

PATIENT SATISFACTION CONTINGENT UPON  
CHOICE OF PHYSICIANS, PREFERENCE FOR  
PHYSICIANS, TREATMENT OUTCOME AND  
HEALTH LOCUS OF CONTROL: AN  
EXPERIMENTAL ANALYSIS

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in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF PHILOSOPHY  
July, 1995

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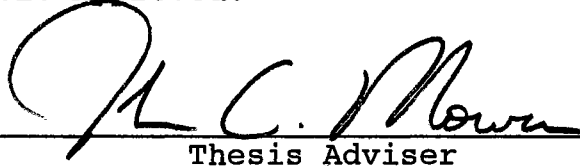
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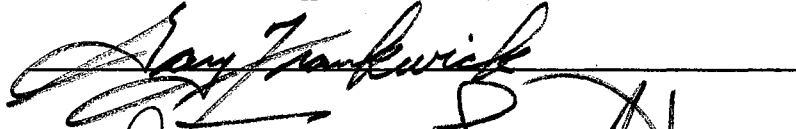
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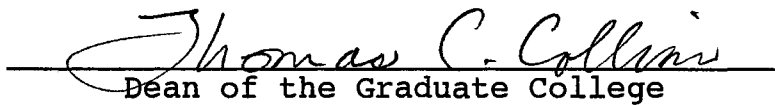
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## ACKNOWLEDGMENTS

A number of individuals deserve special recognition for their contribution and support during the completion of this dissertation at Oklahoma State University. First, I give a special thanks to Dr. John Mowen, my program and dissertation committee chairman. Dr. Mowen has been both a mentor and friend to me and has been instrumental not only in completing the dissertation but aiding me throughout my entire doctoral program experience.

Second, I want to sincerely thank the other members of my dissertation committee, Dr. Robert Hamm, Dr. Terry Bristol, Dr. Gary Frankwick, and Dr. Charles Edgley. Their insight and suggestions have been critical in strengthening the quality of the research presented in this dissertation.

Third, I would like to thank the University of Oklahoma Health Sciences Center and the Southwest Surgical Center for allowing me to come in and gather data. In particular, the cooperation of Dr. Richard Allgood, Dr. Donald Garrett, Dr. John Carter, Dr. William Zingarelli and Dr. Alan Aycock are appreciated for aiding me in collecting data. Also, a special thank you goes to the physicians at the University of Oklahoma Health Sciences Center for their contribution in the development of the study materials.

Fourth, I would like to thank the congregation of St.

Paul's United Methodist Church and members of the Center For Creative Living. In particular, Rev. Dianne Kovacs, Mrs. Grace Githens, and Ms. Ester Moreno were especially helpful during data gathering. Others who aided me during data collection were Mr. and Mrs. Duane Amyx, Mr. John Sterling, and Dr. Jacquetta McClung.

Next, I would like to recognize my parents. They helped me in every possible way. As supportive and encouraging role models, they instilled an appreciation for learning that will always remain with me.

Finally, I would like to thank my wife JoLynne, for her complete understanding, reassurance, and faith. She made many great sacrifices to allow this dissertation to happen and I will always be indebted to her.

I will always be grateful to all those who have been a part of my education at Oklahoma State University.

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## CHAPTER I

### INTRODUCTION

*One of the most serious consequences of the present direction in which the health-care system is moving is that it has increasingly eliminated probably the most sensitive and effective method of identifying and selecting good physicians--specifically, giving the patient the opportunity to choose his or her own physician.*

George L. Spaeth, MD and Editor  
Ophthalmic Surgery  
(July 1992, p. 449)

This comment on the health care system by Dr. Spaeth underscores the importance of the freedom to choose one's physician. The issue of choice in health care has stirred emotions and debate for years but perhaps never quite so vehemently as the recent proposal for nation-wide health reform. At the heart of the debate for reform was declining choices for U.S. consumers.

The President's Health Security Plan (1993) promised reduced health care costs and maintained that everyone would have a choice of doctors with the opportunity to stay with traditional fee-for-service plans, join hospital and doctor networks, or join HMOs. Additionally, the Health Security Plan sought to empower consumers to assess the quality of providers by disseminating "Quality Report Cards" on patient satisfaction and the performance of health plans, doctors, and

hospitals. However, many Americans thought the system proposed by President Clinton would erode quality, impose greater limitations on the choice of care providers, and be too expensive (Zagorin 1993). In addition, the public may have been skeptical given the bad publicity the program received.

Although portions of the President's plan may have been appealing to the public, it failed to gain the necessary political support. However, the debate highlighted a number of health care issues that concerned Americans: (1) maintaining the freedom to choose a doctor, (2) promoting good health (outcomes), (3) ensuring quality care, (4) informing consumers about prior performance, and (5) measuring and ensuring patient satisfaction, and (6) controlling costs.

Beyond the health reform debate, concerns still exist for providing desirable health care at a low cost. Industry experts estimate that as many as half of all Americans are enrolled in health maintenance organizations (HMOs) and employers are expected to continue utilizing them to minimize costs (Enteen 1992). HMOs require members to use only approved doctors and facilities while maintaining lower premiums and co-payments. However, the members give up their freedom of choice in exchange for lower costs (Nader and Smith 1990).

The existing tradeoff between cost and freedom of choice may be challenged as the patients become older and less healthy or desire more freedom of choice. Some critics

believe HMOs are best suited for young, healthy people and the limitations of choice cause difficulties for individuals needing chronic and specialty care (Enteen 1992).

In addition to freedom of choice, perceived outcomes of patient-provider interactions (i.e., patient health) have received prominent attention. In the 1980's, a transition in the philosophy about the role of patients took place. Known as the "outcomes movement," providers began to emphasize the consequences of care from the patient's perspective. Conditions of health as judged by the patient became more important. Thus, health care providers have come to recognize that the final benchmark of success or failure lies in the patient's assessment of the treatment, his/her own well-being, and satisfaction (Reiser 1993).

### Research Questions

The dissertation suggested that patient freedom of choice and health care outcomes have become increasingly relevant to maintaining consumer satisfaction. Within a competitive health care industry, providers have a vested interest in maximizing consumer satisfaction with health care. However, the antecedents of patient satisfaction remain unclear. That is, the relationship between freedom of choice (i.e., a treatment-related process) and patient well-being (i.e., a treatment outcome) is uncertain. Do these factors interact with one another and if so, in what manner?

Given these concerns, this dissertation utilized an

experimental design to empirically assess the effects of choice and health outcomes on patients' satisfaction with their overall health care experience. The research addressed the following questions:

1. Do patients exhibit an outcome bias when assessing their satisfaction with health care?
2. How do patients' preferences of physicians influence patient satisfaction with health care given varying levels of freedom to choose the most desirable doctor?
3. Does freedom of choice in selecting one's physician influence patient satisfaction with health care?
4. Do individual differences in patients' desire for choice in selecting a doctor (i.e., health locus of control) influence patients' satisfaction with health care?

Three separate experiments were conducted to answer these research questions.

#### Purposes of the Dissertation

This dissertation had two primary purposes: (1) develop a comprehensive review of the health care literature while examining patient satisfaction with health care from both a marketing and health care perspective and (2) empirically test the factors of freedom of choice, outcome bias, physician preference, and health-based locus of control. Both of these objectives are discussed below.



## Literature Review of Health Care

One purpose of the dissertation was to develop a comprehensive review of the health care literature while examining patient satisfaction with health care from both a marketing and health care perspective. This comprehensive review of the literature was provided for two reasons.

First, it was critical to review the current state of knowledge on the factors that influence consumer satisfaction (from the marketing literature) and patient satisfaction (from the health care literature). Satisfaction was the focus of the literature review and was tied to other areas relative to the dissertation including: service quality, issues of choice and control in health care, and the outcome bias. By providing an overview of satisfaction from two different literatures, it was possible to identify discrepancies or gaps within the literature and respond to them in the present research.

Second, although prior reviews of health care and satisfaction exist (i.e. Pascoe 1983), none have attempted to comprehensively review satisfaction with health care received from both the marketing and health care literature within the last decade. In addition, this review of the health care literature was distinctive because it focused on studies concerned with patient choice, health locus of control, and outcome knowledge as factors linked to satisfaction. Thus, the literature made a contribution through a unique organization and integration of the health care literature.

### Choice and Outcome Bias

A second objective of the dissertation was to examine the effects of the outcome bias and freedom of choice in selecting a doctor. A review of the existing outcome bias literature (e.g., Baron and Hershey 1988; Lipschitz 1989; Marshall 1993; Marshall and Mowen 1992; Marshall and Mowen 1993; Mitchell and Kalb 1981; Mowen and Stone 1992) and studies related to freedom of choice (e.g., Czepiel, Rosenberg, and Akerele 1974; Manthei 1988; Peterson and Wilson 1992; Strong and Claiborn 1982) suggested that each factor (outcome and choice) may separately influence satisfaction judgments of individuals. In particular, the outcome bias literature suggested that the perceived goodness or badness of an outcome systematically influenced how people evaluated an individual who was considered responsible for the outcome. Also, the literature of patient choice indicated that with few exceptions, having a choice in a health related situation was important and led to more positive feelings.

However, there was no evidence in the existing literature that any attempt has been made to examine the effects of choice of physician and outcome bias simultaneously. Thus, the purpose of the first study within this dissertation was to empirically test the impact of an outcome bias in concert with freedom of choice in selecting a health care provider.

### Choice, Outcome Bias and Physician Preference

A third purpose of the dissertation was to extend the

work in the first study. In addition to factors of freedom of choice and outcome, a second study included another factor to empirically test any effect of patients' preference of receiving a physician (i.e., physician preference) on patient satisfaction with health care. The factor of physician preference has a close link to freedom of choice because it refers to which doctor the patient would select and prefer to be treated by. Thus, if a patient does not have complete freedom of choice, then he/she may not receive the physician that is most preferred. The question then becomes, how does not receiving the most desirable physician impact patient satisfaction? The issue is somewhat less clear when taken in the context of varying levels of choice of doctors and the potential effects of an outcome bias (i.e., where the individual is concerned only with the outcome). How is satisfaction with health care influenced by the joint effects of level of choice, physician received, or the outcome of the health care interaction?

There does not appear to be any existing literature that specifically addressed the issue posed by the second study. However, work by Devine and Fernald (1973) found that outcome results were best and satisfaction was highest when patients were allowed to receive a preferred therapy treatment compared to patients who received a randomly assigned therapy or a non-preferred treatment. Therefore, the goal of Study Two was to empirically test for any effects of freedom of choice, outcome bias, and physician preference on patient satisfaction.

## Choice, Control, and Physician Preference

A final objective of the dissertation was to extend the work of the first two studies and empirically test for the effects of choice and physician preference with a new variable, health locus of control. Health locus of control refers to an individual's belief that health is determined by his/her behavior (Wallston, Wallston, and DeVellis 1978).

The third study represented an attempt to understand the relationship of choice and physician preference within bad outcomes. Given the review of the outcome bias literature and the findings of the first two studies, there was evidence that the effects of choice and physician preference occurred primarily within negative outcomes. The third study then attempted to move beyond the effects of outcome bias and explain inconsistencies between Study One and Study Two regarding how choice and physician preference were perceived by patients.

Choice and desire for control over one's surroundings are closely connected (Langer 1975; Reibstein, Youngblood, and Fromkin 1975). Hui and Bateson (1991) suggested that choice was an antecedent to having control over one's environment. Although the precise relationship of choice and control may be questioned, the two constructs are unquestionably linked. Having a choice has been generally viewed as better than having limited or no choice (e.g., Curbow 1986; Devine and Fernald 1973). Similarly, control over one's surroundings is thought to be widely desirable by many people and where

individuals feel more control in their world, they tend to have more positive feelings about themselves (Hui and Bateson 1991).

Although numerous studies have found patients to prefer a sense of control regarding matters concerning health (e.g., Bastien and Adelman 1984; Curbow 1986; Donabedian 1981; Langer and Rodin 1976; Law, Logan, and Baron 1994; Manthei 1988; Sherrod, Hage, Halpern, and Moore 1977; Timko and Moos 1989), there is sufficient evidence to suggest that not all patients prefer to have control over their health (e.g., Lupton, Donaldson, and Lloyd 1991; Manthei, Vitalo, and Ivey 1982; Reibstein, Youngblood, and Fromkin 1975; Rodin, Rennert, and Solomon 1988). In light of these findings, Study Three utilized locus of control theory (Rotter 1966) to explain individual differences which may account for mixed findings in the first two studies. More specifically, the third study used the internal dimension from the Health Locus of Control Scale (Wallston et al. 1978) to measure patients' desire for control in a health care setting. Thus, the final purpose of the dissertation was to empirically test the factors of freedom of choice, physician preference, and health locus of control to examine their joint relationship in affecting patient satisfaction.

#### Contribution to Literature

The dissertation may be measured in terms of its substantive, methodological, conceptual, and managerial contribution. A substantive contribution was made here

because of the nature of the problem formulation and its relevance to marketing. First, the dissertation assessed patient satisfaction with health care and how it was impacted by several related antecedent variables. Satisfaction has become an increasingly important marketing construct, especially within the area marketing to services industries.

Second, the dissertation made a substantive contribution by including the antecedent construct of patient choice in selecting a physician. This construct has been considered by both public policy makers and researchers as an important factor to achieving desirable health care in the U.S.

Third, the outcome bias phenomenon was included as a potential factor that influenced patient satisfaction. Outcome bias has been applied to health care evaluations but has not been specifically used with patient satisfaction.

Further, individual difference variables based on patients' beliefs about health and desire for information were examined as satisfaction moderators. Most health care studies have assessed patient satisfaction using only sociodemographics with mixed results. By measuring the underlying psychological factor of locus of control, the dissertation sought to account for any individual differences that could not otherwise be explained by sociodemographics alone. Also, there was no evidence that health locus of control had been used as a variable in the existing health care satisfaction studies. Health locus of control was considered relevant to studying freedom of choice and patient

satisfaction since some individuals do not respond well to having control or making choices but may prefer to rely on others in a health care situation.

In sum, these constructs provided a substantive contribution by utilizing a unique approach to understanding customer satisfaction. The dissertation sheds light on the importance of these constructs as antecedents to satisfaction in a health care service setting.

Conceptually, the dissertation highlighted the need to understand the relationships among the factors of freedom of choice, outcome bias, preference of doctors, and health locus of control with patient satisfaction. Each factor has been studied independently but no effort has been found in the existing literature to examine their joint effect on patient satisfaction with health care. Thus, a major conceptual contribution of this dissertation was to link each of these factors together in a set of empirical studies and assess their shared influence on patient satisfaction.

Another conceptual contribution of the dissertation was the theoretical development that linked these constructs together. Several theories including attribution theory, cognitive dissonance theory, and reactance theory were utilized in the development of the hypothesized relationships of the constructs. Also, prior studies related to patient satisfaction, choice, and outcome bias were extensively used to support the dissertation hypotheses. In sum, the dissertation offered a distinctive approach to conceptualizing

the relationships of choice, outcome bias, and locus of control with patient satisfaction.

The dissertation provided several methodological contributions. First, multiple studies were conducted to assess the influences on patient satisfaction. Each study design became more refined and sophisticated in the progressive examination of the impact of the freedom to choose physicians. By conducting three separate studies, a clearer understanding of the role of choice in health care was possible.

Further, the dissertation utilized diverse samples among the three studies. The samples included students, lower socioeconomic and minority patients from a metropolitan clinic, and middle socioeconomic non-minority patients from a rural clinic. Using diverse samples tapped into a range of patient expectations and experiences that may have influenced satisfaction. For example, clinic patients had more experience and different expectations of health care than student patients. Additionally, the use of patients from clinics as subjects was relevant and important to the research issues. By using clinic patients, these subjects were placed in a realistic setting where they were more likely to be highly involved with the experimental information and able to appreciate the significance of the experimental conditions.

The dissertation offered a number of managerial contributions. The findings indicated that the health related outcome of a medical encounter was very important to patients.



The health outcome appeared more important than other treatment process factors, including the freedom to choose a physician and patient preference for physicians. However, having the freedom to choose a physician and the physician received tended to become important when health outcomes were negative. Such findings indicated that because health outcomes will not always be positive, health care managers should strive to maintain excellence in the treatment process of patients to maximize patient satisfaction with health care. Also, health providers should set reasonable levels for patients' expectations for outcomes since violations of expectations yielded substantial dissatisfaction with health care.

There was also evidence that patients differed in their preference of health care services. That is, individuals with an internal health locus of control were most satisfied with health care when they received a choice of a physician. However, individuals with an external health locus of control were most satisfied with health care when they received a most preferred physician. Thus, health care managers should recognize patients' preferences for health care service offerings and seek to exceed patients' expectations for delivery.

#### Organization of the Dissertation

This dissertation contains six chapters. Chapter I provided an introductory overview of important issues,

research questions, purposes of the dissertation, and contribution to the literature. Chapter II gives a review of the literature pertinent to health care, including satisfaction, desire for choice, health locus of control, and the effects of the outcome bias. Chapter III synthesizes and conceptualizes the theoretical background for the first study. The research hypotheses, method, results, and discussion of Study One are also presented in Chapter III. Chapter IV provides an overview of the theoretical conceptualization, research hypotheses, method, results, and a discussion of the second study. Chapter V presents a synthesis of the background for Study Three, along with research hypotheses, method, results, and discussion. Chapter VI concludes with a general discussion of the results, limitations, implications of the findings, and future research directions for health care managers.

## CHAPTER II

### LITERATURE REVIEW

#### Introduction

The purpose of this chapter is to provide an overview of several related research streams and discuss their relevance to the marketing of health care services. The areas of patient satisfaction, consumer choice, health locus of control, and outcome bias are reviewed and integrated within the domain of health care marketing. Furthermore, the literature is presented to illustrate existing knowledge and highlight the need for increased understanding in patient-care provider relationships.

As competition within the health care industry has intensified, understanding patients' satisfaction with services has become increasingly important. To attain a competitive advantage, health care marketers should be knowledgeable of the factors that impact patients' satisfaction. Some of the factors that influence satisfaction include freedom of physician choice, patients' need for control, and the outcome of treatment. Each of these potential factors will be discussed as they relate to patient satisfaction. However, before any factors which may impact patient satisfaction are discussed, the satisfaction construct

is examined first.

## Satisfaction

This dissertation approaches the satisfaction literature from two perspectives, a marketing perspective (i.e., consumer satisfaction) and the health care viewpoint (i.e., patient satisfaction). There is considerable overlap between the marketing and health care satisfaction literature. Thus, research from both areas is presented.

Recently, the marketing literature has attempted to shed light on the somewhat ambiguous relationship between the related constructs of satisfaction and service quality. Therefore, a brief discussion of satisfaction research in marketing is discussed first, then an overview of the service quality literature is presented.

### Consumer Satisfaction

Consumer satisfaction has been defined as the attitude formed toward a good or service as a result of purchasing it. Therefore, consumer satisfaction is a post-choice evaluative judgment of a purchase (Westbrook and Oliver 1991).

In an effort to explain consumer satisfaction/dissatisfaction (CS/D), several theoretical models have been used. Such models include expectancy disconfirmation theory, equity theory, attribution theory, and feelings of affect (Mowen 1995). Of these models, the expectancy disconfirmation model (EDM) has been one of the most popular approaches to

explain CS/D. Within the EDM, consumers are thought to compare actual performance with expected performance. If performance falls below expectations, dissatisfaction occurs. Yet if performance exceeds expectations, satisfaction takes place (Woodruff, Cadotte, and Jenkins 1983). When consumers cannot find differences between performance and expectations, then expectancy confirmation takes place (Oliver 1981). Some of the factors affecting consumer expectations may include prior experience, sales promotions, other products, and individual differences among consumers (Mowen 1995).

Recently, the EDM has been criticized (Spreng and Olshavsky 1993). A number of logical problems may arise from the EDM as an explanation of CS/D. The EDM appears flawed by limiting satisfaction to prior beliefs. That is, if there are no expectations, then disconfirmation cannot occur. Other logical problems may stem from new services where no prior experience may exist or if a customer has low expectations but elects to use a service anyway (Spreng and Olshavsky 1993). Also, there is empirical support that disconfirmation does not affect satisfaction (Churchill and Surprenant 1982).

In addition to the EDM, Adams' (1963) equity theory has been used to explain CS/D. Equity theory asserts that individuals assess the ratio of their outcomes and inputs with the ratio of others' outcomes and inputs. Thus, satisfaction is contingent upon perceiving fair and equitable treatment relative to others in an exchange.

Attribution theory has also been used as a basis for

understanding CS/D. Attribution theory has relevance to satisfaction because it is speculated that the type of attribution made moderates consumer feelings of CS/D. That is, if the cause of a failure is attributed to the service provider, one would be more likely to experience dissatisfaction than if failure was attributed to either chance or the consumer (Folkes 1984).

A fourth approach utilizes the link between the consumer's affective state and CS/D. Westbrook (1987) found that satisfaction is impacted by the consumer's feelings associated with a service after being purchased. Westbrook supported that positive and negative feelings were independent of the other and could be experienced simultaneously. Thus, CS/D may be influenced not only by cognitive expectations but affective responses as well.

Consumer Satisfaction and Service Quality. To more fully understand consumer satisfaction, it is important to distinguish between satisfaction and service quality. Only since 1991 have the constructs of satisfaction and service quality been clearly discriminated. Although satisfaction and service quality are closely related, they are widely considered to be distinctly different and speculation on their theoretical relationship has been extensively studied.

Comprehensive research on service quality was initiated in 1985 by Parasuraman, Zeithaml, and Berry (PZB) through an extensive exploratory investigation of quality in several industries. The results of their research identified ten

dimensions of service quality and highlighted four major gaps in the delivery of services that create a fifth "gap," service quality. This seminal work of PZB (1985) initiated a stream of research which has generated interest in measuring service quality and supported efforts to establish its link with consumer satisfaction.

PZB followed through on their exploratory research and developed the SERVQUAL Scale to measure service quality (Parasuraman, Zeithaml, and Berry 1988). The SERVQUAL Scale identified five major dimensions of service: tangibles, reliability, responsiveness, assurance, and empathy toward the consumer.

The exploratory research by PZB (1985) supported the belief that service quality is an overall evaluation comparable to an attitude. Later, Zeithaml (1987) noted that perceived quality is a consumer judgment of overall superiority of an object. From this perspective, service quality is the comparison between customer expectations and perceptions of service. Further, PZB (1988) indicated that perceived service quality is a global judgment, as compared with satisfaction which relates to a specific transaction.

PZB (1985) proposed that higher levels of perceived service quality leads to greater consumer satisfaction. That is, PZB inferred service quality is an antecedent to satisfaction. Although there was some dispute over the causal order of service quality and satisfaction (e.g., Bitner 1990; Bolton and Drew 1991), more recent evidence (e.g., Cronin and

Taylor 1992; Cronin and Taylor 1994; Teas 1994) supported PZB's assumption that service quality precedes satisfaction.

Expectations Disconfirmation Model (EDM). In addition to explaining CS/D, the EDM has been used to explain perceptions of service quality. Numerous studies have embraced the EDM for service encounters (e.g., Bitner 1990; Boulding et al. 1993; Carman 1990; PZB 1988; Greene, Weinberger, and Mamlin 1980; Oliver 1993; Woodruff, Cadotte, and Jenkins 1983; Zeithaml, Berry and Parasuraman 1993). Similar to basing satisfaction on prior expectations, consumers may assess service quality by comparing service performance with prior expectations. When expectations are met or exceeded, the service quality tends to be viewed positively. However if expectations exceed performance, service quality may be viewed negatively (Bitner 1990).

Olson and Dover (1979) defined expectations as pretrial beliefs about a product or service. Given that customer expectations vary, there is a need to understand the types of expectations customers may have within a service encounter. However, there is no consensus on the exact nature or types of expectations customers may hold (Zeithaml, et al. 1993). Consumers maintain a variety of prior beliefs and service experiences. Recently, a number of researchers have closely examined the nature and role of expectations for services (Boulding, Kalra, Staelin, and Zeithaml 1993; Zeithaml, Berry, and Parasuraman 1993).

Expectations may be either predictive or ideal based. As



an example of predictive expectations, Boulding, et al. (1993) identified *will* and *should* expectations. *Will* expectations are those in which customers form expectations about what is predicted to occur in their next service encounter while *should* expectations are normative (not ideal), based on what the customer has been told to expect. Similarly, Zeithaml et al. (1993) conceptualized *predicted service* based on a combination of past experience, word-of-mouth, implicit promises, and explicit promises.

As an example of ideal expectations, Zeithaml et al. (1993) identified *desired service* (i.e., based on personal needs, derived expectations, and personal philosophy). Also related to ideal expectations is *adequate service*, which is influenced by transitory problems, perceived alternatives, self-perceived role, and inclement circumstances (Zeithaml et al. 1993).

Recently, use of the expectancy disconfirmation model has been questioned. Initially, Cronin and Taylor (1992) noted that the use of the disconfirmation approach is not consistent with how service quality is communicated in the literature. Others have criticized the EDM (e.g., Cronin and Taylor 1994; Spreng and Olshavsky 1993; Teas 1993; Teas 1994) and a more comprehensive theory to explain service quality has been sought.

Both Teas (1994) and Cronin and Taylor (1994) raised concerns about the efficacy of perceptions-minus-expectations (P-E) measures of service quality. Teas (1993, 1994)

questioned the meaningfulness of the SERVQUAL P-E model based on its limited usefulness given certain types of attributes under specific conditions. Teas concluded that increasing P-E scores may not reflect increasing levels of perceived quality.

Cronin and Taylor (1994) suggested that SERVQUAL did not measure service quality but is merely one type of expectancy-disconfirmation and is therefore inappropriate for measuring service quality. Others concur with the view that the service quality dimensions vary depending on the service situation (Carman 1990; Mowen, Licata, and McPhail 1993). In addition, Cronin and Taylor (1994) considered the dimensionality of SERVQUAL as problematic.

In sum, the service quality and satisfaction literature has been mixed regarding the relationship of these constructs but has become much clearer within the past four years. Currently, marketing scholars conceptualize service quality as an attitude, which may be measured by the SERVPERF scale (See Cronin and Taylor 1992). In addition, consumer satisfaction is viewed as a transaction specific attitude formed toward a good or service after purchase (Westbrook and Oliver 1991). Evidence strongly suggests that service quality is an antecedent to satisfaction (e.g., Cronin and Taylor 1992; Cronin and Taylor 1994; Teas 1994) and both satisfaction and service quality influence purchase intentions. Of these two constructs, consumer satisfaction impacts purchase intentions more strongly than service quality (Cronin and Taylor 1992).

Although the work of PZB has made a useful contribution

to the marketing literature by identifying service quality gaps, it appears marketers are moving beyond the performance-minus-expectations gap theory (Teas 1994). Consequently, newer measures of service quality such as SERVPERF are replacing the traditional SERVQUAL scale (Cronin and Taylor 1994) and theories are being used to justify the measures, not vice versa (Teas 1994).

Satisfaction Measurement. Before reviewing satisfaction from a health care perspective, several issues and concerns about measuring satisfaction need to be discussed. Of primary interest is the potential for artifacts when measuring customer satisfaction. Peterson and Wilson (1992) highlighted the common characteristic of self-reported customer satisfaction to exhibit a negatively skewed distribution such that a majority of customers indicate they are satisfied. They offer the following possible explanations for the phenomenon: (1) the distributions reflect actual satisfaction, (2) antecedents such as expectations influence the shape of distributions, (3) satisfaction may have a non-normal distribution, or (4) the distributions may be artifacts of research methods.

Peterson and Wilson (1992) found support that satisfaction artifacts may exist as a result of the research method. For example, respondents to telephone interviews were consistently more satisfied than mail respondents. Other confounds of satisfaction through research methods included response biases (Lebow 1982), the manner in which questions

were asked (Kahneman and Tversky 1979), question sequencing (Smith 1979), and the amount of elapsed time since purchase (Fisk, Brown, Cannizzaro, and Naftal 1990).

In addition to research artifacts, satisfaction is thought to be influenced by other factors. For example, CS/D may be impacted by individual antecedent states such as respondent social desirability (Ware 1978) and respondent mood (Diener 1984).

Finally, CS/D may suffer from conceptual limitations. Primarily, there is a lack of any known cutoff between satisfaction and dissatisfaction. There is no evidence demonstrating exactly where one stops and the other begins (Pascoe 1983). An alternative to the conceptualization of a cutoff is to consider Herzberg's (1966) two-factor theory. The theory views satisfaction on two continuums rather than one, with a satisfaction-no satisfaction dimension and a second dissatisfaction-no dissatisfaction dimension. Herzberg's theory may be partially supported by Westbrook (1987) who found consumers experienced separate positive and negative feelings that could be experienced simultaneously.

#### Patient Satisfaction and Service Quality

This section of the literature review focuses on research specific to patient satisfaction and health care service quality. The volume of literature devoted to health care service and satisfaction is quite large. For the purpose of this review, the focus is on more recent literature within the

last decade.

The first part of this section focuses on health care conceptualizations of satisfaction. Afterward, a number of models are briefly discussed that have been used to explain both patient satisfaction and medical service quality. Next, measurement issues of satisfaction are addressed. Finally, the impact of sociodemographics on satisfaction is presented.

Conceptualization. Although there has been a consensus that satisfaction seems to be multidimensional (Pascoe 1983), there does not appear to be a universally accepted health care based definition of satisfaction. Health care studies have operationalized and conceptualized satisfaction in a variety of ways without any consistent standard (Taylor and Cronin 1994). Patient satisfaction has been viewed as follows:

- (1) A positive, affective attitude (Linder-Pelz 1982).
- (2) A quasi-cognitive construct (Hunt 1977; Westbrook and Oliver 1981).
- (3) A composite index of an individual's evaluative judgment about the quality of care received from physicians, nurses, and other relevant sources in a specific medical-care situation at a micro (i.e., episode-specific) level (Hulka and Cassel 1974).
- (4) A global or macro level assessment (Lebow 1983).
- (5) An outcome of service quality but an antecedent of purchase intentions (Cronin and Taylor 1994).

More recently, Singh (1990) suggested patient satisfaction is a combination of several distinct evaluations.

Yet, others believe patient satisfaction is merely a special type of postpurchase attitude (e.g., Gilbert, Lumpkin, and Dant 1992; John 1992; Woodside, Frey, and Daly 1989). Perhaps the consensus is there is no consensus on patient satisfaction.

Models of Patient Satisfaction. One of the most extensive reviews of patient satisfaction in primary health care was conducted by Pascoe (1983). He noted that expectancy approaches were the primary models used to conceptualize satisfaction. Of these models, Pascoe noted three forms. The first form is the contrast model, where a contrast between expectations and reality intensifies any incongruity. The second form is the assimilation model, built upon cognitive consistency approaches (e.g., Carlsmith and Aronson 1963; Festinger 1957) where consumers adjust performance perceptions to match expectations. The third form is the assimilation-contrast model (Sherif and Hovland 1961), where positioning of outcomes relative to a latitude of acceptance dictates whether S/D occurred.

Other models have been identified. Ross, Frommelt, Hazelwood, and Chang (1987) suggested that several models may explain patient S/D: (1) adaptation level theory (Helson 1948), where the adaptation level is an anchor for evaluations and (2) generalized negativity theory (Carlsmith and Aronson 1963) which asserts that disconfirmations create negative states that are generalized to the environment. Additional theories used to explain satisfaction include: attribution

theory (Folkes 1984), equity theory (Huppertz, Arenson, and Evans 1978), expectancy theory (Tse and Wilton 1988), exchange theory (Homans 1950), role theory (Sarbin and Allen 1968), and cognitive dissonance theory (Festinger, 1957).

Expectation Disconfirmation Model (EDM). Early studies relied heavily on the expectancy disconfirmation model (Pascoe 1983). Since Pascoe's (1983) assessment of the literature, the trend has continued for most health care studies to include some form of the expectancy model where expected care is matched with perceptions of the care actually received (e.g., Gilbert, Lumpkin, and Dant 1992; Inguanzo 1992; John 1992; Ludwig-Beymer, Ryan, Johnson, Hennessy, Gattuso, Epsom, and Czurylo 1993; O'Connor, Shewchuk, and Carney 1994; Ross, Frommelt, Hazelwood, and Chang 1987). Further, the expectancy model has been utilized in studies of patient satisfaction (John 1992; Gilbert, Lumpkin, and Dant 1992).

Recently, use of expectations in the purchase of health services has been criticized. Babakus and Mangold (1992) empirically supported that expectations are not important in the development of patients' perceptions of service quality. Further, Taylor and Cronin (1994) voiced a concern regarding the use of expectations to explain both patient satisfaction and health care service quality. They suggested that patient expectations in the delivery of health services should be ignored.

Where the EDM was originally intended for satisfaction (Oliver 1993), others have used it to explain both

satisfaction and service quality and considered both constructs to be identical (e.g., Kleinsorge and Koenig 1991). Yet, service quality and satisfaction in the health care services literature are perceived as being distinctly different constructs (Taylor and Cronin 1994). Although both service quality and satisfaction are considered attitudes, health service quality has been operationalized by the performance of the providers (Elbeck 1987) while patient satisfaction is determined by the (dis) confirmation of patient expectations (John 1992).

Satisfaction Measurement. Measures of patient satisfaction have been classified as either indirect (e.g., regarding health care providers in general) or direct (e.g., items directed to specific health care received) according to Pascoe (1983). A variety of scales have been employed in measuring satisfaction including Guttman scales (Andersen 1968), Thurstone scales (Hulka, Zyzanski, Cassel, and Thompson 1970), and Likert scales (Zyzanski, Hulka, and Cassel 1974). Examples of specific scales to measure patient satisfaction include the Patient Satisfaction Questionnaire (Ware and Snyder 1975), the Client Satisfaction Questionnaire (LeVois, Nguyen and Attkisson 1981), and the evaluation ranking scale (Pascoe and Attkisson 1983). In spite of the numerous patient satisfaction scales in existence, Pascoe (1983) noted there has been a lack of standardization in the methods used to measure patient satisfaction. Methods have been simple and ad hoc.



Ware, Davies-Avery and Stewart (1978) found that it was difficult to determine how well patient satisfaction was measured in an exhaustive content analysis of 900 published survey items. However, they did find the following factors which appeared to contribute to patient satisfaction: accessibility and convenience, "art" of care, availability, continuity, outcome of care, finances, physical environment, and technical care quality.

More recent studies of patient satisfaction have included measures similar to Ware et al.'s. For example, Smith, Bloom, and Davis (1986) developed a tripartite taxonomy of patient satisfaction which included expressive dimensions (i.e., art of care), instrumental dimensions (quality of care), and convenience/cost aspects. By developing taxonomies, researchers have attempted to categorize the multifaceted components of health care delivery.

There has been some speculation on whether satisfaction is attribute based (cognitive) or global (emotional). Marketers have tended to view satisfaction globally and as an emotional response to a service (Singh 1991). Westbrook and Oliver (1981) combined both emotional and cognitive aspects into a "quasi-cognitive" evaluation for satisfaction.

In many cases, specific attributes have been used in studies as influencers of satisfaction. Some examples of specific factors included: waiting time (Mowen, et al. 1993), comfort of waiting room (Anderson 1982; Williams and Calnan 1991), attitudes of physician (Casarreal, Mills, and Plant

1986), atmospherics (Woodside, Frey, and Daly 1989), and cost (MacKeigan and Larson 1989).

In the health care literature, the conceptualization of satisfaction as being either global or cumulative is well accepted (Hines, Clarkson, and Smith 1977; Linder-Pelz 1982; Ware, Davis-Avery, and Stewart 1978). For example, Hulka, Zyzanski, Cassel, and Thompson (1970) conceptualized satisfaction in a cumulative or global fashion. Hulka et al. perceived satisfaction to be an aggregate of the consumer's attitude toward physicians, nurses, and other relevant sources.

However, not all health care researchers view satisfaction as a global measure. According to Singh (1990), satisfaction is neither a global evaluation nor an appraisal of a single object/facet. Rather, patient satisfaction is comprised of three separate, independent evaluations of objects in the health care system. Singh asserted that it is important to understand and consider all of the relevant facets that a patient may encounter in a health care encounter which influence his satisfaction. Singh identified three such facets in his taxonomy: (1) the physician, (2) the hospital, and (3) the insurance provider. Finally, he surmised that where consumers do make global satisfaction judgments based on aggregate health care, satisfaction tends to be situation specific.

Sociodemographics and Satisfaction. In many cases, health care satisfaction research has simply linked

sociodemographic correlations with patient satisfaction rather than seeking an underlying theory (Locker and Dunt 1978). Where sociodemographics have been used to predict satisfaction, results have been mixed and some researchers believe sociodemographics are poor predictors of satisfaction (Fox and Storms 1981; Lebow 1983). Perhaps the lack of an underlying theory helps explain why the health care literature is mixed on the linkages between patient satisfaction and sociodemographics.

Other researchers are more optimistic about using sociodemographic variables and have identified a number of trends. For example, Ware et al. (1978) summarized 13 publications using the variables of age, education, family size, income, marital status, social class, race, sex, and occupation. Ware and his colleagues concluded that trends do exist for sociodemographic attributes with regard to health care. However, trends were not found for all variables (e.g., marital status, race, and social class).

Within the literature, trends have been found most frequently for age, gender, culture, and education. The following is a summary of the findings for each of these sociodemographic variables.

#### Age

Of all the sociodemographic variables, age may be one of the most important. Most notably, increased satisfaction is most often associated with being older (Dolinsky and Caputo

1990; Fox and Storms 1981; Gopalakrishna and Mummalaneni 1993; Hall and Dornan 1990; Locker and Dunt 1978; Pascoe 1983). However, in certain instances younger patients have been found to have more satisfaction than older patients (Hulka, Krupper, Daly, Cassel, and Schoen 1975). Also, Singh (1990) found gender to be a weak discriminator of satisfaction. Thus, the literature is not in total agreement but the general tendency is for age and satisfaction to be positively linked.

John (1994) linked an aspect of age with patient satisfaction. He found that younger patients were more likely than older patients to be inner-directed and thus use their own opinions in a health care situation. This finding is important since Woodside, Sertich, and Chakalas (1987) support that patients who place greater emphasis on their own opinions are more likely to be satisfied than those who do not. In fact, many older patients bring friends or relatives with them to inquire and help make decisions for them. Another explanation for the link between age and satisfaction is that as older patients grew up during a time of scarce resources, they have developed lower expectations from service providers (Dolinsky and Caputo 1990).

#### Gender

In a meta-analysis of sociodemographics, Hall and Dornan (1990) asserted that gender was a very weak discriminator of satisfaction. However, several studies have reported that females tend to be more satisfied than males (Fox and Storms

1981; Pascoe 1983).

#### Culture and Education

Cultural and educational factors may influence satisfaction with care services. In the U.S., cultural and educational backgrounds appear to be closely related (Ellmer and Olbrisch 1983). Recent research has supported that ethnic groups differ in the amount and kind of information they require from health care providers, which may impact satisfaction. For example, Chinese-Americans stress understanding any illness and its cause more than other groups (Ellmer and Olbrisch 1983). In fact, satisfaction has been closely linked to the amount of information patients receive from providers (Robbins, Bertakis, Helms, Azari, Callahan, and Creten 1993). However, this desire for information appears to vary by culture.

An early study of race and education found that satisfaction was highest among better educated Euro-Americans and African-Americans, with a greater percentage of Euro-Americans being satisfied. Among individuals with a low education (less than seventh-grade), a reverse in satisfaction was observed such that fewer Euro-Americans were satisfied than African-Americans. The satisfaction reversal may have come from higher aspirational levels among Euro-Americans with low education (Hulka, Zyzanski, Cassel, and Thompson 1971).

Yet, inconsistencies exist regarding education and satisfaction. In a number of other studies, researchers found

empirical support that patients with less education are more satisfied with health care service delivered than higher educated patients (Fox and Storms 1981; Hall and Dornan 1990; John 1994). In sum, education and satisfaction appear to be inversely related.

#### Health Care Choice and Desire for Control

This section of the literature review presents the issues relevant to patient choice and desire for control and how they may impact satisfaction with health care. This section is divided into five sub-sections. The first discusses the role of patient choice in selecting their health care provider. The second part examines the impact of having control on one's satisfaction with health care. Next is a brief discussion of the role of control in choosing a health care provider. Afterwards, the issues of how health care choices are made and whether or not individuals act like consumers or patients when seeking treatment are examined. Finally, a comparison is made between two systems of health care with distinct qualities, HMO versus fee-for-service.

#### Choice

One of the critical issues in the debate over health care reform was freedom of choice for patients. To many Americans, the proposed reforms meant more restrictions on their choice of physicians (Zagorin 1993).

The issue of having a choice in selecting a physician

concerns employees of many companies that are a part of a health-maintenance organization (HMO). Similar to what the recently failed Clinton health reform plan intended to do nationally, many companies force their employees away from traditional fee-for-service physicians toward the use of HMO physicians. Currently, companies may reduce reimbursements to employees who insist on consulting "outside" physicians (Zagorin 1993). Clearly, the need for consumers to have unrestricted choice in health care service has been the basis for criticizing both the proposed national health plan and for existing HMO's employed by so many companies in the U.S.

In general, consumers value having a choice in important matters (Berki and Ashcraft 1980; Manthei 1988; Spaeth 1992). There may be a relationship between the number of choice alternatives available to consumers and satisfaction (Czepiel, Rosenberg, and Akerele 1974) but the relationship seems complex (Peterson and Wilson 1992). Reibstein, Youngblood, and Fromkin (1975) found that perceived decision freedom increased with choice size, but satisfaction was unrelated to the size of the choice set.

Health care researchers have noted the positive effects of having a choice. Some of the benefits of consumer choice include an increased sense of control in a health care setting (Manthei 1988; Timko and Moos 1989) and improved outcomes in treatment (Manthei 1988; Strong and Claiborn 1982).

In health care, freedom to choose physicians was listed as the most important reason for deciding among various health

care plans such as HMO's (Scitovsky, McCall and Benham 1978) and Blue Cross and Blue Shield (Juba, Lave and Shaddy 1980). In a study where 23 patients were given the choice to select their care provider, only two declined to give their choice (Manthei 1983).

A number of other health care studies have found a positive relationship between freedom of choice and satisfaction. Manthie (1988) suggested that the act of allowing clients to choose their own therapist enhanced the clients' commitment to the therapy, raised expectations for outcome, and improved ratings for services provided. Manthie argued that a patient's ability to choose and maintaining a sense of predictability can positively affect both the process and outcome of care received.

In a study by Devine and Fernald (1973), subjects were placed in one of three preference conditions. Subjects received either a randomly assigned therapy, a preferred therapy, or a non-preferred therapy for treating a fear of snakes. The researchers found that receiving a preferred therapy yielded significantly better results (i.e., fear reduction) than either the randomly assigned or nonpreferred therapy. The preferred therapy was considered most effective because the subjects expected it to be so and the non-preferred therapy was less effective because the subjects did not expect it to be effective. Also, it was believed that those who received a preferred treatment may have tried harder than those assigned a nonpreferred treatment. Similar to the



work of Devine and Fernald, Hollander-Goldfein (1979) found that when patients were allowed the opportunity to select their care provider, such freedom nurtured positive expectations and was correlated with successful outcomes.

In contrast, there is evidence that having a choice may not be as important as originally thought regarding health issues. In a study by Manthei, Vitalo and Ivey (1982), choice was manipulated in a health care setting where clients of a community mental health center were placed in one of three choice condition groups where the subjects: (1) viewed a presentation of available therapists and chose their therapist, (2) viewed a presentation and were assigned to a therapist, and (3) were assigned to a therapist without viewing the presentation. Surprisingly, the subjects did not differ in their satisfaction ratings across the various types of choice groups.

Further, Barnes (1991) supported that freedom of choice is not as important as other health care issues. He suggested that consumers seemed more concerned about the accessibility of the service than freedom of choice.

A possible explanation for the mixed results with the effects of choice on satisfaction (outcomes) is the perception of choice by subjects. Bastien and Adelman (1984) found that subjective, self reported perceptions of choice may be better indicators of responses to health care service (i.e., social rehabilitation) than objective, *a priori* categorizations of degree of choice.

The study of the effects of individual choice can be traced to Festinger's (1957) cognitive dissonance theory. Much of Festinger's work on cognitive dissonance was founded on the assumption of choice. He conceived that the increase in the value of a chosen alternative relative to a non-chosen one was a means to minimize the regret (dissonance) associated with having given up desirable features of the non-chosen alternative and/or having acquired undesirable features of the chosen one. In order to reduce the dissonance of a poor decision, the individual could use several tactics to justify the choice such as (1) change a behavioral element, (2) add new consonant cognitive elements, (3) decrease the number of dissonant elements, (4) decrease the importance of dissonant elements, or (5) change the dissonant element so that it is no longer inconsistent with other cognitions. Dissonance may occur only when cognitions are important.

The presence of choice is only one of several elements necessary for the tension state of cognitive dissonance to occur. Other necessary elements include a high degree of voluntary action, unpleasant consequences, personal responsibility, and low reward (Festinger and Carlsmith 1959).

Beyond cognitive dissonance, a reason why consumers value having a choice may be explained by reactance theory (Brehm 1966). According to reactance theory, individuals respond in a negative manner when important freedoms are threatened. In cases where freedoms are reduced, consumers may react strongly to that which is forbidden (Clee and Wicklund 1980).

Reactions tend to be strongest for people who expect to have a choice (Wortman and Brehm 1975) or place a high value on having a choice (Clee and Wicklund 1980). Donabedian (1981) noted that freedom of choice is not only practical but is also symbolic, relating to personal worth and dignity.

In support of reactance theory and choice, Curbow (1986) found that loss of choice negatively impacted patient preference of health care. In his experiment, subjects were placed in the following choice conditions: choose among fee-for-service physicians, choose among HMO physicians, and no choice given. Not surprisingly, subjects in the no choice condition were less satisfied than subjects in either of the choice conditions.

#### Desire For Control

Desire for control over one's surroundings and freedom of choice seem closely related. For example, choice is considered a prerequisite for perceived control (Hui and Bateson 1991). Also, both factors appear to be linked with satisfaction. According to Schutz (1966), the desire for control over one's surroundings is thought to be an important part of having satisfactory interactions with others.

Having more control within a situation may reduce behavioral aftereffects of a negative environment (Sherrod, Hage, Halpern, and Moore 1977) and allow people to behave more positively when more control is perceived (Proshansky, Ittelson, and Rivlin 1974). For example, subjects in a dental

treatment study felt less stress when they were led to believe they had more control of the situation (Law, Logan, and Baron 1994).

Langer and Rodin (1976) supported the positive relationship of control/satisfaction when aged subjects were given more control over daily tasks in a field experiment. The experimental group subjects were encouraged to be more responsible for themselves and were allowed to have increased freedom of choice and control by making decisions in caring for plants. Control group subjects had decisions made for them. Subjects in the experimental group showed significant improvements in alertness, activity, and general well being. Timko and Moos (1989) found similar support for the effects of increased choice and control on satisfaction with the elderly.

However, not all individuals have a strong desire for control over their environment. Typically, those who possess a desire for control have been associated with the following characteristics: higher social class (Vasquez 1978), Type A behavior, males, higher education, resistance to conformity, and achievement orientation (Law, Logan, and Baron 1994).

There is empirical evidence that suggests control may have a very limited impact on satisfaction in health care settings. In a study which used scenarios to describe a visit to a clinic, three care-oriented dimensions were rated according to patients' perceived importance: (1) attitude: amount of kindness received from staff, (2) Control: amount of patient control with treatment, and (3) Continuity: seeing the

same preferred physician at each visit (Sutherland, Lockwood, Minkin, Tritchler, Till, and Llewellyn-Thomas 1989). Interestingly, control was rated least important of the three dimensions. Only 10% of the respondents (i.e., 3 out of 30 Canadian women recovering from breast cancer) considered control most important.

### Choosing Providers

The manner in which individuals make choices and their reliance on others to aid in decisions may vary according to personal needs, ability, and demographics. Regarding the issue of choosing a hospital, Lane and Lindquist (1988) identified some demographics that typify which patients would be less likely to allow the doctor to select their hospital. Such people tended to be: younger, less seriously ill, and more highly educated. Also, female heads of families tended to solely select a health care provider 57% of the time, versus 26% for male head of households.

Beisecker (1988) found similar results regarding patients' willingness to yield decision-making authority to doctors. Beisecker empirically supported that older patients (60 years or older) wanted less responsibility for making medical decisions and challenged doctors' authority less than younger patients.

Although studies like Lane and Lindquist (1988) and Beisecker's (1988) examined the levels of patients' desire for information and involvement in health care, they did not focus

on the underlying factors that may have influenced patients' need for control in their choice of a doctor. Yet, in a study which looked beyond surface level demographics, Anderson and Dedrick (1990) found that trust in the relationship between doctor and patient was related to patients' desire for control. They concluded that trust and need for control were inversely related.

Other researchers have specifically addressed patients' desire for choice and control by developing health care locus of control scales (Smith, Wallston, Wallston, Forsberg, and King 1984; Wallston, Maides, and Wallston 1976; Wallston, Wallston, Kaplan, and Maides 1976). Such research has helped to better explain individual differences within the health care literature regarding preferences based on choice and control. In addition, health locus of control is associated with information seeking behavior (Wallston et al. 1976). Thus, a need for cognition or information may impact one's willingness to yield to medical authority without question in addition to influencing satisfaction.

#### Patient Consumerism

Most patients would probably like to optimize their choice in selecting the "best" physician. However, Glassman and Glassman (1981) found that women seeking obstetricians may not always base their decision on rational consumer criteria (i.e., physician competence or skill). For example, 13% selected the doctor simply because he/she was present or on

duty at the hospital visited, or his office was nearby. In addition, 60% merely relied on the recommendations of friends or nurses (not other doctors).

Other researchers have found evidence of "non-consumerist" behavior on the part of patients. Patients do not necessarily act like "neoclassical" consumers but have been found to lack preparation to shop around for the best deal. In an Australian study, respondents (primarily female) did not seek information to understand what constituted good/bad service, exercise independent judgment, or critically evaluate doctors. Rather, they merely exhibited trusting, dependent relationships with their doctors (Lloyd, Lupton, and Donaldson 1991).

In a related study by Lupton, Donaldson, and Lloyd (1991), the researchers found qualitative evidence that Australian patients were neither motivated nor capable of critically evaluating and choosing among primary care alternatives, including physicians. Patients preferred to remain in 'blissful ignorance' rather than seeking information about evaluating the health care received. Few respondents could even specify why they changed doctors.

Similar to Lloyd, et al. (1991) and Lupton et al. (1991), Salisbury (1989) found British patients lacked the motivation to take consumerist actions in choosing their doctor. In a survey of people who had recently registered with a new doctor, Salisbury discovered that people did not appear to actively select their doctor, in part due to the difficulty of

obtaining information about the physician or practice. Yet, people showed little effort to use available sources of information about practices and did not demand more information before choosing a physician. Instead, patients relied on personal recommendations. Finally, people did not seem adamant about the choice of their physician because they indicated there was no need to think about doctors until one was needed.

In contrast to Glassman and Glassman (1981), Lloyd, et al. (1991), and Salisbury (1989), Boscarino and Steiber (1982) found empirical support that today's health care patient is a consumer and actively participates in "hospital and doctor shopping." Further, Robinson and Cooper (1980-81) asserted that patients have become more active information seekers and participants in health care decisions while Haug and Lavin (1979) documented 85% of their survey respondents challenged physician authority. Thus, the literature appears mixed on whether patients act with consumer-like behavior regarding health care decisions. However, part of the discrepancy may be attributed to having samples from very different nations with unique health care systems.

#### HMOs VS. Fee-For-Service

It appears choice is a key factor in determining patient satisfaction when HMO's are compared with traditional fee-for-service providers. Lack of free choice of physicians among consumers seems to deter HMO enrollment (Berki and Ashcraft



1980). According to Siddharthan (1991), 91% of the respondents from a 1986 Dade County, Florida survey who belonged to HMO's did not have personal physicians but received basic health care from the attending physician on the day of the visit at the HMO clinic. Such conditions lessen patients' freedom of choice and support earlier works citing dissatisfaction with lack of choice (Freidson 1961).

Since the passage of the Health Maintenance Organization Act of 1973, prepaid group practice has become the alternative answer to problems encountered in health care delivery (Tessler and Mechanic 1975). Recent data indicates a swift change from free choice care to various forms of managed care (Zimet 1989). However, several studies have noted growing consumer dissatisfaction with these prepaid group practices (Tessler and Mechanic 1975; Berki and Ashcraft 1980).

On the other hand, at least one health care expert believes that freedom of choice may not be what consumers are most concerned about. Rather, consumers may be more interested in the accessibility of health care service. Where HMOs may be viewed negatively, it often comes from an assumption that the providers listed must be inferior because the HMO is just looking to cut costs (Barnes 1991). The image of prepaid programs may be changing. In a study sponsored by the New York State Department of Social Services, patient perceptions and satisfaction were compared between state sponsored prepaid Medicaid beneficiaries and fee-for-service beneficiaries. In addition to no longer being seen as merely

"second class," managed care was also considered superior to the alternative fee-for-service program based on higher levels of patient satisfaction with doctors' humaneness, provider selection, and quality of care (Temkin-Greener and Winchell 1991).

In a comparison of fee-for-service and HMO systems using randomly assigned subjects, greater satisfaction was shown for HMO's in financial, coverage, and access dimensions. The satisfaction among HMO members was attributed to fulfilling their high expectations held at the time of enrollment (Ward 1987).

Overall, there appears to be limited evidence that satisfaction among HMO members has recently increased. More recent research asserts that managed care efforts have been unable to consistently demonstrate that they minimize costs, provide superior care, and yield greater patient satisfaction than fee-for-service programs (Weil 1991).

Beyond the issue of choice in comparisons of HMO's and fee-for-service programs, prepaid practice respondents have expressed less overall satisfaction than individuals in alternative insurance plans because of a number of reasons other than choice. For example, difficulty obtaining appointments and longer travel time were additional dissatisfiers cited by prepaid practice respondents (Tessler and Mechanic 1975).

Some efforts have been taken to identify who uses HMO's. Results from a questionnaire assessing demographic variables

associated with enrollment in health plans indicated that HMO families tended to be young, have young children, have lower education, and have lower occupational status.

#### Outcome Bias

Although choice and control seem to be important facets of satisfaction with health care services, other influences on consumer satisfaction exist. Consumer satisfaction may also be linked to one's consideration of the outcome that results from the delivered service. For example, Like and Zyzanski (1987) found that patients' satisfaction increased as the outcomes of services provided met their expectations through fulfilled requests.

The phenomenon where individuals consider outcomes without regard to the quality of the decision or the processes leading to the outcome is known as *outcome bias* (Baron and Hershey 1988). The effects of outcome bias appear to have widespread application and have been studied in numerous settings including marketing/public policy (Mowen and Stone 1992), personal selling (Marshall 1993; Marshall and Mowen 1992; Marshall and Mowen 1993), and health care (Mitchell and Kalb 1981; Baron and Hershey 1988). This section reviews six known studies that have explicitly addressed the outcome bias phenomenon. In addition, studies related to outcome bias involving judgmental heuristics (e.g., hindsight bias) from both the marketing and health care literature are examined.

## Outcome Bias Studies

A number of studies have specifically addressed the phenomenon of outcome bias. Outcome bias is typified by the systematic overweighting of outcomes and underweighting of process (Baron and Hershey 1988). Outcome bias has been applied to a variety settings including health care, risk taking, public policy, and personal selling.

Early work by Mitchell and Kalb (1981) studied the outcome bias of supervisors' evaluations of subordinates in a health care setting. They found that subjects with knowledge of outcomes made significantly different evaluations than subjects who had no outcome knowledge. Subjects with outcome knowledge made more internal attributions for behavior, rated the outcome as more likely to occur, and held subordinates as more responsible for their behavior. In sum, subjects were influenced by an outcome bias.

Research on the outcome bias was extended in a set of five studies by Baron and Hershey (1988). Subjects rated the quality of the decisions on medical and gambling matters, competence of the decision maker, and trust in the decision maker. The results consistently yielded an outcome bias. The outcome of the decision (i.e., either good or bad) systematically affected subjects' evaluations. There was also speculation that an outcome bias exists in predicting future competence of the decision maker.

The first two outcome bias studies by Mitchell and Kalb (1981) and Baron and Hershey (1988) had striking similarities.

Both held decision appropriateness constant and manipulated the outcome. Also, there was a consistent outcome bias either when the outcomes were bad or the decision was vague.

A third study by Lipschitz (1989) took the outcome bias literature one step further by manipulating the outcome independently of the factor of decision appropriateness. Lipschitz manipulated decision outcome (i.e., success or failure) and the appropriateness of the decision (i.e., based on norms) in an experiment where Israeli military officers evaluated a fellow officer's decision. Results indicated an interaction between outcome and decision appropriateness. When a decision was appropriate, the decision maker was evaluated somewhat positively, regardless of the outcome. However, when the decision was perceived as inappropriate, the outcome affected the evaluation of the decision maker. One major limitation of the study was that the normatively appropriate decision involved violating orders. Therefore, the manipulation for decision appropriateness was unclear.

Similar to the work of Lipschitz (1989), Mowen and Stone (1992) investigated outcome bias in an experiment where decision outcome and decision appropriateness were separately manipulated. Here as well, an outcome bias occurred when evaluators assessed performance based on the outcome of the decision rather than on information about the appropriateness of the decision. When the decision was appropriate, ratings of decision quality did not differ across outcomes. In contrast, evaluation of the decision quality was worse when

the outcome was bad than when it was good under inappropriately perceived decisions. Thus, an interaction occurred between decision appropriateness and outcome.

Mowen and Stone (1992) questioned whether the outcome bias was truly an inferior judgment approach. Edwards (1984) cautioned against the use of outcomes as a means to make evaluations (i.e., Edwards' dictum) because decisions are thought of as bets. Therefore, as a bet, decisions should be based on the stakes and odds (Edwards 1984). However, Mowen and Stone's (1992) research related to issues of public policy (i.e., the choice of major flooding versus no flooding in a particular region), where human lives were involved, not just monetary gambling. Thus, Mowen and Stone provide an alternative to Edward's dictum where outcome information may be justified.

The outcome bias was examined in a personal selling situation with an experiment by Marshall and Mowen (1993). The study was conducted using the factors of decision appropriateness (i.e., appropriate/ inappropriate) and outcome (i.e., good/bad/no outcome) and varying them independently. The researchers tested for an outcome bias where in a scenario, a salesperson tried to sell to one of two companies. One company had a big payoff with a low chance of successfully consummating a sale while the other company had a lower payoff with a better chance of success. Thus, the appropriateness of the decision was manipulated by varying the likelihood of successfully making the sale. The outcome was manipulated by

whether or not a sale was actually made.

Results suggested that outcome information interacted with decision appropriateness. That is, when the decision was appropriate, there was no significant difference in performance ratings. However, outcome strongly influenced ratings when the decision was inappropriate. Interestingly, only outcome information influenced ratings when the dependent measure was general attributional evaluation. It may be concluded from the study that evaluators used both decision appropriateness and outcome to assess decision quality.

The works of Mowen and Stone (1992) and Marshall and Mowen (1993) yielded similar findings. These studies sought to explain the interaction between decision appropriateness and outcome based on information processing. Both studies found that more cognitive responses (i.e., written statements about what subjects thought) were made by subjects given an inappropriate decision by the salesperson. It appeared that when expectations were violated, individuals reflected upon the matter in more detail. Thus, when a decision was inappropriate, more outcome information was included and ratings within bad outcome conditions were intensified, diverging from good outcomes. However, when a decision was appropriate and expectations were not violated, fewer cognitions were made. Thus, less outcome information was included and the influence of outcome information was not significant.

While decision appropriateness information interacted

with outcome information to influence decision quality ratings, attributional ratings of the salesperson from the Marshall and Mowen (1993) study suggested a different pattern. Given attribution ratings, the results indicated a main effect for outcome. This finding suggests that when the evaluator focused more on general assessments of the salesperson, outcome information suppressed the factor of decision appropriateness.

Most recently, the outcome bias was extended in a personal selling situation by Marshall (1993). Two experiments were conducted to assess the impact of outcome bias over time and to test for an order effects bias. Within the experiments, sales managers evaluated field sales personnel.

The first study by Marshall (1993) manipulated decision appropriateness and outcome over three rating periods. A strong outcome bias existed where decision appropriateness and outcome interacted to influence performance ratings. Ratings declined over time for both appropriate and inappropriate decision outcomes. Contrary to earlier studies, subjects did not exhibit greater cognitive processing in the inappropriate decision condition and internal attributions were not different from external attributions.

The second study was conducted concurrently with the first, using different subjects from the same population. Here, response mode (the timing when subjects rated the salesperson after receiving updated performance information)



and order of receipt of performance information (bad/good or good/bad) were varied. The key dependent variable was attribution-based performance. An interaction was found between order of information and response mode. There was also evidence of a recency effect. Overall, the two studies by Marshall (1993) suggest an outcome bias and order effects bias may be present where salesforce evaluations are made. In sum, the outcome bias literature has progressed from the early studies (i.e., Mitchell and Kalb 1981; Baron and Hershey 1988) where decision appropriateness was held constant, to more complex designs where outcome and decision appropriateness were manipulated separately. Throughout the literature, evidence of a strong outcome bias was consistently demonstrated. More recent research provided support that decision appropriateness information influenced individual cognitions and interacted with outcome information. However, only outcome information may be utilized when more generalized attributions are made. There was also evidence that an order effects bias may exist in evaluating the performance of others.

While the earliest studies of outcome bias focused on health care issues, research here has tapered off. Yet, there is ample opportunity to apply outcome bias to health care studies and extend its implications to patient satisfaction.

#### Hindsight Bias

The hindsight bias is a type of judgmental heuristic

which is closely related to the outcome bias. The hindsight bias is a phenomenon in which people exaggerate what could have been anticipated in foresight and people would believe others should have been able to anticipate events much better than what happened in reality (Fischhoff 1975). Early work on the hindsight bias by Fischhoff (1975) and Fischhoff and Beyth (1975) empirically supported that given advanced knowledge of an outcome, individuals tend to overestimate what they would have known without the outcome knowledge.

In sum, hindsight bias is the projection of new information into the past without the realization that outcome knowledge has influenced one's judgment. As a result, judgments may be adversely impacted (Hawkins and Hastie 1990).

A reversal of the hindsight bias was claimed by Mazursky and Ofir (1990), who found that following an unexpected and surprising event, judgments were biased in the opposite direction of what was expected by hindsight bias. However, such claims were heavily criticized by others for using a unique object of analysis (e.g., a product) and for a lack accurately interpreting the results (Mark and Mellor 1994).

Other biases similar to hindsight bias have been found, such that distortions of one's memory affects evaluations of past events. Feldman (1981) found that when individuals make performance appraisals of others, the recall of the evaluator tends to be biased. The evaluator may make attributions about others that fit with existing images and categorizations.

Related to outcome and hindsight bias is omission bias.

Given a negative reference point (i.e., frame), an omission bias may occur where individuals believe that not taking an action which leads to a worse outcome is less bad than taking actions which lead to the same outcome (Baron and Ritov 1994). Similarly, Simonson (1992) found people to have more regret for taking an action which led to a bad outcome than not taking an action which led to the same bad outcome.

Omission bias may also occur given a good outcome. According to Baron and Ritov (1994), individuals consider omission as better than taking an action to bring about an equally good outcome that has tradeoff qualities (i.e., better in one way but worse in another).

When bad outcomes do occur, counterfactual thinking about alternatives to negative outcomes has been shown to intensify regret (i.e., Kahneman and Tversky 1982; Simonson 1992). However, Boninger, Gleicher, and Strathman (1994) found empirical support for a way to reduce the negative impact of counterfactual thinking. They found that the tendency to consider future consequences of the current situation improves the negative feelings created by thinking about how the negative outcome could have been averted.

### Judgmental Biases in Marketing

Judgmental biases are pervasive. In marketing, many such biases have been found in the performance evaluation of sales personnel (Gentry, Mowen, and Tasaki 1991). The objective of this section is to highlight performance evaluation biases

found in sales management. These biases are related to the outcome bias and may be generalized to health care service providers.

In personal sales, it is common for sales managers to base performance primarily on outcomes (i.e., sales results). In fact, sales managers have a strong tendency to emphasize outcomes rather than the process to determine compensation (Churchill, Ford, Hartley, and Walker 1985). However, as much more is required of sales people than merely consummating a sale, other factors should be considered in evaluating a salesperson (Churchill, Ford, and Walker 1990). Consequently, the evaluation process should include behavioral criteria (i.e., process factors), not just performance measures based on outcome (Gentry, et al. 1991). Such process factors might include those factors which Gentry, et al. (1991) posited that influence performance: (1) employee's motivation, (2) employee's skill/aptitude, (3) environmental difficulty, and (4) chance.

Anderson and Oliver (1987) compared and contrasted two types of control systems for salespeople: behavior-based and outcome-based. In an outcome-based system, individuals are evaluated strictly on results (outcomes) and not according to how they accomplish the results (behavior). For managers, the outcome-based approach is simple to implement. In contrast behavior-based systems hold individuals accountable for how results are attained. As a result, behavior-based approaches require more effort on the part of managers to control and

monitor employees. Thus, it is not surprising that outcome information tends to be overemphasized and process information underutilized when managers evaluate their employees (Jackson, Keith, and Schlacter 1983; Anderson and Oliver 1987).

Beyond the comparison of outcome to process-based evaluation systems, a framework using attribution theory has been applied to explain how managers evaluate employee performance. Attribution theory suggests that individuals seek reasons for the outcome of behaviors and base evaluations more on attributed reasons than the actual outcome (Weiner 1972). Prior research using the attributional framework for studying salesperson performance evaluation has focused on internal versus external attributions. Internal attributions represent such personal characteristics as ability and effort while external attributions are comprised of situational or environmental factors (McKay, Hair, Johnston, and Sherrell 1991).

Except for the work of Mowen, Fabes, and LaForge (1986), prior research on salesperson evaluation using attribution theory has reported internal attributions are more important than external attributions (Mowen, Brown, and Jackson 1980-81; Mowen, Keith, Brown, and Jackson 1985; Dubinsky, Skinner, and Whittler 1989). Given the suggested importance of internal attributions, McKay et al. (1991) examined how sales managers base their assessments of others. They found that sales managers consider the salesperson's ability and effort. When low effort was attributed for poor performance, punitive

actions were more likely than when sales managers attributed low ability for the task with poor performance.

In sum, the sales management literature may provide some insight into how patients evaluate health care providers. Patients likely rely upon some form of either outcome or behavior-based systems. Additionally, patients may make either internal or external attributions when evaluating one's performance.

There is a caveat in comparing managers evaluating sales personnel with patients evaluating health care providers. That is, evaluating health care service providers may be more difficult for patients than for a manager to evaluate employees' performance. Lupton, et al. (1991) suggested that patients are unable to critically evaluate health care alternatives because of a lack of motivation and an inherent trust in their physicians. In addition, patients and managers would seem likely to vary in their level of knowledge, expertise, motivation, ability, and observation to critically evaluate the performance of others. Thus, patients may rely more on outcomes.

#### Health Care Judgmental Biases

The Outcomes Movement. As modern medicine has progressed, so have the perceptions and treatment of patients. The view about how people got sick was changed significantly by the transformation of illness from an individual experience to a group experience in the 17th century. As the 20th

century began, medicine was viewed more as a science and judgment bias was thought to be reduced. Patients were categorized more in terms of how they were alike than how they differed (Reiser 1993).

In response to the dehumanization of patients, a movement emerged in the 1950's which focused on the rights of patients. Consequently, this modern medical ethics movement accelerated new ethical approaches to medicine and created more patient rights (Reiser 1993).

The "modern outcomes movement" of the 1980's was the latest effort to increase the power of patients and give them more choices. The modern outcomes movement was the most recent period in the evolution of medicine where the consequences of the care patients received was the most important criteria for assessing the value of the service. It was marked by an intense interest in measuring the outcomes of health care. This period was driven by increasing costs, variations in physician treatments, and a desire to have unique needs of individuals emphasized over groups. Consequently, health care providers have begun to make greater efforts to analyze the outcomes of patient care and view success or failure from the patient's perspective (Reiser 1993).

Health Care Studies of Outcome and Process. It is interesting to recognize that as in sales management, health care researchers have also distinguished between outcomes and processes in evaluating performance and care delivery.

Tarlov, Ware, Greenfield, Nelson, Perrin, and Zubkoff (1989) utilized both behavioral-based and outcome-based systems to monitor the results of medical care. Process of care (i.e., behavioral-based system) was identified by: (1) technical style (e.g., continuity and coordination of care) and (2) interpersonal style of the provider (e.g., mannerisms, level of communication). Outcomes (i.e., outcome-based system) were operationalized by: (1) clinical end points (e.g., symptoms, death), (2) functional status (physical, mental ability), (3) general well-being (e.g., pain, energy, life satisfaction) and (4) satisfaction with care (e.g., quality, general satisfaction, convenience). Published results were not yet available for this longitudinal study but the design highlighted a need to compare behavioral and outcome-based systems.

Process and outcomes have been operationalized in other forms as well. In health care, some of the outcome definitions have included: (1) patient's perception, (2) practitioner's perception, (3) recidivism, and (4) patient progress (Barnes 1991). Regarding measures of health care process, Bales (1950), Roter (1977), and Stiles (1978) each developed process-based scales to describe doctor-patient interactions. Each scale identified types of communication styles (i.e., shows tension release by joking or laughing). In an outcome-based doctor-patient interaction analysis, Inui, Carter, Kukull, and Haigh (1982) used the three process scales in conjunction with outcome measures of knowledge, patient



satisfaction, and compliance. They found that the communication process styles provided modest to moderate explanatory power of outcomes.

From the description of the Inui, et al. study, the researchers conceptualized treatment process to predict the outcome. In their study, satisfaction was viewed as an outcome. Quality of care has been used in a number of studies as the measure of outcome (Frank 1968; Friedman 1963; Olshavsky and Miller 1972). The assumption in these studies was that if the patient gets well, the consumer is satisfied. The belief that a positive outcome equals satisfaction is logical, yet there is evidence that a healthy but unhappy or a happy but unhealthy patient exists (Ross, Frommelt, Hazelwood, and Chang 1987). Also, little effort seems to be made to discriminate service quality from patient satisfaction.

Quality was conceptualized as an outcome in a study by Donabedian (1981). He believed that process and outcome were complementary, where process meant the medical staff did the proper things with equipment and quality of outcome meant the patient got well.

Gabbott and Hogg (1994) attempted to shed some light on the discrepancy of service quality and satisfaction. They asserted that what is being sought by patients is health, not the care per se. Desire only for health but not the quality of care may imply that service quality is based on the treatment process while satisfaction is derived from the

goodness or badness of the outcome.

Yet, others strongly suggest that both process and outcome contribute to patient satisfaction. Expectancy disconfirmation theory has been applied to both treatment process and outcome (Ross, et al. 1987). Noyes, Levy, Chase, and Udrey (1974) defined expectations in terms of process (e.g., time spent, cost, and pain) while Burton and Wright (1980) defined them as pain, mobility, deformity, and postoperative care. Such conceptualizations suggest that process expectations may be integral to expectation/satisfaction theory and satisfaction is not exclusive to treatment outcome.

Process treatment was used as the criteria for patient satisfaction in a study by Glassman and Glassman (1981). Determinants of dis/satisfaction were based on how the patients perceived their interaction with the doctors. For example, most satisfied patients indicated their physician had a good personality or communicated well. According to the patients, the most dissatisfying process events were seeing a different doctor each time and long waiting durations.

Most interesting, Lytle and Mokwa (1992) found evidence that "process variables" are not as important in patients' evaluations of health care quality when successful outcomes (e.g., pregnancy) are attained. Yet, when unsuccessful outcomes occurred, health care "process variables" were important to the patients. The purpose of the study was to examine the impact of an objective outcome on the perceptions

of health care quality using the "gap analysis model" by PZB (1985). When each phase of the health care consumption process was considered (pre-encounter, encounter, and post-encounter), the patients were able to form perceptions of health care quality. Three dimensions of the health care offering were analyzed: physician interactions, staff interactions, and the physical environment. The findings indicated that service outcomes moderate the influence of health care delivery variables on patients' health care quality assessment.

A final issue concerns whether or not patients are even capable of assessing how they have been treated. Some researchers have suggested that patients are incapable of determining whether or not they have been treated in the most beneficial way (Gabbott and Hogg 1994) or even knowing what is a good/bad doctor (Lupton et al. 1991). Such assertions may be based on the nature of health care services that have few if any search qualities, great technical expertise, and are difficult to assess after the fact (e.g., do you really know how good the service was when you were unconscious during surgery?). As a result, many patients evaluate health services either based on the improvement of their symptoms or on the credibility of the doctor because they are motivated to believe in the health care provider's ability to help (Gabbott and Hogg 1994; Lupton et al. 1991).

Overall, the judgmental bias literature in both marketing and health care has demonstrated a clear understanding that

behavioral-based and outcome-based systems impact performance evaluation differently. Thus, the judgmental bias literature highlights the need to understand which systems patients use to evaluate services and how they impact patient satisfaction.

### Summary of Literature

This dissertation provided an overview of several related research streams and discusses their relevance to the marketing of health care services. First, the review discussed the current literature of satisfaction and service quality in marketing and health care. Several models of satisfaction were presented. The constructs of satisfaction and service quality were distinguished and service quality was identified as an antecedent to satisfaction. Also, the link between patient satisfaction and sociodemographics were discussed.

Second, the literature of health care choice and desire for control was reviewed as factors that may impact satisfaction. Findings were somewhat mixed regarding the influence of these factors on patient satisfaction. For example, there was evidence that many patients may not seek to maximize their choices when selecting care providers. Overall, there was more support in the literature for the proposition that having the freedom to choose and having control over a health care situation yields more satisfaction than being deprived of choice or control.

Finally, the outcome bias literature and other research

related to judgmental biases were reviewed. The six known studies which explicitly addressed the outcome bias phenomenon were discussed in detail. Strong support for an outcome bias was provided in a variety of applications, including health care, public policy, and personal sales. Other judgmental biases related to the outcome bias in both marketing and health care were discussed and linked to satisfaction. Also, studies involving comparisons of both outcome-based and behavioral-based variables in health care were examined. Overall, this literature suggested that outcome knowledge influenced satisfaction and may be moderated by process (behavioral-based) variables depending on whether the outcome was good or bad.

## CHAPTER III

### STUDY ONE: CHOICE AND OUTCOME BIAS

#### Introduction

Although empirical work has been devoted to the effects of outcome knowledge in health care and the role of freedom of choice in patient satisfaction, there has been no attempt to investigate the joint effects of freedom of choice and outcome knowledge on satisfaction with health care. Given the review of the literature presented in Chapter II, there is clearly a gap in linking these constructs. Thus, the goal of this dissertation is to bridge this gap through a series of studies which empirically test the shared impact of freedom of choice and outcome knowledge on patients' satisfaction with health care.

The purpose of this chapter is to provide a complete overview of the first study of the dissertation which examines the joint effect of freedom to choose a physician and outcome bias on patient satisfaction with health care. This chapter develops the theoretical background, hypotheses, methodology, results, and discussion for Study One.

#### Theoretical Background

The first two theories discussed in this section are

attribution theory and cognitive dissonance theory. Both theories are considered relevant because they account for both cognitive and affective reactions to outcomes given conditions of either constrained or free choice. Thus, the goal is to provide a more comprehensive approach to explaining and hypothesizing a phenomenon using two related theories from different perspectives (cognition-based and affect-based).

The third model presented is the outcome bias. The outcome bias phenomenon is discussed in terms of its relationship with freedom of choice.

Attribution Theory. Attribution theory is primarily concerned with how people assign causality for events. Kelley (1967) defined attribution as the process of perceiving the dispositional properties of entities in the environment. Attribution theory is important to this research because there is empirical evidence that attributions influence satisfaction (Folkes, Koletsky, and Graham 1987). That is, the attributions made by people moderate feelings of CS/D about services and products.

Attributions were classified by Weiner (1980) into three underlying causal properties or dimensions: (1) stability, (2) locus, and (3) controllability. Stability refers to whether the cause is temporary or permanent. Locus describes if the cause is within or outside the consumer. Controllability suggests whether or not choice was involved in the causal action (Folkes 1984). Thus controllability may indicate control over the solution to a problem (Folkes et al. 1987).

Weiner's classification is relevant to the current research because satisfaction has been linked to each of the three causal properties we identified. First, the stability of causes influences CS/D. Given a bad outcome, stable causes create more dissatisfaction than temporary causes (Weiner, Graham, and Chandler 1982).

Regarding locus of control, research by Folkes (1984) indicated that when products fail (i.e., a negative outcome occurs), consumers search for causes. When the cause is attributed to the product or service, consumers tend to be more dissatisfied than if failure is attributed to either chance or actions on the part of the consumer.

Controllability also influences CS/D. When a bad outcome is attributed to the controllable act of another, the consumer tends to become more dissatisfied than if the cause was attributed to an uncontrollable act (Hamilton 1980). For example, consumers would be less dissatisfied if the delay for an airplane was due to an uncontrollable factor (e.g., weather) than a controllable factor such as poor management (Folkes et al. 1987).

Thus far, the discussion of attribution theory has focused on the basic dimensions of causal properties and how they are linked to satisfaction. It is anticipated that the conditions of choice and outcome in the studies will stimulate the subjects to assess causality and in turn impact CS/D based on these three causal properties.

Attribution theory sheds additional light on how



causality is inferred through several heuristics. For example, the fundamental attribution error asserts that individuals tend to overestimate personal causes (i.e., internal attributions) and underestimate situational factors (Ross 1977). Another tendency known as the discounting principle posits that people discount a cause if other explanations exist. Related to the discounting principle is the augmenting principle, which states that more weight is given to an action that is of a contradictory nature than for similar, unconstrained behavior (Kelley 1973).

No direct relationship was found between these attributional tendencies and satisfaction. However, it is reasoned that these biases may moderate satisfaction by affecting the directionality (i.e., internal or external) of the underlying attribution dimensions.

Further, attribution theory asserts that people naturally tend to assign causality for events but they are even more compelled to do so for outcomes which are negative or unexpected (Folkes 1982). In the instance of negative outcomes, there is evidence that individuals tend to not accept responsibility for any failure by making external attributions to situational factors (Bettman and Weitz 1983; Taylor and Koivumaki 1976). Conversely, individuals tend to make attributions of success to themselves (Harvey, Arkin, Gleason, and Johnston 1974).

Within a health care setting, Harvey et al. (1974) found therapist subjects' self-attributions of causality were higher

for positive outcomes and lower for negative observed therapy outcomes. In addition, when subjects were not given a choice in determining the type of therapy given, they did not feel personally responsible for the outcome.

There is evidence that when outcomes are expected for either one's self or another, the outcomes tend to be internally attributed to ability (Deaux 1976). However, when outcomes are unexpected, attributions tend to be more external about either one's own performance and for that of others. Thus, unexpected outcomes appear to be attributed less to ability and more to luck (Zuckerman 1979).

In sum, attribution theory gives some guidelines for reactions toward the factors of choice and outcome. In particular, individuals are expected to be more satisfied in conditions with free choice than when consumer choice is constrained. For example, subjects are expected to make internal self-attributions for good outcomes given free choice and external self-attributions for bad outcomes if not given a choice. Further, subjects will likely assess the condition of having a choice as providing more locus, stability, and controllability than having a constrained choice. Finally, attributions are expected to moderate satisfaction by the fundamental attribution error, the discounting principle, and the augmenting principle.

Cognitive Dissonance. In addition to attribution theory, the theory of cognitive dissonance (Festinger 1957) may provide explanations for patient satisfaction given varying

conditions of choice and outcome. The premise of cognitive dissonance theory is that people have a need for cognitive consistency (Aronson and Carlsmith 1962). The theory posits that when one holds two ideas which are psychologically inconsistent or dissonant, this creates discomfort. The individual then tries to reduce the dissonance and actively avoid situations that may increase it. The individual experiencing dissonance may attempt to make the conflicting ideas more consonant by changing or distorting either one or both of the cognitions (Festinger 1957).

According to the theory, a number of conditions must be present for cognitive dissonance to take place. These conditions are: low reward (Festinger and Carlsmith 1959), high degree of voluntary action (Davis and Jones 1960), unpleasant consequences (Cooper and Worchel 1970), and a belief that one has a high degree of personal responsibility for the action and its consequences (Cooper 1971). Within the current research, certain conditions of choice and outcome provide the prerequisites for dissonance. For example, the bad outcome has the element of unpleasant consequences. Additionally, the condition of having a choice in selecting a physician infers a high degree of voluntary action with the potential for personal responsibility (i.e., an attribution that the locus of causation for an even is internal).

In a classic study by Festinger and Carlsmith (1959), subjects performed a dull task and were paid either \$1 or \$20 to convince others that the task was interesting and

enjoyable. The people who were paid more did not have to justify their actions and as a result rated the task as boring. However, those who were paid \$1 resolved their dissonance by claiming the task was indeed interesting and enjoyable.

Aronson (1968) suggested that dissonance theory is not limited to counterattitudinal statements. That is, behavior that threatens one's self-esteem may also create dissonance. There appears to be a relationship between attitudes and behavior. In this relationship, attitudes may affect behavior or behavior may affect attitudes (Aronson 1969). Thus, one's selection of a doctor could be capable of affecting one's attitude just as much as a conflicting cognition. For example, if a patient had to choose between several doctors, he would be likely to experience dissonance if:

- (1) The qualifications of the doctors were very similar, with each doctor having both positives and negatives.
- (2) The consequences were threatening to health or life.
- (3) The patient felt responsible for the outcome.

Thus, if the doctors were similar, then the patient might try to second guess his first choice. If the consequences were bad, he might dwell on what could have done to prevent a bad outcome. Also, if the patient felt responsibility, then he would have difficulty with merely blaming others for the outcome.

Since its inception, dissonance theory has yielded

alternative interpretations. Based on the earlier work of Cooper and Fazio (1984), Scher and Cooper (1989) asserted that dissonance should not be viewed as a condition motivated by inconsistency. Rather, they argued that it is the aversiveness of some consequence that brings about cognitive dissonance. They felt that inconsistency was neither necessary nor sufficient for cognitive dissonance. Further, they suggested that dissonance occurs only when people notice that an aversive event has been brought about which activates a search for responsibility (similar to attribution theory). If attributions of self-responsibility are made, then dissonance occurs. Afterwards, the person may attempt to change perceptions of self-responsibility, of the consequences, or even the aversiveness of the outcome if situational variables allow for it (Scher and Cooper 1989).

In sum, cognitive dissonance theory provides insight into how patients may respond to conditions of varying choice and outcome favorability. If one made a choice and a bad outcome occurred one would initially feel more dissonance but likely be more satisfied than if one had no choice and a bad outcome resulted. By having a choice and feeling more responsibility, an individual is more likely to resolve any dissonance by not giving into the negative implications of the outcome and thus justify his choice by claiming to be more satisfied (i.e., similar to the Festinger and Carlsmith 1959 study).

Outcome Bias and Freedom of Choice. The outcome bias phenomenon suggested that when evaluating the performance of

others, the outcome becomes more important than other factors (i.e., decision appropriateness). However, the question of how important outcome is when the factor of freedom of choice is considered has not been addressed and must be answered empirically.

An outcome bias is expected, but only for conditions where individuals' freedom of choice is constrained or perceived to be constrained. Given a choice or the perception of choice, individuals are more likely to feel responsible for the outcomes. Although the good outcome is more desirable, the subjects may not be substantially less satisfied given a choice and a bad outcome. It is reasoned that given a choice and a bad outcome, individuals may either: (1) resolve their dissonance that they made a bad choice and express more satisfaction, or (2) make attributions external to either themselves and the care provider (i.e., attribution to chance) and blaming nobody. Thus, the bad outcome with choice may be viewed as an uncontrollable, unstable condition, yielding low dissatisfaction. In either case, the amount of dissatisfaction would be lessened (i.e., either using dissonance or attribution theory). In contrast, if choice was constrained with a resulting bad outcome, dissatisfaction would be expected because attributions may be directed at the provider if the patient had no choice. Also, there would be no felt responsibility on the part of the patient.

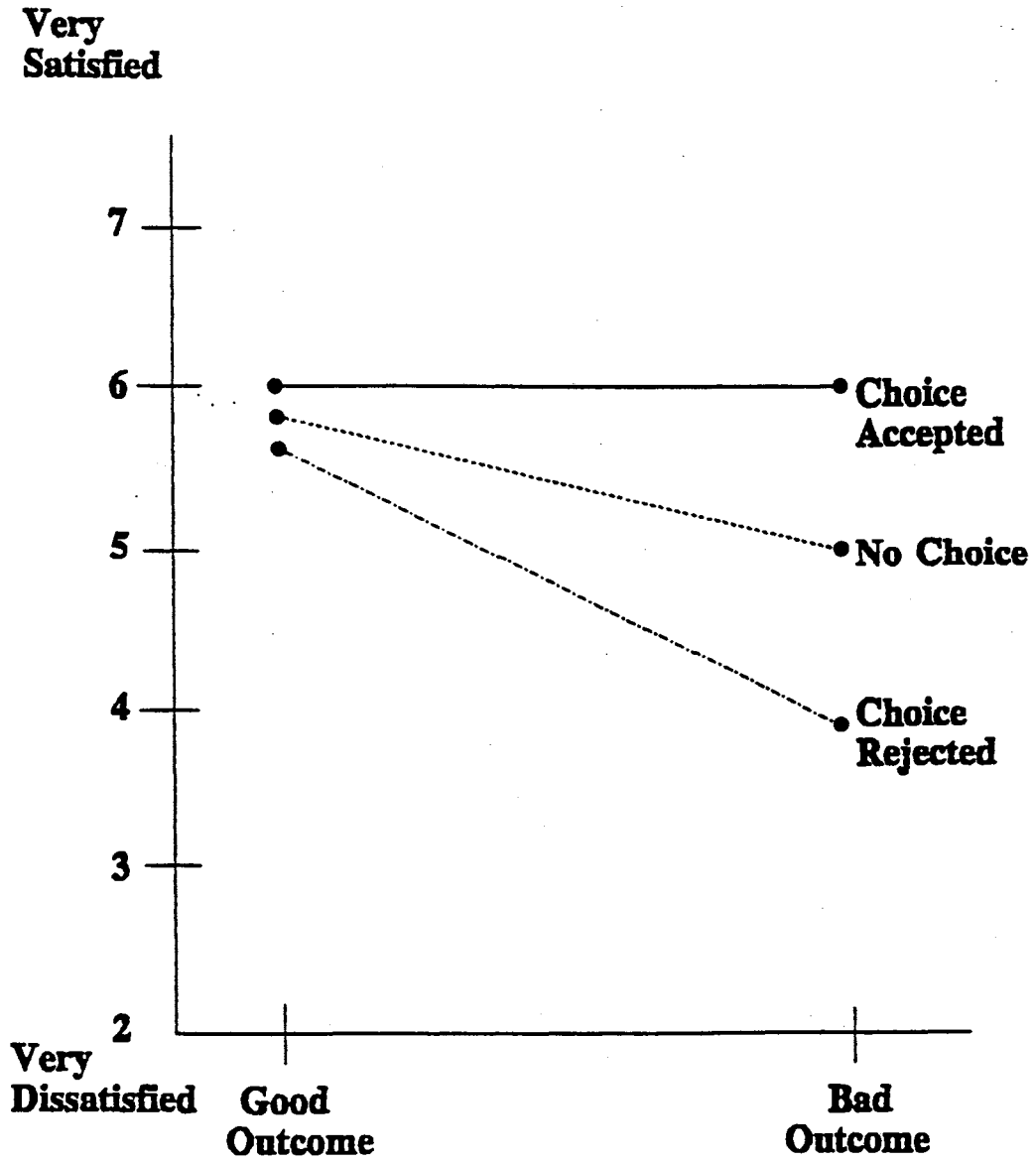
## Hypotheses

The following section presents the hypotheses of Study One. Before the hypotheses are presented, an important term must be clarified. One of the terms identified in the hypotheses is "rejected choice." This term was not taken from the literature but is specific to this dissertation. The term refers to a condition where one's choice or selection of a doctor is not honored. Rather, the individual in the "rejected choice" condition does not receive the doctor he chose, but receives a less desirable doctor that was not chosen. Thus, the individual's choice has been rejected.

Based on the prior presentation of the theoretical conceptualization and literature review, the following hypotheses are forwarded for Study One.

- H1 A magnitude interaction will occur between choice and outcome.
- H1a Within the accepted choice condition, subjects' satisfaction will not differ between a good outcome and a bad outcome.
- H1b Within the no choice condition, subjects will be more satisfied with a good outcome than a bad outcome.
- H1c Within the rejected choice condition, subjects will be more satisfied with a good outcome than a bad outcome.
- H2 Subject satisfaction levels among the three choice conditions will be different within a bad outcome but not different within a good outcome.
- H2a Given a bad outcome, subjects in the accepted choice condition will have more satisfaction than subjects in either of the other two choice conditions.
- H2b Given a bad outcome, subjects in the no choice condition will have less satisfaction than subjects in the accepted choice condition but more satisfaction than subjects in the rejected choice condition.

**FIGURE I**  
**STUDY ONE HYPOTHESES**





H2c Given a bad outcome, subjects in the rejected choice condition will have less satisfaction than subjects in either of the other two choice conditions.

Refer to Figure I for a graphical illustration of the hypotheses for Study One.

### Method

Study One of the dissertation drew upon the outcome bias literature, attribution theory, cognitive dissonance theory, and focuses on the need for freedom of choice in a health care setting. The goal of Study One was to assess patient satisfaction with health care given the factors of the freedom to choose a physician in combination with good and bad outcomes resulting from a doctor-patient interaction. Prior research has empirically tested the outcome bias in a number of fields (e.g., Baron and Hershey 1988; Lipschitz 1989; Marshall 1993; Marshall and Mowen 1993; Mowen and Stone 1992; Mitchell and Kalb 1981). These studies either manipulated the outcome while holding decision process variables (decision appropriateness) constant or manipulated both outcome and process variables. Study One of the dissertation manipulated the outcome while holding all process variables constant (except freedom of choice and physician received).

In addition to manipulating outcomes, Study One also manipulated the level of freedom to choose a physician. Other studies reviewed in the literature manipulated freedom of choice with somewhat mixed results (e.g., Curbow 1986; Devine and Fernald 1973; Hollander-Goldfein 1979; Langer and Rodin

1976; Manthei 1983; Manthei et al. 1982; Rodin, Rennert, and Solomon 1980; Strong and Claiborn 1982; Sutherland et al. 1989; Timko and Moos 1989). Several studies have indicated that freedom of choice or level of control over treatment may not be important to patients (e.g., Manthei et al. 1982; Sutherland et al. 1989; Rodin et al. 1980). It may be that desired level of choice is situation-specific or even person-specific. However, most of the studies found a positive relationship between freedom of choice/control and satisfying reactions. Given the substantial support for perceived importance of freedom to choose and the potential for bias given outcome knowledge, Study One sought to empirically test the joint effects of these two factors.

This section presents the method for Study One. The method section is divided into the following six sub-sections: (1) a summary of the design, (2) the stimulus materials used in the experiment, (3) the subjects, (4) the procedure, (5) measured variables, and (6) the method of analysis to test the hypotheses.

Design Summary. The choice and outcome bias study used a 3 X 2 full factorial between subjects design. The variables manipulated in the study were choice and the outcome of the encounter at the medical clinic. Three levels of choice were manipulated:

- (1) Patient Choice Accepted: The subjects were allowed to select their preferred physician for treatment and received that particular physician.

- (2) No Choice: The physician was assigned to the subject without any opportunity to choose a physician.
- (3) Patient Choice Rejected: The subjects were allowed to select their preferred physician but another, non-preferred physician was assigned to the subject without any explanation.

Two levels of outcome were manipulated:

- (1) Good Outcome: Recovery from the illness required only 4 days after the office visit.
- (2) Bad Outcome: Recovery took 14 days after the office visit.

Expectation for recovery from the illness was stated as being 7 days.

Development of Stimuli. The scenario developed in this dissertation was created with the intent of providing a realistic health care encounter that most individuals could relate to. The author worked with academicians, physicians, and other medical personnel in formulating the illness symptoms, the descriptions of doctors in the scenario, the procedure of treating the patient, and the doctor's final recommendation. Initially, a local clinic was consulted regarding the accuracy of the illness symptoms and treatment. Then, a professor of medicine provided feedback on the scenario. Afterward, three doctors from a clinic reviewed the entire scenario and provided suggestions for all aspects of the instrument to ensure both accuracy and realism.

Pretest. Before the experiment was conducted, the list of hypothetical physicians that the subjects would read about in the experiment was pretested by a separate sample of students. The purpose of the pretest was to identify which of the hypothetical physician profiles would be most/least desirable and why. Another purpose of the pretest was to create a list so that only two of the physicians would be comparably attractive, to create an element of conflict and cognitive dissonance for the experiment. In brief, subjects were told they had a chronic cough with phlegm, draining sinuses, difficulty breathing, a sore throat, congestion, and nausea. They were given a list to select their most preferred physician to treat the ailment. The list contained an older physician (Otis Kramer), a woman doctor (Mary Smith), a Chinese doctor (Fen-Hong Tsiao), a young D.O. with fairly impressive credentials (Harry DeYoung), and a doctor from an impressive school with excellent experience (Richard Wright). Dr. Wright was predicted to be the most preferred, while Dr. DeYoung would be the second most desirable, and the other three doctors would be about equally less desirable (i.e., because of their areas of interest and characteristics).

Two phases of physician list pretesting took place. In the first pretest, thirty-six subjects were pretested with the list. Harry DeYoung (D.O. from the Texas College of Osteopathic Medicine, finished residency at Fort Worth Medical Center in 1993 with an interest in ear/nose throat care) was selected first by 58% of the subjects. The other 42% selected

Richard Wright (M.D. from Johns Hopkins University, finished residency at the Mayo Clinic in 1978 with an interest in family and general medicine) as most desirable. Subjects preferred DeYoung most because of the ear/nose/throat interest.

In the second phase of pretesting, another set of students (n=40) was given a list of physicians similar to the previous one except that Dr. Wright now had an interest in ear/nose and throat care while Dr. DeYoung had an interest in family and general medicine. Seventy percent (28) of the students selected Dr. Wright while thirty percent (12) selected Dr. DeYoung.

After the battery of physician pretests, several physicians and experts in the medical research field were consulted for authenticity and believability of the physician profiles, in addition to all other aspects of the experimental scenario. More minor adjustments were made based on their recommendations.

Subjects. Subjects for the first study were 152 undergraduate students enrolled in upper-division marketing classes at a major midwestern university. Forty-nine percent of the sample was male and fifty-one percent was female. Sixty-eight percent of the subjects were between the ages of 18-21, 22% were between 22-25, 3% were between 26-29, and 7% were 30 years of age or older. The majority of the subjects were U.S. citizens (86%). Most non-U.S. subjects were Asian.

Procedure. The experiment was conducted in two parts. In the first part, subjects received a cover sheet with instructions explaining that they would read a scenario and give responses based on information in the scenario. A second page contained the scenario where subjects imagined they were suffering from cold-like symptoms and visited a health clinic. Within the first two pages of the stimuli, all subjects received the same information except two-thirds of them were instructed to choose their doctor while the remaining one-third were informed a doctor would be assigned to them.

After instructions for the first part were followed, all subjects randomly received the second half of the scenario indicating which physician they received, the examination procedure by the doctor, and the outcome of the encounter. The experiment was done in two parts so that subjects in the choice condition would feel a sense of control/choice after making their selection. After the experiment was conducted, subjects were debriefed.

The experiment was administered in three different classes at the midwestern university on two different days in the same week. Subjects were informed that this was a study about attitudes toward health care given a particular scenario and their opinions were needed. Participation was voluntary and subjects were advised that there would be no means to identify them individually.

### Manipulation Checks

Outcome. As a manipulation check to determine how subjects in each of the conditions perceived differences in the outcome, subjects were asked to indicate: (1) the number of days the illness persisted, (2) the number of days the illness was expected to persist, and (3) the final outcome. Questions 1-3 (See Table I of results) represent the outcome manipulation checks.

Choice. Subjects were asked two manipulation check questions related to their understanding of choice. They were asked to determine whether the physician was selected or assigned. In addition, subjects were asked whether they had a choice in the selection of their physician. Refer to questions 4 and 5 in Table I for the exact wording of the choice check manipulation questions.

A final manipulation check was made to determine if the subjects could remember their attending physician. This question (item 6 of Table I) relates to choice. Although this manipulation check did not directly ask the subject which choice condition they were in, the author believes it is fundamental that the subjects be able to remember which physician provided treatment.

Dependent Measures. The dependent measure was a global measure of satisfaction, expressed as patient satisfaction with health care. Thus, the satisfaction measure in this dissertation represented a measure of the subjects' overall

satisfaction with their health care experience which included all aspects related to the treatment process, the doctor, any health personnel, the clinic, and the outcome of the visit. This broad conceptualization of patient satisfaction with health care remained the same in each of the three studies.

In Study One, global satisfaction was the summation of ten items measured on seven point Likert Scales with descriptive anchors of "Not at all" and "Very." Four of the items included dimensions of SERVQUAL (Parasuraman, Zeithaml and Berry 1988). Other measures included: future behavioral intentions, likelihood to recommend the doctor, overall satisfaction, impression of the physician, perceived effort put forth by the physician, and perceived skill of the physician.

Data Analysis. Study One was analyzed using ANOVA to test all hypotheses. *A priori* orthogonal comparisons of means by F-tests were used to analyze hypothesized relationships with patient satisfaction with health care as the dependent measure. For the exploratory analysis, the least significant difference (LSD) multiple comparison *a posteriori* procedure was used.

## Results

The results section is organized with the following subsections: (1) key variables, (2) manipulation checks, (3) measure of reliability, and (4) tests of hypotheses.



Key Variables. Study One used the following levels of key variables:

- 1) Choice Accepted - The condition where the patient received the physician he/she selected.
- 2) Choice Rejected - The condition where the patient did not receive the physician he/she selected.
- 3) No Choice - The condition where the patient was not given the opportunity to select a physician and was assigned a physician.
- 4) Bad Outcome - The condition where the patient became well 4 days after the clinic visit.
- 5) Good Outcome - The condition where the patient became well 14 days after the clinic visit.
- 6) Satisfaction - The dependent variable of global patient satisfaction that utilized a ten-item 7-point Likert Scale.

#### Manipulation Checks

Outcome. Three manipulation check questions were utilized for the condition of outcome. Overall, the subjects' seemed to interpret the conditions as expected. The mean percentage of correct responses for the outcome manipulation check questions for the six condition groups was 92.8%. The percentage of correct responses to manipulation check questions on outcome for each of the six conditions ranged from 85% to 100%. Refer to questions 1-3 of Table I for a detailed summary of correct percentage responses for the

TABLE I  
MANIPULATION CHECKS

EXPERIMENTAL CONDITION	% COR Q.1	% COR Q.2	% COR Q.3	% COR Q.4	% COR Q.5	% COR Q.6
CHOICE/OUTCOME						
ACCEPTED/GOOD	92	96	96	88	84	100
ACCEPTED/BAD	90	100	95	71	81	100
NONE/GOOD	86	85	96	89	72	100
NONE/BAD	91	91	91	94	88	94
REJECTED/GOOD	100	92	100	92	64	100
REJECTED/BAD	85	90	95	81	71	95

**OUTCOME**

- Q.1 = "HOW MANY DAYS DID YOUR ILLNESS PERSIST AFTER YOUR VISIT TO THE PHYSICIAN?"  
(2/4/7/10/14/17/21 DAYS)
- Q.2 = "HOW MANY DAYS DID YOU EXPECT TO HAVE THE SYMPTOMS?"  
(2/4/7/10/14/17/21 DAYS)
- Q.3 = "WHAT WAS THE FINAL OUTCOME OF YOUR VISIT TO THE MEDICAL CENTER?"  
(EARLY RECOVERY/RECOVERED ON TIME/LATE RECOVERY)

**CHOICE**

- Q.4 = "THE PHYSICIAN WHO EXAMINED YOU WAS (SELECTED BY YOU/ASSIGNED TO YOU)?"
- Q.5 = "DID YOU HAVE A CHOICE IN THE SELECTION OF YOUR PHYSICIAN?"  
(YES/NO)
- Q.6 = "THE PHYSICIAN WHO ATTENDED TO YOU WAS: (OTIS KRAMER/MARY SMITH/FEN-HONG TSIAO/HARRY DEYOUNG/RICHARD WRIGHT)"

outcome manipulation.

Choice. Two manipulation check questions were used to assess the subjects' understanding of the choice condition they received. In general, the subjects seemed to be aware of whether or not they had a choice. The mean percentage of correct responses for the choice manipulation check questions for the six condition groups was 81.25%. The range of percentages for correct answers for each condition ranged from 64% to 94%. The two lowest percentages were for the rejected choice conditions. Perhaps the wording of the question was ambiguous for these subjects as it read: "Did you have a choice in the selection of your physician?" These subjects may have become confused whether or not they had a choice because the subjects were given a choice which was later rejected. Interpretation of whether a choice actually occurred could have been questioned but the wording of the manipulation check question should have been more specific here. Based on an informal post experimental discussion, subjects in the rejected choice clearly understood that they had been given the choice to pick a physician but were not allowed to get their choice. Subjects verbally expressed dissatisfaction with having their choice disconfirmed.

Finally, the percentage of correct responses was high regarding subjects' memory of which physician attended to them. Four of the six condition groups answered 100% correctly while the other two were acceptable at 94% and 95% correct responses to which physician provided the treatment.

TABLE II  
SATISFACTION SCALE

STUDY ONE

<u>SCALE ITEMS: Coefficient Alpha=.949</u>	<u>ITEM-TO-TOTAL CORRELATIONS</u>
"The service provided by (Dr. Wright or Dr. Tsiao) can be best described as _____."	
1. Not at all Professional/Very professional	.68
2. Not at all Prompt/Very Prompt	.55
3. Not at all Trustworthy/Very Trustworthy	.74
4. Not at all Caring/Very Caring	.65
5. "How likely are you to recommend Dr. Wright/Dr. Tsiao to a friend?"	
Not at all Likely/Very Likely	.88
6. "If you have another illness, how comfortable would you be with seeing Dr. Wright/Dr. Tsiao again?"	
Not at all Likely/Very Likely	.86
7. "Rate your overall satisfaction of your experience with Dr. Wright/Dr. Tsiao."	
Not at all Satisfied/Very Satisfied	.88
8. "What is your overall impression of Dr. Wright/Dr. Tsiao."	
Not at all Favorable/Very Favorable	.92
9. "How would you rate Dr. Wright's/Dr. Tsiao's overall level of effort in treating your illness?"	
Not at all Favorable/Very Favorable	.82
10. "Rate Dr. Wright's/Dr. Tsiao's skill level as a physician."	
Not at all Favorable/Very Favorable	.88

Note: Each item utilized a 7-point Likert Scale. The items were worded so that a higher score represented more satisfaction.

### Measure of Reliability

Cronbach Alphas and item-to-total correlations were calculated for the dependent measure of global patient satisfaction. Item-to-total correlations were generally high; 70 percent of the correlations were greater than  $r=.70$  and ranged from .549 to .922. The Cronbach Alpha of the global patient satisfaction was .949. Details of the reliability analysis for patient satisfaction are presented in Table II.

### Test of Hypotheses

Hypotheses 1, 1a, 1b, and 1c. The hypotheses predicted a magnitude interaction between choice and outcome. In the choice accepted condition, it was predicted that satisfaction would be unaffected by outcome. Yet in the no choice and choice rejected conditions, it was predicted that good outcomes would yield significantly higher satisfaction than bad outcomes. ANOVA was used to test all hypotheses. ANOVA results for the dependent variable satisfaction are given in Table III. The means, standard deviation, and number of subjects are presented in Table IV. Note that the mean satisfaction score was 3.5. Thus, any score above 3.5 was on the positive side of the satisfaction scale while any score below 3.5 represented a lower satisfaction score.

A significant main effect was obtained for the factor choice ( $F:6.09$ ;  $df=2,145$ ;  $p<.0029$ ;  $\Omega Sq.=.039$ ). Subjects rated satisfaction significantly lower ( $MEAN=4.71$ ;  $n=38$ ) when choice was rejected than either choice accepted ( $MEAN=5.55$ ;

TABLE III  
STUDY ONE ANOVA FOR SATISFACTION

Independent Variable	DF	Type III SS	F-value	PR > F	Omega Squared
Choice	2	12.33	6.09	.0029	.039
Outcome	1	90.64	89.50	.0001	.346
Choice * Outcome	2	4.12	2.04	.1344	-

Number of observations = 151.

TABLE IV  
STUDY ONE MEANS FOR  
SATISFACTION BY CONDITION

OUTCOME	CHOICE		
	ACCEPTED CHOICE	NO CHOICE	REJECTED CHOICE
GOOD	6.18 SD=.74 n=32	6.13 SD=.72 n=25	5.87 SD=1.10 n=17
BAD	4.86 SD=1.22 n=21	4.77 SD=1.18 n=35	3.76 SD=.99 n=21

n=46) or no choice (MEAN=5.44; n=67).

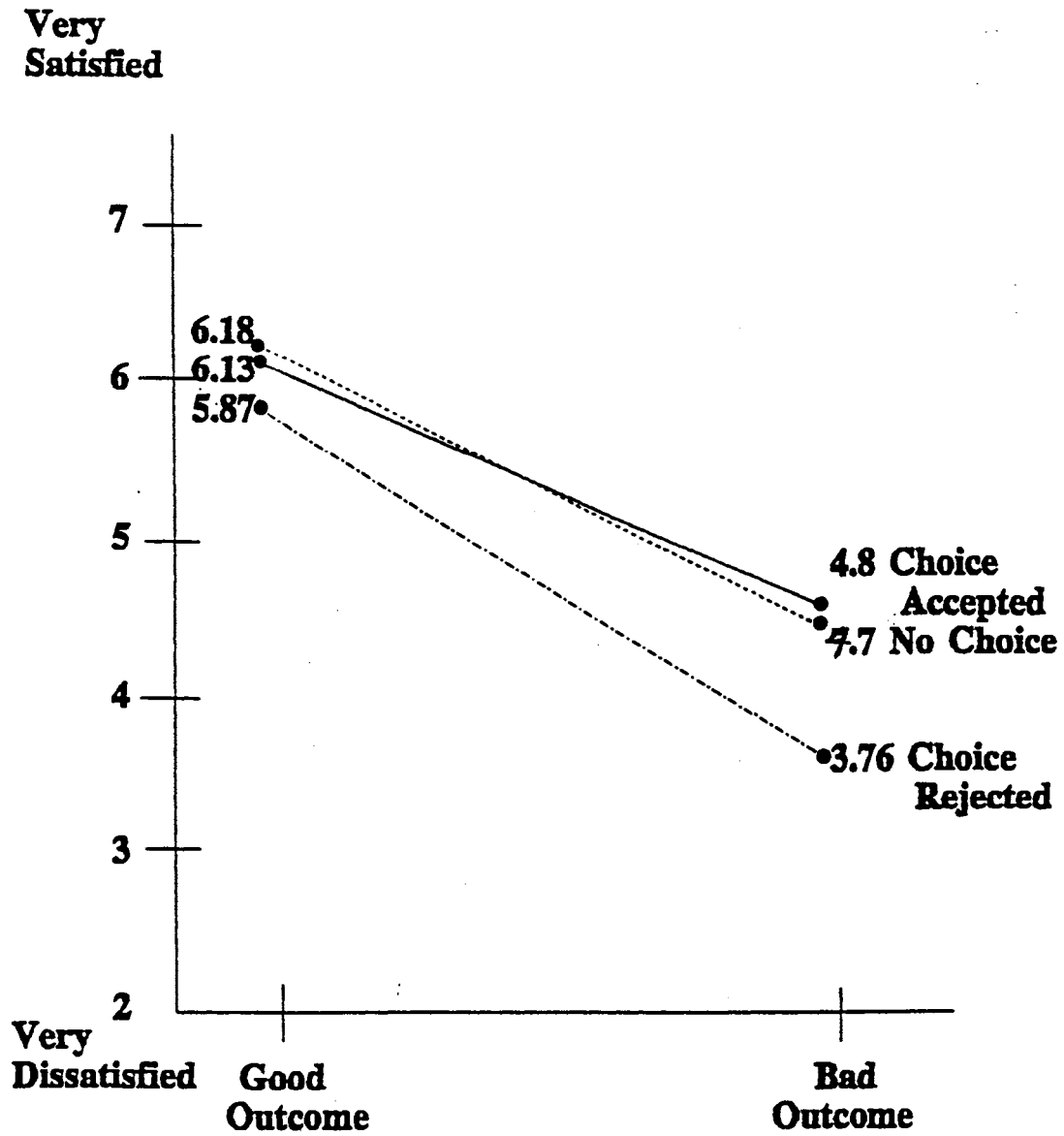
A significant main effect was also found for outcome (F:89.5; df=1,145;  $p < .0001$ ; Omega Sq.=.346). Subjects in the bad outcome condition rated satisfaction significantly lower (MEAN=4.51; n=77) than did those subjects in the good outcome condition (MEAN=6.095; n=74).

H1 predicted a magnitude interaction between choice and outcome. Results of ANOVA indicated there was no interaction between choice and outcome (F:2.04; df=2,145;  $p < .13$ ). In order to fully test the hypothesized magnitude interaction, *a priori* F-tests were conducted for H1a-H1c.

Results indicated a strong outcome bias, regardless of the choice condition. Subjects within the bad outcome condition were significantly less satisfied than subjects in the good outcome condition (choice accepted=F:4.19; df=1,44;  $p < .0004$ ; MEANS=4.85; n=21/6.13 n=25; no choice=F:5.89; df=1,65;  $p < .0001$ ; MEANS=4.76; n=35/6.18 n=32; choice rejected=F:6.10; df=1,36;  $p < .0001$ ; MEANS=3.76; n=21/5.87 n=17, respectively). H1a was not supported because of the significant main effect for the choice accepted condition. However, both H1b and H1c were supported because of the significant main effects for the no choice and choice rejected conditions. In sum, H1 was partially supported where a magnitude interaction was found, but only between choice rejected and the other two conditions. Refer to Figure II for a graphical illustration of the choice/outcome magnitude interaction and plotted mean values.



**FIGURE II**  
**RESULTS OF STUDY ONE**



**Note: Magnitude interaction was significant at  $p < .05$ .**

Hypotheses 2, 2a, 2b, and 2c. H2 predicted significant differences among all means given bad outcomes but no differences for good outcomes. A *priori* F-tests indicated that in the bad outcome condition, significant differences existed between two sets of choice conditions: (1) choice rejected and choice accepted ( $F:3.39$ ;  $p<.0023$ ;  $MEANS=3.76/4.86$ ) and between (2) choice rejected and no choice conditions ( $F:3.17$ ;  $p<.0048$ ;  $MEANS=3.76/4.77$ ). Thus, support was given to H2c. As hypothesized, no significant differences were found among the three choice conditions in the good outcome condition ( $F:.25$ ;  $p<.8031$ ;  $MEANS=6.13/6.18$ ;  $F:.83$ ;  $p<.83$ ;  $MEANS=5.87/6.13$ ;  $F:1.01$ ;  $p<.3227$ ,  $MEANS=5.87/6.18$ ).

H2a and H2b were not supported. In the bad outcome condition, there was no significant difference between the choice accepted condition and choice rejected condition.

In sum, because differences were not found among all three means in the bad outcome condition yet no differences were found within good outcomes, partial support was provided for H2.

### Discussion

In Study One, five of the eight hypotheses were supported. A magnitude interaction occurred (H1) between choice and outcome. However, the interaction did not occur precisely as predicted (H1a). Because of a strong outcome bias, H1a was not supported. H1a predicted no difference in satisfaction between a good or bad outcome in the choice

accepted condition. However, subjects were more satisfied in the good outcome condition than the bad outcome condition. Therefore, the outcome bias appeared to be a strong determinant of satisfaction.

Both H1b and H1c were supported because of the strong outcome bias. Subjects were more satisfied in the good outcome condition versus the bad outcome condition for both no choice (H1b) and rejected choice (H1c). Therefore, when freedom of choice was constrained, the outcome bias was very strong and patient satisfaction appeared to be driven by the goodness or badness of the outcome.

H2 was supported because of the strong outcome bias. That is, satisfaction among subjects did not vary significantly according to choice condition within the good outcome condition but did vary significantly within the bad outcome condition. This finding was expected because the outcome bias literature consistently found that within good outcomes, process factors (i.e., decision appropriateness) were not important in the one's overall assessment. However, process factors (i.e., freedom of choice) do become important when bad outcomes occur since individuals reflect more deeply upon the outcome when it is negative.

H2a and H2b were not supported. These hypotheses predicted that subjects in the choice accepted/bad outcome condition would be more satisfied than subjects in the no choice/bad outcome condition. Rather, subjects did not discriminate between choice accepted and no choice conditions

in terms of measured satisfaction. Given that the manipulation checks suggested that the subjects understood whether or not they had a choice, this finding is somewhat surprising but very interesting. It suggests that freedom of choice in selecting a physician may not be as important as consumers may claim. Consumer satisfaction may be influenced more by the outcome than the choices offered prior to treatment.

Another possibility that H2a and H2b were not supported was the design of the study. In the conditions of accepted choice and no choice, the subjects received a preferred physician. It may be that receiving a preferred physician influenced patient satisfaction more than the amount of choice offered. Therefore, additional research is needed to assess how receiving a non-preferred physician may impact patient satisfaction (see Study Two).

Finally, H2c was supported. Here, the subjects who had their choice rejected with a bad outcome were clearly less satisfied than either of the other choice conditions with a bad outcome. This finding suggests that although consumers consider the treatment outcome very important, they may become very dissatisfied if their freedom to choose is violated or rejected when a bad outcome occurs. A lack of any choice may not be as dissatisfying to a patient as being denied (rejected) one's choice. Refer to Table V for a summary of the supported hypotheses.

TABLE V

SUMMARY OF RESULTS FOR  
HYPOTHESES TEST OF STUDY ONE

<b>Hypothesis</b>	<b>Result</b>
H1	Partially Supported
H1a	Not Supported
H1b	Supported
H1c	Supported
H2	Supported
H2a	Not Supported
H2b	Not Supported
H2c	Supported

## CHAPTER IV

### STUDY TWO: CHOICE, PHYSICIAN PREFERENCE, AND OUTCOME BIAS

#### Introduction

Study Two was conceptualized using the same basic theories of attribution, dissonance, and the outcome bias phenomenon as in Study One. Both studies had similar choice conditions (choice accepted, choice rejected, and no choice with a desirable doctor) coupled with good and bad outcomes. However, the primary difference between the first two studies was that Study Two contained an additional factor of physician preference (i.e., preferred versus non-preferred physician). Thus, Study Two examined patient satisfaction given the no choice condition with either a preferred doctor or a non-preferred doctor.

By discriminating between preferred and non-preferred physicians, Study Two was similar to a study in the field of mental health. Devine and Fernald (1973) found that patients were more satisfied and yielded better outcomes when they received a preferred therapy treatment, versus patients who received randomly assigned or non-preferred therapy treatments. Thus, it is believed that preference of physician may have a similar effect on patient satisfaction in a health care setting.

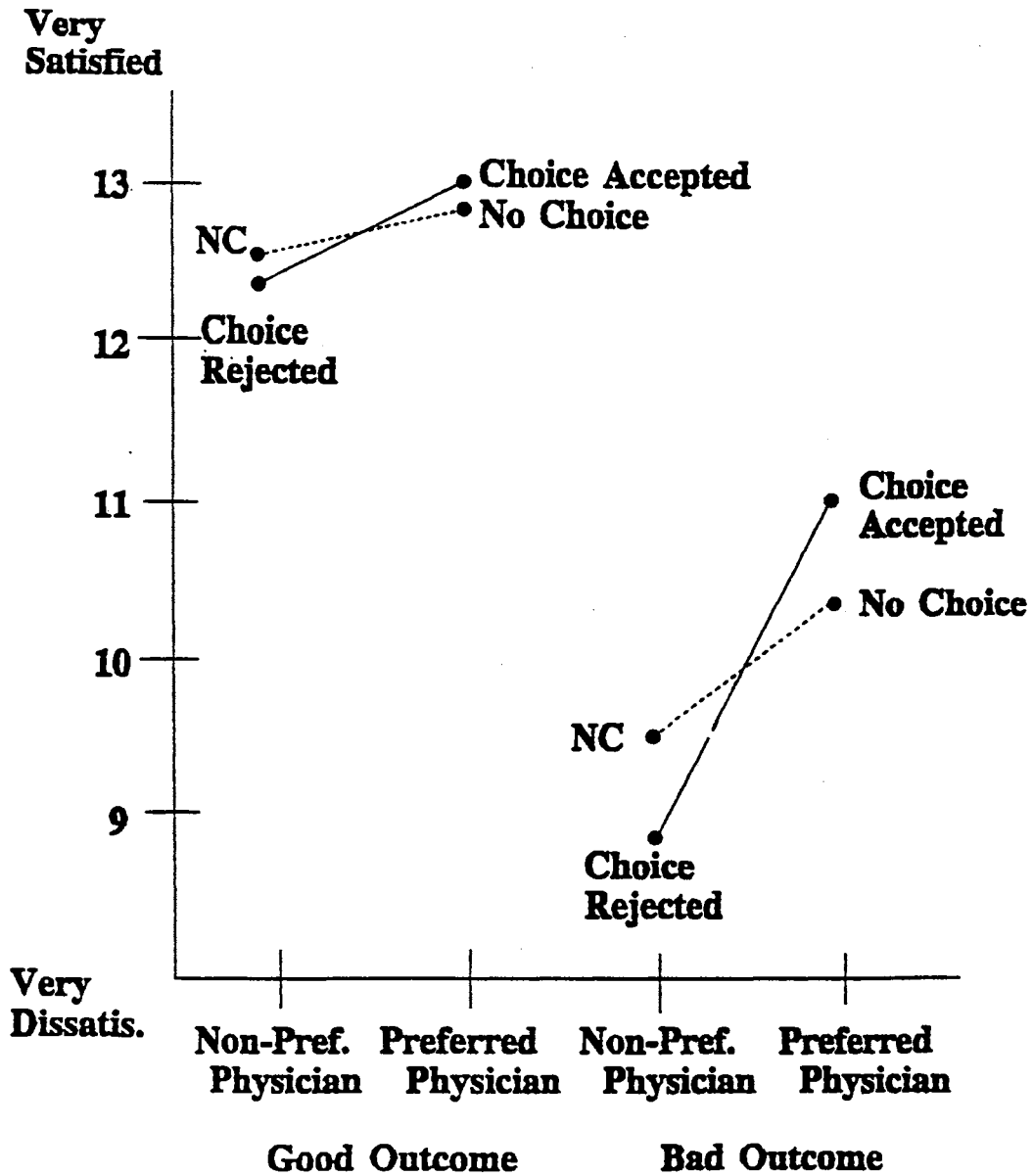
Further, a finding in both the outcome bias literature and in Study One was the phenomenon that differences in satisfaction tend to occur within bad outcomes but not in good outcomes. There was evidence that individuals tend to elaborate only on bad outcomes. This finding may also relate to attribution theory, where individuals are motivated to dwell on and seek causal explanations for bad outcomes more than good outcomes (Folkes 1984).

### Hypotheses

Given the review of the literature, theories, and research findings from Study One, the following hypotheses are presented for Study Two:

- H1 Patient choice and physician preference conditions will affect satisfaction only within the bad outcome condition.
- H2 A two-way interaction will occur between patient choice and physician preference.
- H2a Given a preferred physician, subjects in the accepted choice condition will be more satisfied than subjects in the no choice condition.
- H2b Given a non-preferred physician, subjects in the no choice condition will be more satisfied than subjects in the rejected choice condition.
- H2c Subjects in the accepted choice/preferred physician condition will be more satisfied than subjects in the rejected choice/non-preferred physician condition.
- H2d Subjects in the no choice/preferred physician condition will be more satisfied than subjects in the no choice/non-preferred physician condition.
- H3 A main effect will occur with physician preference such that subjects who receive a preferred physician will be more satisfied than subjects who receive a non-preferred physician.

**FIGURE III**  
**STUDY TWO HYPOTHESES**





H4 A main effect will occur with outcome such that subjects who receive a good outcome will be more satisfied than subjects who receive a bad outcome.

Refer to Figure III for a plot of the hypotheses for Study Two.

### Method

The second study was conducted to further examine the issues of choice and outcome bias with an older, more heterogenous population. In addition, the second study extended the work of the Study One. While, the first study examined only the condition of having no choice of a physician given a desirable doctor, the second study examined the effects of having no choice with a preferred as well as a non-preferred physician.

This section presents the method for Study Two. The method section is divided into the following six sub-sections: (1) a summary of the design, (2) the stimulus materials used in the experiment, (3) the subjects, (4) the procedure, (5) measured variables, and (6) the method of analysis to test the hypotheses.

#### Design Summary

The second study employed a 2 X 2 X 2 full factorial, between subjects design. The manipulated variables were choice (choice offered/no choice offered), physician preference (preferred physician given/non-preferred physician given), and outcome of the medical encounter (good/bad). As

in the first study, a paper and pencil scenario was provided for subjects who imagined having symptoms of being ill and visiting a health clinic. Patient satisfaction with health care was the dependent measure in Study Two.

Other than the design, a major difference between the two studies was the sample. Study One was comprised exclusively of students while study two consisted of students and a sample of adults from two health clinics.

Development of Stimuli. Much of the same scenario information from the first study was used in the second, however the scenarios were shortened and simplified to accommodate a more diversely educated sample. Different phases of the scenario were broken up and placed on different pages to prevent overwhelming the reader with a large amount of text. Also, the number of doctors was reduced from five to three, with minor modifications of doctors' names and qualifications. As before, the author worked with the same academicians and physicians prior to the study to refine the scenarios for realism and manageability.

Pretest. Prior to administering the experiment, an early version of the stimulus was pretested on individuals at one of the health clinics where part of the sample would come from. A concern was that individuals receiving stimulus materials at the health clinics may have difficulty reading, understanding or performing the required task without assistance. Thus, the author read the stimulus material to 5 individuals at the

clinic while allowing 5 others to read the stimulus material on their own.

After reading to the subjects, the author asked them several questions about the scenario to make sure it was understood. All participants indicated the scenario was understandable, made sense, and would not have mattered whether or not it was read to them.

As a secondary check of possible differences in reading to or not reading to the subjects, manipulation checks were compared between the two groups. Individuals who were read to got 67% of the manipulations correct while those who read by themselves got 60% correct. Perceiving the difference as minor, it was concluded that for data collection at the clinic, the author would offer to read the material to anyone who desired, otherwise the subjects at the clinic would read the material themselves. Additional minor changes were made to the stimulus material therefore none of the 10 pretests were used in the final analysis.

Subjects. The subjects of Study Two came from three sources: undergraduate marketing classes at a midwestern university and two health clinics in a metropolitan midwestern city. The distribution of the subjects was approximately equal, with 90 students, 90 subjects from one clinic, and 88 subjects from the second clinic. There was a total of 268 subjects in the second study. Of this total, five subjects were not useable because of missing information.

Clinic patients were desirable subjects for this study.

First, patients in clinics were thought to be in the appropriate setting and frame of mind to respond to health care related information. Second, it was also felt that patient subjects were likely to be more highly involved with the scenario material than non-patient subjects.

The subjects' demographics varied among the three sources. Here is a summary of the demographics. The average age for the students was 23.6 years, compared to 36.8 and 37.8 years for the two clinics. Median household income for one of the clinics was under \$15,000, compared to \$25-\$35,000 for students and the other clinic. The distribution by gender was as follows: Students - 43% male, 57% female; Clinic A - 22% male, 78% female; Clinic B - 14% male, 86% female. The distribution by ethnicity was as follows: Students - 59% Caucasian, 3% African American, 32% Asian, and 6% other; Clinic A - 39% Caucasian, 46% African American, 1% Asian, and 14% other; Clinic B - 59% Caucasian, 30% African American, 2% Asian, and 9% other.

Procedure. All subjects were assigned to the treatment conditions on a random basis. Unlike the first study, the experimental material for Study Two was administered in one packet rather than in two different randomly assigned parts. This change was made primarily for convenience and to minimize confusion while collecting at the health clinics. Otherwise, the procedure for administering the examination was the same as in Study One.

In Study Two, there was one difference in the collection

of data from the two clinics. At one clinic, the author approached subjects and asked if they would participate in the survey. The author approached 141 patients, of which 90 complied, yielding a 63.8% acceptance rate. Of the 90 subjects, the author read to eight individuals. At the other clinic, the receptionists handed out experimental stimulus material to patients and asked them to complete the task while waiting for their appointment. However, the receptionists at the second clinic did not keep a record of the number of refusals.

The data for the students was collected from 3 different classes within a one week period. The data collected by the author at the first clinic was done at 3 different times over a one month period. The data collected by the receptionist at the second clinic took place over a three month period.

Manipulation Checks. To assess the effectiveness of the manipulation of outcome and choice, the subjects were asked questions about the expected recovery time, the duration of recovery from the illness in the scenario, and the condition of choice received in the scenario. These questions directly related to the subjects' understanding of the outcome (operationalized in recovery time), freedom to choose a physician, and the physician they received.

Dependent Measures. As in Study One, the dependent variable of interest was patient satisfaction with health care. However, patient satisfaction with health care was

TABLE VI  
 SATISFACTION SCALE  
 STUDY TWO

<u>SCALE ITEMS: Cronbach Alpha = .872</u>	<u>ITEM-TO-TOTAL CORRELATIONS</u>
1. "How do you feel about the care you received from the office staff and nurses?" Very Poor/Very Good	.704
2. "How do you feel about your experience with Dr. Brown/Tsiao?" Very Unsatisfied/Very Satisfied	.758
3. "How do you feel about your experience with the clinic overall?" Very Unsatisfied/Very Satisfied	.804

Note: Each item utilized a 5-point Likert Scale with 5 representing the most favorable and 1 representing the least favorable.

measured slightly differently in Study Two. Here, the dependent variable was measured using only three items. The motivation for reducing the satisfaction scale from ten to three items was to minimize the number of responses for a non-student sample. Refer to Table VI for satisfaction scale items.

The three items of patient satisfaction with health care tapped into various aspects of the patients' health care experience, including: treatment, office staff, nurses, the physician, and the outcome. Item-to-total correlations ranged from .70 to .80. Internal reliability appeared strong where the global satisfaction scale had a Cronbach Alpha = .87.

Data Analysis. Study Two was analyzed using ANOVA to test all hypotheses. *A priori* orthogonal comparisons by means of an F ratio were used to analyze hypothesized relationships with patient satisfaction as the dependent measure. For the exploratory analysis, the least significant difference (LSD) multiple comparison *a posteriori* procedure was used.

## Results

The results section is organized with the following subsections: (1) key variables, (2) manipulation checks, (3) measure of reliability, (4) tests of hypotheses, and (5) post-hoc exploratory analysis.

Key Variables. Study Two used the following levels of key variables:

- 1) Choice Accepted - The condition where the patient received the physician he/she selected.
- 2) Preferred Physician - The condition where the patient received the doctor rated as most preferred. Receiving a preferred physician was linked to having an accepted choice.
- 3) Choice Rejected - The condition where the patient did not receive the physician he/she selected.
- 4) Non-Preferred Physician - The condition where the patient received a doctor not rated as most preferred. Receiving a non-preferred physician was linked to having one's choice rejected.
- 5) No Choice - The condition where the patient was not given the opportunity to select a physician and was assigned either a preferred or non-preferred physician.
- 6) Bad Outcome - The condition where the patient became well 4 days after the clinic visit.
- 7) Good Outcome - The condition where the patient became well 14 days after the clinic visit.
- 8) Satisfaction - The dependent variable of global patient satisfaction that utilized a three-item 5-point Likert scale.

Manipulation Checks. Three manipulation check questions were utilized in Study Two for the conditions of outcome, and choice. Subjects were asked questions about their typical expected recovery time, the duration of recovery from the illness in the scenario, and the condition of choice they



received in the scenario.

Out of 268 subjects, 14 subjects had to be re-coded to represent the intended condition. That is, 14 of the subjects did not rate Dr. Brown as more desirable than the other physicians. Since these subjects did not consider Dr. Brown to be their preferred physician, they were reclassified as follows: 8 subjects from choice accepted to choice rejected, 1 subject from choice rejected to choice accepted, 4 subjects from no choice/desirable physician to no choice/undesirable and 1 subject from no choice/undesirable physician to no choice/desirable physician. The physicians' descriptions were set up to ensure that most of the subjects would prefer Dr. Brown over the other two choices given the described illness. In Study Two, 95% of the subjects preferred Dr. Brown over the other physicians.

Of the possible 268 subjects, 80% correctly answered the expected recovery time, 60.8% correctly answered the recovery duration, and 64.9% correctly identified the choice condition they received (after subjects were re-coded). Only 46.6% of the total sample (125 subjects) correctly answered all three manipulation checks. Thirty-seven percent of the subjects from each of the two clinics correctly answered all three of the manipulation checks while 64.4% of the student subjects correctly answered all manipulation check questions.

A possible explanation for the very low rate of correct responses to the manipulation check questions was the manner in which Study Two was administered. In contrast to Study

One, Study Two was given to the subjects in a single packet to ensure everyone would receive all experimental information prior to leaving the waiting area for their scheduled appointments. The potential disadvantage of not breaking the packet into 2 parts was that subjects in the choice conditions may not have felt any illusion of control or feeling of freedom of choice.

Other reasons for the low rate of correct answers could have been attributed to the atmosphere of the waiting area. The waiting area (unlike a classroom) seemed less conducive to full concentration. The distractions of children and others may have interfered with subjects' ability to concentrate and understand the material. In addition, subjects may have been influenced by the condition of either their illness or their loved one's illness. Several of the patients refused to participate because they did not feel well enough to complete the task. Finally, the subjects at the clinic were probably not acquainted with filling out surveys and the level of education among subjects was varied.

Test for Differences Based on Manipulation Check. Given that over half of the subjects did not correctly answer all three of the manipulation check questions, an analysis was conducted to assess the effect of removing those subjects from the study who did not answer the manipulation check questions correctly. Thus, a separate analysis was conducted for the entire sample (i.e., full sample) to be compared with only those subjects who answered all three manipulation check

questions correctly (reduced sample). A 2 X 2 X 2 between subjects full factorial ANOVA was conducted for each group, where the dependent variable was patient satisfaction and the factors were: choice (accepted/rejected), outcome (good/bad), and physician preference (preferred/non-preferred).

The analysis yielded virtually identical findings and patterns. No significant differences were found in the good outcome condition for either group (full versus reduced sample). In the bad outcome, patterns for mean values were quite similar. Both groups had significantly different means between physician preference for the no choice condition where Dr. Brown was preferred (Reduced Sample:  $F:9.24$ ,  $p<.0041$ ; Full Sample:  $F:4.51$ ,  $p<.0375$ ). There was only one difference between the samples. In the full sample, subjects within the bad outcome condition were more satisfied with a rejected choice than those having no choice ( $F:4.48$ ,  $p<.0377$ ). In contrast, there was no difference in satisfaction among reduced sample subjects between rejected choice and no choice.

In sum, the findings were not substantially changed by removing those subjects who did not correctly respond to all of the manipulation check questions. Therefore, the author felt that removal of subjects was not warranted and the entire sample was used to test the hypotheses.

Measure of Reliability. Cronbach Alphas and item-to-total correlations were calculated for the dependent measure of patient satisfaction. Item-to-total correlations were generally high with all of the correlations greater than  $r=.70$

and a range from .704 to .804. The Cronbach Alpha of the patient satisfaction with health care was .872. Details of the reliability analysis for patient satisfaction were presented in Table VI.

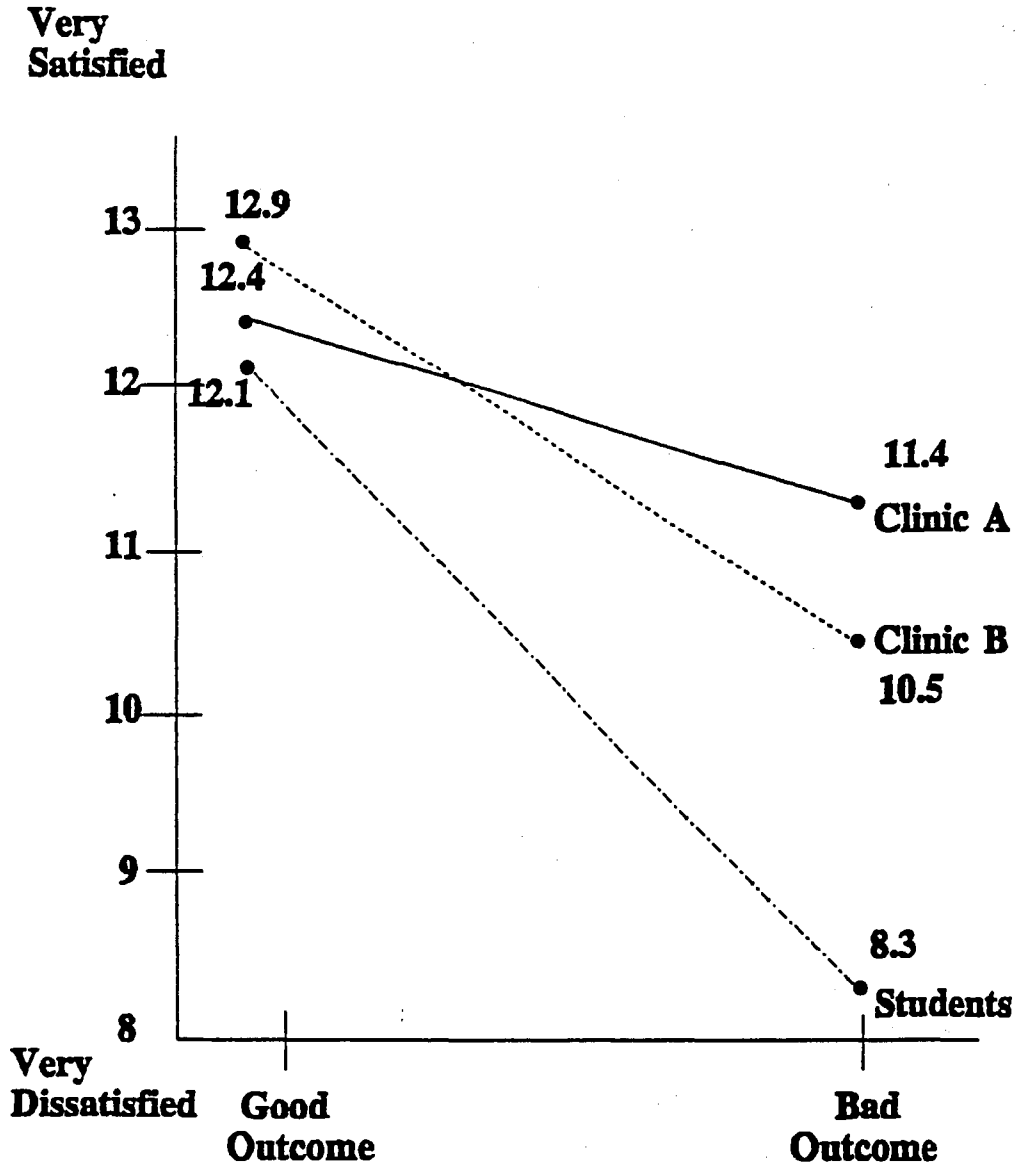
### Tests of Hypotheses

Test for Differences Among Samples. Study Two utilized a student sample along with samples from two metropolitan clinics. Although there was no hypothesized difference among samples, the author sought to first determine if there were any differences before treating the combined sample as a single homogenous group.

A 2 X 2 X 2 X 3 between subjects full factorial analysis was conducted to assess any differences between the samples. The factors in the analysis were: choice (accepted/rejected), outcome (good/bad), physician preference (preferred/non-preferred), and sample (student/clinic-A/clinic-B). The ANOVA yielded a main effect for outcome (F:51.07; df=1,239; p<.0001), a main effect for the sample (F:10.47; df=2,239; p<.0001), an interaction between outcome and sample (F:6.10; df=2,239; p<.0026), and a triple interaction between the factors of choice, outcome, and physician preference (F:4.5; df=1,239; p<.0348).

Regarding the outcome main effect, subjects in the good outcome condition (MEAN=12.53; n=128) were significantly more satisfied than subjects in the bad outcome condition (MEAN=10.12; n=135), supporting H4. The main effect for the sample

**FIGURE IV**  
**STUDY TWO**  
**OUTCOME\*SAMPLE INTERACTION**



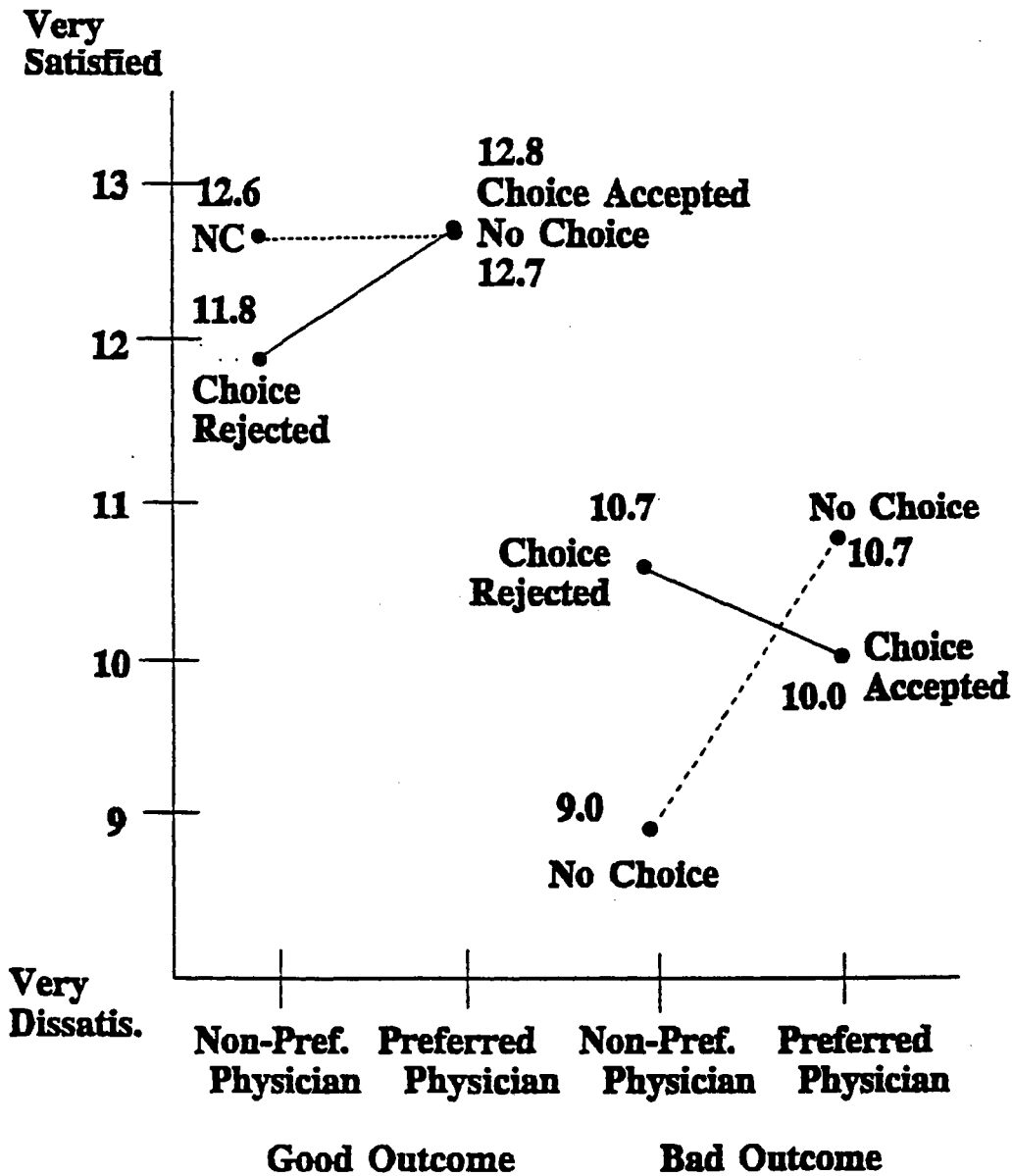
indicated that students (MEAN=10.26; n=90) were less satisfied than either of the clinic subjects (MEANS=11.77; n=85/11.96; n=88).

Post-hoc F-tests were conducted on the means to determine the simple effects for the interaction between outcome and sample. Analysis revealed that students (MEANS=8.35; n=45) were significantly less satisfied than either group of subjects from the clinics (MEANS = 10.55; n=44/11.47; n=46) when a bad outcome occurred (F:14.17; df=2,132; p<.0003 and F:27.56; df=2,125; p<.0001 respectively). In support of H1, there were no significant differences among subjects within the good outcome condition. In addition, both students and subjects from the second clinic (i.e., clinic-B) were significantly more satisfied in a good outcome condition than in a bad outcome condition (students: F:61.56, df=1,88; p<.0001, MEANS=8.35; n=45/12.17; n=45; Clinic-B: F:13.38; df=1,83; p<.0004, MEANS=10.55; n=44/12.98; n=41). Refer to Figure IV for the plot of the interaction between outcome and sample.

Of primary interest was the triple interaction. To interpret the triple interaction of choice, outcome, and physician preference, it was broken down into two 2 X 2 (choice/physician preference) ANOVAs, one 2 X 2 analysis for bad outcome and another for good outcome. No significant differences were found for good outcome but there was a significant interaction for bad outcome (F:4.55; df=1,134; p<.0347). Thus, support is provided for H1 with the caveat

**FIGURE V**

**STUDY TWO TRIPLE INTERACTION  
CHOICE\*OUTCOME\*PHYS. PREF.**



that the samples have been treated as one group.

Simple effects within the triple interaction were then examined. Subjects in the bad outcome/non-preferred physician/rejected choice condition (MEAN=10.60; n=39) were more satisfied than subjects (MEAN=9.02; n=34) in the bad outcome/non-preferred/no choice condition (F:4.48; df=1,72;  $p < .0377$ ). With the same caveat as above, this finding does not support H2b, which predicted no choice to be preferred over a rejected choice.

Other simple effects yielded the following: subjects within the bad outcome/non-preferred physician/no choice condition (MEAN=9.02; n=34) were less satisfied than those (MEAN=10.75; n=33) in the bad outcome/preferred physician/no choice condition (F:4.51, df=1,66;  $p < .0375$ ). This finding supports H2d, that receiving a preferred physician increases satisfaction. Again, there is a caveat of combining students and clinics in the analysis where differences appear to exist. Refer to Figure V for a plot of the means for the triple interaction of choice, outcome, and physician preference.

Analysis of Student Subjects. Because significant differences in demographics and satisfaction were found between students and the other two clinics, student subjects were analyzed separately from the clinic subjects. A 2 X 2 X 2 between subjects full factorial design was employed. The three factors were choice, outcome, and physician preference. The dependent variable was satisfaction. Ninety student subjects were used in the analysis. The procedure yielded



only a main effect for outcome ( $F:58.84$ ;  $df=1,82$ ;  $p<.0001$ ), supporting H4. Students were significantly more satisfied in the good outcome condition ( $MEAN=12.15$ ;  $n=45$ ) than the bad outcome condition ( $MEAN=8.33$ ;  $n=45$ ). Also, H1 was partially supported where there were no significant effects within the good outcome condition. Otherwise, the student results did not support any of the other hypotheses.

Analysis of Clinic Subjects. Because no significant differences in satisfaction were found between the two clinics, data from the subjects of both clinics were collapsed into one group and analyzed. A total of 173 subjects were used in the analysis out of a possible 178. As with the student analysis, a 2 X 2 X 2 between subjects full factorial design was utilized. The three factors were choice, outcome, and physician preference and the dependent variable was satisfaction.

Similar to the student analysis, a significant main effect for outcome was provided ( $F:15.48$ ;  $df=1,165$ ;  $p<.0001$ ). In support of H4, subjects in the good outcome ( $MEAN=12.67$ ;  $n=83$ ) were more satisfied than subjects in the bad outcome ( $MEAN=11.06$ ;  $n=90$ ). Of more interest, a triple interaction was found between choice, outcome, and physician preference ( $F:5.83$ ;  $df=7,165$ ;  $p<.0169$ ).

To analyze the triple interaction, a 2 X 2 between subjects full factorial ANOVA design was used for both outcome conditions. A significant interaction was found between the factors of choice and physician preference within the bad

TABLE VII

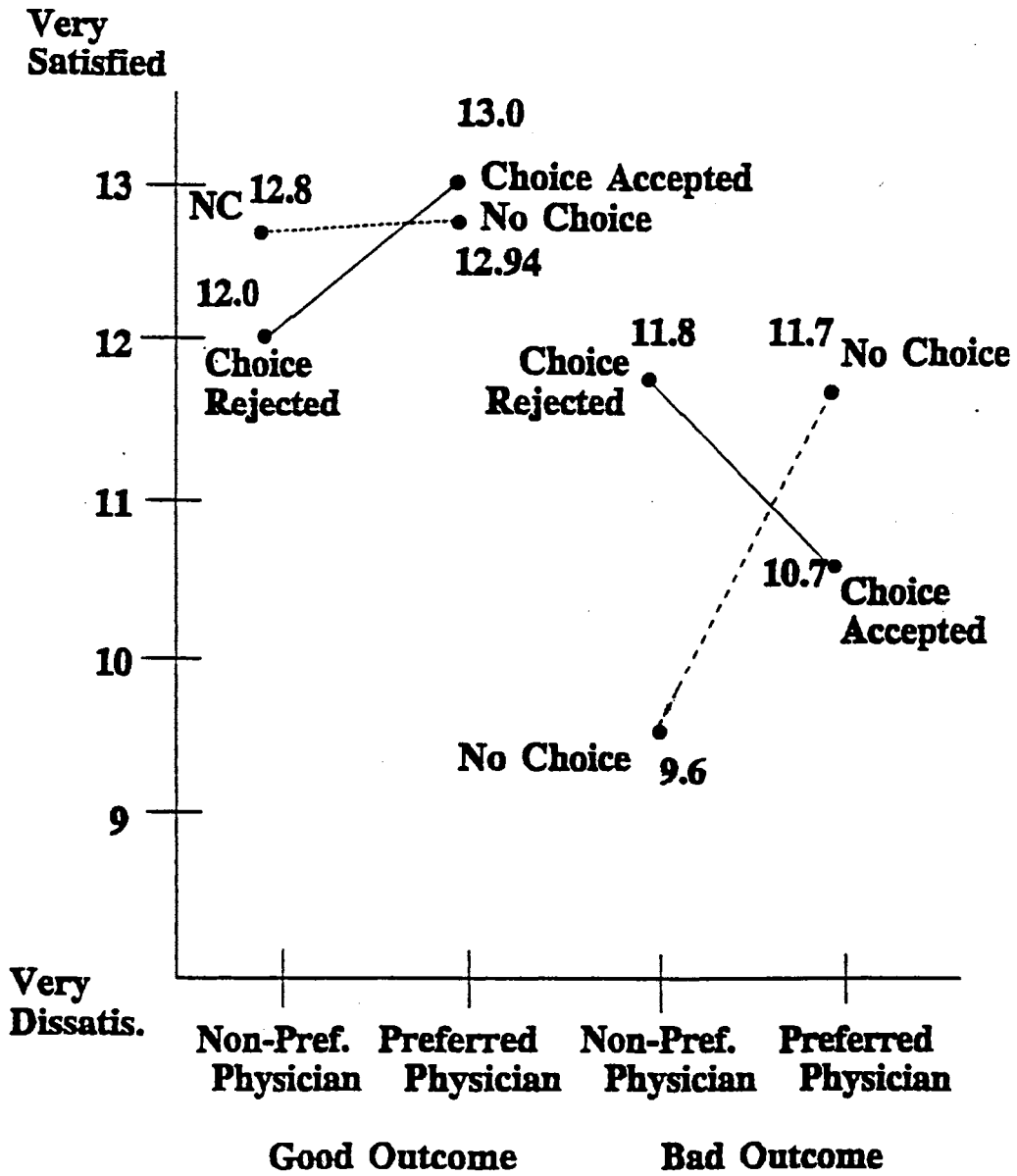
ANOVA FOR SATISFACTION OF  
STUDY TWO CLINIC SUBJECTS ONLY

Independent Var.	DF	Type III SS	F-value	PR > F	Omega Squared
Choice	1	0.74	0.09	.7605	-
Outcome	1	123.38	15.48	.0001	.0753
Physician Pref.	1	11.92	1.50	.2229	-
Choice * Outcome	1	12.23	1.53	.2171	-
Choice * Physician	1	14.56	1.83	.1783	-
Cho * Outcm * Phys	1	46.43	5.83	.0169	.0251

Number of observations = 173

**FIGURE VI**

**STUDY TWO ANOVA RESULTS  
OF CLINIC ONLY SAMPLE**



outcome condition ( $F:3.94$ ;  $df=1,81$ ;  $p<.0504$ ) but not for the good outcome condition (supporting H1).

Further analysis of the simple effects indicated subjects ( $MEAN=11.76$ ;  $n=27$ ) in the rejected choice/non-preferred physician/ bad outcome were significantly more satisfied than subjects ( $MEAN=9.78$ ;  $n=22$ ) in the no choice/non-preferred physician/bad outcome condition ( $F:4.89$ ;  $df=1,48$ ;  $p<.0320$ ). This result did not support H2b, where no choice was predicted to provide more satisfaction than a rejected choice.

Finally, subjects in the no choice/preferred physician/ bad outcome condition ( $MEAN=11.63$ ;  $n=23$ ) were significantly more satisfied than subjects in the no choice/non-preferred physician/bad outcome ( $MEAN=9.78$ ;  $n=22$ ). This findings supported H2d. Refer to Figure VI for a plot of the results for clinic subjects only.

### Post-Hoc Exploratory Analysis

This section overviews the exploratory analysis performed in addition to the tests of hypotheses. Two types of exploratory analysis were done. First, six different demographic variables were added to the analysis as blocking variables. Second, three demographic variables were treated as covariates in the analysis. For the purpose of parsimony, students and clinic subjects were grouped together in one analysis.

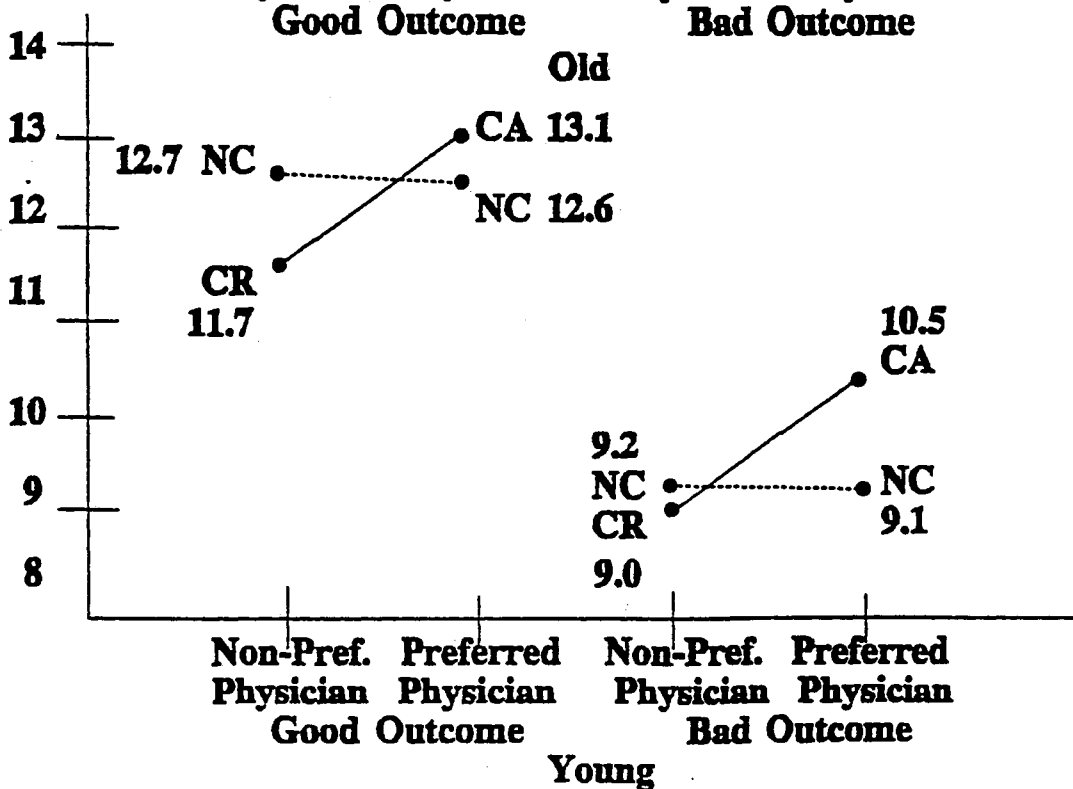
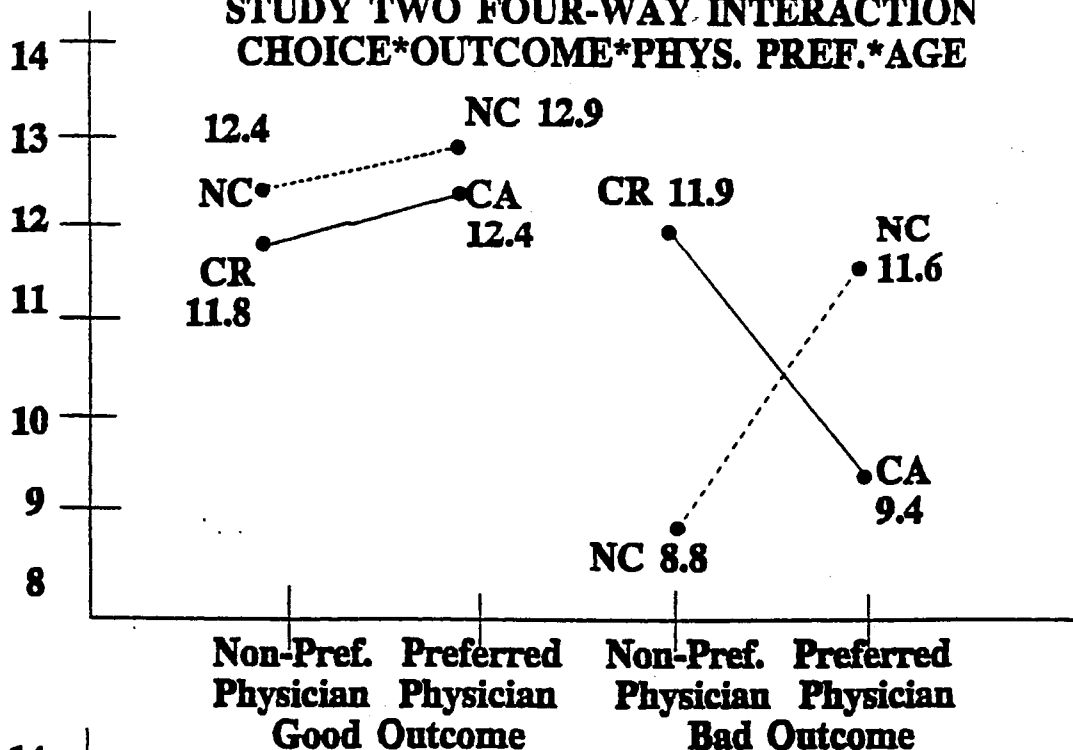
Demographic Blocking Variables. As a follow up to the existing analysis, additional exploratory analysis was

conducted to assess the role of individual difference variables with patient satisfaction. Six demographic variables were used as blocking variables. The demographic variables utilized were: age, income, education, ethnicity, gender, and marital status. In each analysis, only one of these demographic variables was added as a blocking variable to create a 2 X 2 X 2 X 2 between subjects full factorial design. The factors were choice (accepted/ rejected), outcome (good/bad), physician preference (preferred/non-preferred) and a demographic blocking variable, with satisfaction as the dependent variable.

Age. The first demographic variable was age. Subjects were grouped into "young" (under 28 years) and "old" (28 years and older) categories based on a median split (28 years). Of 257 subjects who reported age, 126 (49%) were classified as young and 131 (51%) were classified as old. A triple-interaction between choice, physician preference, and age was found ( $F:9.01$ ;  $p<.0030$ ). The interaction was set up in two 2 X 2 (choice/age) ANOVAs for each physician (preferred/non-preferred). Neither 2 X 2 was significant although the one for the non-preferred physician was marginal ( $F:3.6$ ;  $df=1,140$ ;  $p<.06$ ). In a post-hoc analysis of simple effects, older subjects in the choice rejected/non-preferred condition ( $MEAN=11.91$ ;  $n=38$ ) were more satisfied than younger subjects ( $MEAN=10.42$ ;  $n=36$ ) in the choice rejected/non-preferred condition ( $F:4.32$ ;  $df=1,73$ ;  $p<.0412$ ).

Of interest was a four-way interaction between choice,

**FIGURE VII**  
**STUDY TWO FOUR-WAY INTERACTION**  
**CHOICE\*OUTCOME\*PHYS. PREF.\*AGE**



outcome, physician preference, and age ( $F:4.03$ ;  $df=1,247$ ;  $p<.0458$ ). The four-way interaction was broken down into two  $3 \times 3$  (choice/ physician preference/outcome) ANOVAs, one for young and one for older subjects. Only the three-way interaction for older subjects was significant ( $F:6.81$ ;  $df=1,129$ ;  $p<.0102$ ).

The interaction was broken down further into four  $2 \times 2$  (choice/physician preference) ANOVAs, one for each outcome condition (good/bad) for both young and old subjects. The only significant two-way interaction was for older subjects within the bad outcome condition ( $F:13.14$ ;  $df=1,72$ ;  $p<.0005$ ).

An analysis of simple effects indicated all means were significantly different with a cross-over interaction between choice and physician preference. That is, older subjects in the choice (rejected)/non-preferred/bad outcome condition were more satisfied than older subjects in the no choice/non-preferred/bad outcome condition. When subjects received a preferred physician, a preference reversal occurred. Thus, having no choice yielded more satisfaction than having a choice (accepted), given older subjects within a bad outcome scenario. Refer to Figure VII for a plot of the means for the four-way interaction.

Income. All subjects were classified into either "high" or "low" income categories based on self-reported annual household income. Low income was considered below \$15,000 per year while high income was \$15,000 or above. Of 257 subjects who reported income, 129 (50.19%) were classified as low while

128 (49.81%) were classified as high income.

The variable of income yielded a number of interesting findings. First, a main effect was found for income ( $F:7.69$ ;  $df=1,247$ ;  $p<.0060$ ). Low income subjects ( $MEAN=11.80$ ;  $n=128$ ) were more satisfied than high income subjects ( $MEAN=10.86$ ;  $n=134$ ).

However, the main effect was superseded by four interactions. The following interactions were found: (1) choice/income ( $F:4.20$ ;  $df=1,247$ ;  $p<.0414$ ), (2) outcome/income ( $F:4.65$ ;  $df=1,247$ ;  $p<.0320$ ), (3) choice/outcome/ income ( $F:5.54$ ;  $df=1,247$ ;  $p<.0194$ ), and (4) choice/physician preference/ income ( $F:9.35$ ;  $df=1,247$ ;  $p<.0025$ ).

Analysis of the simple effects for the choice/income interaction indicated high income subjects given no choice ( $MEAN=10.39$ ;  $n=67$ ) were less satisfied than low income subjects given no choice ( $MEAN=12.03$ ;  $n=62$ ). There were no differences between high and low income groups when given a choice.

Analysis of the simple effects for the outcome/income interaction suggested that both income groups were significantly more satisfied with a good outcome (high income  $MEAN=12.42$ ;  $n=66$ ; low income  $MEAN=12.63$ ;  $n=62$ ) than a bad outcome (high income  $MEAN=9.29$ ;  $n=69$ ;  $F:37.4$ ;  $df=1,134$ ;  $p<.0001$ ; low income  $MEAN=10.96$ ;  $n=66$ ;  $F:11.65$ ;  $df=1,127$ ;  $p<.0009$ ). Also, low income subjects ( $MEAN=10.96$ ;  $n=66$ ) were more satisfied than high income subjects ( $MEAN=9.29$ ;  $n=69$ ) given a bad outcome ( $F:5.37$ ;  $df=1,134$ ;  $p<.0220$ ).



The three way interaction of choice, outcome, and income was set into two 2 X 2 (choice/income) ANOVAs, one for each outcome. A significant interaction was found for the bad outcome (F:6.71; df=1,134; p<.0106). Analysis of simple effects indicated low income subjects with no choice in the bad outcome condition (MEAN=11.32; n=35) were more satisfied than high income subjects with no choice in the bad outcome condition (MEAN=8.16; n=32; F:12.23; df=1,66; p<.0009).

The three way interaction of choice, physician preference, and income was set into two 2 X 2 (choice/income) ANOVAs, one for each physician. A significant interaction was found for the non-preferred physician (F:7.38; df=1,140; p<.0074). Simple effects were then examined. Results indicated that low income subjects with no choice in the non-preferred physician condition (MEAN=11.72; n=38) were more satisfied than high income subjects in the no choice/non-preferred physician condition (MEAN = 9.45; n=29; F:4.71; df=1,66; p<.0337). Also, high income subjects in the choice rejected/non-preferred physician condition (MEAN=11.89; n=37) were more satisfied than other high income subjects in the no choice/non-preferred physician condition (MEAN=9.45; n=32; F:6.08; df=1,68; p<.0166). Finally, low income subjects in the choice accepted/preferred physician condition (MEAN=12.43; n=35) were more satisfied than high income subjects in the choice accepted/preferred physician condition (MEAN=10.71; n=31; F:6.47; df=1,65; p<.0137).

Education. A third blocking variable was education.

Subjects were grouped into "low," "moderate" and "high" education categories based on self-reported education level attained. Of 263 subjects who reported their education level, 67 (25.47%) were classified as low (i.e., high school education or less), 118 (44.86%) were classified as moderate (i.e., some college), and 78 (29.67%) were classified as high (college degree).

Education provided a number of interesting findings. First, a main effect was found for education ( $F:7.62$ ;  $df=1,239$ ;  $p<.0006$ ). Low educated subjects ( $MEAN=12.37$ ;  $n=67$ ) were more satisfied than either moderately educated ( $MEAN=10.96$ ;  $n=118$ ) or highly educated subjects ( $MEAN=10.85$ ;  $n=78$ ).

The main effect was superseded by two interactions. The first interaction was between outcome and education ( $F:3.07$ ;  $df=2,239$ ;  $p<.0482$ ). Here, it was found that low educated subjects in the bad outcome condition ( $MEAN=11.91$ ;  $n=36$ ) were more satisfied than either moderately educated subjects ( $MEAN=9.23$ ;  $n=55$ ;  $F:15.77$ ;  $df=1,90$ ;  $p<.0002$ ) or highly educated subjects ( $MEAN=9.86$ ;  $n=44$ ;  $F:10.19$ ;  $df=1,79$ ;  $p<.0021$ ). Also, both moderately and highly educated subject were more satisfied in the good outcome condition ( $MEANS=12.47$ ;  $n=63/12.14$ ;  $n=34$ , respectively) than the bad outcome condition ( $MEANS=9.23$ ;  $n=55/9.86$ ;  $n=44$ ;  $F:44.77$ ;  $df=1,117$ ;  $p<.0001/F:18.52$ ;  $df=1,77$ ;  $p<.0001$ ).

Another interaction occurred among outcome, physician preference, and education ( $F:3.51$ ;  $df=2,239$ ;  $p<.0314$ ). The

three-way interaction was broken into two 2 X 2 (physician preference/ education) ANOVAs, one for each outcome condition. Neither two-way interaction was significant. However, post-hoc F-tests indicated a number of significant differences among means. Within the bad outcome condition, low educated subjects (MEAN=12.17; n=23) were more satisfied than either moderately educated (MEAN=8.51; n=27; F:19.82; df=1,49; p<.0001) or highly educated subjects (MEAN=9.30; n=23; F:13.49; df=1,45; p<.0007).

Within the good outcome condition, a number of interesting differences emerged. Most notably, a reversal of satisfaction was evident for physician preference between highly and moderately educated subjects. That is, within the non-preferred physician condition, moderately educated subjects (MEAN=12.77; n=31) were more satisfied than highly educated subjects (MEAN=11.10; n=20; F:6.66; df=1,50; p<.0131). Yet, highly educated subjects (MEAN=13.64; n=14) were more satisfied than moderately educated subjects (MEAN=12.18; n=32) when both groups were in the preferred physician condition (F:4.97; df=1,45; p<.0312). Also, low educated individuals (MEAN=13.35; n=14) were more satisfied than moderately educated subjects (MEAN=12.18; n=32) within the preferred physician condition (F:3.90; df=1,45; p<.0548).

Marital Status, Gender, and Ethnicity. Three other demographic characteristics were analyzed as blocking variables. Marital status, gender, and ethnicity were each examined in the factorial analysis. In sum, none of these

demographic variables were significantly influential on patient satisfaction.

Marital status of subjects was categorized as either single and other (i.e., married, widowed, or divorced). Of 262 subjects reporting marital status, 51.9% were classified as single. Regarding gender, the percentage of males to females of 262 respondents reporting gender was 26.7/73.3%. Finally, ethnicity was classified into caucasian (52.3%) and non-caucasian (47.7%) for 260 subjects reporting ethnic background.

Demographic Covariates. In another exploratory analysis, three demographic variables were treated as covariates. The three covariates were age, education, and income. All of these variables were included in a 2 X 2 X 2 between subjects full factorial design. As before, the three factors were choice, outcome, and physician preference with satisfaction as the dependent variable. Results of the analysis of covariance (ANCOVA) yielded a main effect for outcome ( $F:47.73$ ;  $df=1,238$ ;  $p<.0001$ ), a main effect for physician preference ( $F:3.68$ ;  $df=1,238$ ;  $p<.0562$ ), and a three-way interaction between choice, outcome, and physician preference ( $F:4.56$ ;  $df=1,238$ ;  $p<.0338$ ).

In the outcome main effect, subjects in the good outcome (MEAN=12.54; n=119) were more satisfied than subjects in the bad outcome (MEAN=10.09; n=130). In the physician preference main effect, subjects in the preferred physician condition (MEAN=11.66; n=117) were more satisfied than subjects in the

non-preferred condition (MEAN=10.97; n=132).

The main effects were overshadowed by the three-way interaction. The interaction was broken down into two 2 X 2 (choice/physician preference) ANCOVA designs, one for each outcome. Only the bad outcome was significant (F:5.40; df=1,129; p<.0218). Within the bad outcome condition, subjects in the rejected choice condition (MEAN=10.68; n=39) were more satisfied than subjects given no choice (MEAN=8.75; n=31; F:7.37; df=1,69; p<.0085). Also, subjects in the no choice/preferred physician condition (MEAN=10.74; n=32) were more satisfied than subjects in the no choice/non-preferred condition (MEAN=8.75; n=31; F:6.81; df=1,62; p<.0115).

### Discussion

In Study Two, three of the eight hypotheses were supported. H1, which asserted that choice and physician preference conditions would affect patient satisfaction with health care only within bad outcomes was supported. H1 was supported using all subjects together and using only the clinic subjects. H1 was partially supported by using only the student sample.

H2d was also supported. H2d hypothesized that when no choice was given in a bad outcome, subjects would be more satisfied with health care having a preferred physician rather than a non-preferred physician. H2d was supported using all subjects together and using only the clinic subjects.

H4, which stated that subjects in a good outcome

TABLE VIII

SUMMARY OF RESULTS FOR  
HYPOTHESES TEST OF STUDY TWO

Hypothesis	Result
H1	Supported
H2	Not Supported
H2a	Not Supported
H2b	Not Supported
H2c	Not Supported
H2d	Supported
H3	Not Supported
H4	Supported

condition would be more satisfied with health care than subjects in a bad outcome condition was supported. H4 was strongly supported using the entire sample, the clinic sample, and the student sample alone.

The other hypotheses were not supported. Also, there was evidence that contradicted H2b. H2b stated that given a non-preferred physician in a bad outcome condition, having no choice would be preferred to having one's choice rejected. However, the reverse effects of H2b were found using the combined student/clinic sample and with just the clinic subjects. That is, having one's choice rejected yielded greater satisfaction than having no choice. One possible explanation for the unexpected findings was that individuals preferred having some form of a choice (even a rejected choice) over no choice at all. Refer to Table VIII for a summary of the results for the test of Study Two hypotheses.

Students vs. Clinic Subjects. The students in Study Two had both similarities and differences with the clinic subjects. However, the differences appeared to have outweighed the similarities in terms of patient satisfaction with health care. An objective here was to compare and contrast these two groups and understand why patient satisfaction was so divergent.

The students of the second study did have some similarities with the clinic subjects. Both clinic and student subjects showed a strong outcome bias and no effects were found for the good outcome.

In contrast, clinic subjects were more satisfied with the rejected choice over no choice when given a non-preferred physician and a bad outcome. They also preferred no choice with a preferred physician/bad outcome over no choice with a non-preferred physician/bad outcome.

To explain why these differences occurred between the groups, an assessment of demographic and psychographic factors may provide some insight. The literature cites a number of important sociodemographic variables that have contributed to patient satisfaction and are discussed.

Age. The patient satisfaction literature has found the trend that younger patients tend to be less satisfied with health care than older patients. It has been argued that older patients expect less from health care because their frame of reference may go back to a time when less could be done to treat illnesses. In addition, older patients have been found to be more trusting of doctors, less likely to question authority, and have less of a need for control over the situation (external locus of control).

With these factors in mind, the two groups from Study Two were examined. The students were significantly younger (MEAN=23.6 years; n=90) than either clinic (MEANS=37.8; n=88/36.8 years; n=90;  $F:38.44$ ;  $df=2,254$ ;  $p<.0001$ ). Because the students were significantly younger, there may also be some underlying generation-gap differences accounting for variation in health care satisfaction. As noted in the literature, younger people (e.g., students) are likely to have



different experiences and expectations with health care than older people. One notable difference was the self-reported percentages of students who either had a prior bad experience (64.4%) or had not been allowed to choose their doctor (55.5%). These percentages were higher than those of the older clinic subjects (58.9/47.6% respectively).

Recovery Time. Another difference between the two groups related to age was expectation for recovery from illness. There was an interaction between type of sample (student vs. clinic) and outcome. Clinic subjects were more satisfied given a bad outcome than students. This relationship may be linked to the finding that students significantly differed from clinic subjects in the expected time required for illness recovery (Chi-Sq.=9.374;  $p < .052$ ). For example, 57.7% of student subjects expected to get well in 2-4 days, compared to 38.6% and 42.2% for the clinics. Where younger people would expect to get well more quickly, being sick for two weeks appeared to be a much worse outcome for students than for the clinic subjects.

Outcome Expectations. In explaining the findings of Study Two, it is likely that the students were motivated primarily by the outcome. The issue of choice and physician preference appeared less important to the students than the outcome. That is, there was no interaction of choice, physician preference, or outcome for students but just an outcome main effect. Again, part of the explanation for the

disparity in satisfaction may lie in the students expectations for getting well more quickly than clinic subjects. Because the students expected to get well quickly, they may not have been highly involved with choice or doctor preference.

Involvement. Another possible explanation for the difference in results between students and clinic subjects was the setting in which the experiment was conducted. Clinic subjects were either ill, had someone with them who was ill, or were thinking about an ailment as they waiting for their appointment. Therefore, they were probably in a frame of mind where they were more highly involved in the medical decision process. Thus, concerns of who they would see and why may have seemed more salient or relevant at the time.

In contrast, the students were in a very different setting from clinic subjects. They may not have processed the significance of the concerns of choice or physician preference like a patient waiting in a health clinic would. Therefore, involvement with choice and physician preference may have been lower for students not only because they may expect to get well more quickly, but because of the setting in which the experiment was conducted.

Education. Education may explain differences in results between samples. The health care literature has found a trend that higher educated people tend to be less satisfied. A similar trend was identified in Study Two. There was a significant difference in satisfaction among the subjects

based on education ( $F:5.80$ ;  $df=2,260$ ;  $p<.0034$ ). Where subjects' education was classified as: low (high school degree or less), moderate (some college), and high (college degree or more), individuals with low education ( $MEAN=12.37$ ;  $n=67$ ) were more satisfied than either moderate ( $MEAN=10.96$ ;  $n=118$ ) or highly educated individuals ( $MEAN=10.85$ ;  $n=78$ ). However, there was no difference in satisfaction between the moderately and highly educated subjects.

In addition to finding a link between satisfaction and education, a significant difference in education was found between the samples. Education level was significantly different ( $Chi-Sq.=71.6$ ;  $p<.0001$ ) among the samples, with students possessing the most education (i.e., 100% having at least some college education).

Locus of Control/Need for Cognition. An internal locus of control and a desire for information (need for cognition) are associated with higher education. Also, individuals with an internal locus of control tend to seek more information (Wallston and Wallston 1976). Thus, it may be that the students desired more control of the health care situation and more health-related information than the (overall less educated) clinic subjects.

Perhaps the clinic subjects merely wanted a choice, but did not mind if their choice was rejected. Thus, clinic subjects seemed to desire some control, but not have ultimate say in who they received. This finding is consistent with the health care literature where older, less educated people did

not question authority and held a strong trust physicians and the health care process.

In contrast, students saw a rejected choice as equitable to no choice and having no choice was much like having no control. Also, having a choice rejected was similar to having no control because the decision was ultimately not the patient's. In addition, no explanation was provided as to why the choice was rejected. Thus given a bad outcome, students saw a rejected choice just as negatively as no choice at all because of their desire for control (internal locus of control) and their desire for an explanation of their choice being rejected (need for cognition).

Ethnocentrism. Another possible underlying difference between the groups may have been ethnocentrism. Clinic subjects were more dissatisfied with receiving the non-preferred doctor (in most cases Dr. Tsiao) than student subjects. It is possible that the older subjects could have been more adversely affected by receiving a foreign doctor than the students due to an unfavorable bias or strong sense of ethnocentrism. In addition, it is possible that students had more experience with foreign doctors from visiting a university health clinic. Although no measure of ethnocentrism was made, the characteristics of the non-preferred physician may have affected students differently than clinic subjects.

It is also worth noting that the students were substantially different in their ethnic composition than

TABLE IX

SUMMARY OF DIFFERENCES BETWEEN  
STUDENTS AND CLINIC SUBJECTS

<u>Students</u>	<u>Clinic Subjects</u>
1. younger	1. older
2. highly educated	2. less educated
3. less satisfied	3. more satisfied
4. expect faster recovery	4. expect slower recovery
5. low involvement	5. high involvement
6. outcome oriented	6. process oriented
7. internal locus of control control	7. external locus of control
8. high need for cognition	8. low need for cognition
9. low ethnocentrism	9. high ethnocentrism
10. more prior bad experiences experiences	10. fewer prior bad experiences
11. less experience overall	11. more experience overall
12. more instances of not being being allowed to choose doctor	12. less instances of not allowed to choose doctor

either of the other clinics. For example, students were 53% caucasian, compared to 34% and 49% caucasian for each of the clinic samples.

There cannot be any certainty what accounted for the discrepancies in satisfaction with health care between the students and clinic subjects without additional research. However, several demographic and psychographic individual difference variables were discussed as potential factors. In sum, the factors of age, education, ethnocentrism, locus of control, need for cognition, expectations for getting well, and involvement with the health care decision may have influenced the subjects' satisfaction response. Refer to Table IX a summary of the differences found and speculated between students and clinic subjects.

Study One vs. Study Two. Having explored some of the differences between the samples in Study Two, this section focuses on differences between the first two studies. In comparing Study One with Study Two, some interesting similarities and contrasts emerge. First, a comparison of the students from both studies is made. In both studies, the students demonstrated a strong outcome bias where subjects in good outcomes were more satisfied than those in bad outcomes. Also, neither study found significant differences for student satisfaction within the good outcome.

Another similarity was that students from both studies did not discriminate between choice accepted and no choice. That is, they were equally satisfied between having a choice

accepted or no choice at all.

The primary difference between the students from each study was how they reacted to the choice rejected condition. In Study One, the students were clearly less satisfied with a rejected choice. In contrast, students in Study Two were not any less satisfied with a rejected choice than either of the other choice conditions. In essence, the students in Study Two did not seem to be influenced by choice or physician preference. Their satisfaction seemed to be driven by whether the outcome of their encounter was good or bad.

Before making contrasts of Study Two and Study One, it should be noted that Study Two included an additional factor in its analysis. Study Two manipulated whether the subjects received a preferred or non-preferred physician. Given this difference, satisfaction did vary between physician preference conditions regarding no choice while the no choice and choice rejected conditions created a gap in satisfaction when a non-preferred physician was received.

The major difference between students in Study One and the clinic subjects in Study Two was their response to the choice rejected/bad outcome condition. Where the students were least satisfied with a rejected choice/bad outcome, clinic subjects were least satisfied in the no choice/non-preferred physician/bad outcome condition. To put it another way, clinic subjects were more satisfied with a rejected choice than having no choice at all. At first, this difference seems somewhat counter intuitive. However, the

difference may lie in the need for freedom of choice. The logic of clinic subjects may have been that having a choice, even if rejected, is better than no choice at all. In contrast, student subjects from Study One seemed to value choice consistency, not being denied the freedom initially given to them in the form of choosing their physician.

Given the discrepancy of desire for choice among subjects in the first two studies, additional research was conducted utilizing a psychological factor related to freedom of choice. The factor of health locus of control was used to account for individual differences among subjects' satisfaction with health care given a choice of physicians.



## CHAPTER V

### STUDY THREE: THE INFLUENCE OF CHOICE OF PHYSICIANS, PHYSICIAN PREFERENCE, AND HEALTH LOCUS OF CONTROL ON PATIENT SATISFACTION

#### Introduction

The third study was a replication and extension of the prior two studies. In summary, the earlier studies suggested the following: (1) a strong outcome bias existed, (2) significant effects occurred only within bad outcome conditions, and (3) satisfaction with health care in conditions of rejected choice and no choice were inconsistent between the first two studies. The primary motivation for Study Three was to resolve the inconsistent findings and understand what factors may have moderated patient satisfaction with health care. In addition, research on the effects of various forms of patient choices was extended.

#### Theoretical Background

The development of the theoretical background for Study Three was an extension of the earlier reviews with an emphasis on the construct, health locus of control. Health locus of control is considered important to Study Three because of its potential to discriminate patients' who have a greater need

for a choice of a doctor, a need for control over their health care surroundings, and a desire to seek information related to health care.

Health locus of control is derived from the literature on locus of control. Locus of control is a construct that describes how people attribute responsibility for an outcome either to one's self or the environment (Rotter 1966). Similarly, health locus of control is the belief that either our actions or the actions of outside forces tend to have the greatest affect on our health (Wallston, Wallston, and DeVellis 1978).

In the dissertation, health locus of control was viewed as an individual difference variable that may moderate patient satisfaction with health care, given varying levels of freedom of choice. It was also believed that given only bad outcomes, subjects would be motivated to make causal attributions with either an internal or external locus of control.

Effective Control. Attribution theorists suggested that the layman should be considered an "applied scientist" with a concern about using his understanding of causal relations to exercise control over his environment. Attributions are made to more effectively manage the individual and his environment. The attribution process is closely linked to control and can only be understood by an extensive examination of the effective exercise of control (Kelley 1972).

As mentioned earlier in the conceptual background of the first study, one of the major assumptions of attribution

theory is the general tendency to attribute success to the self and to attribute failure to external factors (Kelley 1972). This tendency is consistent with a motivation for belief in effective control known as the "belief in a just world" hypothesis (Lerner 1965). The just world hypothesis is based on a need to believe the world is an orderly place and one's efforts are not blocked by uncontrollable events in the environment. In essence, the theory suggests that people get what they deserve and as a result, victims of negative events are given the blame for that outcome. Even more interesting, the severity of harm to the victim may intensify attributions of responsibility to the victim if the severity activates the need to believe in effective control (Wortman 1976). Lerner (1971) found that when subjects were exposed to the misfortune of a victim, subjects either derogated or blamed the victim.

Walster (1966) noted a similar phenomenon to the just world hypothesis. He suggested a theory of "defensive attribution." In his theory, the outcome influenced how one felt about victims. If a bad outcome was minor, the accident could be attributed to chance. However, if a bad outcome was severe, observers would not view the victim as unlucky since doing so would imply that the observers could also suffer from such an accident. Walster (1967) later found empirical support that the more important an outcome (good or bad) was, the more confident observers felt they could have anticipated such outcomes (i.e., similar to the hindsight bias).

Depression and Attribution. There are instances where

individuals do not follow the normative process of attributing success to the self and inferring failure to external factors. An attributional theory of depression by Abramson, Seligman, and Teasdale (1978) proposed that individuals who make internal, stable, and global attributions for their negative outcomes are predisposed to depression. This theory is similar to learned helplessness theory, where internal attributions following failure are believed to form low self-esteem while attributions to stable and global factors are considered to lead to motivational and performance deficits.

Depression was linked to attribution style in a health care setting. Rapps, Peterson, Reinhard, Abramson, and Seligman (1982) found depressed patients were more likely to attribute bad outcomes to internal, stable, and global causes than non-depressed schizophrenic and non-depressed medical patients.

Janoff-Bulman (1979) suggested that only one form of internal attribution, character-based, should be associated with depression. She indicated that internal blame for negative outcomes could be classified as either directed at one's character (e.g., ability) or at one's behavior (e.g., effort). Since character is fixed, attributions to character factors were thought to indicate depression and helplessness.

Effort and Satisfaction. Where causal attributions are made for good and bad outcomes, individuals may allocate the causes of success and failure to four areas originally identified by Heider (1958): ability, effort, task difficulty,

and luck (Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum 1971). According to Weiner, Heckhausen, Meyer, and Cook (1972), these four elements may be grouped in two causal dimensions: locus of control (internal/ external) and stability (fixed/variable). Ability and effort were considered internal (personal) causes of failure/success while luck and task difficulty were external (environmental) assessments of outcome. Further, perceived ability and task difficulty were relatively fixed elements compared to effort and luck which appeared to be variable (Weiner et al. 1972).

Weiner et al. (1972) examined the relationship of stability and locus of control with affective reactions to achievement-based outcomes (i.e., satisfaction). They found that satisfaction was influenced more by locus of control than stability. Specifically, attributions to effort, an internal or personal causal factor, intensified reward for success and punishment for failure. Thus, locus of control appeared to have a link with satisfaction. Where attributions were made to effort, one may be more satisfied for good outcomes (i.e., success) or experience dissatisfaction for a failure (i.e., a bad outcome).

Locus and Product Satisfaction. Locus of control has also been linked to product satisfaction. Oliver and DeSarbo (1988) found that when locus of control was manipulated in a study of stock investors, subjects were more satisfied with external causes (the broker's suggestion) than internal causes (the investor's decision).

In a product related study, consumers who reported product dissatisfaction were classified as making internal or external attributions. Results demonstrated that external attributions led to more negative word-of-mouth complaining than internal attributions (Richins 1983). Although complaining behavior is not the same as satisfaction, the two appear related.

Health Locus of Control. The health literature is rife with recommendations for giving patients more control over their health (Wallston, Wallston, Forsberg, and King 1984). Evidence exists that individuals' well being increases as the amount of control given to them increases (Langer and Rodin 1976; Schulz 1976). People behave more positively when more control is perceived in the world (Hui and Bateson 1991).

However, there is also evidence that the effects of increased control are not always beneficial (e.g., Rodin et al. 1980). It is believed that some individuals do not desire increased control over decisions regarding their health care and they may not fare well under such conditions (Loyd et al. 1991; Lupton et al. 1991; Wallston et al. 1984).

Thus, having an internal health locus of control appears to be individual-specific. As noted in the literature review for example, older individuals tend to be more trusting of health care providers and desire less control (Lupton et al. 1991). Most studies have focused on the effects of various patient-related demographic variables (e.g., age, gender) when studying need for control but have not examined the underlying

variables (Anderson and Dedrick 1990).

However, a number of studies have gone beyond demographics and examined desire for health care control through such psychological variables as trust (Anderson and Dedrick 1990) and health locus of control (Wallston and Wallston 1981; Wallston et al. 1984; Wallston et al. 1976; Wallston et al. 1978). Of particular interest is research on health locus of control. A unidimensional health locus of control scale was initially developed by Wallston et al. (1976) in light of evidence that negative relationships do exist between a desire for control and physical well-being (e.g., O'Bryan 1972). Later, the Health Locus of Control Scale was revised as a multidimensional construct (Wallston et al. 1978). Health locus of control is a specific measure of expectancies about locus developed for health-related attitude and behavior (Wallston et al. 1978). Health locus of control is believed to contain three dimensions: (1) Internal, (2) Powerful Others, and (3) Chance.

Not only does the health locus of control relate to one's individual preference for control in a health care setting but also one's need for information seeking and the value placed on health (Seeman and Evans 1963; Wallston, Maides, and Wallston 1976; Wallston et al. 1978). It is logical that an individual will seek information about a given health threatening problem if he values the outcome (health) and feels his behavior will impact his health (Wallston et al. 1976).

Therefore, it is believed that internal (locus of control) individuals desire more health related information than externals (Wallston and Wallston 1981). When more information is provided to internals, they are more likely to be satisfied with health care. In contrast, external locus of control individuals require less information and may be more satisfied with health care than internals when little or no information is provided (Seeman and Evans 1963; Wallston et al. 1976; Wallston and Wallston 1981).

Given that information seeking is connected with locus of control, it is important to understand how additional information may influence one's behavior. For example, Langer, Blank, and Chanowitz (1978) found that additional information affected people differently. They conducted an experiment where a researcher made a request to use a copy machine that was already being used by someone. The researcher either gave no reason, provided a "placebic" reason (i.e., because I need to make copies), or gave a justifiable reason (i.e., because I am in a hurry). In addition, the number of copies (effort) requested was manipulated (either 5 or 20 copies). When the effort was low (i.e., 5 copies were requested), subjects responded similarly to the requests that had any type of explanation. However, when the effort was high (i.e., 20 copies were requested), subjects responded to the "placebic" explanation as if no explanation was given.

The experiment by Langer et al. (1978) demonstrated that under certain conditions, any additional information in the



form of an explanation may favorably influence others. However, if the level of effort or involvement with the request is high, then an explanation should be adequate (i.e., non-placebic) to evoke a favorable response.

The Langer et al. (1978) study has relevance to Study Three of the dissertation. If a patient did not receive an explanation for why his choice was rejected, this may lead to dissatisfaction with health care. Additionally, the patient may become even more dissatisfied with health care if he was highly involved with the health matter or if he sought details about his health care situation (i.e., internal locus of control). Conversely, an explanation would probably create more satisfaction with health care for an individual possessing an internal health locus of control. Further, a justifiable explanation would be most likely to satisfy an internal health locus of control patient.

In contrast, a patient with an external health locus of control may be equally satisfied with health care with or without an explanation. Because such an individual would be less concerned with the matter, seeking less control and minimal information, he would probably not want an explanation of any sort.

In sum, health locus of control is considered an important individual difference variable which may moderate a patient's desire for choice and control in a health care situation, how much they are involved with and value the outcome of the encounter (i.e., their well being), and amount

of health related information sought.

### Hypotheses

The following section presents the hypotheses for Study Three. The hypotheses were derived primarily from the results of Study One and Study Two, the health care literature, and the theoretical conceptualization. A detailed explanation for the hypotheses is presented below.

A consistent finding of Study One and Study Two was that differences in satisfaction with health care among subjects varied only within bad outcome conditions. These findings were consistent with prior research on the outcome bias phenomenon. That is, individuals tended to think more about the processes that led to negative outcomes but they did not elaborate on actions taken prior to positive outcomes. Given the strong outcome bias from the earlier studies, it was believed that the influence of any factors would have been diminished or negated within positive outcome conditions. Thus, Study Three examined the influence of choice of physicians, patient preference for physicians, and individual health locus of control differences on patient satisfaction only within bad outcome conditions (i.e., 14 day recovery period from illness for all subjects).

A major assumption of Study Three was that health locus of control (HLC) and the desire to have a choice or a perceived choice of one's physician were closely linked. That is, an individual with an internal HLC would be more satisfied

with health care if he had (or perceived) a choice of a physician rather than having (or perceiving) no choice because having (or perceiving) a choice would facilitate influencing his health condition. An individual with an internal HLC would strive to have greater control over his own health. Thus, an individual with an internal HLC would likely be more satisfied with health care having/perceiving a choice of a physician than an external HLC individual.

In contrast to an internal HLC individual, an external HLC individual would be less inclined to want a choice of a doctor because seeking a choice would be similar to taking control over the health care situation. Instead, the external HLC individual, believing that external forces influence his health most, would tend to allow others to make health related choices and be more satisfied with a lack of control and choice. Given the differences in perceived importance placed on choice by individuals with an internal and external HLC, H1-H5 are given below.

H1: For all individuals classified as having an internal health locus of control (IHLC), subjects who have a choice of their physician (i.e., choice accepted condition...CA) will be more satisfied with health care than IHLC subjects who receive any of the following conditions: no choice/preferred physician (NCP), no choice/non-preferred physician (NCNP), and choice rejected with no explanation (CRNE).

H2: For all individuals classified as having an external health locus of control (EHLC), subjects who have no choice of their physician and receive a preferred physician (NCP) will be more satisfied with health care than EHLC subjects who receive any of the following conditions: choice accepted (CA), no choice/non-preferred physician (NCNP), choice rejected with an explanation (CRE), and choice rejected with no explanation (CRNE).

- H3: Individuals classified as having an internal health locus of control (IHLC) who have a choice of their physician (CA) will be more satisfied with health care than those individuals classified as having an external health locus of control (EHLC) who have a choice of their physician (CA).
- H4: Individuals classified as having an external health locus of control (EHLC) who have no choice of their physician and receive a preferred physician (NCP) will be more satisfied with health care than those individuals classified as having an internal health locus of control (IHLC) who have no choice of their physician and receive a preferred physician (NCP).
- H5: Individuals classified as having an external health locus of control (EHLC) who have no choice of their physician and receive a non-preferred physician (NCNP) will be more satisfied with health care than those individuals classified as having an internal health locus of control (IHLC) who have no choice of their physician and receive a non-preferred physician (NCNP).

The literature on health locus of control also suggested that the desire for health related information tends to vary among individuals based on HLC. Earlier research in the literature found support that individuals with an internal HLC tended to seek more health-based information than those with an external HLC. Given the importance for internal HLC individuals to understand why events occur within a health related setting, the following hypotheses suggest that internal HLC subjects would be more satisfied knowing why they did not receive a doctor that was initially selected than not knowing why. Further, the hypotheses suggest that external HLC subjects would have less desire than internal HLC subjects for an explanation about health related events. H6 and H7 were based on the patients' desire to seek health related information.

- H6: For all individuals classified as having an internal health locus of control (IHLC), subjects who receive a

non-chosen, non-preferred physician with a reasonable explanation (CRE) will be more satisfied with health care than IHLC subjects who receive a non-chosen, non-preferred physician with no explanation (CRNE) or those who have no choice and receive a non-preferred physician (NCNP).

H7: Individuals classified as having an internal health locus of control (IHLC) who receive a non-chosen, non-preferred physician with an explanation (CRE) will be more satisfied with health care than those individuals classified as having an external health locus of control (EHLC) who receive a non-chosen, non-preferred physician with an explanation (CRE).

H7 is also based in part on the implications of Study Two that having a choice of any kind may be more satisfying to internal HLC patients than external HLC patients.

The last three hypotheses (H8-H10) are based primarily on the results from earlier studies. In Study Two, subjects within the bad outcome condition who received a non-chosen, non-preferred physician (choice rejected with no explanation) were more satisfied than subjects who had no choice and received a non-preferred physician (NCNP). This finding may have suggested that to some patients, having an initial choice of a doctor that was rejected was more satisfying than never being offered any choice of a doctor at all. Also, there may have been a large number of subjects with an internal HLC in these conditions. Similar to the findings of Study Two, H8 suggests that the choice rejected condition with no explanation (CRNE) will be more satisfying to internal HLC subjects (who may prefer having any choice) than having no choice and receiving a non-preferred physician (NCNP).

H8: For all individuals classified as having an internal health locus of control (IHLC), subjects who have no choice of their physician and receive a non-preferred

physician (NCNP) will be less satisfied with health care than IHLC subjects who either have no choice and receive a preferred physician (NCP) or receive a non-chosen, non-preferred physician with no explanation (CRNE).

Conversely, H9 suggests the opposite relationship between CRNE and NCNP for external HLC subjects. Individuals with an external HLC may prefer the NCNP condition over the CRNE condition, given their implied lack of desire for any type of choice.

H9: For all individuals classified as having an external health locus of control (EHLC), subjects who receive a non-chosen, non-preferred physician with an explanation (CRE) or without an explanation (CRNE) will be less satisfied with health care than subjects who either have no choice of a physician and receive a non-preferred physician (NCNP) or have a choice of their physician (CA).

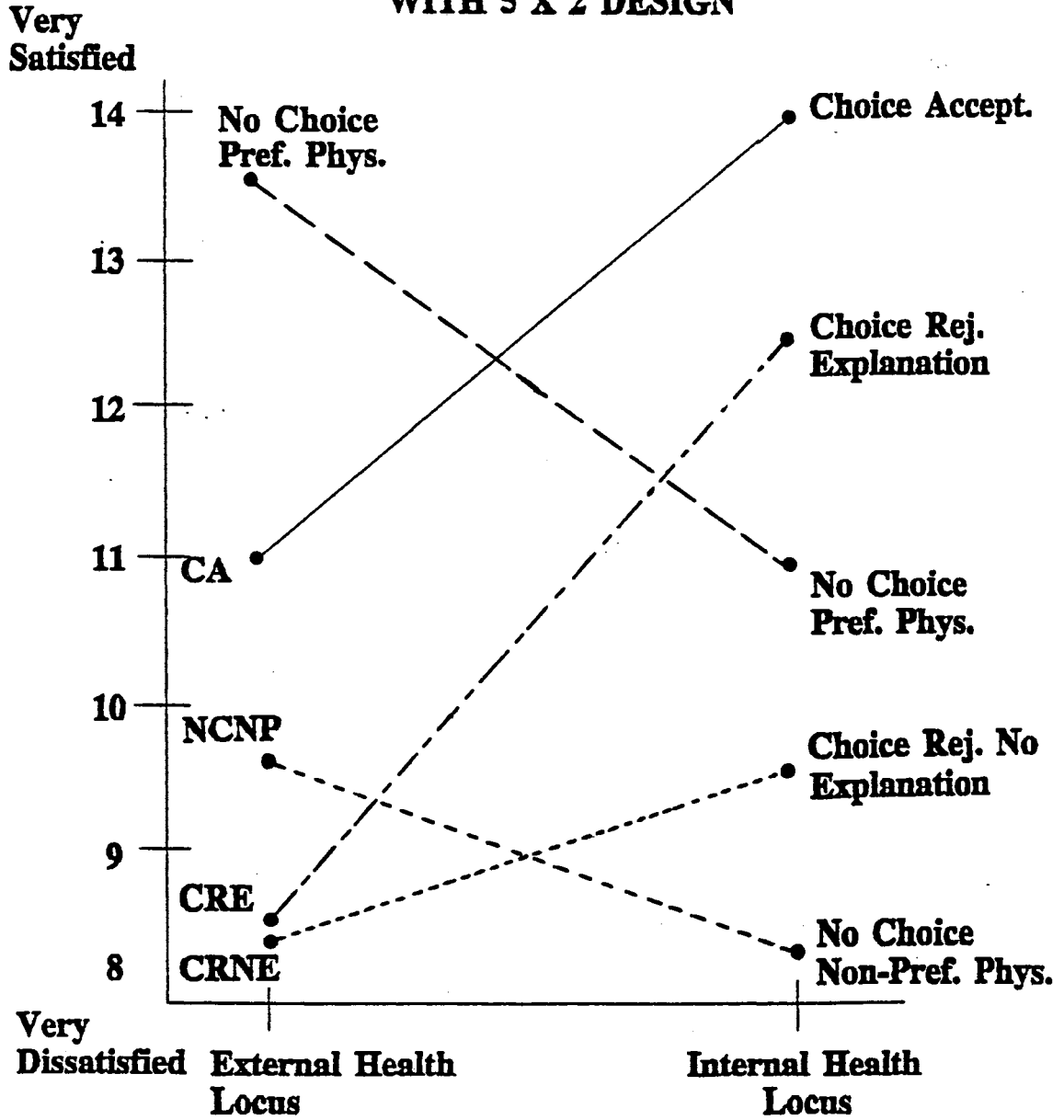
Also, given the suggested lack of importance of health related information to external HLC patients, H9 further suggests that individuals with an external HLC might be equally dissatisfied with any type of rejected choice (i.e., either with or without an explanation).

Finally, H10 predicts that the CRNE condition would be more satisfying to an internal HLC patient than an external HLC patient (similar to H7). The only difference between H10 and H7 is an explanation for the rejected choice. Similar to H8 and H9, the assumption for H10 is that any type of choice, even a rejected choice, may be more satisfying to an internal HLC than to an external HLC patient.

H10: Individuals classified as having an internal health locus of control (IHLC) who receive a non-chosen, non-preferred physician with no explanation (CRNE) will be more satisfied with health care than those individuals classified as having an external health locus of control (EHLC) who receive a non-chosen, non-preferred physician

**FIGURE VIII**

**STUDY THREE HYPOTHESES  
WITH 5 X 2 DESIGN**



CA = Choice Accepted  
CRE = Choice Rejected with an Explanation Why  
CRNE = Choice Rejected with No Explanation Why  
NCP = No Choice Preferred Physician Received  
NCNP = No Choice Non-Preferred Physician Received

with no explanation (CRNE).

Another relationship that needs elaboration are the levels of satisfaction among subjects in the conditions of no choice/preferred physician (NCP) and no choice and non-preferred physician (NCNP). Results of Study Two indicated that given a bad outcome condition, patients who had no choice and received a preferred physician (NCP) were more satisfied than those patients who had no choice and received a non-preferred physician (NCNP). Therefore, H2 and H8 predict that for both internal and external HLC subjects, the NCP condition will yield more satisfaction than NCNP condition. Refer to Figure VIII for the plot of the hypotheses for Study Three.

#### Method

The third study was a replication and extension of the first two studies. Similar to the earlier studies, Study Three examined how the freedom to choose a doctor and patients' preference of doctors influenced patient satisfaction with health care. However, the third study differed from the others in several ways. First, outcome was not manipulated. Rather, a bad outcome was held constant in the scenario. This change was made given that significant differences in the prior two studies occurred only within bad outcome conditions.

Second, a choice rejected condition with an explanation was added. That is, a justifiable explanation as to why the patient's chosen doctor was unavailable was provided in the



scenario. The first two studies had a rejected choice condition but no explanation was provided to the subjects. Study Three extended earlier work on the choice rejected condition by suggesting that a good explanation why one's choice was not honored may yield more patient satisfaction than no explanation at all, at least for those individuals who would desire additional health related information.

Finally, the third study measured health locus of control. The first two studies had inconsistent findings with the relationship between freedom of choice and satisfaction. A primary goal of Study Three was to clarify earlier results by suggesting that individual health locus of control moderated patient satisfaction with health care.

This section presents the method for Study Three. The method section is divided into the following six sub-sections: (1) a summary of the design, (2) development of the stimulus materials used in the experiment, (3) the subjects, (4) the procedure, (5) measured variables, and (6) the method of analysis to test the hypotheses.

Design Summary. Study Three utilized a 5 X 2 full factorial between subjects experimental design. The 5 X 2 design facilitated a *a priori* comparisons of all appropriate means within the factors. All conditions were framed in the context of a bad outcome (14 day recovery period) after the patient-doctor encounter. The dependent variable was patient satisfaction with health care.

The first independent variable was freedom of choice.

Freedom of choice was manipulated with five different levels. The five levels of choice were: (1) choice accepted (CA), (2) choice rejected with an explanation (CRE), (3) choice rejected with no explanation (CRNE), (4) no choice/preferred physician (NCP) and (5) no choice/non-preferred physician (NCNP). For clarification, the choice accepted condition indicated that the patient received a preferred, chosen physician while a choice rejected choice condition indicated that the patient received a non-preferred, non-chosen physician.

Health locus of control (HLC) was the second independent variable. HLC was considered a moderator of patient satisfaction and was used as a blocking variable in the experiment.

Only one of the three dimensions of HLC (i.e., the Internal dimension) was taken from the Multidimensional Health Locus of Control (MHLC) Scale by Wallston et al. (1978). The MHLC Scale was designed so that each dimension could be used as a separate scale. The full scale was not used because of the number of total items (18). Only one of the dimensions was used to limit the number of items for subjects to answer (6 items).

The Internal dimension of the MHLC Scale was considered more appropriate for this study than either the Powerful Others dimension or the Chance dimension. The decision to use the Internal dimension was based on face validity of the items. The items of the Internal dimension appeared to best measure the HLC construct by tapping into a general belief

that either internal or external factors tend to affect one's health more. The other dimensions appeared to be less generalizable to desire for control and having a choice.

To test the hypothesized relationships, HLC was assigned two levels. The two levels of HLC were designated as: (1) internal and (2) external.

Development of Stimuli. Much of the same scenario information from the second study was used in Study Three. The author refined Study Three for realism and manageability by working with physicians and additional academicians. A number of modifications were made to the experimental instrument. First, the experimental material was presented to the subjects as two "separate studies." This action was necessary because measures of HLC were taken in addition to the scenario information. Thus, the goal was to separate HLC measures from scenario information and minimize the potential bias of the HLC measures when subjects responded to scenario questions.

Second, the information about the physicians was revised. The information detailing each doctor's degree and place of residency was omitted. Instead, word of mouth information about the doctor was added. The doctors' area of specialty was kept to make the doctors seem either more desirable or undesirable given the patient's illness. It was believed that word of mouth information and the physicians' area of specialty would be realistic and important factors that patients would use to judge a doctor.

Regarding the word of mouth, the subjects read that a friend had told them that a particular doctor at the clinic (Dr. Brown) had a very good reputation while another doctor at the clinic (Dr. Thomas) had many complaints against him. No information was provided about the third doctor (Dr. Jones). In addition, all of the doctors were given "American" last names only. The name of the non-preferred physician from Study One and Study Two, Dr. Tsiao, was replaced with Dr. Thomas to eliminate any ethnocentrism. Further, only the last names were given to reduce any initial gender bias or preference.

Because the choice manipulation was suspect in the earlier studies, additional efforts were made to strengthen it. The subjects in the choice conditions filled in a blank with the name of the doctor whom they wished to see. This was thought to strengthen the choice manipulation and help the subjects remember which doctor they chose. Subjects in Study Two were required only to circle their most preferred doctor and a substantial number of subjects neglected to perform this task.

The choice manipulation was further strengthened as subjects were reminded at the time they found out who their doctor was about that doctor's specialty and whether or not he was recommended by the friend. Thus, the subjects were reinforced about receiving either a recommended (preferred) or a non-recommended (non-preferred) doctor with either an appropriate or inappropriate area of medical specialty.

In order to convey the message that the subjects initially had freedom of choice in the scenario, the wording of the introduction was changed. Instead of informing subjects that they had to attend the clinic in the scenario, subjects were instructed that they were visiting a clinic for the first time on the recommendation of a friend.

Another major modification to the study was to the choice rejected condition. Here, a "choice rejected with an explanation" condition was added to the scenario. This condition was included to assess how a "good" explanation for not receiving the chosen physician may impact patient satisfaction. The explanation given in the scenario was that Dr. Brown (the doctor recommended by the friend) was unexpectedly called away at the last minute in an emergency. It was believed that such an explanation would increase the satisfaction of those subjects who desired additional health related information (e.g., IHLC subjects). Refer to Appendix-C for Study Three stimulus material.

Subjects. Study Three used a sample that was very different from the earlier studies. Subjects in Study Three came from a different city and with a different sociodemographic background than subjects in Study Two. Study Three subjects were on average older (mean age of 45.7 years), more educated (mean 15.3 years of school), wealthier (median household income of \$35,000 to \$45,000 per year), and predominantly white upper-middle class (with 85.5% caucasian). The goal was to identify another major segment of the

population different from the earlier studies to assess health care attitudes and achieve more generalizability within this tripartite dissertation.

The subjects for Study Three consisted of 247 individuals collected from a medium sized southwestern U.S. city. The desired number of subjects in Study Three was determined by using power analysis (Cohen 1988). Effect sizes from Study One and Study Two were calculated. An average of at least 22 subjects per cell yielded a power of .95. That is, there would be a .05% probability of making a Type II error.

The subjects of Study Three came from several sources. Seventy three subjects (29.5%) came from a clinic in the southwestern city where patients sought general surgery. The remaining 174 subjects came from community organizations in the city (i.e., a church and a senior citizen community center).

Procedure. Before data were collected, the instrument was pretested with a convenience sample of five subjects. Comments about the experimental instrument were noted along with the time required to complete all of the material. The completion time ranged from 11 minutes to 35 minutes, with a mean of 22 minutes.

The data were collected over a two week period. Data taken from the community organizations were administered at the facilities. At the clinic, all adult individuals entering the clinics were approached by the surveyor to participate. In all cases, subjects were randomly assigned to the treatment

conditions. Overall, the rejection rate was approximately 20%.

The stimulus material was presented as two separate studies. The first study was described as one that "assesses how you feel about health care" and the second study "simulates a visit to the doctor." The "first study" included six items from the Internal dimension of the MHLC Scale (Wallston et al. 1978) and three items from the Need For Cognition Scale (Cacioppo and Petty 1982). Because health locus of control has been linked to information seeking, items from the Need for Cognition Scale were included as an additional measure for comparison purposes. The "second study" consisted of the doctor's visit scenario material.

Once subjects finished responding to the first nine items, they were introduced to the "second study." First, the subjects read two pages about a visit to the doctor. At this point, they read the scenario describing their illness symptoms. In the scenario, they were advised by a friend about which clinic to go to, which doctor had a good reputation, and which doctor had complaints against him. At the clinic, the subjects were informed either that they would choose a physician or they would be assigned a physician.

Next, the subjects looked over a list of three physicians. In the choice condition, the subjects performed two tasks. First, the subjects wrote down the name of the doctor they wanted (i.e., I choose Dr. \_\_\_\_\_ as my doctor). Next, the subjects rated each of the physicians on

five point Likert Scales from "Least Desirable" to "Most Desirable."

One hundred and forty six subjects (59.3%) were in one of the three choice conditions. Of these subjects, 146 (99.2%) chose Dr. Brown while only 2 (.8%) chose Dr. Thomas as the doctor they wanted. Both subjects who chose Dr. Thomas were initially in the CRNE condition. However, because of their responses and based on how they answered the manipulation check questions, they were placed in the choice accepted condition.

Subjects in the no choice condition simply rated each of the physicians on five point Likert Scales. A total of 98 subjects (39.8%) were in either of the two no choice conditions (one subject was missing and only completed the first page containing the HLC and Need For Cognition items).

The packets that the subjects received were randomized. Subjects in the choice condition received one of the following conditions: CA (i.e., chosen, preferred physician), CRE (i.e., non-chosen, non-preferred physician with no explanation), or CRNE (i.e., non-chosen, non-preferred physician with an explanation that "Dr. Brown was unexpectedly called away at the last minute in an emergency"). Subjects in the non-choice condition received either the preferred or non-preferred physician.

#### Measured Variables

The MHLC Scale. The entire MHLC Scale consisted of three



factors: (1) Internal Health Locus of Control (IHLC), (2) Powerful Others Health Locus of Control (PHLC), and (3) Chance Health Locus of Control (CHLC). The full scale contained a total of eighteen items with six items for each factor. As noted earlier, the MHLC Scale was designed so that any single dimension could be used separately (Wallston et al. 1978). To minimize the number of responses, only one dimension of the scale was utilized in the survey instrument. The Internal HLC dimension was selected based on face validity of the items for measuring general attitudes about health. Further, the Internal dimension was preferred because it had the highest reported Cronbach Alpha (.767) of the three dimensions (Wallston et al. 1978).

Item-to-total correlations of the six items were checked to determine if any items should be dropped. Because item-to-total correlations were not available from the published literature, item-to-total correlations were taken from another unrelated, unpublished study that used a slightly modified worded version of the MHLC Scale (Refer to Table X). The unrelated study examined individuals' preference and willingness to take health related risks. Personality inventories including health locus of control were measured using 191 student subjects. Findings suggested that individuals with an internal health locus of control would take more health related risks.

The item-to-total correlations of the Internal dimension from the unrelated study ranged from .568 to .373. The

TABLE X

INTERNAL DIMENSION ITEMS FROM  
THE MULTIDIMENSIONAL HEALTH  
LOCUS OF CONTROL SCALE

<u>Original Scale Items-Form A</u>	<u>Item-To-Total Correlation</u>
Cronbach Alpha = .767	
1. The main thing which affects my health is what I myself do.	-
2. I am in control of my health.	-
3. When I get sick, I am to blame.	-
4. If I take the right actions, I can stay healthy.	-
5. If I get sick, it is my own behavior which determines how soon I get well again.	-
6. If I take care of myself, I can avoid illness.	-
<u>Modified Scale Items (From Unrelated Study)</u>	<u>Item-To-Total Correlation</u>
Cronbach Alpha = .703	
1. The main thing which affects my condition is what I myself do.	.568
2. I am directly responsible for my condition getting better or worse.	.491
3. Whatever goes wrong with my condition is my own fault.	.420
4. If I take the right actions, my condition should improve or at least not get worse.	.393
5. If my condition worsens, it is my own behavior which determines how soon I feel better again.	.373
6. If my condition takes a turn for the worse, it is because I have not been taking care of myself.	.363

Note: Each item utilized a five-point Likert Scale anchored with "Strongly Disagree" = 1 and "Strongly Agree" = 5.

wording of the items of the unrelated study was slightly changed from the original scale by Wallston et al. (1978) but communicated the same meaning.

Because the range of the item-to-total correlations was evenly distributed, all six items of the Internal dimension were kept. There was also uncertainty about dropping items from the original scale based on items with modified wording. For the dissertation, the original items from Form A of the MHLC Scale were used (Refer to Table X).

The reduced MHLC Scale (i.e., Internal dimension only) used in the dissertation was a continuous measure that ranged from 6 to 30, using 5-point Likert Scales anchored with "Strongly Disagree" to "Strongly Agree." Subjects were categorized using a two-way split as either internal health locus of control (scoring 21 or higher) or external health locus of control (scoring 20 or lower). All items were worded and scored in the direction of internal HLC.

Need For Cognition Scale. Three items from the Need for Cognition Scale were included to supplement the reduced MHLC Scale as a measure of desire for additional health related information. The three items were selected based on their face validity. This reduced measure of need for cognition ranged from 3 to 15, utilizing 5-point Likert Scales anchored with "Strongly Disagree" to "Strongly Agree." A median split was used to categorize subjects as either high or low need for cognition. All items were reverse coded and summed so that a high score (i.e., 13 or higher) indicated a high need for

TABLE XI  
NEED FOR COGNITION SCALE ITEMS  
STUDY THREE

Items	Item-To-Total Correlation
Cronbach Alpha = .720	
1. I prefer to let things happen rather than try to understand why they turned out that way.	.496
2. I don't like to have the responsibilities of handling a situation that requires a lot of thinking.	.486
3. Simply knowing the answer rather than understanding the reasons for the answer to a problem is fine with me.	.647

Note: Each item utilized a five-point Likert Scale anchored with "Strongly Disagree" = 1 and "Strongly Agree" = 5. Items were worded as low need for cognition and were reverse scored to high need for cognition in the analysis.

cognition. Refer to Table XI for a summary of need for cognition items with item-to-total correlations.

Dependent Measure. The dependent variable was patient satisfaction with health care. As in Studies One and Two, satisfaction with health care represented the patients' overall experience visiting a medical clinic, including the outcome of the visit. However, the satisfaction scale for Study Three was modified. Two of the items were taken from Study Two but the item which asked how the subjects felt about the care received by the office staff and nurses was considered non-essential and removed in Study Three. Also, two items from the Study One satisfaction scale were added in Study Three (e.g., "How likely are you to recommend the doctor to a friend?" and "If you have another illness, how comfortable would you be with seeing the doctor again?").

The dependent variable was reduced from ten items in Study One to three items in Study Two. It was believed that too many satisfaction items may have been omitted from Study Two. Study Three used four items to measure patient satisfaction with health care.

Note that the midpoint of satisfaction scale is 10 (4 items using 5 point Likert Scales). Thus, any satisfaction score above 10 represents above average satisfaction and vice versa for satisfaction for scores below 10. Refer to Table XII for satisfaction scale items with item-to-total correlations.

TABLE XII

SATISFACTION SCALE  
STUDY THREE

<u>SCALE ITEMS: Cronbach Alpha = .922</u>	<u>ITEM-TO-TOTAL CORRELATIONS</u>
1. "How do you feel about your experience with the doctor in the story?" Very Dissatisfied/Very Satisfied	.846
2. "How do you feel about your overall experience with the clinic in the story?" Very Dissatisfied/Very Satisfied	.728
3. "How likely are you to recommend the doctor in the story to a friend?" Very Unlikely/Very Likely	.847
4. "If you had a similar illness, how comfortable would you be with seeing the doctor in the story again?" Very Uncomfortable/Very Comfortable	.861

Note: Each item utilized a five-point Likert Scale anchored with 1 = least favorable and 5 = most favorable.

Open-Ended Questions. After the dependent measures were taken, a series of open-ended questions were asked of the subjects. The open-ended questions were placed after the dependent measures and prior to the manipulation check questions to prevent biasing or cuing the subjects. These five questions were a "funnel" technique that started out very broad in scope (i.e., "Write down any thoughts that crossed your mind when you read the study") and later became very specific in nature (i.e., "At what time during the survey did you form the impression that you described above"). These questions were used to assess hypothesis guessing on the part of subjects. Subjects were categorized as successfully guessing the hypotheses, partially guessing the hypotheses, or not guessing any part of the hypotheses.

Manipulation Checks. Several manipulation check questions were used in Study Three. These questions were placed after the open-ended questions to minimize bias. The first question assessed whether the doctor who examined the subject in the scenario was: "the one you chose," "not the one you chose," or "assigned to you without any choice ever being offered." This question referred to the choice, choice rejected, and no choice condition respectively.

The second question was a manipulation check for physician preference. This question asked whether the doctor who examined the subject had: "A very good reputation according to your friend," "Many complaints against him according to your friend," or "No information provided about

him by your friend."

A third question asked if there was an explanation provided for which doctor the subject received. This question was directed at subjects who had their choice rejected (i.e., explanation condition versus no explanation condition).

A fourth manipulation check question tapped into the preference for the physician received. It asked the subject to rate on a five point Likert Scale from "Very Bad" to "Very Good" how he felt when he found out which doctor was treating him.

Subjects rated how they felt about the process of being treated. This question was asked since subjects may have rated the process in which they were treated more favorably if their freedom of choice was not constrained.

Also, subjects were asked to make an attribution about how the results might have turned out had a different doctor attended them. It was believed that subjects receiving a non-preferred doctor would feel they would have recovered sooner from the illness if a different doctor had treated them.

Other manipulation checks included three measures of subjects' expectations. Subjects were asked to use their expectations for having a choice of their physician to rate the degree of choice in the scenario (five-point Likert Scale anchored with "Very Low" and "Very High").

Subjects' expectations for recovery from a cold were used to rate the length of recovery in the experiment (five-point Likert Scale anchored with "Very Long" and "Very Short").



Because the outcome was constant, it was desirable to find that all subjects considered the recovery duration equal. Finally, expectations with health care were used as a point of comparison to rate the overall experience described in the scenario (five-point Likert Scale anchored with "Much Worse" and "Much Better").

Other Measures. Three measures were included that addressed unresolved issues from Study One and Study Two. The questions focused on possible explanations of earlier findings. The first item tapped into the importance of having the freedom to choose one's doctor. This question was central to the study and asked the subjects about their need to have a choice in a direct fashion.

The second question in this group asked the subjects to assess whether it was possible to tell how long it might take to get well. This question sought to explain if individuals would hold a doctor to his prediction about the duration of an illness and related to the health outcome.

The last question asked the subjects if they believed that when given a choice of a doctor, the clinic must provide the chosen doctor. This question was related to the choice rejected condition and sought to explain how subjects felt about not receiving a chosen doctor.

Finally, subjects were asked: "Overall, rate how you actually feel right now." This measure was taken to determine if the subjects' feelings may have affected their responses or whether the scenario - simulated experience - might have

affected how they felt.

Data Analysis. Study Three was analyzed using ANOVA to test all hypotheses. *A priori* orthogonal comparisons by means of an F ratio were used to analyze hypothesized relationships with global satisfaction as the dependent measure. For the exploratory analysis, ANOVA and the least significant difference (LSD) multiple comparison *a posteriori* procedure were used.

### Results

The results section is organized with the following sections: (1) key variables, (2) hypothesis guessing, (3) manipulation checks, (4) measure of reliability, (5) tests of hypotheses, and (6) post-hoc exploratory analysis.

Key Variables. Study Three used the following levels of the factors of choice and health locus of control:

- 1) Choice Accepted - The condition where the patient received the preferred, chosen physician.
- 2) Choice Rejected/Explanation - The condition where the patient received a non-preferred, non-chosen physician with a justifiable explanation provided to the patient.
- 3) Choice Rejected/No Explanation - The condition where the patient received a non-preferred, non-chosen physician without any explanation provided to the patient.
- 4) No Choice/Preferred Physician - The condition where the patient was assigned a preferred physician without any

opportunity to choose.

- 5) No Choice/Non-Preferred Physician - The condition where the patient was assigned a non-preferred physician without any opportunity to choose.
- 6) Internal Health Locus of Control - The measure of one's belief that our own actions have a greater influence on our health than the actions of external forces.
- 7) External Health Locus of Control - The measure of one's belief that the actions of external forces have a greater influence on our health than our own actions.

Manipulation Checks. A total of nine manipulation checks were utilized in Study Three. The first question asked the subjects to identify the type of choice condition they were in. The results were as follows: Choice Accepted (CA)=95.7% correct, Choice Rejected with an Explanation (CRE)=75% correct, Choice Rejected with No Explanation (CRNE)=83.7% correct, No Choice/Preferred Physician (NCP)=37.8% correct, and No Choice/Non-Preferred Physician (NCNP)=79.1% correct.

In the choice rejected with an explanation (CRE) condition, 20.5% felt they never had any choice at all, which may be understandable if their choice was rejected. Similarly, 14.3% of subjects in the choice rejected with no explanation (CRNE) condition felt they never had any choice. The low percentage correct for the no choice/preferred physician (NCP) condition may have been either a matter of semantics or a false feeling of control. In the NCP condition, 60% of the subjects felt the doctor was the one

they "chose". Here, subjects may have simply equated the term "preferred" with chosen. However, it may also be possible that given a desirable doctor, subjects felt they had a choice when none was ever given. That is, by receiving a desirable doctor, the subjects may have assumed they had more choice (i.e., control). In contrast, substantially more subjects in the no choice/non-preferred physician (NCNP) condition correctly identified that they had no choice. The only difference was that subjects in the NCNP condition received a non-preferred doctor.

The subjects in the no choice/preferred physician condition who correctly answered manipulation check question one were compared based on satisfaction with health care with those who incorrectly answered the question. Subjects who correctly responded that they had no choice (MEAN=8.82; n=17) were significantly less satisfied with health care ( $F:4.19$ ;  $df=1,41$ ;  $p<.0470$ ) than those subjects who incorrectly responded that they had a choice of a physician (MEAN=11.53; n=26). Given that the two groups had significantly different levels of satisfaction, those NCP subjects who believed that they had a choice could either be omitted from the analysis, or reclassified as being in the choice accepted condition. These alternatives to correcting the data were examined in the exploratory research section of this chapter.

Also, refer to manipulation check question 7 for subjects' perceptions about how much choice was offered in the scenario. There is evidence that suggests subjects in the no

choice/preferred physician condition perceived significantly less choice than any of the "choice" conditions.

The second manipulation check question assessed subjects understanding of the doctor they received. The results were: CA=95.6% correct, CRE=88.4% correct, CRNE=87.5% correct, NCP=95.5% correct, and NCNP=100% correct.

The third manipulation check question was specific only to the CRE and CRNE conditions. The question asked whether or not a reason why the subject received the doctor was explained. Results were: CRE=88.1% correct and CRNE=89.6% correct.

The fourth question asked subjects to rate how they felt when they found out who their doctor was. Mean ratings of this question among the choice conditions were significantly different ( $F:132.58$ ;  $df=4,222$ ;  $p<.0001$ ). Higher means indicated more positive feelings regarding how subjects felt when they discovered who their doctor was. The means in descending order were as follows: NCP=4.37,  $n=45$ ; CA=4.02,  $n=47$ ; CRE=2.18,  $n=43$ ; CRNE=1.83,  $n=49$ ; and NCNP=1.81,  $n=43$ . Based on Newman-Keuls multiple range test procedure, subjects in the no choice/preferred physician (NCP) condition felt significantly better than any other condition. The subjects in the choice accepted (CA) condition felt significantly better than subjects in the CRE, CRNE, or NCNP conditions. Subjects in the CRE condition felt significantly better than those in either the CRNE or NCNP conditions.

Interestingly, subjects in the NCP condition felt most

satisfaction with the health care, presumably because there was some initial question about which doctor they would be assigned. The subjects in the choice accepted (CA) condition probably expected to receive their doctor. Also, having an explanation with a rejected choice made the experience more positive (MEAN=2.18; n=43) than having a choice rejected with no explanation (MEAN=1.83; n=49). Having no choice and a non-preferred doctor was least positive. These findings suggest the manipulations were salient.

The next manipulation check assessed how subjects felt about the process the doctor went through to treat the illness. Higher means indicated more positive feelings. The results were as follows: CA=3.85, n=47; NCP=3.33, n=45; CRE=3.20, n=44; NCNP=3.11, n=43; and CRNE=2.93, n=49. Means among the conditions were significantly different ( $F:4.55$ ;  $df=4,223$ ;  $p<.0015$ ), further suggesting a strong manipulation. Based on Newman-Keuls multiple range test procedure, subjects in the choice accepted (CA) condition felt significantly better about the process than subjects in any other condition. Subjects in the remaining conditions did not feel significantly different about the process.

Subjects varied in their response to the sixth manipulation check question, "If a different doctor in the story had treated you, you would have recovered from the illness sooner" ( $F:3.17$ ;  $df=4,220$ ;  $p<.0147$ ). Higher means indicated more agreement with the question. Means for each of the conditions were: CRE=2.95, n=43; NCNP=2.90, n=43;

CRNE=2.87, n=49; NCP=2.56, n=44; and CA=2.47, n=46. Based on Newman-Keuls multiple range test procedure, subjects in the choice rejected with an explanation (CRE) condition felt significantly more strongly than subjects in the choice accepted (CA) condition that results would have differed if another doctor had treated them. By getting the chosen doctor, subjects felt most confidently that results would not have changed. However, receiving a non-chosen doctor with an explanation of why created the most doubt. Perhaps the explanation of why they did not receive their chosen doctor allowed the subjects to elaborate on what could have happened otherwise. These results were favorable to having strong manipulations.

Further support for a strong choice manipulation was provided by subjects' rating of the degree of choice in selecting the doctor based on expectations. Mean responses to this question varied significantly among the conditions ( $F:29.44$ ;  $df=4,222$ ;  $p<.0001$ ). Higher means indicated greater perceived choice. Means for the conditions were: CA=3.34, n=46; CRE=2.29, n=44; CRNE=1.89, n=49; NCP=1.57, n=45; and NCNP=1.3, n=43. Based on Newman-Keuls multiple range test procedure, subjects in the choice accepted (CA) condition felt significantly more choice than any other condition. Subjects in the choice rejected with an explanation (CRE) condition felt significantly more choice than those in the no choice/preferred physician (NCP) or no choice/non-preferred physician (NCNP) conditions. Finally, subjects in the choice rejected

with no explanation (CRNE) condition felt significantly more choice than those in the NCNP condition.

The low rating (1.57) of perceived choice by subjects in the NCP condition indicated that subjects did feel their choice was restricted, contrary to the low percentage correct in manipulation check item one. Also, the 1.57 rating was not significantly different from that by subjects in the no choice/non-preferred physician condition (1.34). It is possible some of the subjects in the NCP condition may have interpreted the terminology "preference" with "choice" as being the same in responding to the first manipulation check question.

Subjects did not differ in their rating of the length of time to recover from the illness. Mean ratings ranged from 2.00 to 2.13. Thus, there was no confound among conditions for subjects differing in their expectations of recovering from an illness.

Finally, subjects differed in their rating of their overall experience with the visit to the doctor ( $F:2.52$ ;  $df=4,222$ ;  $p<.0422$ ). The pattern of the means was similar to that of satisfaction. Higher means indicated more positive ratings. The mean responses were: CA=2.93,  $n=46$ ; NCP=2.80,  $n=45$ ; CRE=2.59,  $n=44$ ; NCNP=2.51,  $n=43$ ; and CRNE=2.44,  $n=49$ . However, based on Newman-Keuls multiple range test procedure, no significant differences were found among the choice conditions.

In sum, Study Three made a number of modifications to



create more salient manipulations of the choice conditions. Based on the findings of the manipulation checks, there was strong evidence that suggested the manipulations were salient. In addition, the subjects discriminated among the doctors with mean ratings of the doctors varying from 4.81 (n=245) for Dr. Brown (very desirable), 2.5 (n=239) for Dr. Jones, and 1.59 (n=239) for Dr. Thomas (very undesirable).

Other indications of salient manipulations were the means of the five conditions of choice. Consistently, the following trend emerged where choice accepted was by far most satisfying, followed by the no choice/preferred physician (NCP) condition. Choice rejected with an explanation (CRE) was usually somewhere in the middle (i.e., 3rd) of the choice conditions in terms of satisfying subjects. Finally, the choice rejected with no explanation and the no choice/non-preferred doctor conditions were consistently last (i.e., both equally dissatisfying). Regardless of what other variables were included in the analysis, these main effects for the choice factor consistently emerged. In sum, freedom of choice and desirability of the physician clearly influenced patient satisfaction.

However, there still remained the concern with the low number of correct responses to the first manipulation check question by subjects in the no choice/preferred physician condition. These concerns are addressed in the exploratory research.

Measures of Reliability. Cronbach Alphas and item-to-

TABLE XIII

INTERNAL DIMENSION ITEMS FROM  
THE MULTIDIMENSIONAL HEALTH  
LOCUS OF CONTROL SCALE

<u>Results From Study Three</u>	<u>Item-To-Total Correlation</u>
Cronbach Alpha = .769	
1. The main thing which affects my health is what I myself do.	.561
2. I am in control of my health.	.546
3. When I get sick, I am to blame.	.481
4. If I take the right actions, I can stay healthy.	.524
5. If I get sick, it is my own behavior which determines how soon I get well again.	.403
6. If I take care of myself, I can avoid illness.	.563

Note: Each item utilized a five-point Likert Scale anchored with "Strongly Disagree" = 1 and "Strongly Agree" = 5.

total correlations were calculated for the dependent measure of satisfaction with health care, the need for cognition items, and the Health Locus of Control Scale. Patient satisfaction had a Cronbach Alpha of .922 with item-to-total correlations that ranged from .728 to .861. The Need For Cognition Scale had a Cronbach Alpha of .720 with item-to-total correlations that ranged from .486 to .647. The Health Locus of Control Scale had a Cronbach Alpha of .769 with item-to-total correlations that ranged from .403 to .563. Refer to Tables XI, XII, and XIII for more details on each scale.

There were several comments regarding the interpretation of the HLC Scale. In particular, several subjects mentioned that the anchors of the scale "Strongly Agree" and "Strongly Disagree" were difficult to interpret given the wording of the question. It was suggested that an anchor relative to frequency or how often, such as "Always" and "Never" would have made more sense with the HLC items.

Comparison of Sample. Prior to testing the hypotheses, the sample was categorized according to the two sources where they came from: (1) clinic sample (n=73) and (2) non-clinic sample (n=174). There were no significant differences in overall satisfaction between the clinic sample and non-clinic sample. Also, there were no significant differences in satisfaction between these two samples within each of the five choice conditions. Therefore, the two groups were combined into a sample of 247 subjects.

Test of Hypotheses. The hypotheses were tested with ANOVA. Afterwards, *a priori* tests of simple effects were conducted. A significant main effect for the factor of choice was found ( $F:5.38$ ;  $df=4,231$ ;  $p<.0004$ ). Refer to Table XIV for details of the ANOVA.

Within the main effect, the choice accepted (CA) condition yielded the most satisfaction with health care (MEAN=12.12;  $n=50$ ), followed by no choice/preferred physician condition (NCP) (MEAN=10.61;  $n=49$ ), the choice rejected with an explanation condition (CRE) (MEAN=9.54;  $n=46$ ), the choice rejected with no explanation condition (CRNE) (MEAN=8.88;  $n=51$ ), and the no choice/non-preferred physician condition (NCNP) (MEAN=8.77;  $n=45$ ). The choice accepted condition (CA) yielded significantly more patient satisfaction with health care than the choice rejected with an explanation (CRE) ( $F:8.68$ ;  $df=4,236$ ;  $p<.0041$ ), choice rejected with no explanation (CRNE) ( $F:13.74$ ;  $df=4,236$ ;  $p<.0003$ ), and the no choice/non-preferred physician (NCNP) ( $F:15.16$ ;  $df=4,236$ ;  $p<.0002$ ). Subjects in the no choice/preferred physician condition (NCP) were significantly more satisfied than those in the choice rejected with no explanation (CRNE) condition ( $F:3.91$ ;  $df=4,236$ ;  $p<.0507$ ) and the no choice/non-preferred physician (NCNP) condition ( $F:4.57$ ;  $df=4,236$ ;  $p<.0352$ ).

No interaction was found between the factors of choice and health locus of control. However, *a priori* comparisons of simple effects were made according to the hypothesized relationships. Refer to Figure IX for a plot of the results

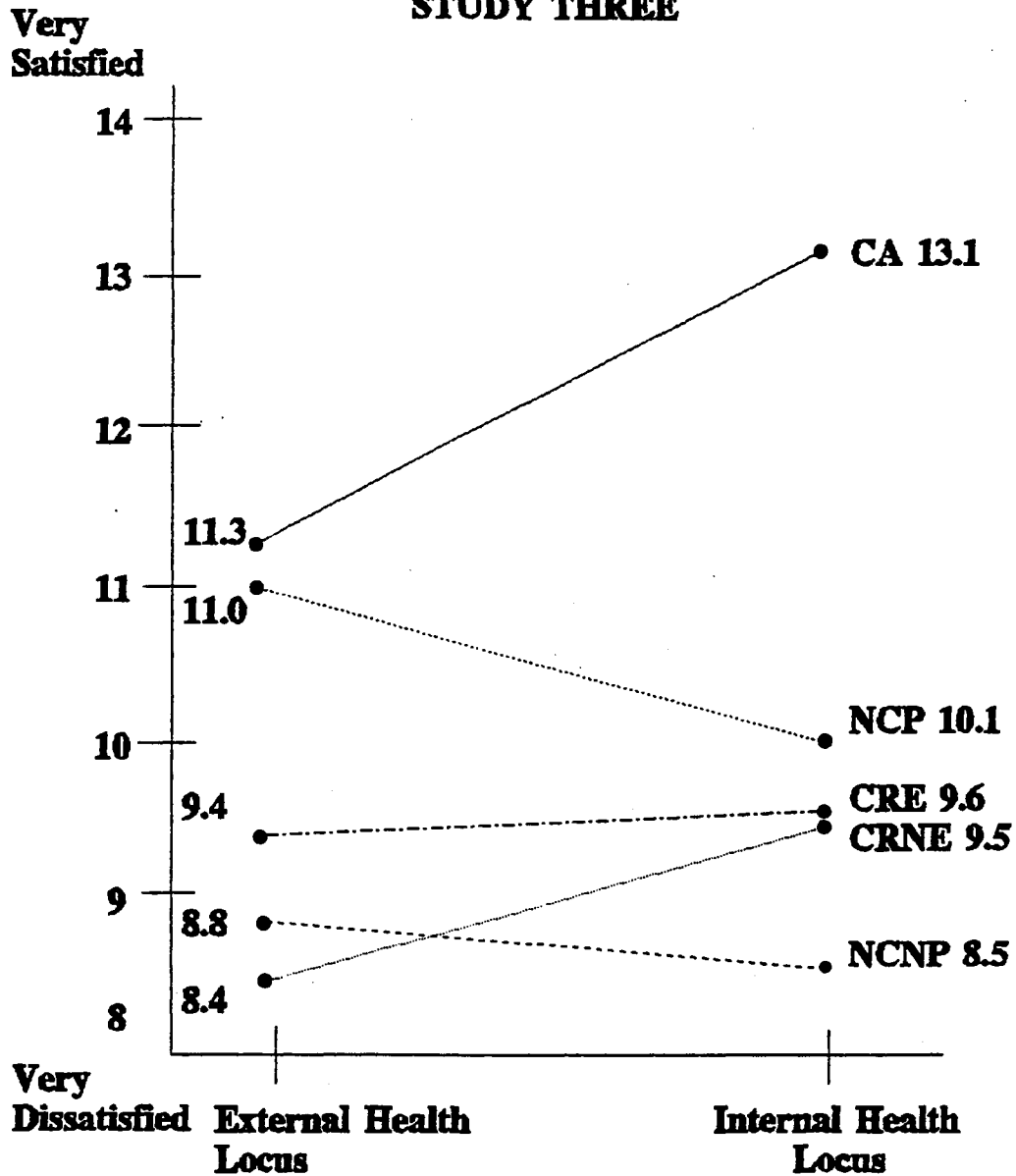
TABLE XIV  
ANOVA FOR SATISFACTION  
STUDY THREE

Independent Var.	DF	Type III SS	F-value	PR > F	Omega Squared
Choice	4	388.85	5.38	.0004	.0681
HLC	1	8.16	.45	.5022	-
Choice*HLC	4	56.91	.79	.5347	-

Number of observations = 241.

**FIGURE IX**

**RESULTS OF ANOVA  
STUDY THREE**



CA = Choice Accepted

CRNE = Choice Rejected With No Explanation

NCP = No Choice Preferred Physician Received

NCNP = No Choice Non-Preferred Physician Received

CRE = Choice Rejected With an Explanation Why

TABLE XV

SIGNIFICANT A PRIORI DIFFERENCES AMONG  
MEANS IN 5 X 2 DESIGN: STUDY THREE

## Differences Among External HLC Subjects

Comparison	Means	n	DF	F-value	p-value	Hypoth
CA CRE	11.32 9.44	28 18	9,231	2.14	.04	H9
CA CRNE	11.32 8.45	28 31	9,231	6.70	.0001	H9
NCP NCNP	11.08 8.89	23 28	9,231	3.63	.01	H2
NCP CRNE	11.08 8.45	23 31	9,231	5.05	.0001	H2
CA NCNP	11.32 8.89	28 28	9,231	4.99	.0296	H2

## Differences Among Internal HLC Subjects

Comparison	Means	n	DF	F-value	p-value	Hypoth
CA NCP	13.13 10.19	22 26	9,231	5.69	.0001	H1
CA CRNE	13.13 9.55	22 20	9,231	7.42	.0001	H1
CA NCNP	13.13 8.58	22 17	9,231	10.98	.0001	H1
CA CRE	13.13 9.60	22 28	9,231	8.49	.0001	H1

of the ANOVA. Significant differences among the conditions are presented in Table XV.

Among internal health locus of control (IHLC) subjects, those within the choice accepted (CA) condition (MEAN=13.13; n=22) were more satisfied with health care than IHLC subjects in the following conditions: no choice/preferred physician (NCP) condition (MEAN=10.19; n=26;  $F:5.69$ ;  $df=9,231$ ;  $p<.0001$ ), the choice rejected with no explanation (CRNE) condition (MEAN=9.55; n=20;  $F:7.42$ ;  $df=9,231$ ;  $p<.0001$ ), and the no choice/non-preferred physician (NCNP) condition (MEAN=8.58; n=17;  $F:10.98$ ;  $df=9,231$ ;  $p<.0001$ ). Thus, H1 was fully supported.

H2 was partially supported. Subjects classified as having an external health locus of control (EHLC) within the no choice/preferred physician (NCP) condition were significantly more satisfied than EHLC subjects in the no choice/non-preferred physician (NCNP) condition (MEAN=8.89; n=28;  $F:3.63$ ;  $df=9,231$ ;  $p<.01$ ) and EHLC subjects in the choice rejected with no explanation (CRNE) condition (MEAN=8.45; n=31;  $F:5.05$ ;  $df=9,231$ ;  $p<.0001$ ). However, because there was no significant difference between EHLC subjects in the NCP condition and those in either the choice accepted (CA) condition or choice rejected with an explanation (CRE) condition, H2 was only partially supported.

There is a similarity between the lack of difference in satisfaction between external HLC subjects in the choice accepted condition and in the no choice preferred physician



(NCP) condition. Student subjects in Study One did not differ in satisfaction between having a choice and receiving a preferred physician or having no choice and receiving a preferred physician. Thus, student subjects had a similar reaction as subjects classified as having an external health locus of control.

H3 was fully supported. Subjects with an internal health locus of control who were given a choice of their physician and received their chosen doctor (i.e., CA; MEAN=13.13; n=22) were significantly more satisfied ( $F:2.23$ ;  $df=9,231$ ;  $p<.03$ ) than subjects with an external health locus of control who received the physician they chose (i.e., CA; MEAN=11.32; n=28).

H9 was partially supported. Subjects who were classified as having an external health locus of control (EHLIC) who were in either choice rejected conditions (CRE and CRNE) were less satisfied (CRE: MEAN=9.44; n=18;  $F:2.14$ ;  $df=9,231$ ;  $p<.05$ ; CRNE: MEAN=8.45; n=31;  $F:6.70$ ;  $df=9,231$ ;  $p<.0001$ ) than other EHLIC subjects who received the doctor they had chosen (CA; MEAN=11.32; n=28). However, because there was no difference among EHLIC subjects in the no choice/non-preferred physician (NCNP) condition and EHLIC subjects in either of the choice rejected conditions (CRE or CRNE), H9 was only partially supported.

H4-H8 and H10 were not supported. There were no significant differences in patient satisfaction among subjects based on these hypotheses. However, it is worth noting that

TABLE XVI

SUMMARY OF RESULTS FOR HYPOTHESES  
TEST OF STUDY THREE

<b>Hypothesis</b>	<b>Result</b>
H1	Supported
H2	Partially Supported
H3	Supported
H4	Not Supported
H5	Not Supported
H6	Not Supported
H7	Not Supported
H8	Not Supported
H9	Partially Supported
H10	Not Supported

most of the results were in the direction predicted by the hypotheses (except for internal and external HLC subjects in the CRE condition and external HLC subjects in the NCP condition). Refer to Table XVI for a summary of the results of the hypotheses.

Hypothesis Guessing. A special effort was made to account for hypothesis guessing in Study Three. The "funnel technique" was employed to assess subjects' understanding of the study. Five open-ended questions were used in this technique to categorize subjects based on their ability to guess the purpose or hypotheses of the study. Subjects were classified into one of three categories based on their cognitive responses: (1) no guess or incorrect guess, (2) correct guess of part of the hypotheses, and (3) correct guess of the hypotheses. A partially correct guess included mentioning satisfaction, health and self responsibility/control (i.e., locus of control), or treatment by doctors. Subjects who indicated that the study was about the importance of physician choice were considered to have correctly guessed the hypotheses. Subjects who did not guess were treated as incorrect.

One hundred and forty two subjects (58.4%) did not respond or did not correctly guess any part of the hypotheses. Fifty one subjects (21%) correctly guessed part of the hypotheses while 50 subjects (20.6%) correctly guessed the hypotheses. Four subjects did not get to that portion of the survey and were missing data.

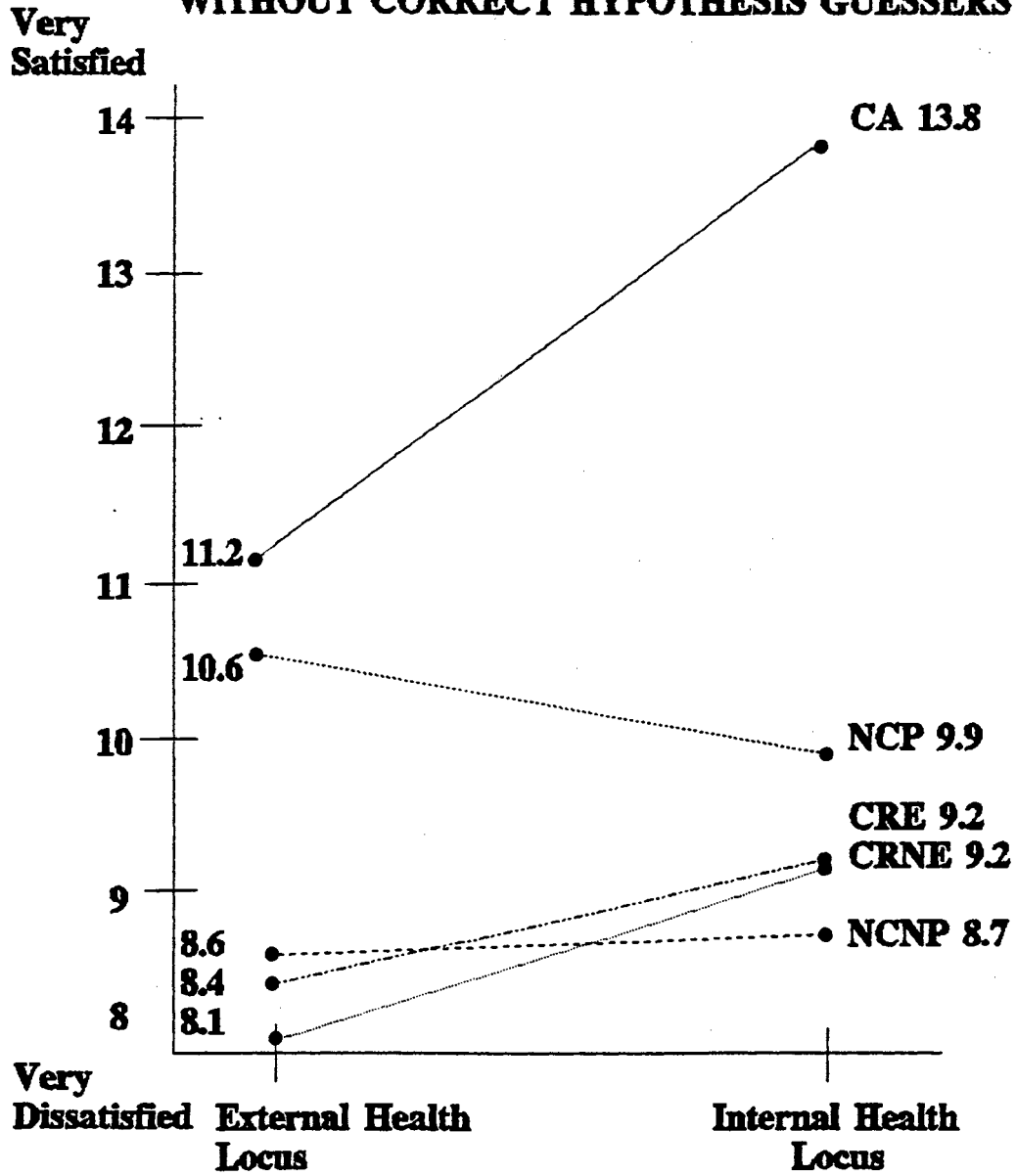
To assess the impact of hypothesis guessing, first only those subjects who correctly guessed the hypotheses were removed from the analysis. ANOVA was conducted followed by tests of simple effects. Only a main effect for the choice factor was found ( $F:6.01$ ;  $df=4,188$ ;  $p<.0001$ ) but the effect size became more robust. The means for the main effect were approximately the same as before (CA=12.35,  $n=40$ ; NCP=10.25,  $n=43$ ; CRE=8.88,  $n=36$ ; NCNP=8.65,  $n=35$ ; CRNE=8.57,  $n=38$ ).

An interesting pattern emerged among subjects in the choice accepted (CA) and no choice/preferred physician (NCP) conditions. Thus, a 2 X 2 analysis was conducted to determine if there was a magnitude interaction between internal and external HLC subjects in the CA and NCP conditions. A significant magnitude interaction was found ( $F:2.91$ ;  $df=3,79$ ;  $p<.05$ ). The means among the four conditions were CA: EHLC=11.26;  $n=23$ ; IHLC=13.82;  $n=17$ ; NCP: EHLC=10.68;  $n=19$ ; IHLC=9.91;  $n=24$ . In sum, internal HLC subjects were most satisfied with choice of a physician while external HLC subjects were most satisfied with having a preferred physician.

To further assess the impact of hypothesis guessing, additional subjects were omitted when all those who made either correct or partially correct guesses were removed from the analysis. Only a main effect of the choice factor was found ( $F:5.23$ ,  $df=4,137$ ;  $p<.0006$ ). The means for the main effect were approximately the same as before (CA=12.50,  $n=30$ ; NCP=10.35,  $n=28$ ; CRE=9.00,  $n=27$ ; NCNP=8.77,  $n=27$ ; and

**FIGURE X**

**STUDY THREE RESULTS OF ANOVA  
WITHOUT CORRECT HYPOTHESIS GUESSERS**



CRNE=8.03, n=29). Refer to Figure X for a plot of the results with hypothesis guessers omitted.

Overall, the pattern of the means was similar to the initial analysis. However, there were some shifts among the hypothesized relationships. First, the difference between internal health locus of control (HLC) subjects and external HLC subjects within the choice accepted (CA) condition (H3) increased slightly when only correct hypothesis guessers were omitted but decreased slightly when correct or partially correct hypothesis guessers were deleted.

Second, the difference between internal HLC subjects in the choice accepted (CA) condition and the no choice/preferred physician (NCP) condition (H1) increased slightly when correct hypothesis guessers were omitted and increased when both correct and partially correct hypothesis guessers were omitted. In addition, when correct and partially correct hypothesis guessers were deleted from the analysis, the difference between external HLC subjects and internal HLC subjects in the no choice/preferred physician (NCP) condition (H4) shifted slightly in the hypothesized direction (but not to the point of having a significant effect).

Overall, the results did not change substantially when hypothesis guessers were eliminated. However, doing so seemed to improve several of the hypothesized relationships (H1, H3, and H4).

Post-Hoc Exploratory Analysis. In addition to the formal testing of hypotheses, post-hoc exploratory analysis was

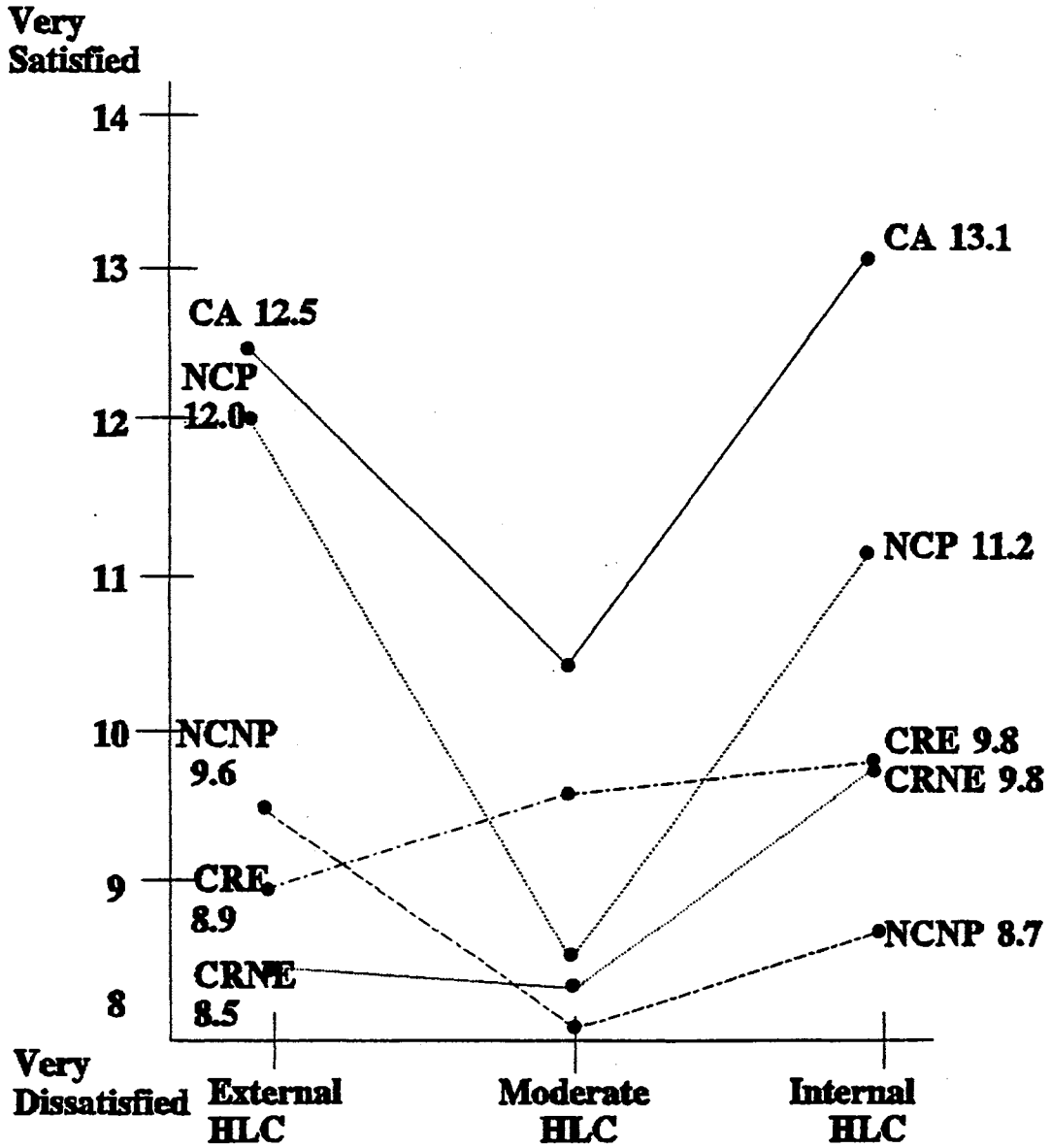
conducted. First, health locus of control was examined with a three-way split and with the middle third deleted. Second, ANCOVA was conducted. Third, a number of variables were included in the ANOVA as additional blocking variables. Finally, correlations were examined between satisfaction and various questions from the survey instrument.

Three-Way Split of HLC. Although HLC has traditionally been assigned two levels (i.e., internal and external), HLC was grouped into three levels (internal, moderate, external) as a part of additional exploratory analysis. The ANOVA for a three-way split of HLC yielded significant main effects for the factors of choice ( $F:4.99$ ;  $df=4,236$ ;  $p<.0007$ ) and HLC ( $F:3.06$ ;  $df=2,239$ ;  $p<.0489$ ). The pattern of means among the five choice conditions remained consistent with earlier analysis. The pattern of mean satisfaction for the three-way split of HLC was: (1) internal health locus of control (IHLC)=10.65,  $n=83$ ; (2) external health locus of control (EHLC)=10.36,  $n=80$ ; and (3) moderate health locus of control (MHLC)=8.97,  $n=78$ . Thus, moderate HLC subjects were overall less satisfied than EHLC and IHLC subjects.

In the analysis of simple effects, the only significant difference between HLC conditions occurred where external HLC subjects in the no choice/preferred physician (NCP-EHLC) condition (MEAN=12.07;  $n=14$ ) were more satisfied ( $F:5.87$ ;  $df=1,29$ ;  $p<.0222$ ) than external HLC subjects in the no choice/preferred physician (NCP-MHLC) condition (MEAN=8.3;  $n=16$ ). However, there were several marginal differences

**FIGURE XI**

**THREE-WAY SPLIT OF HLC**



CA = Choice Accepted  
CRE = Choice Rejected with an Explanation Why  
CRNE = Choice Rejected with No Explanation Why  
NCP = No Choice Preferred Physician Received  
NCNP = No Choice Non-Preferred Physician Received



between health locus of control conditions: (1) CA-IHLC (MEAN=13.18; n=16) was marginally larger than CA-MHLC (MEAN=10.40; n=15) with (F:3.32, df=1,30; p<.0789); and (2) NCP-IHLC (MEAN=11.26; n=19) was marginally larger than NCP-MHLC (MEAN=8.56; n=16) with (F:3.67; df=1,34; p<.0641). Refer to Figure XI for a plot of the results of the three-way health locus of control split in a 5 X 3 full factorial between subjects design.

There were a number of significant differences within each of the HLC classifications. However, patterns and differences within each of the three HLC classifications were not identical. For example, subjects in the CA-EHLC and CA-IHLC conditions were significantly more satisfied than their CRE counterparts, but not so for MHLC subjects.

Yet, there were some consistencies within each of the HLC categories. All subjects in each of the CA conditions were significantly more satisfied with health care than all subjects in each of the CRNE and NCNP conditions. Further, all subjects in CA and NCP conditions did not vary significantly in satisfaction.

Overall, the three-way split of HLC provided some interesting implications. First, internal HLC and external HLC patients were more similar based on satisfaction with health care than the moderate HLC patients. Second, moderate HLC patients were least satisfied, particularly concerning having no choice of a physician.

Third, the patterns of satisfaction with health care

TABLE XVII

SIGNIFICANT DIFFERENCES AMONG MEANS  
FOR THREE WAY-SPLIT OF HLC: STUDY THREE

## Differences Between HLC Groups

Comparison	Means	n	DF	F-value	p-value
EHLC/NCP	12.07	14	1,29	5.87	.0222
IHLC/NCP	8.56	16			

## Differences Among Internal HLC Subjects

Comparison	Means	n	DF	F-value	p-value
CA	13.18	16	1,29	4.80	.0367
CRNE	9.86	15			
CA	13.18	16	1,35	7.06	.0118
CRE	9.80	21			
CA	13.18	16	1,26	7.97	.0090
NCNP	8.75	12			

## Differences Among Moderate HLC Subjects

Comparison	Means	n	DF	F-value	p-value
CA	10.40	15	1,27	5.8	.0193
CRNE	8.35	14			
CA	10.40	15	1,32	10.6	.0019
NCNP	8.15	19			

## Differences Among External HLC Subjects

Comparison	Means	n	DF	F-value	p-value
CA	12.57	19	1,31	3.88	.0580
NCNP	9.64	14			
CA	12.57	19	1,28	4.71	.0386
CRE	8.90	11			
CA	12.57	19	1,29	8.06	.0071
CRNE	8.54	22			
NCP	12.07	14	1,34	5.27	.0280
CRNE	8.54	22			

among the three HLC groups varied significantly. The pattern of satisfaction for moderate HLC subjects suggested they were most satisfied with health care when some type of choices were given (i.e., CA and CRE conditions were most satisfying while NCNP was least satisfying). The internal HLC group also showed a pattern somewhat similar to the moderate group, but the internal HLC subjects had a wider range of satisfaction levels and were more satisfied with health care given a choice (CA). Like the internal HLC group, the external HLC subjects had a wide range of satisfaction levels. However, the satisfaction pattern of the external HLC group suggested these subjects were more satisfied with not having choices. In particular, the CA and NCP means were very close and both choice rejected conditions were least satisfying. Significant differences among the conditions are presented in Table XVII.

HLC Middle 1/3rd Deleted. In another exploratory analysis, subjects who scored in the middle 1/3rd (32.6%) of the HLC were deleted. Only a main effect was found for the choice factor ( $F:5.23$ ;  $df=4,153$ ;  $p<.0006$ ). The patterns of means among subjects were very similar to the initial analysis with all subjects in a 5 X 2 design.

Yet, there were no difference in satisfaction between internal HLC subjects in the choice accepted condition (CA) and external HLC subjects in the CA condition when the middle 1/3rd of the subjects were deleted. Further, there was no difference among internal HLC subjects in the CA condition (MEAN=13.18;  $n=16$ ) or the no choice/preferred condition

(MEAN=11.26; n=19). These are major differences from the initial analysis. These findings of omitting the middle 1/3rd subjects suggested that subjects with moderate HLC scores accounted for the most satisfaction variance. That is, the HLC scale did not appear to categorize subjects based on need for choice as planned. It would have been expected that deleting the middle 1/3rd of the subjects would have increased differences between the two HLC groups. The results support the finding of the three-way split of HLC, that subjects scoring in the moderate HLC group had the most satisfaction variance.

Given that most of the satisfaction means were not significantly different but in the predicted direction suggests that using only the Internal dimension of the MHLC scale may not have been appropriate to identify need for choice of a physician. Perhaps using other dimensions (Powerful Others or Chance) or all three dimensions would have improved results when omitting the middle 1/3rd of the subjects. Further, there may have been some problems with interpreting the HLC scale. Several people mentioned that the end points of the HLC scale "Strongly Disagree" and "Strongly Agree" made less sense to them than having some form of time frequency (i.e., "Always" and "Never") to respond to the HLC items.

Subjects in the NCP Condition. As mentioned in the manipulation check section, only 37% of the subjects in the no choice/preferred physician condition believed they had no

choice. An alternative to deal with these subjects was to delete them from the analysis. When subjects were deleted, the means for NCP subjects changed from 11.08; n=23 (EHLC) and 10.19 (IHLC) to 9.23; n=13 (EHLC) and 10.00; n=10. External HLC subjects shifted in the opposite direction as hypothesized by decreasing satisfaction with health care.

The alternative response to dealing with NCP subjects who indicated that they had a choice was to reclassify them as being in the choice accepted condition. Results were not encouraging when subjects were reclassified. There was a main effect for choice ( $F:5.64$ ;  $df=4,231$ ;  $p<.0002$ ). However, the means for both external and internal HLC subjects in the choice accepted direction shifted in the opposite direction as hypothesized. The means shifted from 11.32; n=28 (EHLC) and 13.13; n=22 (IHLC) to 11.89; n=38 (EHLC) and 11.94; n=38 (IHLC). Thus, any significant effects were negated by reclassifying NCP subjects as being in the CA condition.

Reduced Dependent Variable. In another exploratory analysis, the dependent variable was reduced from four items to a single item. The single item was the measure of subjects' "overall experience with the clinic." This measure was taken to find out how patient satisfaction with health care may change if patients considered the whole experience without specific reference to the doctor. There was a main effect for the choice factor ( $F:5.02$ ;  $df=4,232$ ;  $p<.0007$ ). The pattern of patient satisfaction with health care was somewhat different from the one with all four items of the satisfaction

scale. External HLC subjects (MEAN=3.03; n=28) were not less satisfied than internal HLC subjects (MEAN=3.31; n=22). Interestingly, external HLC subjects in the NCP condition (MEAN=3.21; n=23) were more satisfied with health care than internal HLC subjects (MEAN=2.37; n=27;  $F:6.96$ ;  $df=;1,48$ ;  $p<.05$ ). As with all four satisfaction scale items, internal HLC subjects (MEAN=3.31; n=22) were more satisfied with health care ( $F:8.375$ ;  $df=1,47$ ;  $p<.05$ ) than subjects in the no choice/preferred physician condition (MEAN=2.37; n=27). Otherwise, the patterns of the means for this exploratory analysis were very similar to that of the original analysis.

ANCOVA. The next exploratory analysis included analysis of covariance using three covariates: (1) age, (2) income, and (3) education. ANCOVA yielded a significant main effect for the factor of choice ( $F:4.88$ ;  $df=4,201$ ;  $p<.0009$ ). The pattern of the means within each of the conditions remained consistent with the initial hypotheses tests of simple effects. No significant effects were found for the covariates of age, income, and education.

Additional Blocking Variables. Other post-hoc analysis included moderating variables in addition to HLC (i.e., gender, age, education, income, and need for cognition). Three variables were significant when used as blocking variables: need for cognition, age, and question 11 from the survey instrument.

A median split was used to categorize responses to the

need for cognition (NFC) items. People were categorized into high and low need NFC. There was a significant interaction between HLC and NFC ( $F:4.10$ ;  $df=1,221$ ;  $p<.0441$ ). High NFC subjects with EHLC (MEAN=11.00;  $n=46$ ) were significantly more satisfied ( $F:5.58$ ;  $df=1,126$ ;  $p<.0197$ ) than Low NFC subjects with EHLC (MEAN=9.10;  $n=82$ ). However, IHLC subjects did not vary according to NFC.

Interestingly, NFC was significantly correlated with several other variables. NFC had a .15 correlation with income ( $p<.0197$ ) and with education ( $p<.0188$ ), a -.14 correlation ( $p<.0222$ ) with health locus of control, and a -.13 correlation ( $p<.0461$ ) with age.

Next, age was substituted as a blocking variable for HLC and then combined with the choice factor. Age was split three ways (young=36 years or less, middle=37-51, old=52 or more). Main effects were found for choice ( $F:3.49$ ;  $df=4,226$ ;  $p<.0086$ ) and age ( $F:3.57$ ;  $df=2,226$ ;  $p<.0299$ ). The mean satisfaction levels for age were: (1) middle (MEAN=11.40;  $n=75$ ), (2) old (MEAN=9.68;  $n=72$ ), and (3) young (MEAN=9.15;  $n=94$ ).

Finally, question 11 of the survey instrument, "Generally, you cannot tell how long it will take to get well," was used as a blocking variable in addition to HLC. Subjects were classified as 'high' for responses of 4 or 5 (agree or strongly agree) on a five point Likert Scale or as 'low' for responses 1-3 on the question. Fifty two percent (115) of the subjects were classified as 'low' and forty seven percent (126) were classified as 'high.' Seven subjects were

missing. Main effects were found for the factors of choice (F:6.79; df=4,221; p<.0001) and for question 11 (F:17.22; df=1,221; p<.0001). Subjects who scored high on question 11 were more satisfied (MEAN=10.96; n=126) than subjects who scored low (MEAN=8.97; n=115).

Interestingly, question 11 was significantly correlated with several variables. Question 11 had a .25 correlation (p<.0001) with satisfaction, a -.22 correlation (p<.0001) with need for cognition, a -.16 correlation (p<.0150) with income, and a .13 correlation (p<.0474) with age.

All other variables that were included in the analysis did not produce any other statistically significant findings. These variables included:

- (1) Question 10.
- (2) Question 12.
- (3) Question 13 (marginal main effect: F:3.04; df=1,221; p<.0825; High=10.56; n=134; Low=9.31; n=107).
- (4) Two and three-way splits of education.
- (5) Two-way split of income (marginal income main effect: F:2.90; df=1,231; p<.0902; High=10.62; n=115; Low=9.45; n=126).
- (6) Three-way split of income (marginal income main effect: F:2.63; df=2,226; p<.0745; High=10.86; n=80; Medium=9.81; n=65; Low=9.43; n=96).
- (7) Two-way split of age.
- (8) Gender.

Correlations. As the dependent measure of all three



TABLE XVIII

SUMMARY OF CORRELATIONS  
WITH PATIENT SATISFACTION

<u>Correlation</u>	<u>Item</u>	<u>Question</u>
.64	Q.5	Rate how you felt about the process that the doctor in the story went through to treat your illness.
-.47	Q.6	If a different doctor in the story had treated you, you would have recovered from the illness sooner.
.46	Q.8	Based on your expectations for recovering from a cold, rate how long it took to get well from the illness described in the story.
.42	Q.9	Based on your expectations with health care, rate your overall experience with the visit to the doctor in the story.
.34	Q.4	Rate how you felt when you found out who your doctor was in the story.
.24	Q.7	Based on your expectations for choosing a doctor, rate the degree of choice you had in selecting your doctor in the story.

Note: Each question was rated on a five point Likert Scale with "1" as very negative and "5" as very positive. Anchored terms varied according to the wording of the question.

studies, patient satisfaction was a key variable. In Study Three, a number of important and significant correlations were found between patient satisfaction and six other variables. Satisfaction was significantly correlated with each of these questions and ranged from .64 to .24. Refer to Table XVIII for a summary of correlations.

The strongest correlation with satisfaction was the process the doctor went through. This finding underscored the importance of the service procedure, not just the outcome. The second correlation suggested that the patient tended to be more satisfied when he believed that having another doctor would not have changed the outcome (i.e., the patient felt he received the best doctor). The third correlation suggested that as perceptions of the length of the illness decreased, feelings of satisfaction increased. The fourth correlation indicated a positive relationship between satisfaction and having an experience much better than expected based on one's experience health care. The fifth correlation suggested that good feelings about the doctor received by the patient positively influence satisfaction. Finally, the last correlation indicated that having more choice in selecting a doctor increased satisfaction.

Interestingly, patient satisfaction was not significantly correlated with any of the demographic variables. Thus supporting the belief that researchers should not only rely solely on demographic variables, but also seek the underlying and psychological factors that may influence patient

satisfaction.

### Discussion

Findings. In Study Three, the most important finding was that patient satisfaction varied significantly between internal health locus of control (HLC) subjects and external HLC subjects. First, internal HLC subjects (MEAN=13.13; n=22) were more satisfied ( $F:2.23$ ;  $df=9,231$ ;  $p<.03$ ) than external HLC subjects (MEAN=11.3; n=28) given a choice of their physician (i.e., choice accepted condition). This finding is important because internal HLC subjects were hypothesized to have a higher need for choice of a physician than external HLC subjects.

Second, internal HLC subjects given a choice of their physician (i.e., in the choice accepted condition; MEAN=13.13; n=22) were more satisfied ( $F:5.69$ ;  $df=9,231$ ;  $p<.0001$ ) than internal HLC subjects with no choice of their physician who received a preferred doctor (i.e., no choice/preferred physician condition; MEAN=10.19; n=26). In contrast, external HLC subjects were equally satisfied with having a choice (MEAN=11.32; n=28) or no choice of their physician (MEAN=11.08; n=23) as long as a preferred doctor was received.

Third, internal HLC subjects were least satisfied with having no choice and receiving a non-preferred physician (i.e., NCNP condition; MEAN=8.58; n=17) while external HLC subjects were least satisfied with having their choice rejected and receiving a non-chosen, non-preferred physician

(CRNE condition; MEAN=8.45; n=31).

Finally, the internal HLC subjects had greater mean satisfaction levels than external subjects within the choice conditions (CA:13.13>11.32; CRE:9.6>9.4; CRNE:9.55>8.45). Yet, the external HLC subjects had greater mean satisfaction levels than internal HLC subjects within the no choice conditions (NCP:11.08>10.19; NCNP:8.89>8.58). Although only one of the comparisons was significantly different (CA:13.13>11.32), the satisfaction pattern implies that desire for choice is consistently higher among internal HLC subjects and consistently lower among external HLC subjects.

An important underlying assumption of Study Three is that health locus of control was strongly linked to a desire for the freedom to choose one's doctor and influences satisfaction. The findings presented above gave strong support for this assumption.

Overall, the findings indicated that as hypothesized, internal HLC subjects were more satisfied with having a choice of a physician than not having a choice. However, there are some issues related to the findings that need to be briefly discussed. These issues concern: (1) subject hypothesis guessing, (2) findings about the middle 1/3rd of the HLC subjects, (3) the relationship of health locus of control and need to seek information, (4) the perception of choice versus no choice among subjects, and (5) the role of reactance theory in explaining the findings. After these issues are discussed, a profile of the subjects is presented relative to health

locus of control and other sociodemographic characteristics.

In sum, internal health locus of control (HLC) subjects were most satisfied with their health care when a choice of a physician was offered. In contrast, the external HLC subjects were most satisfied with receiving a preferred doctor, not choice of a doctor. These two groups appeared to desire different aspects of health care service.

Issues Related To Findings. One concern that may have impacted the findings of Study Three was hypothesis guessing on the part of subjects. There was some influence of hypothesis guessing within the experiment. Removal of hypothesis guessers did improve three of the hypothesized relationships (H1, H3, and H4). In particular, deleting only the completely correct hypothesis guessers from the analysis seemed to improve the findings most (H1 and H3). However, the elimination of hypothesis guessers did not substantially change the results of Study Three and conclusions were drawn from the initial analysis.

A second concern within Study Three was the impact of the middle 1/3rd of subjects scoring on the HLC inventory. When these subjects were removed, the differences between internal and external HLC subjects diminished. In addition, the middle 1/3rd of the subjects scoring on the HLC items were significantly different (i.e., less satisfied,  $F:3.06$ ;  $p<.0489$ ) than either internal or external HLC subjects. Most of the variance in satisfaction seemed to be coming from subjects scoring in the middle range of the HLC scale. This

finding may be evidence that the Internal dimension of the Multidimensional Health Locus of Control Scale was not tapping into subjects' desire for choice of a physician. Also, there was no correlation between health locus of control and subjects' response to question 10 of the instrument related to desire for having a choice of a physician being important. Thus, more research is needed to clarify the link between health locus of control and desire for choice.

Next, the manipulation check question concerning subjects' perception about the choice of their physician (question 1 after open ended questions) provided additional insight into the results of Study Three. Of particular interest was the percentage (17%) of all subjects who had their choices "rejected" by receiving non-chosen, non-preferred physicians (CRE and CRNE conditions) and believed that they never had any choice at all. In these subjects minds, they may have felt they were in a "no choice/non-preferred physician" (NCNP) condition. As such, possible support of this perception among subjects was that the no choice/non-preferred physician (NCNP) condition and both choice rejected conditions (CRE and CRNE) were not significantly different among either the internal or external HLC group.

Interestingly, the mean satisfaction of internal HLC subjects in the NCNP condition were lower (MEAN=8.58) than either of the choice rejected conditions (CRE MEAN=9.60; CRNE MEAN=9.55). Although the difference was not significant, it

was in the predicted direction (similar to the pattern in Study Two where the choice rejected condition was more satisfying than the no choice/non-preferred physician condition). Thus, had subjects felt more strongly about there being a choice, subjects in the NCNP condition may have been significantly less satisfied than the choice rejected conditions, as in Study Two.

Within the same manipulation check question (question 1 of the instrument) was another interesting finding. There was an unusually large percentage (60%) of subjects in the no choice/preferred physician (NCP) condition who believed that the doctor they received was the one they "chose." This is interesting because they were not given a choice in the scenario. There is evidence to suggest that these subjects merely equated the terms "preference" with "choice." First, internal HLC subjects in the choice accepted (CA) condition were significantly more satisfied ( $F:5.69$ ;  $p<.0001$ ) than internal HLC subjects in the no choice/preferred physician (NCP) condition (as hypothesized).

Second, subjects in the CA and NCP conditions differed significantly in their rating of the degree of choice they had in selecting their doctor. Subjects in the choice accepted (CA) condition (MEAN=3.34;  $n=46$ ) felt they had significantly more choice (per Newman-Keuls procedure) than subjects in the no choice/preferred physician (NCP) condition (MEAN=1.57;  $n=45$ ). The low rating of perceived choice by subjects in the NCP condition indicated that subjects did feel their choice

was restricted, contrary to the low percentage correct in manipulation check item one. Thus, subjects in the NCP condition may have interpreted the terminology "preference" with "choice" as being the same in responding to the first manipulation check question.

Further, the pattern of subjects in the no choice/preferred physician (NCP) condition suggested they understood there was no choice being offered. Subjects classified as having an external HLC had a higher mean satisfaction (MEAN=11.08; n=23) than internal HLC subjects (MEAN=10.19; n=26) in the NCP condition. Although the difference was not significant at the .05 level, the means were in the hypothesized direction, suggesting that there may be some preference among external HLC subjects for no choice (H4).

Another concern in Study Three was the lack of support for a relationship between need for health related information and health locus of control (HLC). That is, internal HLC subjects were hypothesized to be more satisfied if they received health related information (i.e., an explanation why their doctor was not available) than if they did not receive the information. However, external HLC subjects were hypothesized not to differ in satisfaction whether or not health related information was provided. In Study Three, there was no evidence to support these hypotheses. Rather, satisfaction levels of internal HLC subjects in the choice rejected with an explanation (CRE MEAN=9.60; n=28) and choice



rejected without an explanation (CRNE MEAN=9.55; n=20) were much closer than those of external HLC subjects (CRE MEAN=9.44; n=18; CRNE MEAN=8.45; n=31).

One explanation for this finding may lie in the nature of the health related information given. Perhaps the explanation of why the preferred doctor was not received may have been more of a general consumer information concern but not pertinent enough to fall within the subjects' schema of being specifically considered health related information (i.e., as opposed to additional information about an illness might be health related information).

Also, there was a slightly negative correlation between need for cognition and HLC (-.14). This finding was unexpected since the literature identified a positive link between internal HLC and desire for health related information. However, only three items were taken from a scale (Need For Cognition) that was not developed to explicitly measure desire for health related information.

An important point in the discussion of the results is an alternative explanation for the findings of Study Three. Reactance Theory may provide additional insight. Reactance Theory suggests that if one's behavioral freedom to take an action is diminished, the individual may respond by reacting against the threat (Brehm 1966). In order for individuals to experience psychological reactance, three requirements must exist: (1) one must believe he has the freedom to make a free choice, (2) a threat to one's freedom must be experienced, and

(3) the decision regarding the choice must be important (Clee and Wicklund 1980).

Within the study, several of the situations were designed to threaten the subjects' sense of freedom of choice. In particular, the choice rejected with no explanation (CRNE) condition seemed most threatening. That is, the subjects were first told they could choose their doctor. However, these subjects then received another doctor without any reason being given. Thus, the subjects were led to believe they would have freedom of choice (condition 1), then the subjects' choice was not only threatened but was taken away (condition 2). Further, subjects in the CRNE condition rated the freedom to choose their doctor as very important (4.44 on a five-point Likert Scale with 1="Strongly Disagree" and 5="Strongly Agree" choice is of utmost importance to me), fulfilling the third condition for psychological reactance. Overall, subjects in the CRNE condition had the third highest level of perceived choice of the five choice conditions (significantly below the CA and CRE conditions, more than the NCP condition, and significantly more than subjects in the NCNP condition). Yet, subjects in the CRNE condition had the second lowest level of satisfaction (MEAN=8.8, just higher than the NCNP condition MEAN=8.7). Thus, CRNE subjects felt a moderate amount of freedom of choice but a very low level of satisfaction.

Subjects in the choice rejected with an explanation (CRE) condition had higher levels of perceived choice (MEAN=2.95; n=44) and satisfaction (MEAN=9.5; n=46) than those in the CRNE

(MEAN=1.89; n=49 & 8.88; n=51 respectively). However, the subjects in the CRE condition may have felt more choice was intended and the situation may have appeared less threatened by simply receiving an explanation of why the chosen doctor was not received. Thus, a mere explanation helped to defuse an undesirable situation and may have helped the subjects feel less helpless.

The only other condition to consider that may have reflected consumer psychological reactance was the no choice/non-preferred physician (NCNP) condition. However, subjects in the NCNP condition perceived the least amount of freedom of choice (MEAN=1.34 on a five-point Likert Scale with 1="Very Low" freedom of choice and 5="Very High" freedom of choice) and had the lowest level of satisfaction (MEAN=8.77). By being offered no choice of a physician violated the first condition for psychological reactance to occur. Thus, the dissatisfaction among subjects in the NCNP condition may have largely been attributed to the combination of receiving a non-preferred physician and merely not having been offered any kind of choice of doctor.

In sum, there appears to be some evidence that being offered some choice of physician but having it threatened may yield great dissatisfaction through psychological reactance. All of the conditions were present for psychological reactance to occur and only 14.3% of the subjects in the choice rejected with no explanation (CRNE) condition felt they had no choice at all.

A final potential concern that may have influenced the results was the level of involvement patients had with the scenario. It is possible that internal HLC subjects, who may tend to value health related information and health choices, may have been more involved with the medical scenario. That is, internal HLC subjects may have felt more strongly or read more carefully than external HLC subjects. However, there was no indication of differences in feelings between either internal or external HLC subjects.

Yet, by blocking on health locus of control, there may have been a systematic bias in the results. There is always the potential for blocking variables to have other factors covary and influence the results. However, the exact relationship between involvement and health locus of control is unclear and there is only speculation that subjects' involvement with the stimulus materials may have been a factor.

Subject Profile. A brief profile of subjects was developed based on the two health locus of control classifications developed in Study Three. Cross-frequency descriptive statistics were compiled to better understand the characteristics of the two HLC groups. Fifty four percent of men were categorized as internal health locus of control while forty four percent of women were classified as internal HLC. Although distributed fairly evenly, more highly educated subjects (17+ years) were internal HLC (52%) than either moderately educated (14-16 years) subjects (45%) or lower

educated (< 14 years) subjects (42%). Income and age provided even splits between internal HLC and external HLC.

Although HLC was not significantly correlated with either question 10 (freedom to choose is of utmost importance) or question 12 (clinic must give you the doctor you choose) from the instrument, they were conceptually linked to health locus of control by measuring the importance of choice. A cross-frequency comparison was made for each question using demographic variables. The variables were compared based on how many subjects agreed or strongly agreed to the question. In sum, the higher percentage of people who believed that the freedom to choose was of utmost importance tended to be women who were well educated (17+ years) with moderate incomes (\$35-\$55,000). Similarly, the people who predominantly believed that a clinic must provide the doctor that one chooses tended to be older women (52+) with moderate levels of education (14-16 years).

In addition, characteristics of individuals have been generalized based on locus of control. According to Law, Logan, and Baron (1994), desire for control (i.e., internal locus of control) has been associated with type A behavior, males, higher education, resistance to conformity pressure, and stronger achievement behavior. However, generalizations about health locus of control may vary from those pertaining to desire for control.

### Conclusion

In sum, freedom to choose a physician, physician

preference, and health locus of control (HLC) have a significant influence on patient satisfaction. The findings of Study Three indicated that as hypothesized, internal HLC subjects were more satisfied with having a choice of a physician than not having a choice. Further, the results suggested that having choices was less satisfying to external HLC subjects, especially when a non-preferred physician was given. Having a preferred doctor had a very favorable effect on patient satisfaction. Finally, there did not appear to be a positive link between subjects' need for additional health related information and possessing an internal health locus of control.

## CHAPTER VI

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter is presented in two major sections. The first section is a discussion section that presents a summary of results from the three studies. In addition, this section provides an integration of the results from the three studies along with study limitations and potential areas for future research. The second section provides a general discussion of implications and offers some managerial recommendations to health care providers for maximizing both patient satisfaction and organizational goals.

#### Discussion

##### Overview of Dissertation

In review, this dissertation had two major purposes. First, the dissertation developed a comprehensive review of the health care literature and examined patient satisfaction from both a marketing and health care perspective. Second, the dissertation highlighted an area of health care marketing that has received little attention in the literature--that is the influence of freedom of choice, outcome bias, physician preferences, and health locus of control individual differences on patient satisfaction. Finally, the

dissertation utilized three experiments with a diverse sample to investigate the impact of these factors on satisfaction.

The findings offered partial support for the hypotheses in each of the studies. However, the findings were somewhat mixed in Study One and Study Two. The results from each study are discussed separately in the next section, and then the findings are integrated in an overall assessment.

#### Summary Of Results: Study One

Study One focused on the influence of three levels of choice (CA, NC, and CR) and two levels of outcome (good and bad). Results of Study One provided strong support for a very robust outcome bias. That is, subjects within each of the choice conditions were significantly more satisfied given good outcomes than in bad outcome conditions. Also, as predicted, there were no significant differences in satisfaction among the three choice conditions within a good outcome, yet significant differences did occur within the bad outcome condition.

The results also revealed that the different choice conditions influenced satisfaction. A magnitude interaction was discovered between the choice rejected (CR) condition and the other two conditions of choice accepted (CA) and no choice (NC). That is, the choice rejected condition yielded significantly less satisfaction than either the choice accepted or no choice conditions. Also, satisfaction between subjects in the choice accepted and no choice condition were



almost identical. This lack of difference in satisfaction between subjects in the choice accepted and no choice conditions was largely attributed to the same preferred physician being received by the subjects in both conditions. This finding raised some important questions. First, was there no difference in satisfaction between having a choice or not having a choice, given a desirable doctor? Second, how would receiving a non-preferred doctor change patient satisfaction given no choice? These questions were then examined and empirically tested in Study Two.

#### Summary Of Results: Study Two

Study Two extended the work of Study One by adding a condition of no choice with a non-preferred physician being assigned within both a good and a bad outcome. As in Study One, Study Two examined the impact of having a choice (CA), having no choice with a preferred doctor (NCP), and having one's choice rejected by receiving a non-chosen, non-preferred doctor (CRE), all within both good and bad outcome conditions.

Results of Study Two supported the hypothesis that satisfaction differences would occur within bad outcomes but not occur within good outcomes. Further, subjects within the good outcome condition were significantly more satisfied than those subjects in the bad outcome condition.

Within the bad outcome condition, subjects who received a preferred physician were significantly more satisfied than subjects who received a non-preferred physician. Thus, the

hypothesis that physician preference of patients impacts satisfaction was supported.

However, there was a finding that within the bad outcome condition, subjects with a rejected choice were significantly more satisfied than those who received a non-preferred physician without any choice. Initially, this finding appeared counter-intuitive and seemed to contradict Study One's implication that a rejected choice should be less satisfying than receiving a non-preferred doctor with no choice. This finding suggested that having a choice in physician selection may be of utmost importance to some patients. It may also have suggested that merely being offered a choice may have been more satisfying than never having been given a choice at all. Thus, several important research questions were raised in Study Two. First, how important is the freedom to choose a doctor? Second, does the desire for the freedom to choose a doctor vary on an individual basis? These questions were then used as the basis for the hypotheses of Study Three.

#### Summary Of Results: Study Three

Study Three replicated and extended the work of the first two studies by adding another choice condition and an individual difference variable related to patients' desire for choice. The new choice condition was choice rejected with an explanation. The new choice-related individual difference variable was health locus of control. Also, only the bad

outcome condition was used in the scenario since satisfaction was found not to vary within good outcomes in the earlier studies. A similar effect has been found previously with research on outcome bias (Marshall 1993; Marshall and Mowen 1992; Mowen and Stone 1992).

Results of Study Three provided support for the hypotheses that the importance of freedom to choose one's physician varied significantly based on health locus of control. Specifically, patients with an internal health locus of control (IHLC) tended to be more satisfied having a choice more than patients with an external health locus of control (EHLC). Further, IHLC patients valued having an accepted choice (CA) significantly more than any other type of choice condition. In contrast, EHLC patients viewed both the choice accepted and no choice/preferred physician conditions as equally satisfying.

In Study Three, the pattern of the main effect in which subjects varied among the five choice conditions supported results from Study One but were mixed with Study Two findings. First, the choice accepted (CA) condition was not significantly different from the no choice/preferred physician (NCP) condition in Study Three. This finding was similar to Study One, where subjects in the choice accepted condition and no choice (with a preferred physician) condition were not significantly different.

Second, the main effect pattern in Study Three indicated that the no choice/preferred physician (NCP) condition was

significantly more satisfying than the choice rejected with no explanation (CRNE) condition. This finding was consistent with the results of Study One, where subjects in the no choice (preferred physician) condition were significantly more satisfied than those in the choice rejected (with no explanation) condition.

Third, Study Three found that subjects receiving no choice and a preferred physician (NCP) were more satisfied than subjects receiving no choice and a non-preferred physician (NCNP). This result was also consistent with Study Two.

Fourth, both choice rejected conditions (CRE and CRNE) and the no choice/non-preferred physician (NCNP) condition in Study Three were not significantly different. This finding conflicted with Study Two, where subjects in the choice rejected (with no explanation) condition were significantly more satisfied than subjects in the no choice/non-preferred physician (NCNP) condition.

When subjects were categorized by health locus of control, there was still no significant difference between the choice rejected conditions and the no choice/non-preferred physician (NCNP) condition for either internal or external HLC subjects. Although the differences were not significant, the means for internal HLC subjects (CRE=9.60; CRNE=9.55; NCNP=8.58) gave very limited support to the findings of Study Two, that a rejected choice with a non-preferred physician may be at least somewhat more satisfying than no choice with a

non-preferred physician.

Internal HLC subjects could conceivably be more likely to prefer a rejected choice over no choice than external HLC subjects. More importantly, internal HLC subjects seemed to desire some form of choice while external HLC subjects appeared to be most satisfied with having a preferred physician.

A final interesting trend of the third study was the pattern of mean satisfaction levels between the two HLC groups. When any form of choice was offered, internal HLC subjects had greater levels of satisfaction (CA=13.13; CRE=9.60; CRNE=9.55) than external HLC subjects (CA=11.32; CRE=9.44; CRNE=8.45). Yet, when no choice of doctor was given, the mean levels of satisfaction were larger for external HLC subjects (NCP=11.08; NCNP=8.89) than internal HLC subjects (NCP=10.19; NCNP=8.58). In sum, the patterns gave marginal support to the prediction that having a choice was more satisfying to internal HLC patients while having no choice was more satisfying to external HLC subjects.

### Integration Of Results

The dissertation posed four research questions related to health care concerns. These key research questions that were first presented in Chapter I are now reviewed for further discussion.

1. Do patients exhibit an outcome bias when assessing patient satisfaction with health care?

2. How do patients' preferences of physicians influence patient satisfaction with health care given varying levels of freedom to choose the most desirable doctor?
3. Does freedom of choice in selecting one's physician influence patient satisfaction with health care?
4. Do individual differences in patients' desire for choice in selecting a doctor (i.e., health locus of control) influence patient satisfaction with health care?

In view of all three studies, some general conclusions are drawn about the overall importance of choice, outcome bias, physician preference, and health locus of control. Each of the research questions is discussed below.

In response to the first research question, there appeared to be a strong outcome bias that influenced patient satisfaction. In other words, the outcome of a physician-patient encounter appeared to be extremely important. If the outcome was good, it tended to diminish the influence of other factors, such as choice or physician preference, on patient satisfaction (Study One and Study Two). However, when outcomes were negative, the patient tended to emphasize the process that led to the outcome and the level of satisfaction was contingent on the desirability of the process variables (Study One and Study Two). Thus, in a bad outcome situation, factors such as choice and physician desirability seemed to be much more influential on patient satisfaction.

With regard to the second research question, the desirability of a physician influenced patient satisfaction

within both choice and no choice conditions. For example, within a bad outcome situation, there was evidence that being given a preferred physician, regardless of having a choice or no choice was more satisfying for patients than either a rejected choice with no explanation (Study One and Study Three) or no choice with a non-preferred physician (Study Three). Study Two also found that no choice with a preferred physician was significantly more satisfying than no choice with a non-preferred physician while the mean satisfaction for choice accepted was larger (but not significantly larger) than having no choice with a non-preferred physician.

In addition to the influence of physician preference, there was strong evidence that the factor of choice impacted patient satisfaction (i.e., research question three). In Study One, the rejected choice condition yielded less patient satisfaction than either having a choice or not having a choice. In Study Two, subjects were more satisfied with a rejected choice (with a non-preferred physician) than having no choice and receiving a non-preferred physician. These results suggested that any choice may have been more valued than no choice at all. In Study Three, the mean satisfaction value of subjects in the choice accepted (CA) condition (MEAN=12.1; n=50) was larger (but not statistically larger) than that of subjects in the no choice/preferred physician (NCP) condition (MEAN=10.61; n=49). However, the differences between subjects in the CA and NCP conditions became significant when individual differences were taken into

consideration.

That leads to the fourth research question, do individual differences in desire for choice (i.e., health locus of control) influence patient satisfaction. Given the results of Study Three, the levels of satisfaction varied between the two categories of patients based on choice (i.e., internal HLC and external HLC subjects). In particular, there was evidence that internal HLC subjects were more satisfied with having an accepted choice than external HLC subjects. Also, internal HLC subjects considered CA significantly more satisfying than any other condition while external HLC subjects were equally satisfied by CA and NCP conditions. Based on the results of Study Three, HLC appears to be an important moderator of patient satisfaction.

In sum, all four factors of outcome bias, choice of physician, preference for physicians by patients, and HLC significantly influenced patient satisfaction. Outcome bias appeared to be most important. That is, the other three factors became significant only when outcomes were negative. Second, preference for physicians and choice varied in importance depending on the subjects' health locus of control. Choice appeared more important to internal HLC subjects while external HLC subjects seemed to need a preferred physician more.

As the research progressed, a number of mixed or confusing results became more clear. For example, the convergence of satisfaction for subjects in the CA and NCP



conditions of Study One decreased in Study Two and decreased even more in Study Three as manipulations were improved and modified. Although the satisfaction of subjects in the CA and NCP conditions (without consideration of HLC) were never significantly different, the mean differences become significantly different once HLC was included as a moderating variable. Also, the mixed results of Study Two became more clear by examining individual level preferences for control over one's health and the health care situation. In particular, the importance of the freedom to choose one's doctor appeared to vary among patients, such that for internal HLC patients, NCNP was somewhat more dissatisfying than CRNE because of the lack of any choice.

However, the findings of Study Three evoked additional unanswered questions. Those questions directed this dissertation to several issues for future research. In the following sections, some of the limitations of the current research are discussed, after which potential avenues for future research are presented.

### Limitations

A potential limitation of the dissertation was the research methodology and administration procedure used. In particular, a substantial portion of the experiment was conducted in the field as opposed to a lab setting. As such, two-thirds of the subjects in Study Two and approximately one-third of the subjects in Study Three were gathered in waiting

rooms of health clinics where experimental control was sacrificed for external validity. The fundamental threat to internal validity was the hypothesis guessing on the part of the subjects. However, efforts to minimize hypothesis guessing were carefully taken. Such efforts included the use of carefully crafted cover stories and between-subjects designs, as recommended by Calder, Phillips, and Tybout (1981).

Related to a concern for control over the experimental setting is hypothesis guessing. Hypothesis guessers were identified in Study Two and Study Three. Only 4.5% of all subjects were thought to have a good idea about the hypotheses in Study Two, while 20.6% of all subjects in Study Three were considered to have successfully guessed the (main effect) purpose of the study. Although the percentage was a bit high in Study Three, there was minimal change in the results when hypothesis guessers were removed from the analysis. There was no noticeable change in the results when the hypothesis guessers were removed from Study Two.

Another potential limitation was the use of a blocking variable in an experiment. Although all subjects were randomly assigned to choice treatments, there was no control over whether they had an internal or external health locus of control. By using a blocking variable, there is the potential that other factors unaccounted for in this dissertation may have covaried with health locus of control.

A fourth possible limitation was the manner in which the

experiment was administered. In all three studies, the experiment was conducted using pencil and paper scenarios. Consequently, a written scenario may not have captured the same mood and level of involvement as other methods for creating a health care encounter. Although a substantial number of subjects completed the material while waiting in health clinic waiting rooms, that was no guarantee that a written scenario recreated the desired effect. Perhaps the use of pictures or even a video of the health service encounter in a laboratory setting would be more realistic. However, such resources were not available for these studies.

In speculation, the use of paper and pencil scenarios may have lessened the effects of having a choice or no choice of a physician. In particular, individuals with poor reading skills or low attention capacity would be susceptible to not responding correctly or as expected. Also, internal HLC subjects who would normally feel more strongly about having a choice may have been less involved with reading about a visit to the doctor than seeing or role-playing such an experience. However, the attempt to collect data at medical clinics may have enhanced subjects' involvement with such a scenario.

Another potential limitation was that only one dimension of the MHLC Scale was used as the blocking variable in the experiment. In order to minimize the number of responses, only the Internal dimension (6 items) of the MHLC Scale was used to measure subjects' health locus of control. This dimension was selected for its high internal reliability and

its conceptual relevance to freedom of health care choice. Although the scale has three distinct dimensions which may be used separately, using the full MHLC Scale (18 items) may have provided a better understanding and more accurate measurement of participants' health locus of control.

A final possible limitation was the percentage of incorrect responses to manipulation check questions in Study Two and Study Three. In Study Two, correct percentages ranged from 61% to 85%, with an overall average of 64% of the subjects getting all three manipulation questions correct. However, the average percentages were substantially higher in Study Three (i.e., CA=95.7% and 95.6% correct; CRE=75%, 88.8%, and 88.1% correct; CRNE=83.7%, 87.5%, and 89.6% correct; NCNP=79.1% and 100% correct; NCP=95.5% correct). The overall higher number of correct responses was attributed in part to changes in the experimental material to make manipulations more salient. In addition, subjects in Study Two were less educated and from a lower socioeconomic background than subjects in Study Three.

Of particular concern was the low percentage of correct responses to the manipulation check question about perceived choice by subjects in the no choice/preferred physician (NCP) condition. When correct and incorrect respondents were compared, they differed significantly in their levels of satisfaction with health care. However, these subjects rated the amount of perceived choice as being equal to the NCNP condition subjects and less than all subjects in any type of

"choice" condition. Thus, the question remains whether these subjects in the NCP condition really perceived having a choice of a physician simply by receiving a preferred physician.

### Future Research

The dissertation has addressed a number of issues related to the importance of choosing a doctor in a health care service situation. However, other questions remain that are related to the impact of physician choice and patient satisfaction. First, what other major factors besides choice of doctor, outcome bias, physician preference, and HLC would potentially influence patient satisfaction? Second, what other variables might moderate the effects of freedom of choice on patient satisfaction? Third, what other processes might occur in a doctor-patient interaction that could influence satisfaction? A few possible ideas for future research that address each of these questions are proposed.

In terms of other factors for future research, an important one that was omitted was health care cost. Given the importance placed on cost in health care reform issues and concerns by the general public, cost may be an ideal variable to manipulate. There is some speculation by doctors that as cost increases (up to a point), satisfaction may increase since people may not appreciate something they get for free or at a very reduced discount. Such research would reach into the pricing and price/quality literature.

Regarding the variables that might moderate patient

satisfaction, there are many potential areas for extension of the research presented here. First, only the Internal dimension (6 items) from the Multidimensional Health Locus of Control Scale were used as the moderating variable in this dissertation. Future research should include the full (18 items) scale if space permits. In addition, only three items from the Need For Cognition Scale were included. More items from this scale would also be more desirable for future research.

Another variable that might be considered a moderator of satisfaction is patients' trust in physicians. Here, one could simply utilize the Trust in Physician Scale (Anderson and Dedrick 1990) to measure patients' level of trust. Use of this scale might facilitate an understanding of the importance of trust as a moderator of patient satisfaction, given various levels of choice. It may be that patients who implicitly trust physicians may be willing forego their own judgements and be satisfied with being assigned a doctor. There could even be a link between trust and external health locus of control. Given the importance of trust in relationship building, such research would also have managerial implications for establishing and maintaining long-term patient-doctor relationships.

Beyond the use of existing scales, future researchers should consider developing a scale specifically to measure one's desire for choice when receiving health care treatment (i.e., desire to choose a doctor). The existence of such a

scale is unknown but its development would certainly be of substantive contribution to this stream of research in health care choice and patient satisfaction.

Developing a scale to measure a patient's desire for choice would be very desirable, given that the MHLC Scale was not used for the purpose that it was specifically developed. There was also evidence that the Need For Cognition Scale was not well suited to measuring patients' desire for health related information given that it was negatively correlated with the Internal dimension of the MHLC Scale.

Regarding potential processes in a health care treatment that could be used in future research, there are several that were not explored in this dissertation. For example, an "unexpected choice" situation may occur, where a patient is led to believe that he has no choice, yet must make a choice at the last minute.

Another situation that has yet to be explored is order effects. That is, what is the impact on patient satisfaction of having a good experience, followed by a bad experience, or vice versa? How would order effects influence outcome bias?

Yet another variable to consider for future research is the type of information manipulated in the scenario. In this dissertation, the CRE condition included information related only to why the doctor was not received. In Study Three, the CRE conditions did not vary between IHLC and EHLC subjects. To be more appropriate with HLC, perhaps the information should have been more health related. That is, the

information manipulated in future research could be about the illness itself.

Finally, a number of subjects indicated in their cognitive responses that they wanted some type of medicine prescribed (e.g., antibiotics). In this scenario, the illness was a virus, where antibiotics would not have helped. However, future research could consider changing the illness so that antibiotics would help. Thus, the treatment received could be manipulated. Yet, manipulating the treatment gets further away from the central question of choosing a doctor, but poses a potential opportunity to further explore patient satisfaction.

#### Managerial Implications and Recommendations

A number of managerial implications may be drawn from this research. First, health care managers must realize that outcomes have a powerful impact on patients' satisfaction with health care. Patients were consistently more satisfied when outcomes were positive. Of the four factors studied in this dissertation, the effects of outcome on patient satisfaction appeared to be the strongest. For example, the proportion of explained variance (i.e., Omega-squared value) in Study One for choice of physician was .039, compared to .346 for outcome. Also, the explained variance for outcome in Study Two was .07 while none was derived for choice (with a non-significant main effect).

The other factors of choice of physician and physician



received were significant only when outcomes were negative. Thus, health care managers should realize that when desirable outcomes occur, the importance of processes such as choice may diminish in importance. That is not to imply that such processes become unimportant. Rather, by achieving successful outcomes, the chances for losing patients because of other process factors (i.e., loss of choice) will diminish. However, desirable outcomes are defined by the patients and are likely based on expectations. Thus, determining what constitutes a desirable outcome may be very difficult to define. Consequently, health care providers should always strive to maintain the highest levels of "process" treatment prior to the outcome. In addition, health care providers should be willing to explain and elaborate on why events occurred. As indicated in the third study, an explanation in an unexpectedly unpleasant situation may reduce dissatisfaction.

A second managerial implication is that when bad outcomes do occur, there are ways that health care providers can minimize patient dissatisfaction. By treating the patients well during the treatment process (i.e., through choice offering and desirability of physician received), patients will likely be more satisfied with their overall health care experience. In addition, health care providers should provide thorough explanations to patients about why any bad or unexpected events occurred. Evidence from Study Three suggested that an explanation about receiving an undesirable

doctor increased satisfaction among all individuals.

A third major managerial implication is that patients' expectations should be set realistically since outcomes appear to be based primarily on expectations. In all three studies, expectations for recovering from the illness were set up front. When the patients' expectations were violated (i.e., the patient took longer to recover from the illness), dissatisfaction occurred. However, when patients' expectations were exceeded, they became more satisfied with their overall health care experience.

Another managerial implication is the importance of word of mouth. Word of mouth appeared to have a strong impact on patients' ratings of doctors. As an example, subjects who were given no choice experienced significantly different levels of satisfaction, merely because of which doctor they were assigned. Health care managers should take note that patient expectations for having a choice and feeling good about the doctor they received were highly correlated with satisfaction with health care. Although word of mouth cannot always be controlled, efforts should be made to facilitate it in a positive manner toward the clinic. There may be some credence to patients' expectations becoming self fulfilling prophecies. It seems that the no choice condition may open itself more to this occurrence than the choice accepted condition.

An final managerial implication is that patients may seek different service offerings during treatment. Results of

Study Three suggested that individuals with an internal health locus of control were most satisfied with having a choice of a physician. In contrast, individuals with an external health locus of control were most satisfied with receiving their preferred physician. Health care providers should recognize that not all service offerings are equally desirable to patients. Thus, health care managers may consider service customization among patients and providing those services desired by patients.

As a public policy issue, choice in health care is not a dichotomous condition where patients either do or don't have a choice. Rather, choice in health care is something which may be offered on a continuum. For example, the choice rejected conditions of this dissertation represented a gray area between choice and no choice. Thus, managers should not get caught in the mentality that they must either offer unlimited choice, or no choice at all.

Managers should realize that consumers' perceptions about the level of health care choice is important, even more so than how care providers view choice offerings. The key to developing the right strategy for maximizing patient satisfaction with health care is to recognize both patient perceptions and needs and implement a plan of action that exceeds patients' expectations. Extensive patient-based research on the part of health care and marketing managers is necessary to understand the perceived importance of choice and other health care related factors in achieving patient

satisfaction with health care. In turn, once these factors have been identified, efforts must be taken to convey the benefits of these service offerings through carefully crafted promotional efforts.

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**APPENDIX A**

**COMPLETE SET OF EXPERIMENTAL MATERIALS**

**STUDY ONE**

### **INSTRUCTIONS**

Your opinions are highly valued. You will read a scenario and respond to some questions which relate to the information given. Your responses will be kept in strict confidence and there is no means to identify you personally. Base your evaluations only on the information provided in the scenario. Please read the following scenario very carefully. Thank you for your participation.

(Choice) SCENARIO

Imagine that you have graduated from college and have just started a new job. You have been at your new job for just 1 week when you become ill. Your illness has the following symptoms: a cough with phlegm, draining sinuses, difficulty breathing, a sore throat, congestion, and nausea. After several days of suffering, your condition worsens and you are forced to miss a day of work. You make arrangements to see a physician that day.

To take advantage of your free health benefits covered by your company, you are required to be treated by a physician who participates in the H.M.O. (Health Maintenance Organization) that was selected by your company. An H.M.O. is a group of physicians who provide health care services to employees of companies that have joined in a contractual agreement with the physician group. That physician becomes your primary care physician, who would see you first for every problem and refer you to other specialists if, in his/her opinion, that is needed.

You go to the nearest medical facility that has physicians participating in your company's H.M.O. You arrive at the facility and enter the reception area. You notice hanging on the wall, a description of the physicians in the clinic. The clinic receptionist greets you and informs you the clinic has a policy of allowing patients to choose their physician. She says that all of these doctors are fully qualified to see you, because they currently practice primary care, no matter what their interest at the time of their training. The receptionist instructs you to look at the list of physicians and choose the one you would prefer to see. The physician list reads as follows:

1. Otis Kramer, (1952, University of Florida), finished a rotating residency at Tampa Memorial Hospital in 1953 and has an interest in geriatric (elderly) care.
2. Mary Smith, M.D. (1980, University of Texas), finished residency at Baylor Medical Center, Dallas Texas in 1983. She has an interest in adolescent medicine.
3. Fen-Hong Tsiao, M.D. (1985, University of Oklahoma), finished his obstetrics/gynecology residency at Oklahoma City Hospital in 1988 with an interest in women's health.
4. Harry Young, D.O. (1990, Guadalajara College of Osteopathic Medicine), finished his residency Fort Worth Medical Center in 1993 with an interest in family and general medicine.
5. Richard Wright, M.D. (1974, Johns Hopkins University), finished his residency at the Mayo Clinic in 1978 with an interest in ear/nose and throat care.

**READ THE PHYSICIAN LIST ABOVE. CIRCLE YOUR PREFERRED CHOICE, GIVEN YOUR ILLNESS. ONCE YOU HAVE MADE YOUR CHOICE, GIVE THIS SHEET TO THE RESEARCHER AND PICK UP THE SECOND PART OF THE SCENARIO.**

(No Choice) **SCENARIO**

Imagine that you have graduated from college and have just started a new job. You have been at your new job for just 1 week when you become ill. Your illness has the following symptoms: a cough with phlegm, draining sinuses, difficulty breathing, a sore throat, congestion, and nausea. After several days of suffering, your condition worsens and you are forced to miss a day of work. You make arrangements to see a physician that day.

To take advantage of your free health benefits covered by your company, you are required to be treated by a physician who participates in the H.M.O. (Health Maintenance Organization) that was selected by your company. An H.M.O. is a group of physicians who provide health care services to employees of companies that have joined in a contractual agreement with the physician group. That physician becomes your primary care physician, who would see you first for every problem and refer you to other specialists if, in his/her opinion, that is needed.

You go to the nearest medical facility that has physicians participating in your company's H.M.O. You arrive at the facility and enter the reception area. You notice hanging on the wall, a description of the physicians in the clinic. The clinic receptionist greets you and informs you the clinic has a policy of assigning patients to a physician. She says that all of these doctors are fully qualified to see you, because they currently practice primary care, no matter what their interest at the time of their training. You look over the list of the physicians in the clinic. The physician list reads as follows:

1. Otis Kramer, (1952, University of Florida), finished a rotating residency at Tampa Memorial Hospital in 1953 and has an interest in geriatric (elderly) care.
2. Mary Smith, M.D. (1980, University of Texas), finished residency at Baylor Medical Center, Dallas Texas in 1983. She has an interest in adolescent medicine.
3. Fen-Hong Tsiao, M.D. (1985, University of Oklahoma), finished his obstetrics/gynecology residency at Oklahoma City Hospital in 1988 with an interest in women's health.
4. Harry Young, D.O. (1990, Guadalajara College of Osteopathic Medicine), finished his residency Fort Worth Medical Center in 1993 with an interest in family and general medicine.
5. Richard Wright, M.D. (1974, Johns Hopkins University), finished his residency at the Mayo Clinic in 1978 with an interest in ear/nose and throat care.

**READ THE PHYSICIAN LIST ABOVE. ONCE YOU HAVE READ THE PHYSICIAN LIST ABOVE, GIVE THIS SHEET TO THE RESEARCHER AND PICK UP THE SECOND PART OF THE SCENARIO.**

(Condition 1: Choice Accepted/Dr. Wright/Good Outcome)

Having made your selection, you are now ready to see the physician. Dr. Wright is the physician you get. After about 15 minutes of waiting, you are taken into the examination room where a nurse asks what brings you to the doctor today. You explain your symptoms to her. She records your symptoms and measures your vital signs. Then the nurse says that you should wait there and Dr. Wright will see you shortly. After another 15 minutes of waiting in the examination room, Dr. Wright enters and introduces himself. He asks you how you are feeling and you explain some of the symptoms that you are experiencing. Dr. Wright then looks over your health data taken by the nurse and asks you to describe and elaborate more on each of your symptoms. He also asks you how long you have had these symptoms. After you detail the duration and intensity of each ailment, Dr. Wright begins his examination of you. First, he carefully examines your throat and says that your throat is very red and swollen. Then, Dr. Wright checks your eardrums for any signs of inflammation and sees that they are swollen and inflamed. Next, Dr. Wright takes out his stethoscope and places it to your back. He asks you to breathe deeply while he listens to your lungs for any indications of fluid build-up or wheezing. He says that your lungs sound somewhat congested.

At this point, Dr. Wright explains that your symptoms appear to indicate you may have an upper respiratory infection. He is concerned about your condition because he informs you that if it remains untreated, it can lead to more serious problems, such as pneumonia. To be extra sure of the accuracy of the diagnosis, he requests a blood sample. Dr. Wright explains that a blood test will allow him to get a white blood cell count and test for any other possible infections.

After the nurse draws your blood, you wait 20 minutes for the analysis. Dr. Wright reviews the blood test results and informs you that you do have an upper respiratory infection. He says that he is concerned about your condition because if an upper respiratory infection remains untreated, it can lead to more serious problems, such as pneumonia.

Dr. Wright prescribes antibiotics and instructs you to get extra rest and drink plenty of fluids. He says that if you take the medication as directed and follow his instructions, the infection should resolve after 7 days.

That following week, you follow Dr. Wright's instructions explicitly. You take the antibiotics as directed, get plenty of rest and drink plenty of fluids.

Your symptoms are resolved after only 4 days since your visit with Dr. Wright. As a result, you return to work sooner than expected.

(Condition 2: Choice Accepted/Dr. Wright/Bad Outcome)

Having made your selection, you are now ready to see the physician. Dr. Wright is the physician you get. After about 15 minutes of waiting, you are taken into the examination room where a nurse asks what brings you to the doctor today. You explain your symptoms to her. She records your symptoms and measures your vital signs. Then the nurse says that you should wait there and Dr. Wright will see you shortly. After another 15 minutes of waiting in the examination room, Dr. Wright enters and introduces himself. He asks you how you are feeling and you explain some of the symptoms that you are experiencing. Dr. Wright then looks over your health data taken by the nurse and asks you to describe and elaborate more on each of your symptoms. He also asks you how long you have had these symptoms. After you detail the duration and intensity of each ailment, Dr. Wright begins his examination of you. First, he carefully examines your throat and says that your throat is very red and swollen. Then, Dr. Wright checks your eardrums for any signs of inflammation and sees that they are swollen and inflamed. Next, Dr. Wright takes out his stethoscope and places it to your back. He asks you to breathe deeply while he listens to your lungs for any indications of fluid build-up or wheezing. He says that your lungs sound somewhat congested.

At this point, Dr. Wright explains that your symptoms appear to indicate you may have an upper respiratory infection. He is concerned about your condition because he informs you that if it remains untreated, it can lead to more serious problems, such as pneumonia. To be extra sure of the accuracy of the diagnosis, he requests a blood sample. Dr. Wright explains that a blood test will allow him to get a white blood cell count and test for any other possible infections.

After the nurse draws your blood, you wait 20 minutes for the analysis. Dr. Wright reviews the blood test results and informs you that you do have an upper respiratory infection. He says that he is concerned about your condition because if an upper respiratory infection remains untreated, it can lead to more serious problems, such as pneumonia.

Dr. Wright prescribes antibiotics and instructs you to get extra rest and drink plenty of fluids. He says that if you take the medication as directed and follow his instructions, the infection should resolve after 7 days.

That following week, you follow Dr. Wright's instructions explicitly. You take the antibiotics as directed, get plenty of rest and drink plenty of fluids.

Your symptoms are not resolved until 14 days after your visit with Dr. Wright. As a result, you return to work later than expected.

(Condition 3: Choice Rejected/Dr. Tsiao/Good Outcome)

Having made your selection, you are now ready to see the physician. Dr. Tsiao is the physician you get. After about 15 minutes of waiting, you are taken into the examination room where a nurse asks what brings you to the doctor today. You explain your symptoms to her. She records your symptoms and measures your vital signs. Then the nurse says that you should wait there and Dr. Tsiao will see you shortly. After another 15 minutes of waiting in the examination room, Dr. Tsiao enters and introduces himself. He asks you how you are feeling and you explain some of the symptoms that you are experiencing. Dr. Tsiao then looks over your health data taken by the nurse and asks you to describe and elaborate more on each of your symptoms. He also asks you how long you have had these symptoms. After you detail the duration and intensity of each ailment, Dr. Tsiao begins his examination of you. First, he carefully examines your throat and says that your throat is very red and swollen. Then, Dr. Tsiao checks your eardrums for any signs of inflammation and sees that they are swollen and inflamed. Next, Dr. Tsiao takes out his stethoscope and places it to your back. He asks you to breathe deeply while he listens to your lungs for any indications of fluid build-up or wheezing. He says that your lungs sound somewhat congested.

At this point, Dr. Tsiao explains that your symptoms appear to indicate you may have an upper respiratory infection. He is concerned about your condition because he informs you that if it remains untreated, it can lead to more serious problems, such as pneumonia. To be extra sure of the accuracy of the diagnosis, he requests a blood sample. Dr. Tsiao explains that a blood test will allow him to get a white blood cell count and test for any other possible infections.

After the nurse draws your blood, you wait 20 minutes for the analysis. Dr. Tsiao reviews the blood test results and informs you that you do have an upper respiratory infection. He says that he is concerned about your condition because if an upper respiratory infection remains untreated, it can lead to more serious problems, such as pneumonia.

Dr. Tsiao prescribes antibiotics and instructs you to get extra rest and drink plenty of fluids. He says that if you take the medication as directed and follow his instructions, the infection should resolve after 7 days.

That following week, you follow Dr. Wright's instructions explicitly. You take the antibiotics as directed, get plenty of rest and drink plenty of fluids.

Your symptoms are resolved after only 4 days since your visit with Dr. Tsiao. As a result, you return to work sooner than expected.

(Condition 4: Choice Rejected/Dr. Tsiao/Bad Outcome)

Having made your selection, you are now ready to see the physician. Dr. Tsiao is the physician you get. After about 15 minutes of waiting, you are taken into the examination room where a nurse asks what brings you to the doctor today. You explain your symptoms to her. She records your symptoms and measures your vital signs. Then the nurse says that you should wait there and Dr. Tsiao will see you shortly. After another 15 minutes of waiting in the examination room, Dr. Tsiao enters and introduces himself. He asks you how you are feeling and you explain some of the symptoms that you are experiencing. Dr. Tsiao then looks over your health data taken by the nurse and asks you to describe and elaborate more on each of your symptoms. He also asks you how long you have had these symptoms. After you detail the duration and intensity of each ailment, Dr. Tsiao begins his examination of you. First, he carefully examines your throat and says that your throat is very red and swollen. Then, Dr. Tsiao checks your eardrums for any signs of inflammation and sees that they are swollen and inflamed. Next, Dr. Tsiao takes out his stethoscope and places it to your back. He asks you to breathe deeply while he listens to your lungs for any indications of fluid build-up or wheezing. He says that your lungs sound somewhat congested.

At this point, Dr. Tsiao explains that your symptoms appear to indicate you may have an upper respiratory infection. He is concerned about your condition because he informs you that if it remains untreated, it can lead to more serious problems, such as pneumonia. To be extra sure of the accuracy of the diagnosis, he requests a blood sample. Dr. Tsiao explains that a blood test will allow him to get a white blood cell count and test for any other possible infections.

After the nurse draws your blood, you wait 20 minutes for the analysis. Dr. Tsiao reviews the blood test results and informs you that you do have an upper respiratory infection. He says that he is concerned about your condition because if an upper respiratory infection remains untreated, it can lead to more serious problems, such as pneumonia.

Dr. Tsiao prescribes antibiotics and instructs you to get extra rest and drink plenty of fluids. He says that if you take the medication as directed and follow his instructions, the infection should resolve after 7 days.

That following week, you follow Dr. Wright's instructions explicitly. You take the antibiotics as directed, get plenty of rest and drink plenty of fluids.

Your symptoms are not resolved until 14 days after your visit with Dr. Tsiao. As a result, you return to work later than expected.



(Condition 5: No Choice/Dr. Wright/Good Outcome)

Dr. Wright is the physician you get. After about 15 minutes of waiting, you are taken into the examination room where a nurse asks what brings you to the doctor today. You explain your symptoms to her. She records your symptoms and measures your vital signs. Then the nurse says that you should wait there and Dr. Wright will see you shortly. After another 15 minutes of waiting in the examination room, Dr. Wright enters and introduces himself. He asks you how you are feeling and you explain some of the symptoms that you are experiencing. Dr. Wright then looks over your health data taken by the nurse and asks you to describe and elaborate more on each of your symptoms. He also asks you how long you have had these symptoms. After you detail the duration and intensity of each ailment, Dr. Wright begins his examination of you. First, he carefully examines your throat and says that your throat is very red and swollen. Then, Dr. Wright checks your eardrums for any signs of inflammation and sees that they are swollen and inflamed. Next, Dr. Wright takes out his stethoscope and places it to your back. He asks you to breathe deeply while he listens to your lungs for any indications of fluid build-up or wheezing. He says that your lungs sound somewhat congested.

At this point, Dr. Wright explains that your symptoms appear to indicate you may have an upper respiratory infection. He is concerned about your condition because he informs you that if it remains untreated, it can lead to more serious problems, such as pneumonia. To be extra sure of the accuracy of the diagnosis, he requests a blood sample. Dr. Wright explains that a blood test will allow him to get a white blood cell count and test for any other possible infections.

After the nurse draws your blood, you wait 20 minutes for the analysis. Dr. Wright reviews the blood test results and informs you that you do have an upper respiratory infection. He says that he is concerned about your condition because if an upper respiratory infection remains untreated, it can lead to more serious problems, such as pneumonia.

Dr. Wright prescribes antibiotics and instructs you to get extra rest and drink plenty of fluids. He says that if you take the medication as directed and follow his instructions, the infection should resolve after 7 days.

That following week, you follow Dr. Wright's instructions explicitly. You take the antibiotics as directed, get plenty of rest and drink plenty of fluids.

Your symptoms are resolved after only 4 days since your visit with Dr. Wright. As a result, you return to work sooner than expected.

(Condition 6: No Choice/Dr. Wright/Bad Outcome)

Dr. Wright is the physician you get. After about 15 minutes of waiting, you are taken into the examination room where a nurse asks what brings you to the doctor today. You explain your symptoms to her. She records your symptoms and measures your vital signs. Then the nurse says that you should wait there and Dr. Wright will see you shortly. After another 15 minutes of waiting in the examination room, Dr. Wright enters and introduces himself. He asks you how you are feeling and you explain some of the symptoms that you are experiencing. Dr. Wright then looks over your health data taken by the nurse and asks you to describe and elaborate more on each of your symptoms. He also asks you how long you have had these symptoms. After you detail the duration and intensity of each ailment, Dr. Wright begins his examination of you. First, he carefully examines your throat and says that your throat is very red and swollen. Then, Dr. Wright checks your eardrums for any signs of inflammation and sees that they are swollen and inflamed. Next, Dr. Wright takes out his stethoscope and places it to your back. He asks you to breathe deeply while he listens to your lungs for any indications of fluid build-up or wheezing. He says that your lungs sound somewhat congested.

At this point, Dr. Wright explains that your symptoms appear to indicate you may have an upper respiratory infection. He is concerned about your condition because he informs you that if it remains untreated, it can lead to more serious problems, such as pneumonia. To be extra sure of the accuracy of the diagnosis, he requests a blood sample. Dr. Wright explains that a blood test will allow him to get a white blood cell count and test for any other possible infections.

After the nurse draws your blood, you wait 20 minutes for the analysis. Dr. Wright reviews the blood test results and informs you that you do have an upper respiratory infection. He says that he is concerned about your condition because if an upper respiratory infection remains untreated, it can lead to more serious problems, such as pneumonia.

Dr. Wright prescribes antibiotics and instructs you to get extra rest and drink plenty of fluids. He says that if you take the medication as directed and follow his instructions, the infection should resolve after 7 days.

That following week, you follow Dr. Wright's instructions explicitly. You take the antibiotics as directed, get plenty of rest and drink plenty of fluids.

Your symptoms are not resolved until 14 days after your visit with Dr. Wright. As a result, you return to work later than expected.

**INSTRUCTIONS**

The following set of statements relate to your feelings about Dr. Wright. Please show the extent to which you believe the service provided by Dr. Wright exhibits and demonstrates the characteristics described on each scale. Circle the number that most closely represents your feelings about each attribute.

For example, if you believe that Japanese cars are very economical, then respond to the statement:

"Cars made in Japan are \_\_\_\_."

Not at all Very  
Economical   1   :   2   :   3   :   4   :   5   :   6   :   7   : Economical

Consider the following statement: "The service provided by Dr. Wright can be best described as \_\_\_\_" as indicated on the scales below. Please respond to the following statement by circling the number in the appropriate blank for each attribute. There are no right or wrong answers here. All we are interested in is a rating that best shows your perceptions about the service provided by Dr. Wright.

"The service provided by Dr. Wright can be best described as \_\_\_\_."

Not at all Very  
1. Professional   1   :   2   :   3   :   4   :   5   :   6   :   7   : Professional

Not at all Very  
2. Prompt   1   :   2   :   3   :   4   :   5   :   6   :   7   : Prompt

Not at all Very  
3. Trustworthy   1   :   2   :   3   :   4   :   5   :   6   :   7   : Trustworthy

Not at all Very  
4. Caring   1   :   2   :   3   :   4   :   5   :   6   :   7   : Caring

Please respond to the following statements by circling the number in the appropriate blank for each attribute. There are no right or wrong answers here.

5. "How likely are you to recommend Dr. Wright to a friend?"  
Not at all Very  
Likely   1   :   2   :   3   :   4   :   5   :   6   :   7   : Likely

6. "If you have another illness, how comfortable would you be with seeing Dr. Wright again?"  
Not at all Very  
Likely   1   :   2   :   3   :   4   :   5   :   6   :   7   : Likely

7. "Rate your overall satisfaction of your experience with Dr. Wright."  
Not at all Very  
Satisfied   1   :   2   :   3   :   4   :   5   :   6   :   7   : Satisfied

**INSTRUCTIONS**

The following set of statements relate to your feelings about Dr. Tsiao. Please show the extent to which you believe the service provided by Dr. Tsiao exhibits and demonstrates the characteristics described on each scale. Circle the number that most closely represents your feelings about each attribute.

For example, if you believe that Japanese cars are very economical, then respond to the statement:  
"Cars made in Japan are \_\_\_\_."

Not at all \_\_\_\_\_ Very  
Economical 1 : 2 : 3 : 4 : 5 : 6 : 7 : Economical

Consider the following statement: "The service provided by Dr. Tsiao can be best described as \_\_\_\_" as indicated on the scales below. Please respond to the following statement by circling the number in the appropriate blank for each attribute. There are no right or wrong answers here. All we are interested in is a rating that best shows your perceptions about the service provided by Dr. Tsiao.

"The service provided by Dr. Tsiao can be best described as \_\_\_\_."

Not at all \_\_\_\_\_ Very  
1. Professional 1 : 2 : 3 : 4 : 5 : 6 : 7 : Professional

Not at all \_\_\_\_\_ Very  
2. Prompt 1 : 2 : 3 : 4 : 5 : 6 : 7 : Prompt

Not at all \_\_\_\_\_ Very  
3. Trustworthy 1 : 2 : 3 : 4 : 5 : 6 : 7 : Trustworthy

Not at all \_\_\_\_\_ Very  
4. Caring 1 : 2 : 3 : 4 : 5 : 6 : 7 : Caring

Please respond to the following statements by circling the number in the appropriate blank for each attribute. There are no right or wrong answers here.

5. "How likely are you to recommend Dr. Tsiao to a friend?"  
Not at all \_\_\_\_\_ Very  
Likely 1 : 2 : 3 : 4 : 5 : 6 : 7 : Likely

6. "If you have another illness, how comfortable would you be with seeing Dr. Tsiao again?"  
Not at all \_\_\_\_\_ Very  
Likely 1 : 2 : 3 : 4 : 5 : 6 : 7 : Likely

7. "Rate your overall satisfaction of your experience with Dr. Tsiao."  
Not at all \_\_\_\_\_ Very  
Satisfied 1 : 2 : 3 : 4 : 5 : 6 : 7 : Satisfied

Please respond to the following statements by circling the number in the appropriate blank for each attribute. There are no right or wrong answers here.

8. "What is your overall impression of Dr. Tsiao."  
Not at all \_\_\_\_\_ Very  
Favorable   1   :   2   :   3   :   4   :   5   :   6   :   7   : Favorable

9. "How would you rate Dr. Tsiao's overall level of effort in treating your illness?"  
Not at all \_\_\_\_\_ Very  
Favorable   1   :   2   :   3   :   4   :   5   :   6   :   7   : Favorable

10. "Rate Dr. Tsiao's skill level as a physician."  
Not at all \_\_\_\_\_ Very  
Favorable   1   :   2   :   3   :   4   :   5   :   6   :   7   : Favorable

Please answer the following personal information questions by circling the appropriate category. Responses are confidential.

11. Gender: M      F

12. Age:

- 1) 18-21
- 2) 22-25
- 3) 26-29
- 4) 30+

13. Classification: Fr.      So.      Jr.      Sr.

14. Citizenship: 1) U.S.    2) Other

### INSTRUCTIONS

The following questions refer to the scenario. For each question, circle the correct answer. Please do not turn back to any previous pages to answer these questions!

15. How many days did your illness persist after your visit to the physician?

2 : 4 : 7 : 10 : 14 : 17 : 21 :

16. How many days did you expect to have the symptoms?

2 : 4 : 7 : 10 : 14 : 17 : 21 :

17. What was the final outcome of your visit to the medical center?

- 1) early recovery (favorable)
- 2) recovered on time
- 3) late recovery (unfavorable)

18. The physician who examined you was:

- 1) selected by you
- 2) assigned to you

19. Did you have a choice in the selection of your physician?

- 1) yes
- 2) no

20. The physician who attended to you was:

- 1) Otis Kramer
- 2) Mary Smith
- 3) Fen-Hong Tsiao
- 4) Harry DeYoung
- 5) Richard Wright

APPENDIX B

COMPLETE SET OF EXPERIMENTAL MATERIALS

STUDY TWO

UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CENTER  
DEPARTMENT OF FAMILY MEDICINE

This study "Influence of Patient's Choice of Physician and Outcome on Patient Satisfaction" is sponsored by the Department of Family Medicine at the University of Oklahoma Health Sciences Center and by the College of Business at Oklahoma State University under the direction of Dr. Robert Hamm and Dr. John Mowen. This study will investigate factors that affect patients' satisfaction with their health care.

Your participation in this study is completely voluntary and involves reading a story about going to a clinic for the first time and answering questions about how satisfied you would be with the clinic and the doctor. It should take about 20 minutes to fill out the questionnaire.

There are no physical risks associated with your participation in this study. However, you may not directly benefit from your participation.

You may withdraw from the study at any time without penalty or loss of benefits. Your treatment by and relations with the physicians and organizations involved in this study will not be affected by your decision to participate.

The records of this study will be kept confidential in a locked file in Dr. Hamm's office and there will be no way that you could be identified as a participant in this study when the results are reported.

If you have any questions about the questionnaire, you can call Dr. Hamm at 271-8167. If you have any questions about your rights as a research subject you may contact Jan Trice, Director of Research Administration, at 271-2090.

Your consent to participate in this study is implied by your completion of this questionnaire.



### INSTRUCTIONS

We want to know your opinion. You will read about a visit to the doctor and answer some questions about the visit. Use only the information provided to answer the questions. Please read the information very carefully. Thank you for your participation.

### Visit to the Doctor

Suppose that you have an illness that began with a scratchy sore throat and a mild fever with some nasal congestion. These symptoms have improved a little but you continue to have a persistent cough that keeps you awake nights and occasionally produces some yellow mucus. After a week of suffering, you just can't seem to get over this and you make an appointment to see a doctor. To receive health care services, you are required to be treated at a clinic you have never visited before.

Imagine your visit to the new clinic. When you enter, the receptionist greets you and has you sign in. The receptionist tells you that according to their policy, the clinic allows patients to choose their doctor. Also, the doctor you choose today will continue to see you in the future, in order to build a doctor-patient relationship.

You notice a list of the clinic's doctors posted on the wall. The receptionist says that all of these doctors are fully qualified to treat you, no matter what their interest at the time of their training. She asks you to read the list of doctors and choose the one you want to see.

### Visit to the Doctor

Suppose that you have an illness that began with a scratchy sore throat and a mild fever with some nasal congestion. These symptoms have improved a little but you continue to have a persistent cough that keeps you awake nights and occasionally produces some yellow mucus. After a week of suffering, you just can't seem to get over this and you make an appointment to see a doctor. To receive health care services, you are required to be treated at a clinic you have never visited before.

Imagine your visit to the new clinic. When you enter, the receptionist greets you and has you sign in. The receptionist tells you that according to their policy, the clinic requires patients to be assigned to the first available doctor. Also, the doctor assigned to you today will continue to see you in the future, in order to build a doctor-patient relationship.

You notice a list of the clinic's doctors posted on the wall. The receptionist says that all of these doctors are fully qualified to treat you, no matter what their interest at the time of their training. While you wait in the lobby, you read the list of doctors.

CAREFULLY READ THE PHYSICIAN LIST BELOW. PLACE A MARK IN THE BLANK SPACE NEXT TO THE PHYSICIAN YOU LIKE BEST AND WOULD PREFER TO SEE.

- \_\_\_\_\_ 1. Harry Jones, M.D. (1990, University of Texas), finished his training at Baylor Medical Center, Dallas, Texas in 1993. He has an interest in adolescent medicine.
- \_\_\_\_\_ 2. Fen-Hong Tsiao, M.D. (1985, National University of Singapore), finished his training in orthopedic surgery at Oklahoma City Memorial Hospital in 1988. He has an interest in sports injuries.
- \_\_\_\_\_ 3. Richard Brown, M.D. (1974, Johns Hopkins University), finished his training at the Mayo Clinic, Rochester, Minnesota in 1978. He has an interest in ear, nose and throat care and general medicine.

Please rate each of the doctors on the following scales by circling the number which best represents your preference. For example, if a doctor is "Most Desirable," you would circle the number 5 corresponding to that doctor. If a doctor is "Least Desirable," you would circle the number 1 corresponding to that doctor.

<b>Harry Jones</b>				
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable
<b>Fen-Hong Tsiao</b>				
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable
<b>Richard Brown</b>				
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

**CAREFULLY READ THE PHYSICIAN LIST BELOW.**

1. Harry Jones, M.D. (1990, University of Texas), finished his training at Baylor Medical Center, Dallas, Texas in 1993. He has an interest in adolescent medicine.
2. Fen-Hong Tsiao, M.D. (1985, National University of Singapore), finished his training in orthopedic surgery at Oklahoma City Memorial Hospital in 1988. He has an interest in sports injuries.
3. Richard Brown, M.D. (1974, Johns Hopkins University), finished his training at the Mayo Clinic, Rochester, Minnesota in 1978. He has an interest in ear, nose and throat care and general medicine.

Please rate each of the doctors on the following scales by circling the number which best represents your preference. For example, if a doctor is "Most Desirable," you would circle the number 5 corresponding to that doctor. If a doctor is "Least Desirable," you would circle the number 1 corresponding to that doctor.

		Harry Jones		
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

		Fen-Hong Tsiao		
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

		Richard Brown		
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

After about 15 minutes of waiting, you are taken into the examination room by a nurse. She tells you that your doctor will be Dr. Brown. The nurse asks what your symptoms are and you explain them to her. She records your symptoms and takes your temperature and pulse. Then, the nurse says that you should wait there and Dr. Brown will see you shortly.

After another 15 minutes of waiting in the examination room, Dr. Brown enters and introduces himself. He asks how you are feeling and you explain your symptoms. Dr. Brown then looks over your medical chart and begins the examination.

First, Dr. Brown carefully examines your throat and says that it is very red and swollen. Then, he checks your eardrums for any signs of redness and sees that they are normal. Next, Dr. Brown places his stethoscope to your back and asks you to breathe deeply. He listens to your lungs, and says that they sound congested.

At this point, Dr. Brown explains that your symptoms appear to indicate you may have a lower respiratory infection due to a virus. To be extra sure of his diagnosis, he decides to give you a chest X-ray. Dr. Brown explains that the X-ray will allow him to make sure you do not have pneumonia.

After about 15 minutes of waiting, you are taken into the examination room by a nurse. She tells you that your doctor will be Dr. Tsiao. The nurse asks what your symptoms are and you explain them to her. She records your symptoms and takes your temperature and pulse. Then, the nurse says that you should wait there and Dr. Tsiao will see you shortly.

After another 15 minutes of waiting in the examination room, Dr. Tsiao enters and introduces himself. He asks how you are feeling and you explain your symptoms. Dr. Tsiao then looks over your medical chart and begins the examination.

First, Dr. Tsiao carefully examines your throat and says that it is very red and swollen. Then, he checks your eardrums for any signs of redness and sees that they are normal. Next, Dr. Tsiao places his stethoscope to your back and asks you to breathe deeply. He listens to your lungs, and says that they sound congested.

At this point, Dr. Tsiao explains that your symptoms appear to indicate you may have a lower respiratory infection due to a virus. To be extra sure of his diagnosis, he decides to give you a chest X-ray. Dr. Tsiao explains that the X-ray will allow him to make sure you do not have pneumonia.

You go with a technician into another room for the chest X-ray, and then wait 20 minutes for the film to be developed. Dr. Brown inspects the X-ray and informs you that you have a lower respiratory tract infection but it does not appear to be pneumonia. He says that you do not need any antibiotics.

Dr. Brown suggests you should take a cough suppressant and expectorant that you can get at the drug store without a prescription. He tells you to get extra rest and drink plenty of fluids. He says that if you take the medicine and follow his instructions, you should be well in 7 days.



You go with a technician into another room for the chest X-ray, and then wait 20 minutes for the film to be developed. Dr. Tsiao inspects the X-ray and informs you that you have a lower respiratory tract infection but it does not appear to be pneumonia. He says that you do not need any antibiotics.

Dr. Tsiao suggests you should take a cough suppressant and expectorant that you can get at the drug store without a prescription. He tells you to get extra rest and drink plenty of fluids. He says that if you take the medicine and follow his instructions, you should be well in 7 days.

Following your visit with Dr. Brown, you follow his instructions exactly. The first couple of days after the clinic visit, you still feel really awful with continued coughing, sore throat, and occasional mild fever. After one week of taking the medicine and resting, your symptoms do not improve much and you still feel very bad. During the second week after the clinic visit, you finally start to feel better but the symptoms do not disappear. It takes a full two weeks before you feel totally well again.

Following your visit with Dr. Tsiao, you follow his instructions exactly. The first couple of days after the clinic visit, you still feel really awful with continued coughing, sore throat, and occasional mild fever. After one week of taking the medicine and resting, your symptoms do not improve much and you still feel very bad. During the second week after the clinic visit, you finally start to feel better but the symptoms do not disappear. It takes a full two weeks before you feel totally well again.

Following your visit with Dr. Brown, you follow his instructions exactly. The first day after the clinic visit, you start to feel a little better. Two days after the visit, your coughing, sore throat, and fever seem much better. After 4 days, you feel totally well again.

Following your visit with Dr. Tsiao, you follow his instructions exactly. The first day after the clinic visit, you start to feel a little better. Two days after the visit, your coughing, sore throat, and fever seem much better. After 4 days, you feel totally well again.

### INSTRUCTIONS

In what you read above, you imagined visiting a new clinic and being treated by Dr. Brown. Circle the number that best gives your feelings about the medical story. Here is an example of how the rating scales work. If you were to rate the economy of Ford cars, and you believed that they are "somewhat economical," you would circle the number 4 below.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very	Somewhat	Neutral	Somewhat	Very
Uneconomical	Uneconomical		Economical	Economical

Please respond to the following statements by circling the number that most closely represents your feelings about Dr. Brown and the clinic. There are no right or wrong answers here.

1. How do you feel about the care you received from the office staff and nurses?

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very	Somewhat	Neutral	Somewhat	Very
Poor	Poor		Good	Good

2. How do you feel about your experience with Dr. Brown?

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very	Somewhat	Neutral	Somewhat	Very
Unsatisfied	Unsatisfied		Satisfied	Satisfied

3. How do you feel about your experience with the clinic overall?

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very	Somewhat	Neutral	Somewhat	Very
Unsatisfied	Unsatisfied		Satisfied	Satisfied

4. How real are the events in this story? Did it seem like they could happen?

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very	Somewhat	Neutral	Somewhat	Very
Unrealistic	Unrealistic		Realistic	Realistic

**INSTRUCTIONS**

In what you read above, you imagined visiting a new clinic and being treated by Dr. Tsiao. Circle the number that best gives your feelings about the medical story. Here is an example of how the rating scales work. If you were to rate the economy of Ford cars, and you believed that they are "somewhat economical," you would circle the number 4 below.

<u>1</u> Very Uneconomical	<u>2</u> Somewhat Uneconomical	<u>3</u> Neutral	<u>4</u> Somewhat Economical	<u>5</u> Very Economical
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Please respond to the following statements by circling the number that most closely represents your feelings about Dr. Tsiao and the clinic. There are no right or wrong answers here.

1. How do you feel about the care you received from the office staff and nurses?

<u>1</u> Very Poor	<u>2</u> Somewhat Poor	<u>3</u> Neutral	<u>4</u> Somewhat Good	<u>5</u> Very Good
--------------------------	------------------------------	---------------------	------------------------------	--------------------------

2. How do you feel about your experience with Dr. Tsiao?

<u>1</u> Very Unsatisfied	<u>2</u> Somewhat Unsatisfied	<u>3</u> Neutral	<u>4</u> Somewhat Satisfied	<u>5</u> Very Satisfied
---------------------------------	-------------------------------------	---------------------	-----------------------------------	-------------------------------

3. How do you feel about your experience with the clinic overall?

<u>1</u> Very Unsatisfied	<u>2</u> Somewhat Unsatisfied	<u>3</u> Neutral	<u>4</u> Somewhat Satisfied	<u>5</u> Very Satisfied
---------------------------------	-------------------------------------	---------------------	-----------------------------------	-------------------------------

4. How real are the events in this story? Did it seem like they could happen?

<u>1</u> Very Unrealistic	<u>2</u> Somewhat Unrealistic	<u>3</u> Neutral	<u>4</u> Somewhat Realistic	<u>5</u> Very Realistic
---------------------------------	-------------------------------------	---------------------	-----------------------------------	-------------------------------

Please do not turn back to any previous pages to answer these questions! The following questions refer to the details of your visit to the doctor. As described earlier for each question, circle the best answer.

5. How many days did the doctor tell you it would take to get well?

2 days   4 days   7 days   10 days   14 days   17 days   21 days

6. Based on your own experiences, how many days would you expect to be sick?

2 days   4 days   7 days   10 days   14 days   17 days   21 days

7. What was the result of your visit to the clinic?

- 1) got well earlier than when the doctor said I would.
- 2) got well about when the doctor said I would.
- 3) got well later than when the doctor said I would.

8. The doctor who examined you was:

- 1) chosen by you
- 2) assigned to you
- 3) not the one you chose

Please answer the following personal information questions by circling the appropriate category. Responses are confidential.

10. Have you ever had a bad experience visiting a doctor?

- 1) yes
- 2) no

11. Have you ever not been allowed to choose your doctor?

- 1) yes
- 2) no

12. Sex:   M        F

13. Age: \_\_\_\_\_

14. Education:

- 1) some high school
- 2) high school diploma
- 3) some college
- 4) college degree
- 5) some graduate school
- 6) graduate degree



**15. Marital Status:**

- 1) single
- 2) married
- 3) divorced
- 4) widowed

**16. Household Income:**

- 1) under \$15,000
- 2) \$15,000-\$24,999
- 3) \$25,000-\$34,999
- 4) \$35,000-\$44,999
- 5) \$45,000-\$54,999
- 6) \$55,000 or more

**17. Ethnic Origin:**

- 1) Caucasian
- 2) African American
- 3) Asian
- 4) Hispanic
- 5) Native American
- 6) Other \_\_\_\_\_

**Thank you for your participation!**  
**completed form to the receptionist.**

**Please return this**

APPENDIX C

COMPLETE SET OF EXPERIMENTAL MATERIALS

STUDY THREE

This material represents two separate studies. The first study assesses how you feel about health care. The second study simulates a visit to the doctor.

These studies are sponsored by the Department of Family Medicine at the University of Oklahoma Health Sciences Center and by the College of Business at Oklahoma State University under the direction of Dr. Robert Hamm and Dr. John Mowen. These studies will investigate factors that affect patients' satisfaction with their health care.

Your participation in these studies is completely voluntary. In the first study, you will answer some questions regarding beliefs about your health. The first study should take about 5 minutes to complete.

The second study involves reading a story about going to a clinic for the first time and answering questions about how satisfied you would be with the clinic and the doctor. The second study will be administered in two parts and should take about 20 minutes to complete.

There are no physical risks associated with your participation in these studies. However, you may not directly benefit from your participation.

You may withdraw from the studies at any time without penalty or loss of benefits. Your treatment by and relations with the physicians and organizations involved in this study will not be affected by your decision to participate.

The records of these studies will be kept confidential in a locked file in Dr. Hamm's office and there will be no way that you could be identified as a participant in this study when the results are reported.

If you have any questions about the questionnaire, you can call Dr. Hamm at 271-8167. If you have any questions about your rights as a research subject you may contact Jan Trice, Director of Research Administration, at 271-2090.

Your consent to participate in this study is implied by your completion of this questionnaire.

STUDY 1

Please respond to the following statements by circling the number that most closely represents your feelings. There are no right or wrong answers here. Here is an example of how the rating scales work. If you read the statement: "Ford cars are economical" and you agreed with the statement, you would circle the number 4 below.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Please respond to the following statements by circling the number that most closely represents your feelings or experiences.

1. If I get sick, it is my own behavior which determines how soon I get well again.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I am in control of my health.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I prefer just to let things happen rather than try to understand why they turned out that way.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. When I get sick I am to blame.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. The main thing which affects my health is what I myself do.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I don't like to have the responsibilities of handling a situation that requires a lot of thinking.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. If I take care of myself, I can avoid illness.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. If I take the right actions, I can stay healthy.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. Simply knowing the answer rather than understanding the reasons for the answer to a problem is fine with me.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

## **STUDY 2**

### **INSTRUCTIONS**

We want to know your opinion. You will read a story about a visit to the doctor and answer some questions about the visit. Use only the information provided to answer the questions. Please read the information very carefully. Thank you for your participation.

(choice condition)

Visit to the Doctor

Suppose that you have an illness that began with a scratchy sore throat and a mild fever with some nasal congestion. These symptoms have improved a little but you continue to have a persistent cough that keeps you awake nights and occasionally produces some yellow mucus. After a week of suffering, you just can't seem to get over this problem.

You ask a friend to help you decide where to get medical help. The friend recommends you go to a clinic that you have never visited before. The friend advises you that at that clinic, Dr. Brown has a very good reputation. The friend also mentions that another doctor, Dr. Thomas, has many complaints against him. Your friend indicates no information is available on any other doctors.

Imagine your visit to the new clinic. When you enter, the receptionist greets you and has you sign in. The receptionist tells you that according to their policy, the clinic allows patients to choose their doctor. The doctor you choose today will continue to see you in the future, so the two of you can build a doctor-patient relationship.

You notice a list of the clinic's doctors posted on the wall. The receptionist says that all of these doctors are fully qualified to treat you. She asks you to examine the list of doctors and choose the one you want to see. She gives you a sheet of paper to write down the name of the doctor that you want.

(no choice condition)

Visit to the Doctor

Suppose that you have an illness that began with a scratchy sore throat and a mild fever with some nasal congestion. These symptoms have improved a little but you continue to have a persistent cough that keeps you awake nights and occasionally produces some yellow mucus. After a week of suffering, you just can't seem to get over this problem.

You ask a friend to help you decide where to get medical help. The friend recommends you go to a clinic that you have never visited before. The friend advises you that at that clinic, Dr. Brown has a very good reputation. The friend also mentions that another doctor, Dr. Thomas, has many complaints against him. Your friend indicates no information is available on any other doctors.

Imagine your visit to the new clinic. When you enter, the receptionist greets you and has you sign in. The receptionist tells you that according to their policy, the clinic requires patients to be assigned to the first available doctor. Also, the doctor assigned to you today will continue to see you in the future, so the two of you can build a doctor-patient relationship.

You notice a list of the clinic's doctors posted on the wall. The receptionist says that all of these doctors are fully qualified to treat you. While you are waiting to be assigned a doctor, you examine the list of doctors.

Carefully read the specialties of the doctors below. Note that your friend said that Dr. Brown had a very good reputation and Dr. Thomas had many complaints against him.

Dr. Brown.....Specialty: Ear, nose and throat care and general medicine.

Dr. Jones.....Specialty: Adolescent medicine.

Dr. Thomas.....Specialty: Sports injuries.

Please fill in the blank with your preferred choice of doctor by writing in the name of the doctor whom you wish to see.

I choose Dr. \_\_\_\_\_ as my doctor.

Please rate each of the doctors on the following scales by circling the number which best represents your preference. For example, if a doctor is "Most Desirable," you would circle the number 5 corresponding to that doctor. If a doctor is "Least Desirable," you would circle the number 1 corresponding to that doctor.

Dr. Brown

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

Dr. Jones

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

Dr. Thomas

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

**AFTER YOU HAVE MADE YOUR CHOICE AND RATED THE DOCTORS ABOVE, PLEASE RETURN THIS MATERIAL TO THE SURVEYOR. YOU WILL THEN RECEIVE THE REST OF THE INFORMATION WITH SOME QUESTIONS TO FILL OUT.**



Carefully read the specialties of the doctors below. Note that your friend said that Dr. Brown had a very good reputation and Dr. Thomas had many complaints against him.

Dr. Brown.....Specialty: Ear, nose and throat care and general medicine.

Dr. Jones.....Specialty: Adolescent medicine.

Dr. Thomas.....Specialty: Sports injuries.

Please rate each of the doctors on the following scales by circling the number which best represents your preference. For example, if a doctor is "Most Desirable," you would circle the number 5 corresponding to that doctor. If a doctor is "Least Desirable," you would circle the number 1 corresponding to that doctor.

Dr. Brown

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

Dr. Jones

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

Dr. Thomas

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Least Desirable				Most Desirable

AFTER YOU HAVE RATED THE DOCTORS ABOVE, PLEASE RETURN THIS MATERIAL TO THE SURVEYOR. YOU WILL THEN RECEIVE THE REST OF THE INFORMATION WITH SOME QUESTIONS TO FILL OUT.

(choice accepted condition)

After about 15 minutes of waiting, you are taken into the examination room by a nurse. She says that Dr. Brown will be treating you. You realize that Dr. Brown is the doctor you chose to receive. He has a specialty in ear, nose and throat care and general medicine and is considered to have a very good reputation according to your friend.

The nurse asks what your symptoms are and you explain them to her. She records your symptoms and takes your temperature and pulse. Then, the nurse says that you should wait there and Dr. Brown will see you shortly.

After another 15 minutes of waiting in the examination room, Dr. Brown enters and introduces himself. He asks how you are feeling and you explain your symptoms. Dr. Brown then looks over your medical chart and begins the examination.

First, Dr. Brown carefully examines your throat and says that it is very red and swollen. Then, he checks your eardrums for any signs of redness and sees that they are normal. Next, Dr. Brown places his stethoscope to your back and asks you to breathe deeply. He listens to your lungs, and says that they sound congested.

At this point, Dr. Brown explains that your symptoms appear to indicate you may have a lower respiratory infection due to a virus. To be extra sure of his diagnosis, he decides to give you a chest X-ray. Dr. Brown explains that the X-ray will allow him to make sure you do not have pneumonia.

(no choice/preferred physician condition)

After about 15 minutes of waiting, you are taken into the examination room by a nurse. She says that Dr. Brown will be treating you. You realize that Dr. Brown is the doctor you preferred to receive. He has a specialty in ear, nose and throat care and general medicine and is considered to have a very good reputation according to your friend.

The nurse asks what your symptoms are and you explain them to her. She records your symptoms and takes your temperature and pulse. Then, the nurse says that you should wait there and Dr. Brown will see you shortly.

After another 15 minutes of waiting in the examination room, Dr. Brown enters and introduces himself. He asks how you are feeling and you explain your symptoms. Dr. Brown then looks over your medical chart and begins the examination.

First, Dr. Brown carefully examines your throat and says that it is very red and swollen. Then, he checks your eardrums for any signs of redness and sees that they are normal. Next, Dr. Brown places his stethoscope to your back and asks you to breathe deeply. He listens to your lungs, and says that they sound congested.

At this point, Dr. Brown explains that your symptoms appear to indicate you may have a lower respiratory infection due to a virus. To be extra sure of his diagnosis, he decides to give you a chest X-ray. Dr. Brown explains that the X-ray will allow him to make sure you do not have pneumonia.

(choice rejected/no explanation condition)

After about 15 minutes of waiting, you are taken into the examination room by a nurse. She says that Dr. Thomas will be treating you. You realize that Dr. Thomas is not the doctor you chose to receive. He has a specialty in sports injuries and is considered to have many complaints against him according to your friend.

The nurse asks what your symptoms are and you explain them to her. She records your symptoms and takes your temperature and pulse. Then, the nurse says that you should wait there and Dr. Thomas will see you shortly.

After another 15 minutes of waiting in the examination room, Dr. Thomas enters and introduces himself. He asks how you are feeling and you explain your symptoms. Dr. Thomas then looks over your medical chart and begins the examination.

First, Dr. Thomas carefully examines your throat and says that it is very red and swollen. Then, he checks your eardrums for any signs of redness and sees that they are normal. Next, Dr. Thomas places his stethoscope to your back and asks you to breathe deeply. He listens to your lungs, and says that they sound congested.

At this point, Dr. Thomas explains that your symptoms appear to indicate you may have a lower respiratory infection due to a virus. To be extra sure of his diagnosis, he decides to give you a chest X-ray. Dr. Thomas explains that the X-ray will allow him to make sure you do not have pneumonia.

(no choice/non-preferred physician condition)

After about 15 minutes of waiting, you are taken into the examination room by a nurse. She says that Dr. Thomas will be treating you. You realize that Dr. Thomas is not the doctor you preferred to receive. He has a specialty in sports injuries and is considered to have many complaints against him according to your friend.

The nurse asks what your symptoms are and you explain them to her. She records your symptoms and takes your temperature and pulse. Then, the nurse says that you should wait there and Dr. Thomas will see you shortly.

After another 15 minutes of waiting in the examination room, Dr. Thomas enters and introduces himself. He asks how you are feeling and you explain your symptoms. Dr. Thomas then looks over your medical chart and begins the examination.

First, Dr. Thomas carefully examines your throat and says that it is very red and swollen. Then, he checks your eardrums for any signs of redness and sees that they are normal. Next, Dr. Thomas places his stethoscope to your back and asks you to breathe deeply. He listens to your lungs, and says that they sound congested.

At this point, Dr. Thomas explains that your symptoms appear to indicate you may have a lower respiratory infection due to a virus. To be extra sure of his diagnosis, he decides to give you a chest X-ray. Dr. Thomas explains that the X-ray will allow him to make sure you do not have pneumonia.

(choice rejected with an explanation condition)

After about 15 minutes of waiting, you are taken into the examination room by a nurse. She says that Dr. Brown was unexpectedly called away at the last minute in an emergency. Dr. Brown will not be available so Dr. Thomas will be treating you. You realize that Dr. Thomas is not the doctor you chose to receive. He has a specialty in sports injuries and is considered to have many complaints against him according to your friend.

The nurse asks what your symptoms are and you explain them to her. She records your symptoms and takes your temperature and pulse. Then, the nurse says that you should wait there and Dr. Thomas will see you shortly.

After another 15 minutes of waiting in the examination room, Dr. Thomas enters and introduces himself. He asks how you are feeling and you explain your symptoms. Dr. Thomas then looks over your medical chart and begins the examination.

First, Dr. Thomas carefully examines your throat and says that it is very red and swollen. Then, he checks your eardrums for any signs of redness and sees that they are normal. Next, Dr. Thomas places his stethoscope to your back and asks you to breathe deeply. He listens to your lungs, and says that they sound congested.

At this point, Dr. Thomas explains that your symptoms appear to indicate you may have a lower respiratory infection due to a virus. To be extra sure of his diagnosis, he decides to give you a chest X-ray. Dr. Thomas explains that the X-ray will allow him to make sure you do not have pneumonia.

You go with a technician into another room for the chest X-ray, and then wait 20 minutes for the film to be developed. The doctor inspects the X-ray and informs you that you have a lower respiratory tract infection due to a virus but it does not appear to be pneumonia. He says that you do not need any antibiotics.

The doctor suggests you should take a cough suppressant and expectorant that you can get at the drug store without a prescription. He tells you to get extra rest and drink plenty of fluids. He says that if you take the medicine and follow his instructions, you should be well in 7 days.

Following your visit with the doctor, you follow his instructions exactly. The first couple of days after the clinic visit, you still feel really awful with continued coughing, sore throat, and occasional mild fever. After one week of taking the medicine and resting, your symptoms do not improve much and you still feel very bad. During the second week after the clinic visit, you finally start to feel better but the symptoms do not disappear. It takes a full 14 days before you feel totally well again.



INSTRUCTIONS

In what you read above, you imagined visiting a new clinic and being treated by a doctor. Circle the number that best gives your feelings about the medical story. Here is an example of how the rating scales work. If you read the statement: "Ford cars are economical" and you disagreed with the statement, you would circle the number 2 below.

<u>1</u> Strongly Disagree	<u>2</u> Disagree	<u>3</u> Neutral	<u>4</u> Agree	<u>5</u> Strongly Agree
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Please respond to the following statements by circling the number that most closely represents your feelings about the medical story.

1. How do you feel about your experience with the doctor in the story?

<u>1</u> Very Dissatisfied	<u>2</u> Somewhat Dissatisfied	<u>3</u> Neutral	<u>4</u> Somewhat Satisfied	<u>5</u> Very Satisfied
----------------------------------	--------------------------------------	---------------------	-----------------------------------	-------------------------------

2. How do you feel about your overall experience with the clinic in the story?

<u>1</u> Very Dissatisfied	<u>2</u> Somewhat Dissatisfied	<u>3</u> Neutral	<u>4</u> Somewhat Satisfied	<u>5</u> Very Satisfied
----------------------------------	--------------------------------------	---------------------	-----------------------------------	-------------------------------

3. How likely are you to recommend the doctor in the story to a friend?

<u>1</u> Very Unlikely	<u>2</u> Somewhat Unlikely	<u>3</u> Neutral	<u>4</u> Somewhat Likely	<u>5</u> Very Likely
------------------------------	----------------------------------	---------------------	--------------------------------	----------------------------

4. If you had a similar illness, how comfortable would you be with seeing the doctor in the story again?

<u>1</u> Very Uncomfortable	<u>2</u> Somewhat Uncomfortable	<u>3</u> Neutral	<u>4</u> Somewhat Comfortable	<u>5</u> Very Comfortable
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**INSTRUCTIONS**

Please respond to the following questions. There are no right or wrong answers here. We want your opinion.

1. Write down any thoughts that crossed your mind when you read the survey.

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2. What do you feel was the purpose of this survey?

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3. What do you think we were looking for or trying to examine with this survey and how do you think you were supposed to react?

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4. At what time during the survey did you form the impression that you described above.

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5. Please make any other comments that you may have about your reactions to the survey.

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**INSTRUCTIONS**

Circle the number that best gives your feelings and recall about the medical story.

1. The doctor who examined you in the story was:
  - 1) The one you chose.
  - 2) Not the one you chose.
  - 3) Assigned to you without any choice ever being offered.
  
2. The doctor who examined you in the story had:
  - 1) A very good reputation according to your friend.
  - 2) Many complaints against him according to your friend.
  - 3) No information provided about him by your friend.
  
3. A reason why you received the doctor in the story was explained to you:
  - 1) yes
  - 2) no
  - 3) don't know
  
4. Rate how you felt when you found out who your doctor was in the story.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very Bad	Somewhat Bad	Neutral	Somewhat Good	Very Good
  
5. Rate how you felt about the process that the doctor in the story went through to treat your illness.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very Bad	Somewhat Bad	Neutral	Somewhat Good	Very Good
  
6. If a different doctor in the story had treated you, you would have recovered from the illness sooner.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
  
7. Based on your expectations for choosing a doctor, rate the degree of choice you had in selecting your doctor in the story.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very Low	Somewhat Low	About Right	Somewhat High	Very High
  
8. Based on your expectations for recovering from a cold, rate how long it took to get well from the illness described in the story.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very Long	Somewhat Long	About Right	Somewhat Short	Very Short
  
9. Based on your expectations with health care, rate your overall experience with the visit to the doctor in the story.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Much Worse	Somewhat Worse	About Right	Somewhat Better	Much Better
  
10. Having the freedom to choose my doctor is of utmost importance to me.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. Generally, you cannot tell how long it will take to get well.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. If you are allowed to choose a doctor, the clinic must give you the doctor you choose.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. Overall, rate how you actually feel right now.

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Very Bad	Somewhat Bad	Neutral	Somewhat Good	Very Good

---

Please answer the following personal information questions by circling the appropriate category or filling in the blank. Responses are confidential.

1. Sex: M F

2. Age: \_\_\_\_\_

3. Education: Number of years of school completed \_\_\_\_\_.

4. Marital Status:

- 1) single
- 2) married
- 3) divorced
- 4) widowed

5. Ethnic Origin:

- 1) Caucasian (White)
- 2) African American (Black)
- 3) Asian
- 4) Hispanic
- 5) Native American
- 6) Other \_\_\_\_\_

6. Household Income:

- 1) under \$15,000
- 2) \$15,000-\$24,999
- 3) \$25,000-\$34,999
- 4) \$35,000-\$44,999
- 5) \$45,000-\$54,999
- 6) \$55,000 or more

This concludes the survey. Thank you very much for your participation! Please return this completed form to the surveyor.

2

VITA

Douglas A. Amyx

Candidate for the Degree of

Doctor of Philosophy

**Thesis:** PATIENT SATISFACTION CONTINGENT UPON CHOICE OF PHYSICIANS, PREFERENCE FOR PHYSICIANS, TREATMENT OUTCOME AND HEALTH LOCUS OF CONTROL: AN EXPERIMENTAL ANALYSIS

**Major Field:** Business Administration

**Biographical:**

**Personal Data:** Born in Lawton, Oklahoma, June 26, 1964, the son of Jack F. and Joyce D. Amyx. Married August 3, 1991.

**Education:** Graduated from Eisenhower High School, Lawton, Oklahoma in May, 1982; received Associate degree in Technology from Cameron University, Lawton, Oklahoma in May, 1985; received Bachelor of Business Administration degree from the University of Oklahoma, Norman, Oklahoma in December, 1986; received Master of Business Administration degree from the University of Texas at Arlington in May, 1990; completed the requirements for the Doctor of Philosophy degree at Oklahoma State University in June, 1995.

**Professional Experience:** Assistant Professor Marketing, Tarleton State University, Stephenville, Texas, starting August, 1995; Graduate Instructor of Marketing, Oklahoma State University, Stillwater, Oklahoma, August, 1992 to May, 1994; Instructor of Marketing, East Texas State University, Commerce, Texas, August, 1990 to May, 1992; Graduate Research Assistant, The University of Texas at Arlington, Arlington, Texas, August, 1989 to May 1990; Commercial Accounts Receivable Administrator, the Hertz Corporation, Oklahoma City, Oklahoma, April, 1988 to August, 1988; Commercial Accounts Control Representative, the Hertz Corporation, Oklahoma City, Oklahoma, April, 1987 to April 1988; Sales Representative, Docu-Fax Company, Dallas, Texas,

February-March 1987.

OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD  
FOR HUMAN SUBJECTS RESEARCH

Date: 11-22-93

IRB#: BU-94-007

Proposal Title: AN INVESTIGATION OF THE CHOICE/OUTCOME BIAS FOR  
HEALTH CARE SATISFACTION

Principal Investigator(s): John C. Mowen, Douglas Amyx

Reviewed and Processed as: Exempt

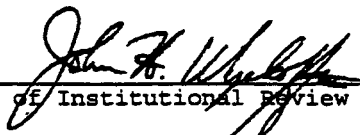
Approval Status Recommended by Reviewer(s): Approved

APPROVAL STATUS SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT  
MEETING.  
APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A CONTINUATION  
OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL. ANY  
MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

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Comments, Modifications/Conditions for Approval or Reasons for  
Deferral or Disapproval are as follows:

Signature:

  
Chair of Institutional Review Board

Date: November 24, 1993