	1									
Office location influence satisfaction (LOCSAT)	0.15	0.138	0.085	0.226	-0.117	0.135	0.059	0.197	-0.045	0.079	.302*	0.183	-.309*	-0.13	-.369**	-0.15	1								
Insurance acceptance satisfaction (INSSAT)	0.115	0.189	0.035	-0.115	0.093	0.196	.350**	0.217	0.166	.277*	.382**	0.013	-0.157	0.031	-0.249	-0.073	.423**	1							
Office staff influence satisfaction (OFFSAT)	0.143	-0.003	0.065	0.189	0.107	.286*	0.004	-0.14	0.099	0.223	-0.026	0.065	0.055	0.039	-0.042	0.099	.332**	0.212	1						
Doctors communications skills influence sat (COMSAT)	0.113	0.174	0.183	.373**	0.178	.298*	0.174	0.134	0.042	0.204	-0.056	0.042	0.021	-0.024	-0.066	.293*	.372**	0.219	.610**	1					
Timely appointment availability (APTAVAIL)	.301*	0.071	0.163	0.111	0.098	0.243	0.048	-0.051	0.086	.283*	0.116	0.032	0.028	0.042	-0.136	0.192	.407**	.376**	.642**	.420**	1				
Doctors age affect satisfaction (DOCAGESAT)	-0.055	-0.041	0.02	0.109	.281*	0.172	-0.042	-0.043	0.172	0.072	0.087	0.085	-0.047	0.017	-0.023	0.06	0.123	0.122	0.103	0.172	0.149	1			
Board Certification affect satisfaction (BDCRTSAT)	-0.062	0.09	0.169	0.02	0.129	.310*	0.102	0.008	0.249	-0.008	-0.109	0.036	0.024	0.186	-0.055	.291*	0.12	.302*	0.189	.255*	0.239	.437**	1		
Medical school Reputation affect sat (REPSAT)	-0.021	-0.035	0.157	-0.022	0.025	.337**	-0.087	-0.111	0.114	0.122	-0.078	0.14	0.097	0.041	0.006	0.224	0.152	0.076	.495**	.337**	.383**	.331**	.566**	1	
Doctor gender affect satisfaction (SEXSAT)	-0.118	-0.211	-0.028	0.104	0.123	0.178	-0.175	0.076	0.117	0.242	0.101	0.191	-0.219	-0.085	-0.072	-0.077	0.242	0.099	.274*	0.116	.286*	.587**	0.184	.333**	1

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

228

APPENDIX M:

SPEARMAN'S RHO CORRELATION COEFFICIENTS

Variables	What is your gender (GENMF)	Age category (AGECAT)	Race and Ethnicity (RAEETHN)	Health Insurance (HLTHINS)	Highest Level of Education (EDLEV)	Marital Status (MARSTAT)	Decribe Physician Quality (DOCQUAL)	How often use and access internet (INTSRCS)	Household Income (HHINC)
What is your gender (GENMF)	1.000								
Age category (AGECAT)	-.018	1.000							
Race and Ethnicity (RACEETHN)	-.251	.101	1.000						
Health Insurance (HLTHINS)	-.095	.430**	-.181	1.000					
Highest Level of Education (EDLEV)	-.285*	-.280*	.071	-.339**	1.000				
Marital Status (MARSTAT)	.188	.661**	.386**	.182	-.240	1.000			
Decribe Physician Quality (DOCQUAL)	-.250	.250	.043	.141	.062	-.006	1.000		
How often use and access internet (INTSRCS)	-.122	-.440**	.100	-.222	.287*	-.317*	-.005	1.000	
Household income (HHINC)	-.125	-.210	-.032	-.412**	.640**	-.193	.196	.143	1.000

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

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

APPENDIX N:

COMPLEX COVARIANCE STRUCTURE MODEL

OF THE EFFECT OF PUBLIC INFORMATION SOURCES

ON SATISFACTION WITH PATIENT SEARCH FOR A PHYSICIAN
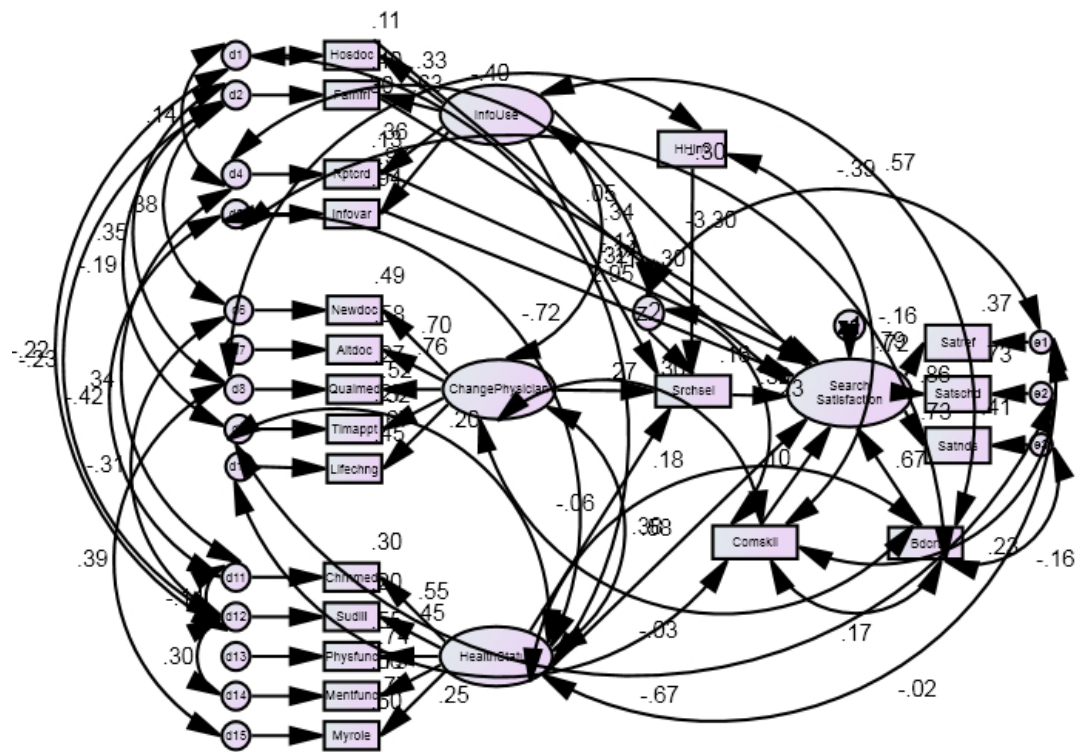
REFERENCES

Ackerman, K. (2008). Value of Health Care Cost, Quality Web Sites Might Be

Overestimated. *iHealthBeat*. Retrieved from

http://www.ihealthbeat.org/Features/2008/Value-of-Health-Care-Cost-Quality-Web-

Sites-Might-Be-Oversestimated.aspx

Acock, A.C. (2005). Working With Missing Values. *Journal of Marriage and Family, 67*(4),

1012-1028.

Aday, L. A. & Andersen, R. (1974). A Framework for the Study of Access to Medical Care.

Health Services Research, *9*(3), 208-220.

Albright, J. & Park, H. (2009). *Confirmatory Factor Analysis using AMOS,LISREL,*

Mplus, SAS/STAT CALIS. Working Paper. The University Information

Technology Services (UITIS) Center for Statistical and Mathematical Computing,

Indiana University, Bloomington, Indiana. Retrieved from

http://www.indiana.edu/~statmath/stat/all/cfa/index.html

Alpay, L., Verhoef, J., Xie, B., Te'eni, D. & Zwetsloot-Schonk, J.H.M. (2009). Current

Challenge in Consumer Health Informatics: Bridging the Gap between Access to

Information and Information Understanding. *Biomedical Informatics Insights*, *2*(1), 1-10.

American Library Association. (1989). *Presidential Committee on Information*

Literacy. Final Report. Retrieved from

http://www.ala.org/ala/mgrps/divs/acrl/publications/whitepapers/presidential.cfm

Andersen, R. (1995). Revisiting the Behavioral Model and Access to Medical Care:

Does it Matter? *Journal of Health and Social Behavior, 36*(March), 1-10.

Andersen, R. & Newman, J. (1973). Societal and Individual Determinants of Medical

Care Utilization in the United States. *The Milbank Memorial Fund Quarterly.*

Health and Society, 51(1), 95-124.

Anderson, R.E. (1973). Consumer Dissatisfaction: The Effect of Disconfirmed Expectancy on

Perceived Product Performance. *Journal of Marketing Research, 10*,38-44.

Anker, A.E., Reinhart, A.M. & Feeley, T.H. (2011). Health Information seeking: A review of

measures and methods. *Patient Education and Counseling, 82*, 346-354.

Arming Health Care Consumers with Better Information and Incentives. Testimony by Carolyn

M. Clancy Before the Joint Economic Committee, 109th Congress (2006).   Retrieved

from http://www.ahrq.gov/news/test51006.htm

Arora, N.K. Hesse, B.W., Rimer, B.K., Viswanath, K., Clayman, M.L. & Croyle, R.T. ((2008).

Frustrated and Confused: The American Public Rates its Cancer-Related Information-

Seeking Experiences. *Journal of General Internal Medicine, 23*(3), 223-228.

Arora, R., Singer, J. & Arora, A. (2004). Influence of Key Variables on the Patients' Choice of a

Physician. *Quality Management in Health Care, 13*(3), 166-173.

Arrow, K.J. (1963). Uncertainty and the Welfare Economics of Medical Care. *The*

American Economic Review, 53(5), 141-149.

Ashbury, F.D., Findlay, H., Reynolds, B., McKerracher. (1998). A Canadian Survey of Cancer

Patients' Experiences: Are Their Needs Being Met? *Journal of Pain Symptom*

Management, 16(5), 298-306.

Atkins, D.C. (2009). Clinical Trial Methodology: Randomization, Intent-To-Treat, and Random-

Effect Regression. *Depression and Anxiety, 26*, 697-700.

Attfield, S.J., Adams, A. & Blandford, A. (2006). Patient Information needs: pre-and post-

consultation. *Health Informatics Journal, 12*(2), 165-177.

Bacon, L.D. (2009). *Using AMOS for Structural Equation Modeling in market research* (Report

No. AMOSSMRP-0209). Chicago, IL: SPSS.

Barr, J., Bernard, S., Sofaer, S., Giannotti, T., Lenfestey, N. & Miranda, D. (2008). Physicians'

Views on Public Reporting of Hospital Quality Data. *Medical Care Research and*

Review, 65(6), 655-673.

Bartlett, E.E, Grayson, M., Barker, R., Levine, D.M.,Golden, A. & Libber, S. (1984). The effects

of physician communications skills on patient satisfaction. *Journal of Chronic Diseases,*

37(9-10), 755-764.

Barzel, Y. (1982). Measurement Cost and the Organization of Markets. *Journal of Law*

and Economics, 25, 27-48.

Beatty, S.E. & Smith, S.M. (1987). External Search Effort: An Investigation

Across Several Product Categories. *Journal of Consumer Research, 14*, 83-95.

Burke Beckjord, E., Finney Rutten, L.J. Arora, N.K., Moser, R.P. & Hesse, B.W. (2008).

Information processing and negative affect: Evidence from the 2003 Health Information

National Trends Survey. *Health Psychology, 27*(2), 249-257.

Berger, C.R. (2002). Strategic and Nonstrategic Information Acquisition. *Human*

Communication Research, 28(2), 287-297.

Berger, M., Wagner, T.H., Baker, L.C. (2005). Internet use and stigmatized illness. *Social*

Science Medicine, 61(8), 1821-1827.

Bettman, J.R. (1979). *An information processing theory of consumer choice*. Boston, MA:

Addison-Wesley.

Biorn, E. & Godager, G. (2008). *Does quality influence choice of general practitioner?*

An analysis of matched doctor-patient panel data. Health Economics Research

programme at the University of Oslo HERO 2008. Retrieved from

 http://mpra.ub.uni-muenchen.de/8793

Bliemal, M. & Hassanein, K. (2006). Consumer Satisfaction with Online Health Information

Retrieval: A Model and Empirical Study. *e-Service Journal, 5*(2), 53-83.

Bodenheimer, T., Lorig, K., Holman, H. & Grumbach, K. (2002). Patient Self-management of

Chronic Disease in Primary Care. *JAMA, 288*(19), 2469-2475.

Bohn, R.E. & Short, J.E. (2010). *How Much Information? 2009 Report on American Consumers.*

Report of the Global Information Industry Center (University of California, San Diego).

Retrieved from http://hmi.ucsd.edu/howmuchinfo.php

Bolton, R.N. & Lemon, K.N. (1999). A Dynamic Model of Customers' Usage of Services: Usage

as an Antecedent and Consequence of Satisfaction. *Journal of Marketing Research,*

36(2), 171-186.

Bornstein, B., Marcus, D. & Cassidy, W. (2000). Choosing a doctor: an exploratory study of

factors influencing patients' choice of a primary care doctor. *Journal of Evaluation in*

Clinical Practice, 6(3), 255-262.

Bos, A.E.R., Visser, G.C., Tempert, B.F. & Schaalma, H.P. (2004). Evaluation of the Dutch

AIDS information helpline: an investigation of information needs and satisfaction of

callers. *Patient Education and Counseling, 54*(2), 201-206.

Bright, B. (2008, February 28). Patient Surveys Seen as Reliable For Rating Health-Care

Providers. *The Wall Street Journal.* Retrieved

http://online.wsj.com/public/article_print/SB120292044107465659.html

Bright, M.A. Fleisher, L., Thomsen, C., Morra, M.E., Marcus, A. & Gehring, W. (2005).

Exploring e-Health Usage and Interest Among Cancer Information Service Users: The

Need for Personalized Interactions and Multiple Channels Remains. *Journal of Health*

Communication: International Perspectives, 10(1), 35-52.

Brown, S.A., Venkatesh, V., Kuruzovich, J. & Massey, A.P. (2008). Expectation confirmation:

An examination of three competing models. *Organizational Behavior and Human*

Decision Processes, 105, 52-66.

Burkell, J.A., Wolfe, D.L., Potter, P.J. & Jutai, J.W. (2006). Information needs and information

sources of individuals living with spinal cord injury. *Health Information and Libraries*

Journal, 23(4), 257-265.

Burnett, J.J. & Dunne, P.M. (1986). An Appraisal of the Use of Student Subjects In Marketing

Research. *Journal of Business Research, 14*, 329-343.

Byrne, B.M. (2001). *Structural Equation Modeling with AMOS.* Mahwah, NJ: Lawrence

    Erlbaum Associates.

Cantiello, J. (2008). *The impact of demographic and perceptual variables on a young*

    adult's decision to purchase private health insurance (Doctoral dissertation). Retrieved

    from University of Central Florida Libraries Catalog (Accession No. ucfl.029420906)

Cantor, D., Coa, K., Crystal-Mansour, S., Davis, T., Dipko, S., Sigman, R. (2009). *Health*

    Information National Trends Survey (Hints) 2007 Final Report. Retrieved from National

    Cancer Institute website: http://hints.cancer.gov/docs/HINTS2007FinalReport.pdf

Cardozo, R.N. (1965). An Experimental Study of Customer Effort, Expectation, and

    Satisfaction. *Journal of Marketing Research, 2*, 244-249.

Carlsson, M. (2000). Cancer patients seeking information from sources outside the health care

    system. *Supportive Care in Cancer, 8*(6), 453-457.

Cegala, D.J., Bahnson, R.R., Clinton, S.K., David, P., Gong, M.C., Monk, J.P., Nag, S. & Pohar,

    K.S. (2008). Information Seeking and Satisfaction with Physician-Patient

    Communication Among Prostate Cancer Survivors. *Health Communication, 23*(1), 62-

    69.

Cherry, D.K., Hing, E. Woodwell, D., & Rechtsteiner, E.A. (2008). *National Ambulatory*

    Medical Care Survey: 2006 Summary. Retrieved from Division of

    Health Care Statistics, U.S. Department of Health and Human Services, Centers for

    Disease Control and Prevention, National Center for Health Statistics website

    http://www.emedicinehealth.com/selecting_a_doctor/article_em.htm

Chew, F., Palmer, S. & Kim, S. (1998). Testing the Influence of the Health Belief Model and a

    Television Program on Nutrition Behavior. *Health Communication, 10*(3), 227-245.

Chio, A., Montuschi, A., Cammarosano, S., De Mercanti, S., Cavallo, E., Ilardi, A., Ghiglione,

    P., Mutani, R., Calvo, A. (2008). ALS patients and caregivers communication

    preferences and information seeking behavior. *European Journal of Neurology, 15*(1),

    55-60.

Chou, W.S., Hunt, Y.M., Beckjord, E.B. Moser, R.P. & Hesse, B.W. (2009). Social Media Use

    in the United States: Implications for Health Communication. *Journal of Medical Internet*

    Research, 11(4). Retrieved from

    http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2802563/?report=abstract

Churchill, G.A. & Surprenant, C. (1982). An Investigation into the Determinants of Customer

Satisfaction. *Journal of Marketing Research, 19*, 491-504.

Cohen, S.B., Grote, K.D., Pietraszek, W.E. & Laflamme, F. (2010). Increasing Consumerism in

Healthcare Through Intelligent Information Technology. *The American Journal of*

*Managed Care, 16*37-43.

Cooley, D. & Madupu, V. (2009). How did you find your physician? An exploratory

investigation into the types of information sources used to select physicians. *International*

Journal of Pharmaceutical and Healthcare Marketing, 3(1), 46-58.

Cooper, D.R. & Schindler, P.S. (2011). *Business Research Methods*. New York, NY: McGraw-

Hill/Irwin.

Cutilli, C.C. (2010). Seeking Health Information. What Sources Do Your Patients Use?

Orthopaedic Nursing, 29(3), 214-219.

Curran, P.J., West, S.G. & Finch, J.F. (1996). The Robustness of Test Statistics to Nonnormality

and Specification Error in Confirmatory Factor Analysis. *Psychological Methods, 1*(1),

36-29.

Czaja, R. Manfredi, C. & Price, J. (2003). The Determinants and Consequences of Information

Seeking Among Cancer Patients. *Journal of Health Communication, 8*(6), 529-562.

Demographic Detail Report (n.d.). *Metro Orlando Economic Development Commission.*

Retrieved from

http://www.orlandoedc.com/core/fileparse.php/98857/urlt/MSA_DemographicDetail_201

1.pdf

Dervin, Brenda. (1999). On studying information seeking methodology: the implications of

connecting metatheory to method. *Information Processing and Management, 35*, 727-

750.

Diaz, J.A., Griffith, R.A., Ng, J.J., Reinert, S.E., Friedmann, P.D. & Moulton, A.W. (2002).

Patient's Use of Internet for Medical Information. *Journal of General Internal Medicine,*

17(3), 180-185.

Diener, E., Emmons, R.A., Larson, R. J. & Griffen, S. (1985). The Satisfaction With Life Scale.

Journal of Personality Assessment, 49(1), 71-75.

Dillman, D., Smyth, J. & Christian, L. (2009). *Internet, Mail and Mixed-Mode Surveys The*

Tailored Design Method. Hoboken, NJ: John Wiley & Sons, Inc.

Dunlop, D.D., Manheim, L.M., Song, J. & Chang, R. (2002). Gender and Ethnic/Racial

Disparities in Health Care Utilization Among Older Adults. *The Journals of*

Gerontology Series B: Psychological Sciences and Social Sciences, 57(4), S221-S233.

Erdem, T. & Keane, M. (1996). Decision-Making under Uncertainty: Capturing Dynamic Brand

Choice Processes in Turbulent Consumer Goods Markets. *Marketing Science, 15*(1), 1-

20.

Eysenbach, G. & Jadad, A.R. (2001). Evidence-based Patient Choice and Consumer health

informatics in the Internet age. *Journal of Medical Internet Research, 3*(2), e19.

Faber, M., Bosch, M., Wollersheim, H., Leatherman, S. & Grol, R. (2009). Public reporting in

healthcare: how do consumers use quality-of-care information? A systematic review.

Medical Care, 47(1), 1-8.

Farley, D., Short, P., Elliot, M., Kanouse, D., Brown, J. & Hays, R. (2002). Effects of CAHPS

Health Plan Performance Information on Plan Choices by New Jersey Medicaid

Beneficiaries. *Health Services Research, 37*(4), 985-1007.

Ferguson, M.A. & Valenti, J.M. (1991). Communicating with Environmental and Health Risk

    Takers: An Individual Differences Perspective. *Health Education & Behavior, 18*(3),

    303-318.

Ferris, T. & Torchiana, D. (2010). Public Release of Clinical Outcomes Data − Online CABG

    Report Cards. *The New England Journal of Medicine, 363*(17), 1593-1595.

Fiscella, K., Franks, P., Doescher, M.P. & Saver, B.G. (2002). Disparities in Health Care by

    Race, Ethnicity, and Language Among the Insured: Findings from a National Sample.

    Medical Care, 40(1), 52-59

Fisher Wilson, J. (2003). The Crucial Link Between Literacy and Health. *Annals of Internal*

    Medicine, 139(10), 875-878.

FloridaHealthfinder.gov (n.d.). Retrieved from

    http://www.floridahealthfinder.gov/CompareCare/SelectChoice.aspx

Fogel, J., Albert, S.M., Schnabel, F., Ditkoff, B.A. & Neugut, A.I. (2002). Internet use and social

    support in women with breast cancer. *Health Psychology, 21*(4), 398-404.

Fottler, M.D., Ford, R.C. & Heaton, C.P. (2010*). Achieving Service Excellence. Strategies for*

    Healthcare. Chicago, IL: Health Administration Press.

Fox, S. (2011). *The Social Life of Health Information.* Washington, DC: Pew Internet &

American Life Project.

Fox, S. & Duggan, M. (2013). *Health Online 2013.* Washington, DC: Pew Internet & American

Life Project.

Freimuth, V.S., Stein, J.A. & Kean, T.J. (1989). *Searching for Health Information: The Cancer

Information Model.* Philadelphia, PA: University of Pennsylvania Press, p. 9.

Friedman, M., & Savage, J. (1948). The Utility Analysis of Choices Involving

Risk. *The Journal of Political Economy, 56*(4), 279-304.

Fukuyama, F. (1999). *The Great Disruption*. Retrieved from

http://www.paradigme.com/sources/sources-pdf/pages%20de%20sources07-3-1.pdf

Fung, C. H., Yee-Wei, L., Mattke, S. Damberg, C. & Shekelle, P. (2008). Systematic Review:

The Evidence That Publishing Patient Care Performance Data Improves Quality of Care.

Annals of Internal Medicine, 148(2), 111-124.

Gao, G.G., McCullough, J.S., Agarwal, R., Jha, A.K. (2012). A Changing Landscape of

Physician Quality Reporting: Analysis of Patients' Online Ratings of Their Physicians

Over a 5-Year Period. *Journal of Medical Internet Research, 14*(1), e38.

Garcia-Lacalle, J. (2008). A bed too far – The implementation of freedom of choice policy in the

NHS. *Health Policy, 87*(1), 31-40.

Garson, G. (2009). Statnotes Structural Equation Modeling. Public Administration Program.

North Carolina State University. Retrieved from

http://faculty.chass.ncsu.edu/garson/PA765/structur.htm

Gazmararian, J.A., Williams, M.V., Peel, J. & Baker, D.W. (2003). Health literacy and

knowledge of chronic disease. *Patient Education and Counseling, 51*(3), 267-275.

Getzen, T. (1984). A 'Brand Name Firm' Theory of Medical Group Practice. *The*

Journal of Industrial Economics, 33(2), 199-212.

Giese, J.L. & Cote, J.A. (2000). Defining Consumer Satisfaction. *Academy of Marketing Science*

Review. Retrieved from http://www.amsreview.org/articles/giese01-2000.pdf

Glance, L., Dick, A., Osler, T. & Mukamel, D. (2006). Accuracy of Hospital Report Cards

Based on Administrative Data. *Health Services Research, 41*(4) p.1413-1437.

Gliner, J.A. & Morgan, G.A. (2000). *Research Methods in Applied Settings: An Integrated*

Approach to Design and Analysis. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.,

Publishers.

Gray, S.W., Armstrong, K., DeMichele, A., Schwartz, J.S., Hornik, R.C. (2009). Colon cancer

   patient information seeking and the adoption of targeted therapy for on-label and off-

   label indications. *Cancer, 115*(7), 1424-1434.

Ha, H.Y. (2006). An integrative model of consumer satisfaction in the context of e-services.

   International Journal of Consumer Studies,30(2), 137-149.

Ha, S. & Lee, Y.J. (2011). Determinants of consumer-driven healthcare. Self-confidence in

   information search, health literacy, and trust in information sources. *International*

   Journal of Pharmaceutical and Healthcare Marketing, 5(1), 8-24.

Halstead, D., Hartman, D. & Schmidt, S.L. (1994). Multisource Effects on the Satisfaction

   Formation Process. *Journal of the Academy of Marketing Science, 22*(2), 114-129.

Harris, K. (2003). How Do Patients Choose Physicians? Evidence from a National

   Survey of Enrollees in Employment-Related Health Plans. *Health Services Research,*

Hau, K.-T. & Marsh, H. W. (2004). The use of item parcels in structural equation modeling:

   Non-normal data and small sample sizes. *British Journal of Mathematical and Statistical*

   Psychology, 57, 327–351.

Hay, J., Coups, E. & Ford, J. (2006). Predictors of Perceived Risk for Colon Cancer in a National

Probability Sample in the United States. *Journal of Health Communication: International*

Perspectives, 11(001), 71-92.

Health Care Report Card Compendium (n.d.). In *Department of Health and Human Services*

website. Retrieved from

https://www.talkingquality.ahrq.gov/content/reportcard/about.aspx#bm1

Herzlinger, R.E. (2002). Let's Put Consumers in Charge of Health Care. *Harvard Business*

Review, July, 44-55.

Heskett, J., Jones, T., Loveman, G. Sasser, W. & Schlesinger, L. (1994). Putting the Service-

Profit Chain to Work. *Harvard Business Review, March-April*, 164-174.

Hesse, B.W., Arora, N.K., Burke Beckjord, E.& Finney Rutten, L.J. (2008). Information support

for cancer survivors. *Cancer: Cancer Survivorship: Embracing the Future, 2529-2540.*

Hesse, B. & Moser, R. (2007). *2007 Health Information National Trends Survey (HINTS)* (Series

    25262 ICPSR25262.v1 2009-06-23). Retrieved from Inter-university

    Consortium for Political and Social Research (ICPSR) United

    States website: http://dx.doi.org/10.3886/ICPSR25262.v1 2007 individual survey data

    10.3886/ICPSR25262.v1

Hibbard, J.H. (2004). Moving Toward A More Patient-Centered Health Care Delivery System.

    Health Affairs, 7 October, 133-135, doi: 10.1377/hlthaff.var.133

Hibbard, J.H., Greenlick, M., Jimison, H., Kunkel, L. & Tusler, M. (1999). Prevalence and

    Predictors of the Use of Self-Care Resources Grading System. *Evaluation & the Health*

    Professions, 22(1), 107-122.

Hibbard, J.H. & Jewett, J.J. (1996). What Type of Quality Information do Consumers Want in a

    Health Care Report Card. *Medical Care Research and Review., 53*(1), 28-47.

Hofer, T., Hayward, R., Greenfield, S., Wagner, E., Kaplan, S. & Manning, W. (1999). The

    Unreliability of Individual Physician 'Report Cards' for

    Assessing the Costs and Quality of Care of a Chronic Disease. *JAMA, 281*(22), 2098-

    2105.

Homburg, C., Koschate, N. & Hoyer, W.D. (2006). The Role of Cognition and Affect in the

Formation of Customer Satisfaction: A Dynamic Perspective. *Journal of Marketing, 70*,

21-31.

Hooper, D., Couglan, J. & Mullen, M.R. (2008). Structural Equation Modeling: Guidelines for

Determining Model Fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60.

Hospitals preparing for addition of patient survey data to CMS website. (2006, March 14). *Daily

Briefing.* Retrieved from

http://www.advisory.com/members/default.asp?contentID=72641&collectionID=

148&program=8&filename=72641.xml

Howgill, M.W.C. (1998). Health Care Consumerism, the Information Explosion, and Branding:

Why 'Tis Better to be the Cowboy than the Cow. *Managed Care Quarterly, 6*(4), 33-43.

IBM (2011). *IBM SPSS Missing Values 20.* Retrieved from

ftp://public.dhe.ibm.com/software/analytics/spss/documentation/statistics/20.0/en/client/

Manuals/IBM_SPSS_Missing_Values.pdf

Janz, N. & Becker, M. (1984). The Health Belief Model: a decade later. *Health

Education & Behavior, 11*(1), 1-47.

Jha, A. & Epstein, A. (2006). The Predictive Accuracy of the New York State Coronary Artery

   Bypass Surgery Report-Card System. *Health Affairs, 25*(3), 844-855.

Johnson, J.D. (1997). Cancer-Related Information Seeking. Cresskill, NJ: Hampton

   Press, Inc.

Jordan, S. (2013, April 5). 'Big Gap to Close' in public awareness of health law. *Omaha World-*

   Herald. Retrieved from

   http://www.omaha.com/article/20130405/LIVEWELL26/704059939/1161

Kelly, P.A. & Haidet, P. (2007). Physician overestimation of patient literacy: A potential source

   of health care disparities. *Patient Education and Counseling, 66*, 119-122.

Kenkel, D. (1990). Consumer Health Information and the Demand for Medical Care. *The Review*

   of Economics and Statistics, 72(4), 587-595.

Kim, D., Ferrin, D. & Rao, H. (2008). A trust-based consumer decision-making model in

   electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision*

   Support Systems, 44, 544-5654.

King, K.W. & Haefner, J.E. (1988). An investigation of the external physician search process.

   Journal of Health Care Marketing, 8(2), 4-13.

Kissick, W. (2003 Summer). For every health policy action, there can be reciprocal

overaction. *Frontiers of Health Services Management, 19*(4), 35.

Kliman, D.S. & Vukelich, C. (1985). Mothers and Fathers: Expectations for Infants. *Family

Relations, 34*, 305-313.

Koch-Weser, S., Bradshaw, Y. Gualtieri, L. & Gallagher, S.S. (2010). The Internet as a Health

Information Source: Findings from the 2007 Health Information National Trends Survey

and Implications for Health Communication. *Journal of Health Communication, 15*, 279-

293.

Kogan, S., Zeng, Q., Ash, N. & Greene, R.A. (2001). *Problems and Challenges in Patient

Information Retrieval: A Descriptive Study.* Paper presented at the proceedings of the

AMIN Symposium. Retrieved from www.ncbi.nim.nih.gov/pubmed/11825205

Kolstad, J. & Chernew, M. (2009). Quality and Consumer Decision Making in the Market for

Health Insurance and Health Care Services. *Medical Care Research and Review, 66*(1),

28S-52S.

Khoo, K., Bolt, P. Babl, F.E., Jury, S. & Goldman, R.D. (2008). Health information seeking by

parents in the Internet age. *Journal of Paediatrics and Child Health, 44*, 419-423.

Krumholz, H., Rathore, S., Chen, J., Wang, Y., & Radford, M. (2002). Evaluation of a

    Consumer-oriented internet health care report card: the risk of quality ratings based on

    mortality data. *Journal of the American Medical Association, 287(10), 1277-87.*

Kutner, M., Greenberg, E., Jin, Y. & Paulsen, C. (2006). *The Health Literacy of America's*

    Adults: Results from the 2003 National Assessment of Adult Literacy (NCES 2006-483).

    Washington, DC: U.S. Department of Education National Center for Education

    Statistics.

Lallana, E.C. & Uy, M.N. (2003). *The Information Age*. Report of the e-ASEAN Task Force and

    UNDP-APDIP. Retrieved from http://www.apdip.net/publications/iespprimers/eprimer-

    infoage.pdf

Lankton, N.K. & Wilson, E. V. (2006). Factors Influencing Expectations of e-Health Services

    with a Direct-Effects Model of User Satisfaction. *e-Service Journal, 5*(2), 85-111.

Lawthers, A. & Kirby, P. (2012). *Best Practices in Publicly Reporting Quality information to*

    Consumers. Retrieved from http://dvha.vermont.gov/administration/best-practices-in-

    reporting-quality-report.pdf

Lee, Y.J., Park, J. & Widdows, R. (2009). Exploring Antecedents of Consumer Satisfaction and

   Repeated Search Behavior on E-Health Information. *Journal of Health Communication:*

   International Perspectives, 14(2), 160-173.

Lei, P.-W., Wu, Q. (2007). Introduction to Structural Equation Modeling: Issues and Practical

   Considerations. *Educational Measurement Issues and Practice, 21*(3), 33-43.

Leisen, B. & Hyman, M. (2004). Antecedents and consequences of trust in a service

   provider. The case of primary care physicians. *Journal of Business Research, 57,*

   990-999.

Lenz, E.R. (1984). Information seeking: a component of client decisions and health behavior.

   Advances In Nursing Science, 6(3), 59-72.

Levesque, D.A., Cummins, C.O., Prochaska, J.M., Prochaska, J.O. (2006). Stage of Change for

   Making an Informed Decision about Medicare Health Plans. *Health Services Research,*

   41(4), 1372-1391.

Ling, B.S., Klein, W.M. & Dang, Q. (2006). Relationship of Communication and Information

   Measures to Colorectal Cancer Screening Utilization: Results from HINTS. *Journal of*

   Health Communication, 11, 181-190.

Longo, D.R. (2005). Understanding health information, communication, and information

seeking of patients and consumers: a comprehensive and integrated model. *Health*

Expectations,8(3), 189-194.

Longo, D.R., Land, G., Schramm, W., Fraas, J., Hoskins, B. & Howell, V. (1997).

Consumer Reports in Health Care: Do They Make A Difference In Patient Care? *The*

Journal of the American Medical Association, 278(19), 1579-1584.

Longo, D.R., Patrick, T.B., Kruse, R.L. (2001). *The natural history of the use of healthcare*

information by women with breast cancer: a conceptual model (AMIA Annual

Symposium Proceedings Archive). Retrieved from

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2243472/

Longo, D.R., Schubert, S.L., Wright, B.A., LeMaster, J. Williams, C.D. & Clore, J.N. (2010).

Health Information Seeking, Receipt, and Use in Diabetes Self-Management. *Annals of*

Family Medicine, 8(4), 334-340.

Lopez-Littleton, V. A. (2011). *An ecological analysis of social and economic influences on black*

and white infant mortality risk in Orange County, FL (Doctoral dissertation). Retrieved

from University of Central Florida Libraries Catalog (Accession No. ucfl.030646194)

Lu, C., Wirrell, E. & Blackman, M. (2005). Where Do Families of Children With Epilepsy

Obtain Their Information? *Journal of Child Neurology, 20*(11), 905-910.

Mano, H. & Oliver, R.L. (1993). Assessing the Dimensionality and Structure of the

Consumption Experience: Evaluation, Feeling, and Satisfaction. *Journal of Consumer

Research, 20*(3), 451-466.

Manson, N.C. (2010). Why do patients want information if not to take part in decision making?

Journal of Medical Ethics, 36, 834-837.

Mark, M. & Reichardt. C. (2009). Quasi-Experimentation. In L. Bickman & D. Rog (Eds.), *The

SAGE Handbook of Applied Social Research Methods* (pp. 182-213). Thousand Oaks,

CA: SAGE Publications.

Marshall, M., Romano, P. & Davies, H. (2004). How do we maximize the impact of the public

reporting of quality of care? *International Journal for Quality in Health Care, 16*(1),

157-163.

Marshall, M., Shekelle, P., Davies, H. & Smith, P. (2003). Public Reporting on Quality In The

Untied States and the United Kingdom. *Health Affairs, 22*(3), 134-148.

Mason, A. & Street, A. (2006). Publishing outcome data: is it an effective approach? *Journal of Evaluation in Clinical Practice, 12*(1), 37-48.

McLoughlin, V. & Leatherman, S. (2003). Quality or financing: what drives design of the health care system? *Quality & Safety in Health Care, 12*, 136-142.

Meissner, H.I., Anderson, D.M., Odenkirchen, J.C. (1990). Meeting information needs of significant others: Use of the cancer information service. *Patient Education and Counseling, 15*(2), 171-179.

Micceri, T. (1989). The unicorn, the normal curve, and other improbable creatures. *Psychological Bulletin, 105*(1), 156-166.

Missouri Foundation for Health. (2001). *The Patient Protection and Affordable Care Act: Health Literacy Provisions.* Cover Missouri. Quality, Affordable Health Coverage for Every Missourian. Retrieved from http://www.covermissouri.org/ACATopics/ACA-Medicare.pdf

Moore, W.L. & Lehman, D.R. (1980). Individual Differences in Search Behavior For a Nondurable. *Journal of Consumer Research, 7*, 296-307.

Moseley, K.L., Freed, G.L. & Goold, S.D. (2011). Which Sources of Child Health Advice Do

Parents Follow? *Clinical Pediatrics, 50*(1), 50-56.

Muha, C. (1998). The Use and Selection of Sources in Information

Seeking; The Cancer Information Service Experience. Part 8. *Journal of Health*

Communication: International Perspectives, 3(1), 109-120.

Murray, K.B. (1991). A Test of Services Marketing Theory: Consumer Information Acquisition

Activities. *Journal of Marketing, 55*, 10-25.

National Cancer Institute (n.d.). *HINTS-GEM Using the Grid-Enabled Measures (GEM)*

database to build the Health Information National Trends Survey (HINTS). Retrieved

from http://secure.mmgct.com/hints-gem/about.aspx

National Committee for Quality Assurance (n.d.). *What is HEDIS?* Retrieved from

http://ncqa.org/tabid/187/Default.aspx on November 28, 2009.

Noblin, A.M. (2010). *Intention to use a personal health record (PHR): a cross sectional view of*

 the characteristics and opinions of patients of one internal medicine practice(doctoral

dissertation). Retrieved from University of Central Florida Libraries Catalog (Accession

No. ucfl.028916585)

O'Brien, T. (1971). Stages of Consumer Decision Making. *Journal of Marketing Research, 13*, 283-289.

Oliver, R.L. (1977). Effect of Expectation and Disconfirmation on Postexposure Product Evaluations: An Alternative Interpretation. *Journal of Applied Psychology, 62*(4), 480-486.

Oliver, R.L. (1993). Cognitive, Affective, and Attribute Bases of the Satisfaction Response. *Journal of Consumer Research, 20*(3),418-430.

Oliver, R.L. & Swan, J.E. (1989a). Consumer Perceptions of Interpersonal Equity and Satisfaction in Transactions: A Field Survey Approach. *Journal of Marketing, 53*(2), 21-35.

Oliver, R.L. & Swan, J.E. (1989b). Equity and Disconfirmation Perceptions as Influences on Merchant and Product Satisfaction. *Journal of Consumer Research, 16*, 372-383.

Olsen, S.O. (2002). Comparative Evaluation and the Relationship Between Quality, Satisfaction, and Repurchase Loyalty. *Journal of the Academy of Marketing Science, 30*(3), 240-249.

Pallant, J. (2010). *SPSS Survival Manual.* New York, NY: McGraw-Hill.

Parasuraman, A., Zeithaml, V.A. & Berry, LL. (1985). A Conceptual Model of Service Quality

and Its Implications for Future Research. *Journal of Marketing, 49*, 41-50.

Parker, C. & Mathews, B.P. (2001). Customer satisfaction: contrasting academic and consumers'

interpretations. *Marketing Intelligence & Planning, 19*(1), 38-45.

Pecchioni, L.L. & Sparks, L. (2007). Health Information Sources of Individuals With Cancer and

Their Family Members. *Health Communication, 21*(2), 143-151.

Perreault, W.D. & McCarthy, E.J. (2005). *Basic Marketing: A Marketing*

Strategy Planning Approach. New York, NY: McGraw-Hill/Irwin.

Pettigrew, K.E, Fidel, R. & Bruce, H. (2001). Conceptual Frameworks in Information Behavior.

Annual Review of Information Science and Technology, 35, 43-78.

Physician Quality Reporting System (n.d.). In *CMS.gov.* Retrieved from

 http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-

Instruments/PQRS/i...

Punj, G.N. & Staelin, R. (1983). A Model of Consumer Information Search Behavior for New

Automobiles. *Journal of Consumer Research, 9*, 366-380.

Rains, S.A. (2007). Perceptions of Traditional Information Sources and Use of the World Wide

Web to Seek Health Information: Findings from the Health Information National Trends

Survey. *Journal of Health Communication: International Perspectives, 12*(7), 667-680.

Rains, S.A. (2008). Seeking Health Information in the Information Age: The Role of Internet

Self-Efficacy. *Western Journal of Communications, 72*(1), 1-18.

Raju, P., Lonial, S. & Mangold, W. (1995). Differential Effects of Subjective Knowledge,

Objective Knowledge, and Usage Experience on Decision Making: An Exploratory

Investigation. *Journal of Consumer Psychology, 4*(2), 153-180.

Reid, R., Friedberg, M., Adams, J., McGlynn, E., Mehrotra, A. (2010). Associations Between

Physician Characteristics and Quality of Care. *Archives of Internal Medicine, 170*(16),

1442-1449.

Replacing Missing Values – Expectation Maximization – SPSS (part 1) (n.d.). Retrieved from

http://www.youtube.com/watch?v=4yhpYKzW98M

Report Brief. (2004). *Health Literacy: A Prescription to End Confusion*. Institute of Medicine.

Retrieved from http://www.iom.edu/~/media/Files/Report%20Files/2004/HealthLiteracy-

A-Prescription-to-End-Confusion/healthliteracyfinal.pdf

Roach, A.R., Lykins, E.L.B, Gochett, C.G., Brechting, E.H., Graue, L.O. & Andrykowski, M.A.

    (2009). Differences in Cancer Information-Seeking Behavior, Preferences and

    Awareness Between Cancer Survivors and Healthy Controls: A National, Population-

    Based Survey. *Journal of Cancer Education, 24*(1), 73-79.

Robert Wood Johnson Foundation (n.d.). The *Community Tracking Study Overview*. Health and

    Medical Care Archive. Retrieved from

    http://www.icpsr.umich.edu/icpsrweb/HMCA/community-tracking-study.jsp

Robert Wood Johnson Foundation (n.d.). *Variable Search Results*. Health and Medical Care

    Archive. Retrieved from

    http://www.icpsr.umich.edu/icpsrweb/HMCA/ssvd/studies/03764/variables?paging.startR

    ow=301

Robinowitz, D. & Dudley, R. (2006). Public reporting of provider performance: Can its impact

    be made greater? *Annual Review of Public Health, 27*, 517-536.

Rosenbaum, P. & Rubin, D. (1983). The central role of the propensity score in observational

    studies for causal effects. *Biometrika, 70*(1), 41-55.

Rudner, L. & Peyton, J. (2006). Consider Propensity Scores to Compare Treatments. *Practical*

    Assessment Research & Evaluation, 11(9), 1-9. Retrieved from

    http://pareonline.net/pdf/v11n9.pdf

Savolainen, R. (2008). *Everyday Information Practices*. Lanham, MD: Scarecrow Press.

Schappert, S.M. & Burt, C.W. (2006). Ambulaory Care Visits to Physician Offices, Hospital

    Outpatient Departments, and Emergency Departments: United States, 2001-02. *Vital and*

    Health Statistics, 13(159), 1-66.

Schement, J.R. & Curtis, T. (1995). *Tendencies and Tensions of the Information Age. The*

    Production and Distribution of Information in the United States. New Brunswick, NJ:

    Transaction Publishers.

Schmidt, J.B & Spreng, R.A. (1996). A proposed model of external consumer information

    search. *Journal of the Academy of Marketing Science, 24*(3), 246-256.

Schoenberg, R. (1989). Covariance Structure Models. *Annual Review of Sociology, 15*, 425-440.

Sepucha, K.R. Fowler, F.J. and Mulley, A.G. (2004). Policy Support For Patient-Centered Care:

    The Need for Measureable Improvements in Decision Quality. *Health Affairs, 7 October*,

    54-62. doi: 10.1377/hlthaff.var.54

Shaller, D., Kanouse, D.E. & Schlesinger, M. (2013). Context-Based Strategies for Engaging

    Consumers with Public Reports About Health Care Providers. *Medical Care Research*

    and Review, 20(10), 1-21.

Shannon, D. (2013). Publicly Reported Physician Ratings: Here to Stay But Not Yet Ready for

    Prime Time. *Physician Executive Journal, January-February*, 14-26.

Shea, K., Shih, A. & Davis, K. (2007). *Health Care Opinion Leaders' Views on The*

    Transparency of Health Care Quality and Price Information in the United States.

    (Publication 1078). Retrieved from www.commonwealthfund.org

Shi, H.J., Nakamura, K. Takano, T. (2004). Health values and health-information-seeking in

    relation to positive change of health practice among middle-aged urban men. *Preventive*

    Medicine, 39(6), 1164-1171.

Sivo, S. (2009). Notes for a lecture *Identifying Research Designs and Statistical Procedures*.

    PAF 7806 Advanced Qualitative Research Methods II. University of Central Florida,

    Orlando, FL.

Smith, R.B. (2005). An Alternative Perspective On Information Asymmetry;

Implications For Consumer Authority In Physician Services Markets. Journal of

Economics & Management Strategy, 14(3), 665-699.

Smith, S. (2009, March 5). Doctors Seek Gag Orders to Stop Patients' Reviews. *Mlive.com*.

Retrieved from

http://www.mlive.com/health/index.ssf/2009/03/doctors_seek_gag_orders_to_sto.html

Spreng, R.A., MacKenzie, S.B. & Olshavsky, R.W. (1996). A Reexamination of the

Determinants of Consumer Satisfaction. *Journal of Marketing, 60*, 15-32.

Srinivasan, N. & Ratchford, B.T. (1991). An Empirical Test of a Model of External Search for

Automobiles. *Journal of Consumer Research, 18*, 233-242.

Stigler, G.J. (1961). The Economics of Information. *The Journal of Political Economy,69*(3),

213-225.

Sunstein, C. (2011). *Final Guidance on Implementing the Plain Writing Act of*

2010. Memorandum for the Heads of Executive Departments and

Agencies. Washington, DC: The White House. Retrieved from

http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-15.pdf

Szymanski, D.M. & Henard, D.H. (2001). Customer Satisfaction: A Meta-Analysis of the

    Empirical Evidence. *Journal of the Academy of Marketing Science, 29*(1), 16-35.

Taha, J., Sharit, J. & Czaja, S. (2009). Use of and Satisfaction With Sources of Health

    Information Among Older Internet Users and Nonusers. *The Gerontologist, 49*(5), 663-

    673.

Talosig-Garcia, M. & Davis, S. (2005). Information-Seeking Behavior of Minority Breast Cancer

    Patients: An Exploratory Study. *Journal of Health Communication: International*

    Perspectives, 10, Supplement1, 53-64

Teas, R.K. & Palan, K.M. (2003).   Disconfirmed Expectations Theory of Consumer

    Satisfaction: An Examination of Representational and Response Language Effects.

    Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior, 16, 83.

Tse, D.K., Nicosia, F.M. & Wilton, P.C. (1990). Consumer Satisfaction as a Process. *Psychology*

    & Marketing, 7(3), 177-193.

Tse, D.K. & Wilton, P.C. (1988). Models of Consumer Satisfaction Formation: An Extension.

    Journal of Marketing Research, 25, 204-212.

Tu, H. & Lauer, J. (2008). Word of Mouth and Physician Referrals Still Drive Health Care

Provider Choice. *Center for Studying Health System Change, 9*, 1-8.

Tustin, N. (2010). The Role of Patient Satisfaction in Online Health Information Seeking.

Journal of Health Communication, 15, 3-17.

Vanderpool, R.C., Kornfield, J., Finney Rutten, L. & Squiers, L. (2009). Cancer Information-

Seeking Experiences: The Implications of Hispanic Ethnicity and Spanish Language.

Journal of Cancer Education, 24(2), 141-147.

Vernon, J.A., Trujillo, A., Rosenbaum, S. & DeBuono, B. (2007). Low *Health Literacy:*

Implications for National Health Policy. Retrieved from

http://sphhs.gwu.edu/departments/healthpolicy/CHPR/downloads/LowHealthLiteracyRep

ort10_4_07.pdf

Vinagre, H. & Neves, J. (2010). Emotional predictors of consumer's satisfaction with healthcare

public services. *International Journal of Health Care Quality Assurance, 23*(2), 209-227.

Wagner, T.H., Hu, T.W. & Hibbard, J.H. (2001). The demand for consumer health information.

Journal of Health Economics, 20, 1059-1075.

Wan, T.T.H. (2002). *Evidence-Based Health Care Management*. Norwell, MA: Kluwer

    Academic Publishers.

Warner, D. & Procaccino, J.D. (2007). Women Seeking Health Information: Distinguishing the

    Web User. *Journal of Health Communication: International Perspectives, 12*(8), 787-

    814.

Wathen, C.N. (2006). Health Information Seeking in Context: How Women Make Decisions

    Regarding Hormone Replacement Therapy. *Journal of Health Communication:*

    International Perspectives, 11(5), 477-493.

Werner, R. & Asch, D. (2005). The Unintended Consequences of Publicly Reporting Quality

    Information. *Journal of the American Medical Association, 293*(10), 1239-1244.

Weiss, J.A. (2002). Public Information. In L.M. Salamon (Ed.), *The Tools of Government* (pp.

    217-254). New York, N.Y: Oxford University Press.

Westbrook, R.A. & Reilly, M.D. (1983). Value-Percept Disparity: An Alternative To The

    Disconfirmation of Expectations Theory of Consumer Satisfaction. *Advances in*

    Consumer Research, 10, 256-261.

Widaman, K.F. (2006). Missing Data: What To Do With Or Without Them. *Monographs of the Society for Research in Child Development, 71*(3), 42-64.

Wilson, T.D. (1999). Models in Information Behavior Research. *The Journal of Documentation, 55*(3), 249-270.

Woodruff, R.B., Cadotte, E.R. & Jenkins, R.L. (1983). Modeling Consumer Satisfaction Processes Using Experience-Based Norms. *Journal of Marketing Research, 20*, 296-304.

Woolley, F.R., Kane, R.L., Hughes, C.C. & Wright, D.D. (1978). The effects of doctor-patient communication on satisfaction and outcome of care. *Social Science & Medicine. Part A: Medical Psychology & Medical Sociology, 12*, 123-128.

Ybarra, M. & Suman, M. (2008). Reasons, assessments and actions taken: sex and age differences in uses of Internet health information. *Health Education Research, 23*(3), 512-521.

Yuan, K. & Bentler, P.M. (2000). Three-Likelihood-Based Methods for Mean and Covariance Structure Analysis With Nonnormal Missing Data. *Sociological Methodology, 30*(1), 165-200.

Zeithaml, V.A., Berry, L.L. & Parasuraman, A. (1993). The Nature and Determinants of

Customer Expectations of Service. *Journal of Academy of Marketing Science, 21*, 1-12.