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Theodore P. Chiappelli

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The influence of perceived choice on consumer attitudes toward the selection of a health care delivery plan

prepared by

Theodore P. Chiappelli

A dissertation submitted to The Johns Hopkins University
in conformity with the requirements for the degree of
Doctor of Public Health

Faculty of Social and Behavioral Sciences
Department of Health Policy and Management
School of Hygiene and Public Health
The Johns Hopkins University

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Abstract

This study found that the perception of choice was strongly associated with intent to reenroll in a health care delivery plan. Perceived choice also was strongly associated with behavioral intentions in the use of a health care system. These findings have important implications for health care marketing analysis and planning. The use of these findings should be considered essential in the development of models for health care reform.

A cross-sectional design was used for this study, projecting forward to the next reenrollment decision. A representative sample of 187 respondents was obtained from a population of 4,639 fulltime, non-union employees of Johns Hopkins Hospital. The response rate for returned survey instruments was 64.3%.

The main purpose of this study was to examine how individuals' perceptions of choice influenced their attitude toward the health care delivery plan in which they were enrolled. In this study, perception of choice referred to whether consumers perceived that they had a choice in the selection of their health care plan or believed that they had to accept a single plan that fit their situation.

Measures of plan characteristics that were considered within the tripartite model of attitude were

not found to be statistically different in determining reenrollment intent or behavioral intentions. However, the attitude scales were identified as mediating the relationship of perceived choice to reenrollment intent. The plan characteristics comprised the affect, behavior, and cognition components of attitude.

Consistent with the literature, cost, general satisfaction, and the manner in which care was delivered, emerged as determinants for consumers' intent to continue enrollment in their health care plans. However, these measures did not clearly delineate a preference for either the fee-for-services (FFS) plan or the prepaid (HMO) arrangement. Members of FFS plan had more favorable feelings about services provided by their plan, whereas enrollees in the HMO arrangement had better feelings about the benefits their plan provided. FFS members had more positive beliefs on measures of general satisfaction, quality, and access to care. HMO enrollees had more positive thoughts about their financial matters.

Viewed through the lens of path analysis, it is easy to understand how researchers can be misled about the causal import of a variable when they fail to include in their model other important causes. In the studies of the selection of health care delivery plans, researchers have focused on plan characteristics and have overlooked an important antecedent -- the issue of choice.

Acknowledgements

I acknowledge that the pursuit of a doctoral degree is a transitional process through which one cannot pass without experiencing significant change. I have changed, for the better.

Many people have accompanied me on this road of adjustment, tempering my moves with equal measures of encouragement and critical support. As with any significant event, this adventure had its' "theme song" -- *"One Moment in Time,"* which was sung by Whitney Huston (1993) and played frequently over the radio during the years I was enrolled at The Johns Hopkins University. I use the words to this song, then, to outline my acknowledgements.

"Give me one moment in time,"

I arrived at The Johns Hopkins University benefit of an assignment from the United States Air Force. The Medical Service Corps of the Air Force sponsors one person each year in pursuing a doctoral degree. I received this sponsorship thanks in no small measure to Major General James G. Sanders, Brigadier General Peter C. Bellisario, and Colonel H. William Grinstaff; each of these fine officers has since retired from their military service. Two other comrades-in-arm who were instrumental in their support and friendship were Major Dave E. Tofanelli, also retired, and Dr. Eugene Migliaccio, now a

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"when I'm more than I thought I could be."

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"When all of my dreams are a heartbeat away,"

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"and the answers are all up to me."

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I. Introduction

Health care is a two-directional process that involves a consumer, with a health care concern, seeking care from a qualified professional who can satisfy that need. The process begins with a consumer seeking that care. The topic of this dissertation is basic to this health care delivery -- the involvement of a consumer in the selection of a health care delivery plan.

The Committee for the Study of the Future of Public Health defined the mission of public health as "fulfilling society's interest in assuring conditions in which people can be healthy" (IOM, 1988, p. 7). The committee noted that controlling communicable disease, encouraging healthy lifestyles, reducing hazards in the environment, and targeting and assuring necessary personal health and long-term care services -- all of the classic tools of public health -- are necessary to maintain the benefits of past success and to respond to current and future challenges. The key to a successful application of these tools is the involvement of people in the process of their health. From this perspective, the selection of a health care delivery plan is a fundamental public health issue. The selection of a health care delivery plan is influenced by public policy, and in fact often is constrained by public policy, and further is defined by the extent that an individual

chooses to involve him or herself in the selection process.

Most health care reform proposals emphasize individual responsibility for health care through self-care programs (Clinton, 1993; Wellstone, 1993; Congressional Research Service, 1993). Preventive care is to be administered in large doses. This represents a significant shift in orientation from a system based on curative care delivery to a system anchored in wellness activities. If this shift is to become successful, there must be an increased understanding of the factors that influence individuals' selection of, and involvement with, health care delivery plans in order to introduce those systematic changes that will provide enabling features for individuals to take charge of their care.

The tangible link between health and behavior has long been established. Mechanic's (1978) general theory of help seeking concluded that illness behavior is a culturally and socially learned response. Medical attitudes and health behaviors are formed through a pattern of ties in a social network. This network creates significant opportunities, as well as constraints, in access to people and institutions that provide resources such as information, wealth and power.

More recently this link has been extended to incorporate an individuals' beliefs, perceptions, and attitudes as influencing factors on their health. In her book, Taylor (1991) described a biopsychosocial model that assumes that any health or illness outcome is a consequence of the interplay of biological, psychological, and social factors. "As such, both macrolevel processes (such as the existence of social support, the presence of depression) and microlevel processes (such as cellular disorders or chemical imbalances) interact to produce a state of health or illness" (p. 12).

> The biopsychosocial model maintains that health and illness are caused by multiple factors and produce multiple effects. The model further maintains that the mind and body cannot be distinguished in matters of health and illness because both so clearly influence an individual's state of health. The biopsychosocial model emphasizes both health and illness rather than regarding illness as a deviation from some steady state. From this viewpoint, health becomes something that one achieves through attention to biological, psychological, and social needs rather than something that is taken for granted (Taylor, 1991, p. 12).

Another influence is money. Fuchs (1983) believes that a shift in health care delivery is driven by an economic perspective. He referenced Gary Becker in using a market paradigm to obtain new insights to health care delivery based on the premise that (1) people constantly are confronted with the necessity of making health care choices, (2) in making these choices, people seek to maximize their care given their money, time, energy, and

information, (3) choices are influenced by relative prices, to include not only money but time cost, psychic costs, alternative costs, and other costs, and (4) choices are influenced by a host of other factors such as religion, social class, physical and psychological needs, and external pressures.

This thinking has fueled the application of a new discipline within the health care industry -- health care marketing, which is concerned with "the process of understanding the needs and the wants of a target market. Its purpose is to provide a viewpoint from which to integrate the organization, analysis, planning, implementation, and control of the health care delivery system" (Cooper, 1994, p. 7). This is an evolution from a selling concept that assumed that customers would react favorably to good services and facilities and that very little marketing effort was required to obtain sufficient use. These concepts are compared in Table 1 (Cooper, 1994).

Table 1
Comparison of Selling and Marketing Concepts

	the selling concept	*the marketing concept*
focus on:	services	consumer needs
method:	sole dependence on public relations and health education	integrated marketing
outcome:	increased revenues through increased usage volume	increased revenues through consumer satisfaction

Specific Aims

Consumers face at least two topics of choice when arranging for their health care delivery -- the choice of a delivery plan and the choice of a physician. The interrelationship of these choices has confused negotiations for health care reform, with arguments ranging from proponents who maintain that health care reform is needed to provide consumers with a choice of plans to opponents who insist that any reform will take away choice of physicians. The arguments further are shaped by individual attitudes toward the various health care delivery systems being considered in the reform packages and individual attitudes toward the physician choice options provided within each plan. It is amazing to discover that given this focus of discussion on choice, or lack thereof, in the reform proposals, there has been little study of how perceptions of choice influence consumers' attitudes toward, and selection, of health care delivery plans. Perception of choice refers here to whether consumers perceive that they had a choice in the selection of their health care plan or believe that they must accept a single plan that fits their situation.

Most previous studies of consumer selection of health care plans have focused on the delivery system's

economic (cost) relationship to the health care customer (Berki & Ashcraft, 1980; Juba, Lave & Shaddy, 1980; Lairson & Herd, 1987; Mechanic, 1989; Mechanic, Ettel & Davis, 1990; Rice, 1992). This has led researchers to look for the common denominators that best describe the selection criteria used by the majority of consumers in choosing a delivery plan, with economic factors often used as the main variable in a consumer choice and quality of care accepted as an equal constant in the differentiation of the delivery plans. This study examined these common denominators more closely in order to determine how much import consumers assigned to specific plan characteristics when selecting their health care delivery plans and how the importance of each characteristic was influenced by individuals' perceptions of choice in the selection process.

The main purpose of this study was to examine how individuals' perceptions of choice influenced their attitude toward the health care delivery plan in which they were enrolled. The topic of choice examined in this study was the selection of the delivery plan; the topic of physician choice was referenced in context with the patient-physician relationship. The specific aims were:

-- To determine whether consumers believed they had a choice in the selection of their health care delivery plan.

-- To examine whether consumers had positive attitudes toward their health care plans if they perceived they had a choice in selecting that plan.

-- To explore what plan characteristics influenced consumers in their selection of a health care delivery plan.

-- To determine whether consumers' perceptions of choice were associated with their behavioral intentions in the use of their health care system.

-- To examine whether consumers' perceptions of choice were associated with the likelihood of their changing health care plans at time of reenrollment.

-- To examine whether consumers' attitudes were associated with the likelihood of their changing health care plans at time of reenrollment.

-- To examine the relationship of attitude as a mediator for choice in influencing reenrollment intent.

Chapter Overview

The framework for this study is presented in Chapter 2, with an examination of perception of choice as an independent variable and the tripartite components model of attitude introduced as mediating factors. Past studies that have identified factors that influence the selection of a health care delivery plan are presented in a Literature Review.

The methods used for this study are detailed in Chapter 3, with sections of this chapter describing the population from which a sample was drawn, a comparison of the health plans from which employees drew their coverage, the measurement instruments that were used in this study, and the procedures that were followed in gathering the data. The procedures section includes an explanation of how the sample size was determined, human subjects review, and a presentation of the hypotheses.

Chapter 4 details the results of the data collection, beginning with an explanation of how the sample was determined, a description of the respondents, plan membership and use, scale values, and initial bivariate and multivariate analyses.

An analysis of the hypotheses is presented in the sections of Chapter 5 along with an explanation of the findings. The chapter also includes an examination of the components of attitude as mediating factors in the relationship of choice and reenrollment intent.

A discussion of the findings, and conclusions, are presented in Chapter 6.

II. Literature Review

Overview

Data on who selects which delivery plan and what criteria they use in reaching their decision are quite helpful to those tasked with marketing the health care plan. Market planning begins with a study of the environment, from which strategies and objectives are developed to support the evolution of systems and structures used to deliver health services (Kotler, 1982). But in an era of health care reform that places great emphasis on consumer opportunities to choose their delivery plan, these market assessments must move back one step beyond the common denominators found from the environmental evaluation to seek an understanding of how individuals use the identified criteria in their decision and why this information influences their selection of a delivery plan.

Janis and Mann (1977) reported that freedom of choice is seen by contemporary theorists as a major determinant of the consistency between a decision maker's attitudes and actions. They listed "Hobson's choice" as a frequent type of involuntary elimination of freedom of choice, referring to a situation where an authority acts in a way that virtually restricts the number of choices to one or arbitrarily assigns an alternative without reference to a person's wishes. Many health care

consumers might view their selection of a health care delivery plan as a Hobson's choice. If alternatives offered by an employer restrict choice to plans that presuppose enrollment or provide incentives favorable to one plan versus an alternative, this could create a Hobson's choice scenario; i.e., no choice.

The fundamental issue of what constitutes a choice in the selection of a health care delivery plan is discussed in this chapter. The tripartite model of attitude is introduced as a method for studying intervening variables that influence the selection process. This is followed by a review of the literature on previous studies of selections consumers have made between prepaid and fee-for-service plans. Prepaid plans are those in which a fee is collected in advance to pay for all services provided (although an encounter or nuisance charge also might be collected); this is in contrast to the traditional fee-for-service arrangement in which a bill is generated for each encounter specific to the services provided.

Perceived Choice

From a philosophical perspective, freedom of choice means that a man or woman consciously comes to a decision between two or more genuine alternatives, is free to do so, and the choice is not completely determined by

heredity, education, economic circumstances, or past history of the individual (Lamont, 1967).

Brigham (1979) defined choice as "the opportunity to make an uncoerced selection from two or more alternative events, consequences, or responses" (p. 132). In his research on this topic, Brigham found that when subjects were given the opportunity to make a choice about some aspect of a situation they worked harder, faster, and reacted more positively in their response to the situation than when they were unable to make a choice. He referenced Kantor (1959) in further defining choice as a "setting event." Kantor defined setting events as antecedent stimuli -- response interactions that affect the frequency or topography of responses that follow.

Steiner (1979) developed an explanation for perceived choice from the work of Thibaut and Kelly (1959) who theorized that individuals' past experiences and actions of others tell them what alternatives they should expect in a given situation. This establishes a comparison level that serves as a reference point to evaluate the "sense of fit" of the alternatives that become available. Steiner (1979) maintained that people do not have a sense of choice unless at least one of their available options is at least as desirable as their comparison set. Conversely, no choice is experienced when no alternative is as good as the comparison level.

Steiner (1979) identified three kinds of choices that individuals make and tied each of these choice levels to the comparison level conceived by Thibaut and Kelly (1959). The choices are an evaluative choice, when the best available option exceeds the comparison level; a discriminative choice, when the choice is clear-cut for individuals who have enough confidence in their ability to discriminate between the available options; and an autonomous choice, when the alternatives are complex and differ on several dimensions and it is not immediately clear which alternative is better. Steiner concluded that moderate discrepancies seem to encourage discriminate choice and inhibit autonomous choice, while huge discrepancies stimulate no feelings of choice whatever. Further, Steiner maintained that autonomous choice implies that an individual is personally in charge of comparing and assessing the many assets and liabilities of the alternatives.

According to these definitions, if a choice is perceived to exist, it should be reasonable to categorize the selection of a health care delivery plan as an autonomous choice due to the complexities and number of decision criteria available to consumers in making their choice. Even with past experiences of the consumer, family, and close friends that might establish a comparison level, too many factors are involved to

consider the selection of a delivery plan as an evaluative choice. Likewise, the number of factors taken into consideration in a selection decision can vary, creating a range of discrepancies between the available plans with none of the available alternatives presenting a clear-cut or discriminative choice. The very personal nature of health care and the sometimes pressing needs of the consumer gives the individual much to consider in an autonomous choice.

The act of choosing (choice) instills in individuals a feeling that they are the origin of their own behavior. The opposite (the lack of choice) can create a "psychological reactance."

> ... if a person's behavioral freedom is reduced or threatened with reduction, he will become motivationally aroused. This arousal would presumably be directed against any further loss of freedom and it would also be directed toward the reestablishment of whatever freedom had already been lost or threatened. Since this hypothetical motivational state is in response to the reduction (or threatened reduction) of one's potential for acting, and conceptually may be considered a counterforce, it will be called "psychological reactance" (Brehm, 1966, p. 2).

Freedom of choice was examined by Green (1963) in a study on volunteering. In comparing subjects who either (1) volunteered for the study, (2) volunteered and then were told that they actually had no choice, or (3) did not have an option to volunteer and were drafted, Green confirmed his hypothesis that freedom of choice had a positive influence on a measure of respondents' ability

to recall incomplete versus completed tasks. In this study, the independent variable was freedom of choice (ability to volunteer for the study or not).

The importance of choice was demonstrated by Hammock and Brehm (1966) who reported two similar experiments in which children were shown desirable objects (candy in one experiment and toys in the other). The children in the studies were asked to rank the objects according to their desirability. Half of the children were led to believe they would be given a choice in selecting one of the objects, while the other half were not led to expect a choice. In all cases, an assistant arbitrarily selected a gift for a child without allowing a choice. The reactance effect was found in the group that had been told they would have a choice; in a subsequent ranking of the objects, the preference for the denied alternative increased. The subsequent ranking of objects for the no-choice group did not change.

Kehoe (1979) noted that the research on the antecedents of perceived choice has focused largely on manipulations of the choice options. This has been especially true in studies of the decisions consumers have made in selecting a health care delivery plan. With one notable exception, studies on the selection of health care plans have treated choice (the plan selected or activities involved in selecting a plan) as a dependent

variable, with the various characteristics of individual consumers or characteristics of the plans being offered as the independent variables.

The notable exception was a novel study conducted by Curbow (1986) in which choice was presented as an independent variable in a simulation that used behavioral intent as the dependent variable. Curbow based her work on the reactance theory, which holds that if individuals expect to have a choice about which outcome they are to receive, they will react negatively if they simply are given an outcome, even if it is an outcome they would normally have preferred. Reactance theory predicts that people will be motivated by loss of control to renew attempts at mastery (Wortman & Brehm, 1975). Curbow found that the fact that consumers have a choice in the selection of their health care delivery system has a positive impact on their intent to seek care and their evaluation of that care.

The work in this dissertation is an extension of Curbow's study. In her work, Curbow manipulated choice levels in a homogeneous captive population of AFDC (Aid to Families with Dependent Children) beneficiaries. The current study extends this work in two ways: first, by measuring the perception that choice exists instead of the actual number of choices offered (there is reason from the perceived control literature to believe that

perceived choice might be even more powerful than actual number of choice options); and second, by examining a naturalistic, heterogeneous population.

Attitudes

Considerable knowledge of the attributes of health plan alternatives often is available in the memory of individuals, which permits a thoughtful and deliberate selection decision. However, in many instances, individuals neglect to use such knowledge and instead rely on an "attitude-based" strategy to make a memory-based decision (Sanbonmatsu & Fazio, 1990). The findings of two experiments by Sanbonmatsu and Fazio suggest that as the motivation to make a correct decision or the opportunity to use the available attribute knowledge decreases, the likelihood that attitudes will guide a memory-based decision increases. The findings illustrate the functional role attitudes play in guiding decisions and behavior. The authors note that by providing a ready means of evaluating alternatives, attitudes enable individuals to make decisions relatively quickly and effortlessly. Also, because memory-based processing involves a reliance on the retrieval of previously stored, relevant information from memory and the construction of a judgement on the basis of this

information, such processing tends to yield stronger relationships between recall and judgements.

An attitude is a multifaceted construct conceptualized as a combination of an individual's evaluative judgements about a given object (Thurstone, 1928). Although this conceptualization has been quite valuable, theorists have come to realize that it is also useful to consider properties of attitude other than the global evaluative nature (Katz & Stotland, 1959; Rosenberg & Hovland, 1960; Zanna & Rempel, 1988), such as those categorized in the tripartite model.

In this study, the components of attitude were examined as dependent variables with perceived choice presented as the independent variable. I maintain that while previous research has consisted mainly of studying the characteristics of health care plans as antecedents to choice, this representation is part of a cyclical pattern and that in reconsideration of an issue, such as is the case with a reenrollment decision, perceived choice becomes an antecedent to the plan's perceived characteristics. Thus, the model proposed herein for studying choice treats perception of choice as the independent variable, with the plan's characteristics assigned as variables within the tripartite model of attitude.

Breckler (1984) defined attitude as a response to an antecedent stimulus or attitude object. In this study, the health plan is the attitude object, with the act of selecting a plan from among several options providing the stimulus for response. The tripartite model of attitude that specifies three components -- affect, which refers to an emotional response; behavior, which includes overt actions and behavioral intents; and cognition, which consists of beliefs, knowledge structures, perceptual responses and thoughts. Perceived choice and measures of attitude then are used to predict intention to continue enrollment in a health care plan.

A core assumption underlying the attitude concept is that the three attitude components vary on a common evaluative continuum (Allport, 1935). Affect can vary from pleasurable (feeling good, happy) to unpleasurable (feeling bad, unhappy); behavior can range from favorable and supportive (participating, cooperative) to unfavorable and hostile (non-participating, uncooperative); and cognitions or thoughts can vary from favorable to unfavorable (supporting versus derogating opinions) (Breckler, 1984).

The concept of attitude was not formally explicated in terms of the tripartite model until the late 1940s when Smith (1947) distinguished from among affective, cognitive, and policy orientation aspects of attitude.

By 1960, the tripartite model began to play a central role in major treatments of attitude theory and attitude change (Katz & Stotland, 1959; Rosenberg & Hovland, 1960).

A distinguishing feature of this model is that not all attitude components are developed through a cognitive process and thus each component can be traced in terms of developmental roots. Affect or emotion can be the product of classical conditioning (e.g., the past pairing of an attitude object with an affective stimulus); behavioral tendencies might have developed through processes of instrumental learning (e.g., past reinforcement for a particular response to an attitude object); and cognitions might have developed through previous exposure to communications or educational materials (Breckler, 1984).

The tripartite model has great value for this study in flushing out the criteria that influence choices in continuing enrollment in a health care delivery plan. This import emphasizes Pratkanis' (1989) definition of attitude as "a person's evaluation of an object of thought" (p. 72). Attitude effects are assumed to follow rules of balance theory, resulting in a consistency or correspondence of response; i.e., positive attitudes result in positive feelings, thoughts, and behaviors

toward an object and negative attitudes engender a negative response (Heider, 1958; Newcomb, 1968).

Consistency might be expected because all three components of attitude can represent the experience of an individual; also, the antecedents can be satisfied by the same learning situation (Greenwald, 1968a). On the other hand, the tripartite components might result from very different learning situations or they might be "coded" differently (Greenwald, 1968b). Therefore, high correlations between the three components do not necessarily support a tripartitite model (Breckler, 1984).

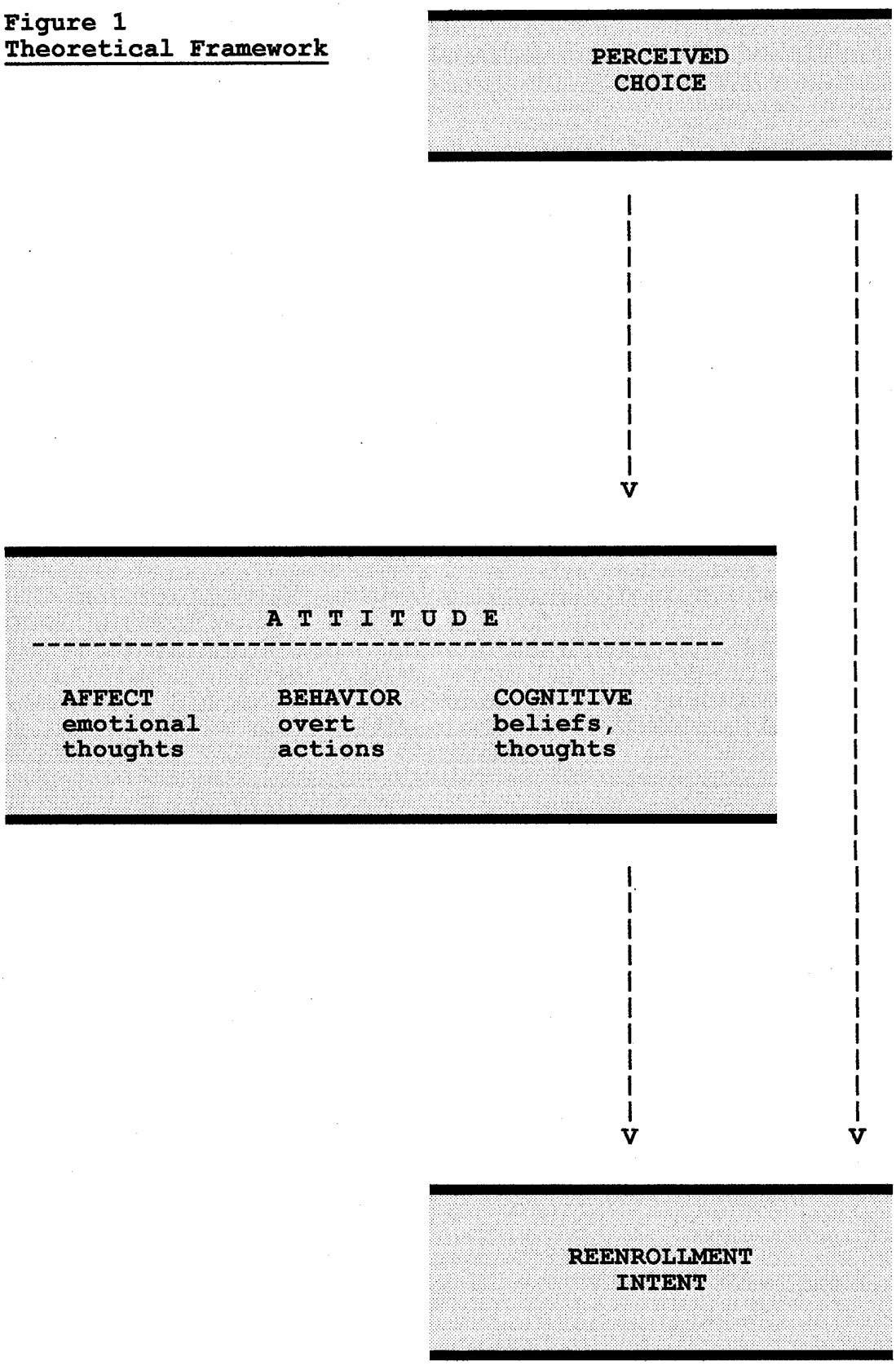
Crites, Fabrigar and Petty (1994) reported several cautions in the use of the tripartite model. They noted that subtle differences in the wording or response format of questions can dramatically influence responses. The use of continuum measures for each component must be comparable; i.e., they caution against using general evaluative terms for one component and specific response terms for another component. And they emphasized the need to assess the reliability and validity of each of the component scales because differences in the reliability or validity can cause the scales to be differentially predictive. Thus, one scale could be a better predictor of attitudes not because the attitude is

based primarily on the construct being assessed by the scale, but because the scale is more reliable or valid.

Framework for this Study

The theoretical framework that shapes this study is shown in Figure 1. This illustrates that the conceptual variables of the tripartite attitude model intervene as a mediating function, which represents the generative mechanism through which the focal independent variable (choice) is able to influence the dependent variable of interest (reenrollment intent). Baron and Kenny (1986) explained that a variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations in the presumed mediator, (b) variations in the mediator significantly account for variations in the dependent variable, and (c) when the relationships between the independent variable and mediator and between the mediator and dependent variable are controlled, a previously significant relationship between the independent and dependent variables is no longer significant.

Figure 1
Theoretical Framework



HMO and FFS Comparisons and Reenrollment Intent

Throughout the literature, both cost and patient-physician relationships consistently emerge as major determinants of consumers' choice for continued enrollment in a health care plan (Berki & Ashcraft, 1980; Juba, Lave & Shaddy, 1980; Lairson & Herd, 1987; Mechanic, Ettel & Davis, 1990). In differentiating an health maintenance organizations (HMO) from a traditional fee-for-service (FFS) plan, Scotti, Bonner and Wiman (1986) found quality as the most important factor, with cost second, for reenrollment decisions. Further, a reanalysis of the data used in the Scotti, et al, study found that intentions to reenroll in an HMO hinged primarily on the choice of physicians available to the subscribers (Rosenberg, Bonner, Scotti & Wiman, 1989). The study surveyed 648 members of a large eastern seaboard HMO. The authors concluded that having a large number of physicians from which to choose provided the HMO subscriber with choices similar to those found in the traditional FFS plans.

In a Commonwealth Funds 1994 survey of 3,000 adults, fee-for-service enrollees were found to be more satisfied with access and quality of care, and the prepaid group was more satisfied with cost, paperwork and coverage of preventive care. There was, however, a lower level of

satisfaction among the lower-income members of the prepaid group.

A consortium of large employers, including Xerox, GTE, and Digital Equipment Corps, launched the Employee Health Care Value Survey during the fall of 1993. This survey, which was completed by 24,306 employees, was used to develop comparable methods for assessing corporate health care benefit strategies (Allen, Darling, McNeill & Bastien, 1994). It also enabled comparisons of 32 health plans across the country on more than 60 criteria. Variation in performance among plans was substantial, with prepaid plans recording the most favorable rankings on disenrollment, overall satisfaction, and other measures of "bottom-line" performance. Variation in enrollees' health among plans was more modest, with indemnity enrollees posing a somewhat greater illness burden to their plans then enrollees of other plan types.

Although there are a number of studies that have examined the selection criteria used by consumers in adopting a health care plan, this research, as noted earlier in this discussion, has dealt with choice as an outcome (dependent) variable. A common difficulty with these studies is that evaluative criteria are not static; as consumers gain experience with health care services, the evaluative criteria they use in the decision process change (Engel & Blackwell, 1982; Loudon & Della Bitta,

1984). Attitude, when examined, most often has been considered as a consequence of enrollment in a particular plan and not as evaluative criteria used to influence continuation of enrollment (Scotti, Bonner & Wiman, 1986).

The relationship between consumer measures (such as attitudes, interests, awareness, and perceptions) and the intent to use a prepaid health care plan was the major purpose of a study by Thompson and Rao (1990) who based their work on Rogers' Diffusion of Innovation Theory. The Diffusion of Innovation Theory explains the process by which an innovation is communicated over time among members of a social system (Rogers, 1983). In the Thompson and Rao study, innovativeness was used as a measure for the personality characteristic variable in that it measured the degree to which an individual was relatively early in adopting the HMO innovation compared to others in their social system.

The sample population for this study consisted of 700 households selected randomly from cities with at least 5,000 citizens for the Arkansas Household Research Panel. Thompson and Rao found that respondents needed a perception of prepaid plans as being consistent with past health care plans before they would consider using a prepaid plan that did not allow choice of physician. Yet, respondents who intended to use a closed-panel

prepaid plan (limited list of physicians) perceived the plan to be very different from the conventional plan. This conforms with the previously defined criteria for establishing that the consumers had a choice. The authors concluded that the innovation-decision process could be used to identify significant antecedents to intent to use prepaid plans, but did not examine these antecedents, suggesting this for future study.

A variety of studies have examined antecedents to the selection and use of both prepaid and fee-for-service plans. In this examination of the literature, only those studies that have involved reconsideration of the enrollment decision (i.e., reenrollment or disenrollment) are reported here. The studies are sectioned by characteristic differentiations of the health care system and conclude with studies that identify the demographic characteristics of consumers who choose between prepaid and fee-for-service plans.

Satisfaction

Satisfaction has been well studied both in identifying variables that predict satisfaction and how satisfaction influences reenrollment decisions.

Predicting satisfaction.

Patient satisfaction surveys have produced mixed results. In general no significant differences were found in overall satisfaction between HMO enrollees and fee-for-service

beneficiaries, although satisfaction with the doctor-patient relationship generally is found to be higher in the private-care groups with cost getting higher satisfaction marks in HMO settings (Stein, Linn, Edelstein & Stein, 1989; Rossiter, Langwell, Wan & Rivnyak, 1989).

In the Stein, et. al., study, 100 elderly persons (25 HMO and 75 private patients) completed a 20-item scale that measured satisfaction. The authors also found that the HMO group evaluated private care and HMO care as being similar, whereas the private care group rated HMO care less favorably. The Rossiter, et. al., study drew a nationwide random sample from more than 1 million Medicare beneficiaries who had enrolled in HMOs under a program in which the beneficiaries could choose between a risk-based HMO or remain in a fee-for-service arrangement. A comparison was made between 2,091 HMO enrollees and 1,000 FFS beneficiaries. Although no significant differences were found in overall satisfaction, the study was able to determine that approximately half of the disenrollments from HMOs within the first year were attributable to misunderstanding the terms of enrollment.

In a study of satisfaction in a large HMO, Fincham and Wertheimer (1986) found that physician continuity, self-assessed health, preventive health practices, and

appropriateness of communication from physician explained more than 21% of the variance in client satisfaction. They recommended that marketing strategies include efforts to strengthen health promotion and disease prevention provisions of the HMO and that physicians be encouraged to communicate appropriately with clients.

A study designed to show what specific physician characteristics lead to satisfaction in consumers' use of prepaid versus FFS plans found no meaningful differences (Holloway, Matson, & Zismer, 1989). A seven-item scale found four significant factors accounting for variance in satisfaction scores: sensitivity, is on time for appointments, follows up promptly, and provides personalized medical care.

One study concluded that market segmentation should be determined by social class (Dawson, 1989). Dawson noted that studies of consumer satisfaction in non-medical contexts repeatedly have found that upper and middle class individuals have higher expectations, which frequently produce lower satisfaction and more complaining, and that they are more likely to perceive the efficacy of participating in preventive care and of modifying lifestyle. The findings from this study identified distinct differences between social classes and health care consumerism, including perceived health status.

Influencing reenrollment decisions. Results of a study using LISREL (Linear Structural Relations) indicated that service quality was a significant predictor of consumer satisfaction which, in turn, predicted intention to return to the provider for future services (O'Connor, Shewchuk & Bowers, 1991). This supports an earlier finding (Davies, Ware, Brook, Peterson & Newhouse, 1986) that less favorable attitudes toward interpersonal and technical quality of care resulted in dissatisfaction and disenrollment from HMOs.

The Davies, et. al., study randomly assigned 1,537 people aged 17 to 61 to either a FFS or HMO group as part of a controlled trial. A random subset of 800 families who had been receiving FFS care were assigned to one of 11 insurance plans in the FFS system. A random subset of 737 families who had been receiving their care through a FFS arrangement were assigned to a well-established HMO plan. In addition, 486 people who already had selected the HMO as their health care delivery plan were used as a control group. Although the issue of freedom of choice was not incorporated into this study, the researchers found that those who had chosen HMO membership were as satisfied overall with medical care providers and services as their FFS counterparts. However, the typical person randomly assigned to the HMO as part of the controlled trial was significantly less satisfied overall

relative to FFS participants although specific features of care favored either the FFS or HMO plan depending on the feature being rated. Four differences (length of appointment waits, parking, availability of hospitals, and continuity of care) favored the FFS. Length of office waits and costs of care favored the HMO.

Hennelly and Boxerman (1983a) found that dissatisfaction was the most important predictor of both disenrollment from an HMO and for out-of-plan use of health services. However, they found no direct relationship between disenrollment and out-of-plan use. The conclusions were based on a study of 1,823 families enrolled in a prepaid group practice HMO plan.

Another study of satisfaction (Shimshak, DeFuria, DiGiorgio & Getson, 1988) concluded, as logic would dictate, that both overall dissatisfaction and dissatisfaction with specific health care attributes were important predictors of disenrollment, contributing more than age or presence of a nonplan family member. The specific attributes most often mentioned as dissatisfiers were cost, quality, and inaccessibility of services.

Perceived risk and financial vulnerability

In their review of the literature, Berki and Ashcraft (1980) found mixed evidence that HMOs would suffer from adverse self-selection; that is, that sicker people would select the HMO option. They cited studies

that had found that prior use of health services, as a measure of perceived risk, was not predictive of HMO enrollment in dual-choice studies (Roghmann, et al., 1975; Tessler & Mechanic, 1975; and Berki, et al., 1977). Likewise, they identified studies that had shown that attitudinal measures of perceived health risk (Juba, et al., 1980; Richardson, et al.,1976; Roghmann, et al., 1975; Tessler & Mechanic, 1975; and Berki, et al., 1977) were not significantly related to enrollment in an HMO or an indemnity plan.

Berki and Ashcraft (1980) drew a distinction between insurance characteristics and delivery characteristics and explained the role of insurance characteristics through hypotheses of risk perception and financial vulnerability.

Attributes of perceived risk were health history, current health status (perceived), age, and experience in the use of health services that influence the likelihood that an individual would need to use health services in the future. The risk perception hypothesis was that the greater the perception of risk, the more likely a consumer would be to choose a comprehensive benefit package and pay a higher premium. This hypothesis considered health care services as single-purpose goods that yield satisfaction only when the consumer considered them to be needed for current or future needs; they were

not considered as substitutes for other goods or services that might be selected in a representation of a consumer's market basket. A market basket represents the combination of goods and/or services a consumer might purchase at a given income level (Browning & Browning, 1983). In the Berki and Ashcraft (1980) study, persons who were not future oriented or who believed that they had no control over future events were less likely to have high risk perceptions or assign high values to risk avoidance.

The competing financial vulnerability hypothesis maintained that the more likely that the economic loss for health care represented a large utility loss (and thus would cause an economic hardship), the more likely a consumer would choose an option that would reduce the economic impact at a higher premium price. Utility is a subjective measure of the usefulness, or want satisfaction, that results from consumption of goods and services (Berki & Ashcraft, 1980). In forming this financial vulnerability hypothesis, there was no distinction between service benefit and capitated plans; they both were prepaid. The extent to which financial factors are likely to play a role in an enrollment decision would depend on the total costs expected including both the premium cost and out-of-pocket expenses.

Cost

Although the incentive of cost had been found to be a major factor in the selection of a health plan, findings revealed that dissemination of fee data does not yield significant reductions in the use of services or out-of-pocket expenses (Hibbard & Weeks, 1989). These findings were attributed to inadequate financial incentives, incomplete information, and inadequate preparation to make use of the information.

Using an experimental design, Hibbard and Weeks examined the effect of access to physician-fee information on rates of doctor-office visits, expenditures for ambulatory care, and costs per visit. The study included two random samples that included 658 state government employees in one sample and 717 Medicare Part B enrollees in another sample. Members from each sample were randomly assigned to experimental and control groups, with members of the experimental groups receiving a directory listing fees charged by local physicians for common procedures. There was no change in consumers' use of services in either the experimental or control groups.

Interestingly, the Rand Health Insurance Experiment (Lohr, et al., 1986) found that individuals who had to share in the payment of their health costs reduced their demand for care that was most likely to improve their health as much as they did for care that provided the

fewest benefits. Lohr, et al., divided medical care into four categories: highly effective, quite effective, less effective, and rarely effective/self-care effective. The authors found that "cost sharing was generally just as likely to lower use when care is thought to be highly effective as when it is thought to be only rarely effective" (p. S32). Other findings from the Health Insurance Experiment demonstrated that the use of more medical services by those who received free care did little to improve their health. Lohr and colleagues postulated that this was because the benefits of additional medically appropriate services were cancelled out by the harm caused by inappropriate services.

Information

Models of enrollment decisions generally assess behavior based on the level of information upon which the consumer acts. The preponderance of information available to health care consumers in their selection of a delivery plan traditionally has emphasized cost, so it should not be surprising that this variable looms large as a major determinant of plan selection (Berki & Ashcraft, 1980). Further, consumers acting on information gained from past experiences with the health care delivery system can be expected to act on that which they know best. In this scenario, consumers best know their judgments on

relationships with physicians, more so than information on the competencies or quality of care delivery.

There was a difference in a study that looked at the interaction between insurance information and health status in plan selection (Davidson, Sofaer & Gertler, 1992). The sample population studied consisted of 513 participants in one of 75 workshops sponsored by the U.S. Health Care Financing Administration. These Medicare-eligible beneficiaries had the opportunity to choose to supplement their basic Medicare coverage with either private insurance ("Medigap" policies) or enrollment in an HMO. With a high level of knowledge on insurance coverage, sicker beneficiaries were less likely to have basic Medicare alone, compared with HMO enrollment or Medigap policies, while healthier beneficiaries were less likely to be enrolled in HMOs compared with Medigap. The results showed that knowledge of coverage does have a differential impact on the decision to purchase health insurance depending on health status.

Andrews, Curbow, Owens and Burke (1989) looked at methods for communicating information about health plan options for HMO enrollment among Medicaid beneficiaries and found no single consumer characteristic related across the five methods studied, although lack of a private physician and dissatisfaction with a current provider were associated with plan selection in four of

the methods. They analyzed data from the marketing component of California's Prepaid Health Research, Evaluation, and Demonstration project. Five communication methods examined were a brochure, film, county eligibility worker presentation, state representative presentation, and HMO representative presentation. The analysis revealed that each communication method was effective with a different type of beneficiary. Film was the best method for attracting persons who had an ongoing relationship with a provider.

Much research on choice has been done within the domain of consumer psychology, with a major issue being the effect of the amount and display of information on the optimality of choice (Slovic, Fischhoff & Lichtenstein, 1977). Jacoby (1975) argued that more information is not necessarily helpful, as it can overload consumers and lead them to select suboptimal products. However, this kind of research on consumer choice and information has not yet been extended to the health care industry.

Health Status and Use

A study by Mechanic, Weiss and Cleary (1983) found that persons who terminated their membership in prepaid group plans had fewer health problems than those who continued membership, as measured by bed disability and psychologic well-being. The disenrollees also reported

that access to the system was difficult and inconvenient and they were less likely to have established a stable relationship with a doctor participating in the plan. Access also was perceived to be a problem by those continuing as members.

Juba, et al. (1980) found that the number of family members reporting a chronic illness increased the probability of HMO enrollment, while another study (Richardson, Boscha, Weaver, Drucker & Diehr, 1976) found that the existence of a chronic condition would make consumers less likely to disrupt the patient-physician relationship and select an HMO.

Luft, et al. (1980), maintained that total medical costs are substantially lower for HMO enrollees than for the general population and those lower costs are attributable to lower hospitalization rates. The reasons were (1) HMOs provide an appropriate level of care, and the conventional system too much, and (2) the use differences are attributed to self-selection of different types of people into the HMOs. Blumberg (1980) concurred with these findings in his review of health status of 8,449 people under age 65 who were among the 116,000 participants in a national Health Interview Survey. He found no differences in health status between HMO and private coverage groups, although those with no coverage

were less healthy and used more health care services than those with private coverage.

This finding was duplicated by Manning, et al. (1984), in a controlled trial on the effect of a prepaid group practice on use of services. To answer the question of whether an HMO delivers less care than the FFS system when both plans serve comparable populations with comparable benefits, 1,580 people were randomly assigned to receive care free-of-charge from either a FFS physician of their choice (n=431) or the HMO (n=1,149). In addition, 733 prior enrollees of the HMO were used as a control group. The rate of hospital admissions in both HMO groups was about 40% less than in the FFS group ($p<.01$), although ambulatory visit rates were about the same. The number of preventive visits was higher in the prepaid groups.

There also was no difference in health habits and health plan selected (Feldman, Finch & Dowd, 1989; Lairson & Herd, 1987). Feldman, Finch & Dowd studied 17 Minneapolis employers who offered their employees a selection from among a FFS plan and at least one HMO plan. Health practices measured were cigarette smoking, heavy drinking, abstinence from drinking, use of seat belts, and exercise. The researchers concluded that employees with poor health practices did not systematically favor either of the plan alternatives.

This study substantiated the findings of Lairson and Herd who looked at health habits and HMO selection bias among 617 employees of a large utility company in the southwestern United States. Bivariate analysis showed that those employees selecting the HMO option did not differ from those enrolled in the traditional FFS arrangement on the same health habits; i.e., smoking, drinking, seat-belt use, and exercise.

Robinson, Gardner, & Luft (1993) did find a significant difference, however, in the rates and days of maternity and non-maternity admissions from enrollees in a FFS plan (n=147,700), an HMO (n=30,957) and switchers from the FFS to HMO plan (n=2,144). The researchers found that the rate of maternity admissions for plan switchers increased by 106% ($p<.001$) in the post-switch year compared with the pre-switch year, while maternity rates for those who continued in the FFS plan declined by 12% with the rates for the HMO group remaining unchanged. Non-maternity admission rates for the switchers decreased by 19% ($p<.001$), consistent with the expectation that HMOs reduce these rates substantially, while the rates for the FFS plan enrollees increased 4% with the HMO enrollee rate staying the same. The researchers concluded that employees often switch health plans when anticipating increased needs for maternity care and therefore, pre-switch rates of use are unreliable

measures of the true magnitude of risk selection between HMO and FFS plans.

A comparison of the use of prepaid plans versus fee-for-service plans for mental health care was studied as part of the Medical Outcomes Study (Sturm, et al., 1994a). The average number of mental health visits was 35-40% lower in the prepaid group, adjusted and unadjusted for observed differences in patient characteristics, including health status. Primary data were collected every six months over a two-year interval from a panel of depressed patients participating in the MOS, an observational study of adults in competing systems of care in three urban areas (Boston, Chicago, and Los Angeles). Patients visiting a participating clinician at baseline were screened for depression, followed by a telephone interview which included the depression section of the NIMH Diagnostic Interview Schedule. Patients with current or past lifetime depressive disorder and those with depressed mood and three other lifetime symptoms were eligible for this analysis. Use differences were concentrated among patients of psychiatrists, with only minor differences among patients of general medical providers. In analyzing the effect of enrollment switches that patients made over time between the prepaid and fee-for-service delivery plans, the researchers found some evidence of

adverse selection into the fee-for-service system, which was not based on plan use at the end of the study. In particular, after adjusting for observed patient characteristics and health status, patients switching out of the fee-for-service plans had lower use than predicted. The researchers found that the switching itself was related to an immediate decline in use and was not followed by an increase or "catch-up" effect, and noted that this did not occur for patients staying within a system. They concluded that there is a need to quickly integrate newly enrolled patients into a system.

In another report of their study, Sturm, et al. (1994b), noted that patients of mental health specialists in the fee-for-service plans had the lowest adjusted rate of plan switching (8.1%) compared with patients of general medical practitioners in the fee-for-service arrangements (13.5%), and patients of both types of providers in the prepaid plans (10.1% to 11.7%). Although there was no substantial differences in initial sickness identified among the patients enrolled in the different health care delivery plans, the researchers reported that the rates at which patients disenrolled from plans suggested a biased selection over time. They found that married, non-white, and wealthier patients were significantly more likely to leave the fee-for-service arrangement than the prepaid plans.

Demographics

Much attention has been paid to describing the consumers with demographic characteristics that categorize the selection decision. However, demographic characteristics from reenrollment studies have been contradictory. Tessler and Mechanic (1975), for example, found that better educated and unmarried consumers picked prepaid programs, whereas Berki and Ashcraft (1980) found that married persons with large families chose prepaid plans. Welch and Frank (1986) used a national data set to analyze the kinds of people who enroll in HMOs versus conventional plans and found that coefficient estimates suggesting that ill-health and larger family size increased the probability of being a HMO member. They also used an income elasticity measure that suggested that families of modest means are a natural clientele of HMOs.

Investigations of other sociocultural factors such as race and ethnicity (Moustafa, Hopkins & Klein, 1971; Tessler & Mechanic, 1975), religion (Bashshur & Metzner, 1967; Tessler & Mechanic), and political party affiliation, formal or social organizational, and union membership (Bashshur & Metzner) have failed to distinguish any differences between enrollees or nonenrollees in HMOs.

However, an analysis by Hennelly and Boxerman (1983b) showed that groups classified as continuous enrollees, voluntary disenrollees and mandatory disenrollees in an HMO presented significantly different member populations. The variables for which there were reported differences included age, race, education, income, occupation and family size. This study looked at a sample of 2,402 families. Continuously enrolled families were more likely to be non-white and larger, and to have subscribers who were older, less educated, and had jobs of lower status.

A telephone survey by Siddharthan (1990) of 1,438 people aged 60 or more in Dade County, Florida, found that a key factor affecting enrollment among immigrant populations was the availability of ethnic-sensitive providers of health care. The elderly Hispanic immigrant population sought out participating providers in prepaid plans catering to a Spanish-speaking population, whereas the lack of similar facilities among predominantly black immigrant neighborhoods inhibited participation in HMOs by elderly immigrants from Haiti and the Caribbean Basin.

Dolinsky and Caputo (1990) investigated the influence of demographic characteristics as antecedents to satisfaction with health care attributes and found that satisfaction with several attributes varied along a few demographic dimensions. They suggested these as

possible lines for segmenting the health care market. Using two national cross-sectional samples, one of HMO members (n=879) and the other of non-HMO users (n=801), they performed a comparative analysis of demographic determinants of health care satisfaction. The demographic variables they identified for market segmentation were age, marital status and race, with younger, white, married-couple households better targets for HMOs.

The contradictions in these studies resulted from the emphasis in finding common denominators for characteristics of consumers who choose prepaid plans instead of fee-for-service plans, rather than looking at differences in characteristics of the plans such as those proposed in this study. Common denominators for consumer demographics could change by geographic location (Lairson & Herd, 1987) and plan selection criteria that are not revealed by the common denominators.

Summary

This chapter introduced perception of choice as an independent variable to be studied as an influencing factor for reenrollment intent, with attitude serving as a mediating factor. Attitude was identified through the components of the tripartite model -- affect, behavior and cognition.

The framework for this study was presented to show the relationship between the choice, attitude components, and reenrollment intent variables.

Literature that reported previous work done of the study of selection between prepaid and fee-for-service health care delivery plans was reviewed, vis-a-vis reenrollment intent. No discernible factors were found to consistently differentiate fee-for-service enrollees from prepaid plan enrollees, although cost and patient-physician relationships were important considerations.

III. Methods

Overview

A cross-sectional design was used for this study, projecting forward to the next reenrollment decision. Information was collected through self-administered questionnaires mailed to the homes of potential participants. The information was collected solely for the purposes of this research. The survey instrument was developed to gather information to assess respondents' perceptions of choice; attitudes toward the health care plan in which they were enrolled, with portions to address each aspect of the tripartite model of attitude (affect, behavior and cognition); their intent regarding future reenrollment decisions; and general demographic measures.

The sections of this chapter describe the population from which a sample was drawn, a comparison of the health plans from which employees selected their coverage, the measurement instruments that were used in this study, and the procedures that were followed in gathering the data. The procedures section includes an explanation of how the sample size was determined, human subjects review, and a presentation of the hypotheses.

Sample Population

The sample population consisted of 4,639 fulltime, non-union employees of Johns Hopkins Hospital, a large medical facility in the City of Baltimore. This employee population makes a reenrollment decision annually, selecting from health care plans that include a traditional fee-for-service arrangement and alternative plans that include a health maintenance organization, with a variety of cost-sharing dis/incentives associated with each.

The majority of the employees had selected the fee-for-service plan for their health care coverage (62.7%, n=2,910), compared with those who opted for membership in a prepaid arrangement (37.8%, n=1,729). Of these total enrollees, 48.1% had signed up for single coverage and 51.9% had included one or more family members in the health care arrangement.

Employees who waived their option to select from the offering of health care plans were excluded from the sample, based on an assumption that the workers were covered under plans provided by their spouses or another arrangement more desirable than any of the selections offered.

Nationally, as of 31 March 1995, there were 591 HMOs enrolling approximately 19.5% of the population (approximately one-fourth of persons with private health

insurance), according to the Group Health Association of America (1995). In the Baltimore Metropolitan Statistical Area (MSA), 44.1% of the people with commercial health insurance (34.7% of the total population) were enrolled in a HMO (National Research Corporation, 1994).

Subjects

For this study, the demographic breakdown for gender identified 81.8% of the respondents as female and 17.1% as male. The sample showed a highly educated population, with 59.8% of the respondents having completed a four-year college degree or higher; only 13.4% of the respondents reported a high school diploma as their highest year of schooling completed, with the remaining 26.8% of respondents reporting some college experience. A breakout of the demographic variables is presented in Table 2.

The sample also presented a well-paid population, with only 10.7% of the respondents reporting a family income of less than $30,000; whereas 16.6% of the respondents reported a family income of greater than $90,000. The majority of respondents (52.4%) were in the $30,000 to $60,000 family income range. The age range of the respondents was 23 to 67, with a mean age of 38.4 (SD=10.33). The typical number of people enrolled in the

plan was one (43.3%), with another 25.1% of respondents listing their plan membership at two.

Table 2
Frequencies of Demographic measures (n=187)

		frequency	percent
gender			
	male	32	17.1
	female	153	81.8
	not reported	2	1.1
education			
	high school graduate	25	13.4
	some college	50	26.8
	college graduate	75	40.1
	postgraduate	37	19.7
income			
	under $15,000	1	.5
	$15,000-$29,999	19	10.2
	$30,000-$44,999	54	28.9
	$45,000-$59,999	44	23.5
	$60,000-$74,999	19	10.2
	$75,000-$89,999	14	7.5
	over $90,000	31	16.6
	not reported	5	2.7
age			
	20-29	46	24.7
	30-39	58	31.1
	40-49	50	26.7
	50-59	25	13.3
	60-69	4	2.1
	not reported	4	2.1
family members in plan			
	one	81	43.3
	two	47	25.1
	three	26	13.9
	four	23	12.3
	five and above	10	5.4

Comparison of Health Care Plans

All fulltime (30 hours a week or more) employees of Johns Hopkins Hospital is given $520 in benefit credits ($10 a week) that can be used to help pay for the cost of their health plan option. Unused credits can go into a

tax-free health or dependent-care spending account, or may be taken as taxable income. Coverage for all eligible employees and dependents begins after 60 days of employment.

Employees can select their health care benefit from among three options. These include a traditional indemnity (fee-for-service) plan or one of two HMO (health maintenance organization) arrangements.

The indemnity plan requires a pre-admission certification to confirm the need for and length of a non-emergency hospital stay. If the admission is not pre-certified, the benefits for the hospital stay are reduced by $300. Emergency hospital admissions under the indemnity plan require the employee to call the Health Care Management office within 48 hours of the admission. This indemnity plan also maintains major case management to assess treatment needs in the case of a major illness or injury and to coordinate different services involved in treatment programs such as hospice, home health care, skilled nursing, and infusion therapy. Mental health and substance abuse treatments also are reviewed to assess needs and coordinate services.

The indemnity plan limits coverage for pre-existing conditions that were being treated 90 days prior to the date of coverage or most recent re-employment date. Benefits are limited to the first $5,000 of such

expenses, medical and short-term disability combined. The pre-existing condition limitation does not apply to people covered after six consecutive months; all covered charges incurred thereafter are considered eligible.

The Johns Hopkins HMO plan combines features of both HMO and traditional indemnity plans in that both types of coverage are available through this plan option; when beneficiaries need medical care, they can decide at that time what type of coverage they want. However, the self-referred coverage portion of this plan carries with it a higher cost-share than the traditional indemnity option. The HMO coverage portion of the plan requires beneficiaries to receive care from the HMO's doctors and affiliated hospitals. Employees also have the option of choosing enrollment in the Columbia FreeState Health Plan, which is a pure HMO arrangement.

Appointments for access to medical providers under the traditional indemnity plan are made directly with the office of the care provider; appointments for HMO enrollees are coordinated through a central appointment office. A comparison of the health plan options is shown in Table 3; the HMO characteristics apply to both options available.

Table 3
Comparison of Health Plan options

		Johns Hopkins Plan	
	indemnity plan	*HMO*	*self-referral*
deductible:	individual, $200 family, $400	none	individual, $300 family, $600
maximum annual out-of-pocket costs:	individual, $1,200 family, $2,400	none	individual, $3,300 family, $6,900
maximum lifetime:	$1 million	none	none
doctor's services:	80% after deductible	100% coverage	80% after deductible
inpatient hospital charges:	100% coverage at JHHS facilities; otherwise, 80%	100% coverage	80% coverage after deductible
outpatient surgery:	80% after deductible	100% coverage	80% after deductible
preventive care: annual mammogram,	100%; no deductible; Gyne exam; well child care based on age; routine physical.	100% coverage at 80%; otherwise	annual Gyne exam use HMO
diagnostic tests:	80% after deductible	100% coverage	80% after deductible
			same for HMO and self-referral
emergency care:	80% after deductible		$10 co-pay, unless admitted
mental health:	inpatient; 80% for 30 days outpatient; 50% for 65 visits a year maximum $100,000 lifetime		inpatient; 100% for 60 days outpatient; 1-5 visits, $15@ 6-30 visits, $25@ 31+ visits, $40@
prescriptions:	$7 co-pay; no maximum; generics mandatory		$3 co-pay at participating pharmacies
vision care:	1 visit every 24 months; $10 deductible		$30 for exam; $45 for materials every 24 months
weekly costs:	individual $ 9.91 parent & child $19.82 husband & wife $24.68 family $26.66		individual $ 9.15 parent & child $17.82 husband & wife $21.72 family $24.17

Measurements

This section provides a detailed explanation of the survey instrument that was used in this study. The survey instrument, which appears in Appendix A, was divided into four parts with three parts containing statements used in developing measurement scales and the last part asking questions used to obtain demographic assessments of the respondents and plan membership use.

Perception of Choice

The main purpose of this study was to examine how individuals' perceptions of choice influenced their attitudes toward the health care delivery plans in which they were enrolled. Towards this end, a series of statements was developed to address this issue of choice. Participants were asked to respond to each statement with a Likert scale measure ranging from strongly agree to strongly disagree. In the first draft of the survey instrument, nine statements were posed; two of these were eliminated prior to preparing a draft of the survey instrument for a pre-test due to vague wording that could have produced misinterpretations from respondents. The seven statements that were retained were grounded in the theories on the perception of choice (Steiner, 1979; Brigham, 1979). These statements appeared as numbers 51 to 57 in the survey instrument, as shown in Table 4.

Table 4
Perception of Choice statements

1=strongly agree	2=agree	3=not sure	4=disagree	5=strongly disagree

51. When I selected my health care plan, I felt I had many options to choose from.
52. I selected the health care plan that was best for my situation.
53. I enrolled in the only health care plan I could afford.
54. I would have preferred a different type of plan than the one in which I am enrolled.
55. The plans that were offered to me were very different from each other.
56. I considered a number of different aspects of each plan in making my enrollment decision.
57. Each of the plans offered to me provided mostly the same health care benefits.

The first statement, *"When I selected my health care plan, I felt I had many options to choose from,"* was designed to elicit a general perception from the respondent that indeed they did have more than one health care plan from which to choose. This is basic to the issue of choice.

The next statement, *"I selected the health care plan that was best for my situation,"* again is designed to gain a general perception from the respondents as to the positive rating they would assign to their opportunity to choose a plan that fits their particular needs. The statement leaves open for individual definition what is best and allows for individuals to tap their own internalized criteria to determine what is their situation vis-a-vis their needs from a health care plan.

The statement *"I enrolled in the only health care plan I could afford"* is presented in a negative direction. A respondent who strongly agrees with this statement really had no choice in the selection of a

health care plan in accordance with the previously detailed description of what constitutes a choice. The statement specifically addresses the financial concerns that consumers have in selecting a health care plan which, according to the literature, is a major determinant in the selection of a health plan option.

"I would have preferred a different type of plan than the one in which I am enrolled," also is presented in a negative direction. Again this is a general perception of choice. If respondents would have preferred a different type of plan, their choice would have been limited, although they might have selected the best plan for their situation. This hints at the "Hobson's choice" dilemma.

In order for a choice to be present, the participant must have had an opportunity to select from among a group of plans that were comparable. The statement, *"The plans that were offered to me were very different from each other,"* is negatively worded in that a respondent who strongly agrees with the statement would not have had a perception that the plans were comparable.

The statement *"I considered a number of different aspects of each plan in making my enrollment decision"* ties the response in with an autonomous choice definition; that is, the alternatives are complex and differ on several dimensions.

The final statement, *"Each of the plans offered to me provided mostly the same health care benefits,"* again is designed to determine if there was a real choice according to the definition presented herein in that the plans were evaluated with a comparison level.

The responses to the statements and questions were factor-analyzed and then combined into a summary scale to measure whether or not individuals perceived that they had a choice in selecting their health care delivery plan.

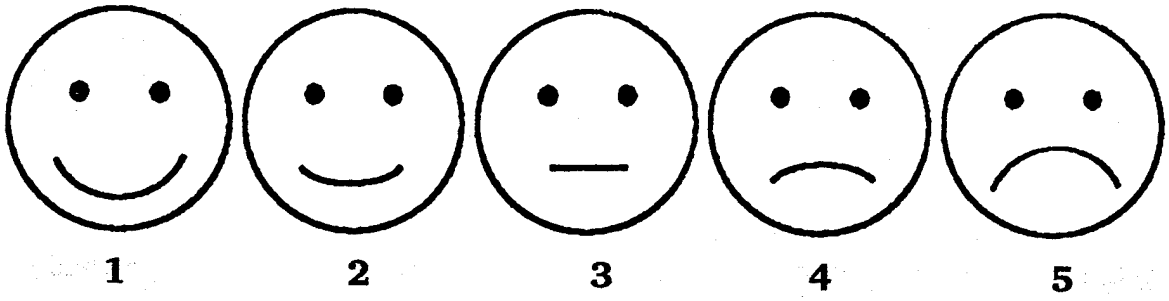
Tripartite model of Attitude

The components of the attitude tripartite model were determined through questions that assessed feelings (affect), intention to use health care services (behavior), and knowledge and beliefs of their plan (cognition).

Affect aspects of attitude again were measured on a 5-point Likert scale, but for these statements the Likert scale was presented as a range of "smile" faces ranging from very happy to very unhappy. Although a number of pictorial presentations for a range of feelings were considered for use in the survey instrument, the smile faces were selected for use in this study because of their generic nature. Respondents could attach to them an internalized definition of the appearance of the face (e.g., happy, satisfied, pleasant) and did not have to

consider any demographic influences that a human face might imply such as gender, race, or age. The statements are presented in these categories in Table 5, numbered as the statements appeared in the survey instrument.

Table 5
Affect statements



services

1. *The helpfulness and general attitude of your doctors.*
2. *How you are treated by the administrative staff.*
5. *The quality of doctors.*
9. *The amount of time the doctor spends with you.*
10. *The amount of information your doctor gives you.*
16. *Your selection of doctors.*
17. *All things considered, that your medical problems are taken care of in the best way possible.*

convenience/access

3. *The amount of time you have to wait in a doctor's office.*
4. *Your ability to see a doctor whenever you need.*
6. *The number of days you have to wait for an appointment.*
7. *The availability of all the medical care you need.*
8. *The location of your medical group.*

benefits

11. *The amount of benefits you receive.*
12. *The amount of information you receive on how to use your plan.*
13. *Your ability to see a specialist by referral only.*
14. *Your ability to get emergency care services.*
15. *The payment of your health care claims or bills.*
18. *The amount of out-of-pocket money you must pay to use your plan.*

Note: Respondents were instructed to tell how they felt about the aspects of care and services provided by the health care plan in which they were currently enrolled by writing in a space provided, the number of the face that most closely represented their feelings.

The 18 statements for this section were taken largely from a membership satisfaction survey used for two different health plan groups on the West Coast (Owen, 1985). The statements were designed to fit into three subscales to measure how respondents felt about the services provided by the plan in which they were enrolled, the convenience/access to those services, and their general feeling about the benefits the plan provided.

Behavior was measured by asking respondents to state their intent on whether or not they would use the health care plan in which they were enrolled to obtain care for themselves or a family member when considering each condition presented in a list of health problems. A 5-point Likert scale range was used to make the results compatible with those gained from the other scales used in this study. The design of this behavior intent section was patterned after a similar approach used by Curbow (1986) in her study of an Aid to Families with Dependent Children (AFDC) population.

The health problems that respondents were asked to consider were designed to support four subscales -- curative care requiring urgent (immediate) attention, curative care requiring routine care, preventive or wellness care, and mental health care. Table 6 shows the Likert-point scale and 22 conditions that were used to

respond to the statement "How likely would you be to use your health care plan if you..."

Table 6
Behavior statements

1=very likely 2=somewhat likely 3=not sure 4=somewhat unlikely 5=very unlikely
How likely would you be to use your health care plan if you...
urgent curative care
1. had a high fever.
3. had an asthma attack.
11. had a possible broken arm.
16. had a pain in the chest.
21. had sharp abdominal pains.
routine curative care
2. had a cold that would not go away.
4. had a rash.
6. had a sore back.
8. had recurrent headaches.
13. were feeling lightheaded.
18. had a sore that would not go away.
wellness/preventive care
5. wanted to stop smoking.
7. wanted a pap test.
10. wanted a test for HIV.
12. wanted a chest x-ray.
15. needed a vaccination.
19. wanted to lose weight.
22. wanted a general physical exam.
mental health care
9. had a loss of appetite.
14. were feeling depressed.
17. were not sleeping well.
20. were feeling tired and irritable.

In her study, Curbow asked participants what they would do for 15 different health care problems. The choices were: go to Family Health Services, go to the emergency room, pay to go to a private doctor, or not go to the doctor. For her analysis, Curbow created four scales through the use of factor analysis: an overall scale, alpha=.80; emergency problems, alpha=.59; public

health problems, alpha=.60; and general health problem, alpha=.74. Through this scale design, Curbow was able to conclude that intended use of the plan was more likely when choice was present.

Cognition was measured using the 50-item PSQ-III (Patient Satisfaction Questionnaire) developed for the Medical Outcomes Study (Marshall, Hays, Sherbourne & Wells, 1993). The PSQ-III is the third-generation of a widely used instrument designed to measure satisfaction with medical care. This is a refinement of a questionnaire that was developed by Ware and colleagues (Ware, Snyder, & Wright, 1976a, 1976b) for use in general population studies in the evaluation of health care delivery programs. The 50-item PSQ-III provided seven subscales that measure, in addition to general satisfaction, time spent with doctor, quality, interpersonal aspects, communication, financial aspects, and access to care. The designers of this satisfaction survey developed both positively-worded and negatively-worded statements in order to control for acquiescent responding.

The 50 items from the PSQ-III were the first 50 statements contained in the Health Plan Selection Study survey instrument. The Likert scale range of 1=strongly agree, 2=agree, 3=not sure, 4=disagree, and 5=strongly disagree was identical to the response options provided

in the PSQ-III. The wording of each statement and order in which they were presented was in the exact manner in which they were used in the Medical Outcomes Study. These 50 items were presented before any other statements in order to control for any influences the other statements might have and to insure that the results could be compared with those from other uses of the PSQ-III.

The 50 PSQ-III statements are shown in Table 7, divided into the seven subscales, with the numbers again corresponding to the way the statements were presented in the survey instrument. Numbers presented in boldface type identify negatively worded statements.

Table 7
Cognitive statements

1=strongly agree	2=agree	3=not sure	4=disagree	5=strongly disagree

general satisfaction

3. I am very satisfied with the medical care I receive.
11. The medical care I have been receiving is just about perfect.
***21.** There are things about the medical system I receive my care from that need to be improved.*
***32.** There are some things about the medical care I receive that could be better.*
41. All things considered, the medical care I receive is excellent.
***48.** I am dissatisfied with some things about the medical care I receive.*

time spent with doctor

***34.** Those who provide my medical care sometimes hurry too much when they treat me.*
45. Doctors usually spend plenty of time with me.

Table 7, continued
Cognitive statements

---

technical competence

2. *Doctors need to be more thorough in treating and examining me.*
8. I think my doctor's office has everything needed to provide complete care.
12. *Sometimes doctors make me wonder if their diagnosis is correct.*
15. When I go for medical care, they are careful to check everything when treating and examining me.
23. The medical staff that treats me knows about the latest medical developments.
30. Doctors never expose me to unnecessary risk.
35. *Some of the doctors I have seen lack experience with my medical problems.*
40. *Doctors rarely give me advice about ways to avoid illness and stay healthy.*
44. *I have some doubts about the ability of the doctors who treat me.*
49. My doctors are very competent and well-trained.

interpersonal

9. *The doctors who treat me should give me more respect.*
17. The doctors who treat me have a genuine interest in me as a person.
26. *Sometimes doctors make me feel foolish.*
29. *Doctors act too businesslike and impersonal toward me.*
33. My doctors treat me in a very friendly and courteous manner.
38. *When I am receiving medical care, they should pay more attention to my privacy.*
46. Doctors always do their best to keep me from worrying.

communication

6. Doctors are good about explaining the reason for medical tests.
13. During my medical visits, I am always allowed to say everything that I think is important.
18. *Sometimes doctors use medical terms without explaining what they mean.*
37. *Doctors sometimes ignore what I tell them.*
42. Doctors listen carefully to what I have to say.

financial

4. *I worry sometimes about having to pay large medical bills.*
10. *Sometimes it is a problem to cover my share of the cost for a medical care visit.*
14. I feel confident that I can get the medical care I need without being set back financially.
24. *I have to pay for more of my medical care than I can afford.*
27. Regardless of the health problems I have now or develop later, I feel protected from financial hardship.
31. The amount I have to pay to cover or insure my medical care needs is reasonable.
43. I feel insured and protected financially against all possible medical problems.

Table 7, continued
Cognitive statements

---

access

1. If I need hospital care, I can get admitted without any trouble.
5. It is easy for me to get medical care in an emergency.
***7.** I am usually kept waiting a long time when I am at the doctor's office.*
***16.** It's hard for me to get medical care on short notice.*
20. The office hours when I can get medical care are convenient (good) for me.
***22.** The office where I get medical care should be open for more hours than it is.*
25. I have easy access to the medical specialists I need.
***28.** Where I get medical care, people have to wait too long for emergency treatment.*
36. Places where I can get medical care are very conveniently located.
39. If I have a medical question, I can reach a doctor for help without any problem.
***47.** I find it hard to get an appointment for medical care right away.*
50. I am able to get medical care whenever I need it.

The 50-item PSQ-III was used in the Medical Outcomes Study (Wilkin, Hallem, & Duggett, 1992). Study participants averaged 55.83 years of age (SD=16.21), 40% were male, and 57% were married. Eighty percent were white, 14% were black, 3% were Hispanic, 1% were Asian or Pacific Islander, and 2% were from other ethnic groups.

By means of various goodness-of-fit indexes, including the normed fit index (NFI; Bentler & Bonett, 1980) and the comparative fit index (CFI; Bentler, 1988), an estimated matrix was evaluated against the observed sample covariance matrix to determine whether the hypothesized model represented the data. In general, normed and comparative fix indexes exceeding .90 indicate an acceptable model fit. For the Medical Outcomes Study, the PSQ-III data fit well with a chi-square of 519.17, $p<.001$, NFI=.979, and CFI=.983. Internal consistency

reliability estimates for the subscales were: general satisfaction, .88; time, .87; technical competence, .85; interpersonal, .82; communication, .82; financial, .89; and access, .86.

Reenrollment intent

A series of questions was presented, with each question addressing basically the same theme -- intent to reenroll. These questions approached the issue from directly asking respondents' intents regarding reenrollment to asking whether they would encourage a friend to enroll in the plan. Although the issue of reenrollment intent could have been gained through responses to a single question, there was a concern that the absence of an answer to this single question could present a problem in analyzing the results because intent to reenroll was the primary outcome variable. Therefore, additional questions were prepared that could be combined into a summary scale and used to validate the direct inquiry or serve as a replacement in the absence of a response to that question. These renrollment questions are presented in Table 8.

Table 8
Reenrollment intent questions

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16. The next time you are asked which health care plan you want to be enrolled in, will you:
1. continue enrollment in the plan you now have.
2. select another plan option similar to the plan you now have.
3. select another plan that is different from the plan you now have.
4. are not sure.

17. How often do you discuss you health care plan with your friends?
1. often
2. occasionally
3. seldom
4. never

18. When you discuss your health care plan with your friends, are you:
1. very positive
2. somewhat positive
3. somewhat negative
4. very negative

19. How likely would you be to encourage a friend to join the health care plan in which you now are enrolled?
1. very likely
2. somewhat likely
3. not sure
4. somewhat unlikely
5. very unlikely

20. How likely is it that you will change health care plans in the future?
1. very likely
2. somewhat likely
3. not sure
4. somewhat unlikely
5. very unlikely

21. How likely is it that you will change health care plans during the next reenrollment period?
1. very likely
2. somewhat likely
3. not sure
4. somewhat unlikely
5. very unlikely

23. How likely is it that you will always enroll in the health care plan in which you currently are enrolled, if this plan always remains an option?
1. very likely
2. somewhat likely
3. not sure
4. somewhat unlikely
5. very unlikely

Background Variables

Demographic variables also were gathered. These included time enrolled in the plan, family membership in the plan, age, gender, income, and education. Questions also asked about actual use of the plan, both for urgent and routine care; definitions of urgent care and routine care were provided.

Procedure

Pre-Test

Although time and money were not available to conduct a statistically valid and reliable pre-test of the survey instrument, a dozen copies of the survey were distributed in order to gain comments on the presentation of the instrument. The pre-test was conducted with a convenience sample of students at The Johns Hopkins University, School of Hygiene and Public Health, and with a sample of employees at a residential mental health program in Prince George's County, Maryland.

As a result of this pre-test, a number of changes were made from the first draft of the survey instrument to the final product. The initial draft consisted of six typed sheets; the final draft was printed in a 12-page booklet format that provided an opportunity to present the questions in larger type with more spacing to separate the questions. Each of the statements in the

final version was numbered, as were the response options to each question. The booklet format also provided an opportunity to offer respondents an open-ended question at the end of the survey and space to write in additional comments; this was a recommendation from several of the pre-test respondents.

The pre-test proved that the time to complete the survey instrument was appropriate. The survey was designed with the goal that respondents could complete the instrument in approximately 15 minutes. Pre-test respondents reported that they completed the survey instrument in 13 to 19 minutes.

A number of wording changes were recommended by the pre-test respondents. However, most of these were wording changes to statements in the first 50 items, which were statements from the PSQ-III. Because it was necessary to present these statements with the wording exactly as presented in the Medical Outcomes Study, no changes were made in this section. However, other areas in which the wording was vague or misinterpretation was possible were revised to present the questions and statements more succinctly.

Human Subjects Review

The final draft of the survey instrument and research protocol were submitted to the Joint Committee on Clinical Investigation (JCCI), School of Medicine, The

Johns Hopkins University, in the last week of January, 1995. This is the human subjects review board tasked with approving any research or survey studies that involve personnel of Johns Hopkins Hospital. The board has reciprocity with the human subjects review board from the School of Hygiene and Public Health.

The JCCI responded with a 16 February 1995 letter requesting that a change be considered in the protocol. The JCCI recommended that a refusal postcard be included in the letter of introduction; if subjects returned the postcard, the survey instrument would not be sent to them. This recommendation was adopted. The JCCI determined that the project qualified for expedited review and approval was granted on 27 February 1995.

The study proposal, protocol, and human subjects review approval were forwarded to the Air Force Institute of Technology, Air University, Department of the Air Force, for concurrence. Because the researcher was sponsored by the Air Force in this academic pursuit, concurrence from the Air Force was required prior to initiating data collection. The concurrence was gained on 14 April 1995.

There were no direct risks or benefits to the participants, although, conceivably, there could be an indirect influence on the participant if, by extension of

thinking stimulated by the questionnaire, a respondent had a strong positive or negative reaction to the plan in which they are enrolled.

Sample Size

A sample size of 176 was deemed desirable; therefore, 250 surveys were mailed with a goal that a 70% return would satisfy the sample size desired. Because multiple regression was one of the main types of statistical analyses, the sample size was determined by using a formula and tables provided by Cohen (1988) for multiple regression and correlation analysis. The Cohen tables (pages 448-455) provided numbers for the noncentrality parameters of the noncentral F distribution; by dividing this number by the effect size, an estimate of the sample size was determined.

Taking conservative steps in determining the sample size, I prepared the information in Table 9 based on a significance level of .01. In selecting my target for a sample size, I used a relatively small effect size of .10 with a power of .90, which would require a sample size of 176.

Table 9
Determination of Sample Size

effect size--> -------- power	.02	.05	.10	.15	.20	.25	.30	.35
.80	690	276	138	92	69	55	46	39
.85	770	308	154	103	77	62	51	44
.90	880	352	**176**	117	88	70	59	50
.95	1055	422	211	141	106	84	70	60
.99	1425	570	285	190	143	114	95	81

In a study such as this in which complex, multivariate relationships were of major interest, it was difficult to accurately quantify the statistical power of the analyses. Because multiple factors interact to influence outcome, multivariable modeling was critical to the analysis. In general, 15-20 observations are required for each variable incorporated in a regression model. Ample use of exploratory data analysis and data reduction techniques reduced the number of variables into summary scales to be incorporated in the model. With five summary scales as variables (choice, affect, behavior, cognition, reenrollment); demographic variables of gender, age, family income, and education level; and plan membership, a sample size ranging from 150 to 200 was needed.

Primary Study

Arrangements were made to obtain a random sample of the employee population of Johns Hopkins Hospital. The Health Benefits Manager for the hospital randomly selected a single digit number from 0 to 9; she randomly selected 7. The plan administrator obtained the name, address, and health plan membership for all Johns Hopkins Hospital employees whose social security number ended in 7; this produced 453 names. I randomly selected names from the mailing list provided by the health benefits administrator so that this administrator was blinded to the names of employees who were recruited to participate in the survey.

From this initial sample, 250 names were randomly selected for potential participation in the Health Plan Selection Study. Advance letters, with a refusal postcard enclosed, were mailed to these 250 people on 7 April 1995. Each letter was personally addressed to the individual selected for potential participation in the study and each letter was individually signed, in blue ink, with signatures from both the principal investigator and project director. Copies of the advance letter, cover letter, and follow-up reminder letters are provided in Appendix B. Refusal postcards were returned from seven people; however, two of these postcards did not have the respondent's name or address. Four advance

letters were returned as undeliverable to the address provided.

On 17 April 1995, 241 packages containing a cover letter, survey instruments, and a pre-addressed stamped envelope were mailed to potential participants. Again, each letter was personalized. Within two weeks, more than 28% of the potential respondents had returned a completed survey instrument. A follow-up reminder letter was mailed on 3 May 1995; 47% of the potential respondents had replied by month's end. A second package was mailed on 25 May 1995 to 125 people, again including a personalized cover letter, survey instrument, and pre-addressed stamped return envelope.

At this stage a decision was made to select an additional 50 names from the mailing list to solicit for involvement in the Health Plan Selection Study. This decision was coordinated with, and approved by, the Health Benefits Manager of Johns Hopkins Hospital. The target number to obtain statistical power of .90 was 176 responses. With completed survey instruments continuing to come in, it was forecasted that approximately 60% of the potential respondents would participate; by raising the number of employees who were solicited to 300, it was predicted that approximately 180 responses would be obtained.

The actual number of names selected for this second mailing was 54, with four names added for replacement of the mailings that were returned from the post office as undeliverable. The advance letters were mailed on 2 June 1995 to this second listing; refusal postcards were returned by two people. The survey package was mailed to 52 people on 12 June 1995, with a follow-up letter on 27 June 1995 and a second survey package to 30 people on 10 July 1995.

Data collection was closed on 28 July 1995. During this process, three people notified me that they no longer worked for Johns Hopkins Hospital. Thus, the final tally presented responses from 191 people out of 297 potential respondents for a response rate of 64.3%. The mailing responses are displayed in Table 10.

Table 10
Response from mailings

	1st group	2nd group	Totals
Advance letters mailed	250	54	304
Postcards returned declining participation	5	2	7
Not eligible/undeliverable address	4	0	4
Survey packets mailed	241	52	293
Not eligible/ no longer an employee of JHH	1	2	3
Eligible respondents	245	52	297
Returned Surveys	158	33	191

All letters to the potential respondents, as well as the survey instrument, included an explanation that participation was voluntary and there would be no penalty if they chose not to participate. In fact, the employer who provided names and addresses of potential participants had no knowledge of who had been sent a questionnaire or who had responded. The employer received only a summary total from the final data collection. Consent was implied in that the survey instruments were voluntarily returned.

In instructions on the cover page of the survey instrument, respondents specifically were asked not to write their name on the survey instrument nor on the return envelope. The return envelope was pre-addressed and stamped and included the Health Plan Selection Study address as both the return and recipient designee. In order to track the results, however, a sequential number was written in ink at the bottom of the reverse side on the return envelope.

As an incentive to induce potential participants to complete and return the survey instrument, each survey packet included a "Johns Hopkins" pencil. The pencils, in either a white/blue or blue/gold color scheme, had the Johns Hopkins emblem imprinted and represented both the university and medical system. Incentive pencils were not included with the follow-up letters and surveys.

As completed survey instruments arrived in the mail, they were removed from the envelope and the number on the back of the return envelope was identified from the mailing list; the survey instrument then was marked with a number identifying it as being returned either from an enrollee in a fee-for-service plan or from a health-maintenance-organization plan. The survey instruments then were separated from the return envelopes so that they no longer could be matched, with the bundle of survey instruments maintained in a separate filing cabinet drawer from the return envelopes. All materials, as well as the diskettes that contained the data collection, were maintained in secured locations within the personal library of the project director.

Hypotheses

The measures were designed to address a series of hypotheses that were related to the specific aims of this research. The hypotheses and explanation of how they were analyzed are listed as follows under a restatement of the specific aims.

Specific Aim 1: To determine whether consumers believed they had a choice in the selection of their health care delivery plan.

Hypothesis: There would be a normal distribution of scores on a Likert scale measure of perceived choice for

those currently enrolled in both prepaid and fee-for-service plans.

Analysis: An assessment of the Likert scale responses to questions on perceived choice provided descriptive statistics.

Specific Aim 2: To examine whether consumers had positive attitudes toward their health care plan if they perceived they had a choice in selecting that plan.

Hypothesis: Consumers who perceived that they had a choice in the selection of their health care plan would have positive scores on measures of their affect, behavior and cognitive components of attitude.

Analysis: Consumers who perceived they had a choice in the selection of their plan, in comparison to those consumers who reported that they did not have a choice, were compared on measures of satisfaction (affect), on intent to use services (behavior), and on beliefs and knowledge of the system in which they were enrolled (cognition). Pearson correlations were used to assess measures on continuous scales of perceived choice with each of the attitude components, as well as to study the relationship of each of the components with regard to the others.

Specific Aim 3: To explore what plan characteristics influenced consumers in their selection of a health care delivery plan.

Hypothesis: There would be a difference in plan characteristics that distinguish consumer groups enrolled in prepaid versus those enrolled in fee-for-service plans.

Analysis: T-tests were used to compare the differences in mean values of the summary scales and subscales for both the choice variables and summary scale and the health care plan selected for enrollment.

Specific Aim 4: To determine whether consumers' perceptions of choice were associated with their behavioral intentions in the use of their health care system.

Hypothesis: Consumers who perceived that they had a choice in the selection of their health care plan would be more likely to state their intention to use services provided by that plan than consumers who perceived that they had not had a choice.

Analysis: The continuous measure of perceived choice was used in multiple regression equations to determine if there was a relationship between choice and intention to use services provided by the health care plans.

Specific Aim 5: To examine whether consumers' perceptions of choice were associated with the likelihood of their changing health care plans at time of reenrollment.

Hypothesis: Consumers who perceived they had a choice in the selection of their health care plan would be more likely to state their intention to reenroll in their plan than consumers who perceived that they did not have a choice.

Analysis: Multiple regression was used to determine if there was a relationship between perceived choice and intent to continue enrollment in a health care plan.

Specific Aim 6: To examine whether consumers' attitudes were associated with the likelihood of their changing health care plans at time of reenrollment.

Hypothesis: Consumers who had a positive attitude toward their health care plan would be more likely to state their intention to reenroll in the plan.

Analysis: Multiple regression was used to determine whether there was a relationship between attitudes and intent to continue enrollment in a health care plan, as well as each of the summary scales for the three components of attitude and subscales. Correlations were examined.

Specific Aim 7: To examine the relationship of attitude as a mediator for choice in influencing reenrollment intent.

Hypothesis: Attitude mediated the influence of choice on consumers' intent to reenroll in their health care plan.

Analysis: The mediation effect was tested through a series of regression equations.

Summary

The sample population was described in this chapter, as were the subjects who responded to the survey. A comparison of the health care plans from which subjects selected their coverage also was provided.

The instruments that were used to measure choice; the affect, behavior, and cognitive components of attitude; and reenrollment intent; were detailed. The procedures that were followed in gathering data were explained, including the determination of the sample size, a human subjects review, and presentation of the hypotheses and analyses planned for this study.

IV. Results, Part One: Preliminary Analysis

Overview

As the completed survey instruments arrived in the return mail, data were entered onto a personal computer using the QED (quick edit) format of the SPSS (Statistical Package for the Social Sciences) program, which was used for this data analysis. In this chapter, I detail the results of this data collection, beginning with an explanation of how the sample was determined, a description of the respondents and their plan use, initial bivariate and multivariate analyses, factor analysis, and concluding with a discussion of reliability and validity.

Sample Determination

A total of 191 survey instruments were returned as of 28 July 1995; a response rate of 64.3%. However, two completed surveys were returned from the same respondent and one of these was randomly removed from the sample. Another survey instrument was returned in a mutilated condition and was not useable.

A printout was made of data from the remaining 189 cases. A review of this printout identified four cases that had noticeable gaps in the data. In one of these cases, all of the missing data were from the behavior section, and in another case all of the missing data were

from the affect section; both of these cases were retained for analysis.

There were two other cases, however, where the missing data created gaps that were more noticeable and problematic. In both of these cases, the missing data included the statements dealing with choice in addition to large portions of the affect, behavior, and cognition sections. Basically, the only portion of the survey instrument that was completed for these two cases was the last section that provided the demographic and reenrollment intent. Both of these cases were removed from the analysis. This provided a data collection of 187 cases upon which to develop an analysis.

Frequencies

An inspection of histograms for each of the choice and attitude statements identified frequencies that generally were normally distributed. If a skew was present, it tended to be in the positive direction. The statements that were exceptions to this trend are identified in boldface type in Tables 11 and 12, which follow. Note that statements were identified as having a positive direction if the skew was negative for a negatively-worded statement.

In section one of the survey instrument, which included both the PSQ-III and choice statements, there

were four PSQ-III statements that had three missing cases; the remaining 46 statements had fewer or no missing cases (Table 11). Six PSQ-III statements were skewed in a negative direction, with three of these statements addressing general satisfaction and the other three statements targeting financial issues.

Table 11
Frequency of responses to PSQ-III (cognition) statements

1=strongly agree(SA) 2=agree(A) 3=not sure(NS) 4=disagree(D) 5=strongly disagree(SD)

statement	SA	A	NS	D	SD	n/a	mean	StD	skew
1. admitted with no trouble	52	67	54	10	4	0	2.182	.972	.550
2. need to be more thorough	17	48	21	80	20	1	3.204	1.204	-.344
3. very satisfied with care	42	99	19	21	5	1	2.183	.997	.983
4. worry about large bills	**47**	**65**	**10**	**42**	**23**	**0**	**2.620**	**1.391**	**.414**
5. easy to get emergency care	44	60	54	20	8	1	2.398	1.092	.466
6. doctors explain tests	32	107	22	19	6	1	2.247	.966	1.040
7. long wait in doctor's office	18	36	16	101	15	1	3.317	1.163	-.705
8. complete care at dr office	27	90	31	30	8	1	2.473	1.061	.661
9. more respect from doctors	11	29	17	76	53	1	3.704	1.205	-.780
10. problem cover cost share	25	50	10	66	36	0	3.203	1.376	-.234
11. care is perfect	17	80	37	42	10	1	2.720	1.079	.395
12. wonder if diagnosis correct	13	37	26	92	18	1	3.349	1.116	-.607
13. say everything important	48	115	5	10	8	1	2.005	.944	1.624
14. no financial setback	17	69	44	41	16	0	2.840	1.129	.298
15. exam checks everything	20	98	31	33	4	1	2.478	.977	.642
16. short notice care	20	36	23	90	18	0	3.267	1.193	-.570
17. genuine interest from drs	26	93	44	14	9	1	2.392	.982	.876
18. medical term use	6	37	11	106	26	1	3.586	1.058	-.796
19. go without care due to cost	11	35	12	75	54	0	3.674	1.238	-.715
20. convenient hours	14	101	16	47	9	0	2.658	1.083	.588
21. things need improved	**36**	**88**	**30**	**24**	**8**	**1**	**2.355**	**1.067**	**.763**
22. need more office hours	23	65	36	59	3	1	2.753	1.082	-.011
23. knows latest developments	26	88	63	6	3	1	2.312	.812	.473
24. pay more than can afford	20	32	25	89	21	0	3.316	1.197	-.612
25. easy access to specialists	27	84	39	28	9	0	2.508	1.064	.601
26. drs make me feel foolish	5	35	7	106	33	1	3.683	1.056	-.867
27. protected finance hardship	**8**	**40**	**55**	**54**	**30**	**0**	**3.310**	**1.107**	**-.111**
28. wait too long for ER care	11	35	76	51	13	1	3.108	.986	-.150
29. doctors too businesslike	5	23	19	115	24	1	3.699	.939	-1.066
30. no unnecessary risk	18	84	62	19	1	3	2.462	.829	.297
31. reasonable cost	23	89	27	38	9	1	2.575	1.094	.557
32. things could be better	**34**	**96**	**21**	**28**	**7**	**1**	**2.344**	**1.060**	**.815**

Table 11, continued
Frequency responses to PSQ-III (cognition) statements

1=strongly agree(SA) 2=agree(A) 3=not sure(NS) 4=disagree(D) 5=strongly disagree(SD)

statement	SA	A	NS	D	SD	n/a	mean	StD	skew
33. courteous treatment	49	111	14	8	2	3	1.929	.783	1.231
34. providers hurry too much	13	57	9	92	14	2	3.200	1.165	-.376
35. doctors lack experience	5	28	27	97	28	2	3.622	1.004	-.746
36. places convenient located	27	115	11	29	4	1	2.290	.971	1.001
37. doctors ignore what I say	7	24	27	105	22	2	3.600	.985	-.921
38. more attention to privacy	11	41	20	92	20	3	3.375	1.124	-.571
39. reach doctor, no problem	18	72	39	46	11	1	2.785	1.104	.265
40. advice on avoiding illness	6	40	19	103	17	2	3.459	1.032	-.685
41. care is excellent	25	100	24	31	5	2	2.411	1.008	.747
42. doctors listen carefully	19	112	36	14	4	2	2.308	.839	1.042
43. insure finance all problems	**5**	**39**	**64**	**52**	**27**	**0**	**3.305**	**1.041**	**-.003**
44. some doubt in drs ability	5	24	23	108	26	1	3.677	.960	-.941
45. drs spend plenty of time	11	97	20	47	11	1	2.731	1.087	.553
46. drs keep me from worrying	14	89	44	34	3	3	2.582	.931	.477
47. hard to get appointment	18	58	17	79	14	1	3.070	1.195	-.213
48. dissatisfy some things	**16**	**76**	**19**	**61**	**13**	**2**	**2.886**	**1.167**	**.161**
49. doctors competent	34	110	32	8	1	2	2.092	.757	.757
50. get care when need it	23	82	36	37	8	1	2.597	1.072	.463

boldface type denotes statement was skewed in a negative direction

There were no missing cases in any of the choice statements (Table 12). Two choice statements were skewed in a negative direction, and both of these were comparative statements that asked respondents how strongly they agreed that the plans offered for their selection were very different from each other or that the plans had the same benefits.

Table 12
Frequency of responses to Perception of Choice statements

1=strongly agree(SA) 2=agree(A) 3=not sure(NS) 4=disagree(D) 5=strongly disagree(SD)

statement	SA	A	NS	D	SD	n/a	mean	SD	skew
51. many options choose from	22	91	18	44	12	0	2.642	1.152	.522
52. best plan for situation	39	134	9	3	2	0	1.904	.640	1.453
53. only plan could afford	6	44	15	101	21	0	3.465	1.069	-.616
54. preferred different plan	16	32	35	80	24	0	3.342	1.160	-.531
55. plans very different	**9**	**101**	**40**	**31**	**6**	**0**	**2.594**	**.931**	**.775**
56. consider different aspects	23	132	13	17	2	0	2.160	.794	1.335
57. plans have same benefits	**2**	**45**	**42**	**85**	**13**	**0**	**3.332**	**.954**	**-.296**

boldface type denotes statement was skewed in a negative direction

The behavior section, section two, listed a health problem, *wanted to stop smoking,* that had 18 missing cases; many of these surveys had a notation that neither the respondent nor any family members smoked and thus this health problem did not apply. Similarly, the health problem, *wanted a pap test,* was not completed by nine respondents. The frequency of responses to the behavior statements are shown in Table 13.

Many of the behavior statements were skewed heavily in the positive direction. There were no negatively-worded behavior statements. Four of the behaviors were skewed in a negative direction. Two of these -- *wanted to stop smoking* and *wanted to lose weight* -- were associated with preventive care, while the other two -- *were not sleeping well* and *were feeling tired and irritable* -- addressed mental health care.

Table 13
Frequency of responses to Behavior statements

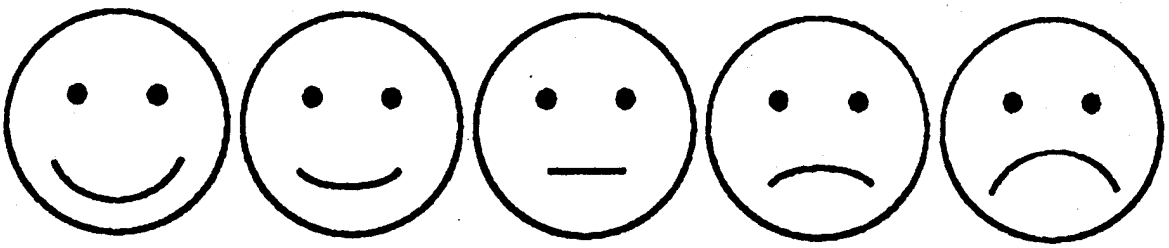
1=very likely(VL) 2=somewhat likely(SL) 3=not sure(NS)
4=somewhat unlikely(SU) 5=very unlikely(VU)

statement	VL	SL	NS	SU	VU	n/a	mean	SD	skew
1. had a high fever	97	46	11	23	9	1	1.930	1.230	1.173
2. cold wouldn't go away	77	79	9	10	11	1	1.919	1.100	1.492
3. had an asthma attack	147	20	12	3	1	4	1.311	.716	2.550
4. had a rash	57	50	24	45	10	1	2.468	1.295	.359
5. want to stop smoking	29	21	39	30	50	18	3.302	1.447	-.290
6. had a sore back	53	54	21	40	18	1	2.548	1.356	.403
7. wanted a pap test	153	16	2	1	6	9	1.264	.812	3.713
8. recurrent headache	104	51	11	13	7	1	1.753	1.087	1.553
9. had loss of appetite	44	45	34	41	22	1	2.742	1.351	.187
10. wanted a test for HIV	118	23	11	13	21	1	1.903	1.411	1.306
11. possible broken arm	172	8	1	3	2	1	1.145	.602	4.885
12. wanted a chest x-ray	138	35	7	2	3	2	1.362	.754	2.743
13. feeling lightheaded	61	45	27	42	11	1	2.446	1.311	.380
14. were feeling depressed	38	46	29	46	27	1	2.882	1.374	.076
15. needed a vaccination	138	34	7	4	2	2	1.368	.755	2.562
16. had a pain in the chest	133	38	8	4	3	1	1.419	.810	2.426
17. were not sleeping well	25	29	44	55	33	1	3.226	1.287	-.307
18. sore wouldn't go away	110	60	8	5	3	1	1.554	.832	1.965
19. wanted to lose weight	21	22	31	55	56	2	3.557	1.334	-.615
20. feeling tired & irritable	22	24	35	51	54	1	3.489	1.345	-.516
21. sharp abdominal pains	128	43	8	4	3	1	1.446	.812	2.319
22. wanted physical exam	140	28	9	3	6	1	1.425	.911	2.570

The affect section, section three, had a statement, *your ability to see a specialist by referral only,* that was not answered by seven respondents and the statement, *your ability to get emergency care services,* had four missing responses. The other statements in these sections, presented in Table 14, had two or fewer missing responses. None of the affect statements were negatively worded and only one, *ability to see a specialist by referral only,* was skewed in a negative direction.

Table 14
Frequency of responses to Affect statements

1=very happy(VH) 2=happy(H) 3=not sure(NS) 4=unhappy(U) 5=very unhappy(VU)



statement	VH	H	NS	U	VU	n/a	mean	SD	skew
1. general attitude of doctors	76	73	24	8	3	3	1.853	.920	1.147
2. treatment by admin staff	43	84	35	16	7	2	2.243	1.027	.830
3. time wait in doctor's office	21	67	55	28	14	2	2.714	1.093	.413
4. see doctor whenever need	31	71	39	30	14	2	2.595	1.167	.484
5. quality of doctors	78	76	21	7	3	2	1.816	.896	1.242
6. days wait for appointment	17	62	49	28	29	2	2.946	1.219	.323
7. availability of all care need	40	83	44	13	5	2	2.243	.961	.719
8. location of medical group	52	87	33	9	4	2	2.059	.922	.933
9. time drs spend with you	40	86	41	12	6	2	2.232	.970	.820
10. information drs give you	48	89	33	78	8	2	2.124	.984	1.097
11. amount benefits received	33	78	52	12	10	2	2.395	1.027	.728
12. information on plan use	25	53	59	31	17	2	2.795	1.152	.237
13. ability to see specialist	9	37	58	42	34	7	3.306	1.144	-.056
14. ability to get ER care	41	68	49	18	7	4	2.355	1.053	.559
15. payment of bills and claims	34	55	39	34	23	2	2.768	1.292	.274
16. selection of doctors	69	62	32	12	10	2	2.092	1.136	.987
17. problems cared best way	40	98	31	11	5	2	2.151	.920	1.006
18. out-of-pocket expenses	28	55	38	38	26	2	2.886	1.291	.183

The questions in section four that dealt with reenrollment intent, for the most part had zero missing responses (Table 15). The noticeable exception to this response trend was the question that asked *"How often do you discuss your health care plan with your friends?"* which was not answered by 16 respondents.

Table 15
Frequency of responses to Reenrollment questions

question	frequency	percent	mean	StD	skew
16. next time asked which plan will enroll in:			2.199	1.414	.420
continue enroll, plan now have	103	55.1			
select another similar plan	10	5.3			
select another different plan	6	3.2			
not sure	67	35.8			
17. how often discuss plan with friends?			2.435	.818	.060
often	22	11.8			
occasionally	78	41.7			
seldom	69	36.9			
never	17	9.1			
18. when you discuss plan with friends, are you:			2.029	.664	.212
very positive	33	17.6			
somewhat positive	102	54.5			
somewhat negative	34	18.2			
very negative	2	1.1			
19. likely to encourage friend to join your health plan			2.392	1.004	.510
very likely	36	19.3			
somewhat likely	69	36.9			
not sure	60	32.1			
somewhat unlikely	14	7.5			
very unlikely	7	3.7			
20. how likely change health care plans in future			3.183	1.134	-.051
very likely	14	7.5			
somewhat likely	35	18.7			
not sure	68	36.4			
somewhat unlikely	41	21.9			
very unlikely	28	15.0			
21. likely change plans during next reenrollment period			3.631	1.154	-.473
very likely	10	5.3			
somewhat likely	18	9.6			
not sure	57	30.5			
somewhat unlikely	48	25.7			
very unlikely	54	28.9			
22. based on what expected when joined plan			2.000	.430	.000
better than you expected	17	9.1			
about what you expected	151	80.7			
worse than you expected	17	9.1			
23. how likely always enroll in current plan, if available			2.225	1.023	.542
very likely	54	28.9			
somewhat likely	58	31.0			
not sure	60	32.1			
somewhat unlikely	9	4.8			
very unlikely	6	3.2			

Throughout the questions that asked the respondents' intent regarding reenrollment in the health care plan in which they currently are enrolled, approximately one-third of the responses were *"not sure."* This helps explain the negative direction of the skew in two of the questions: *How likely is it that you will change health care plans in the future?* and *How likely is it that you will change health care plans during the next reenrollment period?* The other questions all were skewed in a positive direction.

Representative Sample

The sample obtained was representative of the employee population of Johns Hopkins Hospital. The majority of the 4,639 fulltime, non-union employees of the hospital had selected a fee-for-service plan for their health care coverage (62.7%, n=2,910), compared with those who opted for membership in a prepaid arrangement (37.3%, n=1,729). The random sample obtained for this study was comprised of 63.6% FFS members (n=119) and 32.6% HMO enrollees (n=68). These numbers are compared in Table 16.

From the total employee population, 48.1% had opted for single coverage and 51.9% had included a family member (spouse or child) in the health care arrangement.

The random sample included 43.3% single members and 56.7% with family members.

The hospital employees who had selected the FFS plan included 49.8% of the population (n=1,448) who had individual coverage and 50.2% (n=1,462) who had coverage for a spouse or child in addition to themselves. The percentage of the hospital population that had subscribed to the prepaid arrangements included 45.4% (n=785) for individuals and 54.6% (n=944) for family plans. The random sample presented 47.1% (n=56) enrollees with single coverage and 52.9% (n=63) with family coverage in the fee-for-service plan. The HMO enrollees included 36.8% (n=25) with coverage for individuals and 63.2% (n=43) with a family plan.

Table 16
Plan Membership

	Total	Individual	%	Family	%
Sample Population:					
fee-for-service	2,910	1,448	64.8	1,462	60.8
Johns Hopkins HMO	1,630	729	32.6	901	37.4
Columbia FreeState	99	56	2.5	43	1.8
Random Sample:					
fee-for-service	119	56	69.1	63	59.4
Johns Hopkins HMO	61	22	27.2	39	36.8
Columbia FreeState	7	3	3.7	4	3.8

Plan Membership and Use

The majority of respondents, 55.6%, reported that they had been enrolled in their current health care plan for four years or more. Four out of five (79.3%) of the

respondents reported having had a routine health care visit within the past year, with 43% having had a routine visit within the last three months. Over half (56.3%) of the respondents had an urgent medical visit in the last year, with 32.8% of these urgent visits having occurred within the last three months. These and other results are reported in Table 17.

In addition, 30.1% of the respondents reported that there was a time in the last 12 months in which a family member needed to make a health care visit but did not do so. Explanations written in response to an open-ended question for reasons why respondents did not seek care included lack of a convenient appointment time (n=22), cost (n=17), and self treatment or delayed seeking care until the problem went away (n=9).

It was noteworthy that 27.3% of the respondents reported that in the last 12 months they or a family member paid for care that was not provided by the plan in which they were enrolled. There was a widely varied listing of types of care that respondents paid for outside of their plan. The most often cited reason provided by respondents was for obstetrics and/or gynecological care in which the respondent had a provider preference (n=9).

Table 17
Frequencies for Plan Membership and Use

	frequency	percent	FFS	HMO
time enrolled in plan				
0-5 months	10	5.3	6	4
6-11 months	12	6.4	7	5
1 year	11	5.9	9	2
2 years	31	16.6	16	15
3 years	19	10.2	7	12
4 years or more	104	55.6	74	30
last routine visit				
0-3 months ago	82	43.9	54	28
4-6 months ago	43	23.0	25	18
7-12 months ago	24	12.8	13	11
1-2 years ago	15	8.0	9	6
more than 2 years ago	6	3.2	4	2
have not had routine visit	17	9.1	14	3
need for urgent visit				
0-3 months ago	61	32.6	36	25
4-6 months ago	24	12.8	20	4
7-12 months ago	20	10.7	11	9
1-2 years ago	24	12.8	15	9
more than 2 years ago	13	7.0	10	3
never had urgent visit	45	24.1	27	18
hospitalized in past year				
yes	38	20.3	26	12
no	148	79.1	92	56
not reported	1	.5		
needed a medical visit, but did not go				
yes	56	29.9	38	18
no	125	66.8	77	48
don't know	6	3.2	4	2
paid for care outside of plan				
yes	51	27.3	32	19
no	128	68.4	81	47
don't know	8	4.3	6	2
know if drugs part of plan				
yes	180	96.3	114	66
no	5	2.7	3	2
don't know	2	1.1	2	0
know if eyeglasses part of plan				
yes	119	63.6	84	35
no	31	16.6	13	18
don't know	37	19.8	22	15

The questions that asked whether or not prescription drugs and eyeglass prescriptions were provided as part of the benefit package were included in order to validate the respondents' knowledge of the health care plans in which they were enrolled. Both plans provide these benefits. The majority of respondents knew this, with 96.2% reporting they had a prescription drug benefit and 63.9% reporting they had an eyeglass prescription benefit; 20.2% of the respondents were not sure if their plan covered eyeglass prescriptions.

Differences by Type of Plan

Statistical tests were calculated for each variable to determine whether the variables were independent of the health care plan in which the respondents were enrolled. In the tables that follow, the variables are grouped according to demographics and plan membership and use, and the scales the variables were intended to support (choice, affect, behavior, cognition, and reenrollment).

T-tests and chi-square tests were used to test the null hypothesis that the scores on each of the variables were the same for enrollees in both fee-for-service and prepaid plans. If the significance level was less than .05, the null hypothesis was rejected, suggesting that it would be unlikely that the two sample means were equal.

Levene's test was used to test the hypothesis that the two variances were equal; if the significance level for the Levene test was greater than .05, the null hypothesis that the variances were equal was not rejected and pooled-variance t-test statistics were reported in the Tables that follow. If the hypothesis that the variances were equal was rejected, the statistics in the following Tables report the separate (unequal) variance t-test for means. Using separate variance t-tests when the sample means were equal would result in an observed significance level somewhat larger than it should be.

Descriptive Measures. A demographic comparison of respondents who selected traditional FFS health care plans versus the HMO option showed that a larger percentage of the males selected the HMO option (26.5% to 11.8%), while females tended to select the FFS plan (87.4% to 72.1%). The HMO category is a combination of both health maintenance organization plans offered to Johns Hopkins Hospital employees. These comparisons are presented in Table 18. The distribution in the number of respondents was similar to the total for most categories of measures for educational level, income, and age.

The FFS plan had a higher percentage of respondents who had completed a postgraduate education (25.2%) than HMO enrollees (10.3). The FFS plan also attracted a higher percentage of enrollees with incomes over $90,000

than the HMO plan (19.3% to 11.8%). The majority of enrollees in the HMO (64.8%) was in the youngest age groupings, under age 40. The majority of enrollees in the FFS plan (60.6%) were in the 30-49 age range.

Table 18
Comparison of Frequencies for Demographics by Health Plan

	Total	%	FFS	%	HMO	%
gender						
male	32	17.1	14	11.8	18	26.5
female	153	81.8	104	87.4	49	72.1
not reported	2		1		1	
education						
high school graduate	25	13.4	15	12.6	10	14.7
some college	50	26.7	28	23.5	22	32.4
college graduate	75	40.1	46	38.7	29	42.6
postgraduate	37	19.8	30	25.2	7	10.3
income						
under $15,000	1	.5	0	.0	1	1.5
$15,000-$29,999	19	10.2	12	10.1	7	10.3
$30,000-$44,999	54	28.9	33	27.7	21	30.9
$45,000-$59,999	44	23.5	27	22.7	17	25.0
$60,000-$74,999	19	10.2	11	9.2	8	11.8
$75,000-$89,999	14	7.5	10	8.4	4	5.9
over $90,000	31	16.6	23	19.3	8	11.8
not reported	5	2.7	3	2.5	2	2.9
age						
20-29	46	24.6	24	20.2	22	32.4
30-39	58	31.0	36	30.3	22	32.4
40-49	50	26.7	36	30.3	14	20.6
50-59	25	13.4	18	15.1	7	10.3
60-69	4	2.1	2	1.7	2	2.9
not reported	4	2.1	3	2.5	1	1.5

Three of the variables that described the demographic makeup of the membership in the health plans being compared proved to have significant differences -- gender (p=.047), age (p=.036), and length of time enrolled in the plan (p=.019). That is, enrollees in the HMO group more often were male. The HMO group members were younger than the FFS enrollees and the HMO

subscribers had more family members enrolled than FFS plan members.

There were no differences in plan use. There was a difference by plan membership in respondents who knew their plan provided coverage for eyeglass prescriptions (p=.024), with FFS members more often knowing this information. The demographic, plan membership and use variables are compared in Table 19.

There was no significant difference between the plan options selected and educational levels (p=.126). Likewise, a breakdown of the numbers in the family income levels was fairly constant in both health care plan groupings (p=.177).

Table 19
Differences in Descriptive Measures by Type of Plan

	t-value	sig		mean	SD	n
age	2.11	.036	FFS	39.612	10.085	116
			HMO	36.299	10.485	67
education	1.54	.126	FFS	15.353	1.665	119
			HMO	14.971	1.583	68
income	1.36	.177	FFS	4.371	1.676	116
			HMO	4.030	1.539	66

	Pearson chi-square	df	sig
gender	6.104	1	.047
time enrolled in plan	13.477	5	.019
family members in plan	11.291	6	.080
drugs covered by plan	1.151	2	.562
eyeglasses covered	7.429	2	.024
hospitalized in past year	.724	1	.395
had routine visit	4.315	5	.505
had urgent visit	6.053	5	.301
needed visit, but not go	.777	2	.678

When the family membership in the health care plans was listed as two or greater, the plan coverage most

often was for the employee and his or her children; a spouse was not listed. Marital status was not asked as one of the questions. Although the percentage of respondents who were members of the HMO option increased, in comparison to FFS membership, as the number of plan members increased, this variable was not rejected on the significance measure of independence (p=.080).

The use of the plans for routine medical visits and urgent medical visits, proportionally, were equally represented within the selection of health care plans in which respondents were enrolled. Neither was type of plan in which the respondent was enrolled a factor in any instance of no use or outside purchase of services.

Choice. The null hypothesis could not be rejected for six out of the seven choice statements in testing for a difference in the sample means for respondents of the two health plans being compared. These statistics are reported in Table 20. It is interesting to note that the choice statement that did show a significant difference between the sample means was the statement in which respondents said they would have preferred a different type of plan than the one in which they were enrolled. This was a negatively worded statement; thus, the interpretation of this result is that enrollees in the HMO plans were more likely than the FFS members to have

preferred membership in a different type of plan than the one in which they were enrolled.

Table 20
Differences in Choice statements by Type of Plan

	t-value	sig		mean	SD	n
51. many options choose from	-1.37	.172	FFS	2.555	1.118	119
			HMO	2.794	1.204	68
52. best plan for situation	- .13	.897	FFS	1.899	.656	119
			HMO	1.912	.617	68
53. only plan could afford	1.23	.220	FFS	3.538	1.040	119
			HMO	3.338	1.114	68
54. preferred different plan	2.84	.005	FFS	3.521	1.111	119
			HMO	3.029	1.184	68
55. plans very different	-1.41	.159	FFS	2.521	.928	119
			HMO	2.701	.928	68
56. consider different aspects	- .97	.331	FFS	2.118	.772	119
			HMO	2.235	.831	68
57. plans have same benefits	.09	.931	FFS	3.336	.950	119
			HMO	3.324	.969	68

note: lower scores indicate stronger agreement with statements

Affect. There were significant differences in the responses to the affect statements from members of the health care plans being compared. While only 11 of the 18 statements showed statistical differences in comparing the sample means ($p<.05$), most of these statements were from the "services" scale (five out of seven) or the "benefits" scale (four out of six). In the statements proposed for the "convenience" scale of the affect component, only two of the five variables had t-test statistics that were significant at the .05 level. These results are shown in Tables 21, 22, and 23.

Each of the five statements that showed a significant difference in the general feeling about the

services being provided showed a positive direction favoring the FFS arrangement (see Table 21). That is, FFS respondents were more positive about the general attitude of their doctors, the quality of their doctors, the amount of time their doctors spent with them, the selection of their doctors, and that their problems were cared for in the best way possible.

There was no difference between plans in the treatment the respondents received from the administrative staff, nor in the amount of information they received from the physicians who cared for them.

Table 21
Differences in Affect: Services scale statements by Type of Plan

	t-value	sig		mean	SD	n
1. general attitude of doctors	-2.16	.032	FFS	1.744	.811	117
			HMO	2.045	1.065	67
2. treatment by admin staff	.08	.936	FFS	2.248	.973	117
			HMO	2.235	1.121	68
5. quality of doctors	-2.50	.013	FFS	1.692	.835	117
			HMO	2.029	.962	68
9. time doctors spend with you	-1.98	.050	FFS	2.120	.882	117
			HMO	2.437	1.083	68
10. information drs give you	-1.58	.116	FFS	2.034	.928	117
			HMO	2.279	1.063	68
16. selection of doctors	-5.03	.000	FFS	1.778	.984	117
			HMO	2.632	1.183	68
17. problems cared best way	-2.38	.019	FFS	2.026	.856	117
			HMO	2.368	.991	68

note: lower scores indicate stronger feelings with the affect statement

The two statements revealing a positive direction on convenience also showed FFS members as having more positive feelings (see Table 22). These two statements asked respondents how they felt about their ability to

see a doctor whenever they needed to, and the availability of all the medical care they need.

There was no difference in feelings by plan group membership in the time respondents had to wait in their doctors' office, in the number of days they had to wait for an appointment, nor in the location of the medical group.

Table 22
Differences in Affect: Convenience scale statements by Type of Plan

	t-value	sig		mean	SD	n
3. time wait in doctor's office	- .07	.947	FFS	2.709	1.051	117
			HMO	2.721	1.170	68
4. see doctor whenever need	-2.19	.030	FFS	2.453	1.102	117
			HMO	2.838	1.241	68
6. days wait for appointment	- .83	.405	FFS	2.889	1.173	117
			HMO	3.044	1.298	68
7. availability of all care need	-4.08	.000	FFS	2.026	.876	117
			HMO	2.618	.993	68
8. location of medical group	.67	.505	FFS	2.094	.965	117
			HMO	2.000	.846	68

note: lower scores indicate stronger feelings with the affect statement

The four statements with a significant difference on feelings toward benefits provided were split, with two statements each favoring a positive direction for the FFS and HMO plans (see Table 23).

The two statements in which FFS respondents were more positive, both pertained to the ability to obtain physician services. These were the respondents' opportunity to see a specialist by referral only, and the ability to get emergency care services.

The two statements showing a more positive response from HMO enrollees both referenced financial arrangements. These statements asked respondents how they felt about the payment of health care claims or bills, and the amount of out-of-pocket money they had to pay to use their plan.

There was no difference between the plans in how respondents generally felt about the amount of benefits they received, nor on the amount of information they received on the use of their health plan.

Table 23
Differences in Affect: Benefits scale statements by Type of Plan

	t-value	sig		mean	SD	n
11. amount benefits received	.27	.786	FFS	2.410	.984	117
			HMO	2.368	1.105	68
12. information on plan use	.14	.892	FFS	2.803	1.116	117
			HMO	2.779	1.220	68
13. ability to see specialist	-2.63	.009	FFS	3.134	1.166	112
			HMO	3.588	1.054	68
14. ability to get ER care	-3.55	.000	FFS	2.154	.970	117
			HMO	2.712	1.106	66
15. payment of bills and claims	3.04	.003	FFS	2.983	1.280	117
			HMO	2.397	1.236	68
18. out-of-pocket expenses	4.10	.000	FFS	3.171	1.213	117
			HMO	2.397	1.283	68

note: lower scores indicate stronger feelings with the affect statement

Therefore, overall, respondents who were enrolled in the FFS arrangement generally had more positive feelings about their health care plan than did HMO members. The only deviation from this pattern was in regard to financial matters in which HMO enrollees had more positive feelings. FFS members had more positive

feelings on statements that discussed selection of physicians and services provided by their doctors.

Behavior. Only four of the 22 statements regarding behavioral intent were significant on the t-tests; these are presented in Tables 24, 25, 26, and 27. Two of the behavior statements were from the "urgent care" scale group, and two statements were from the "preventive care" scale. None of the t-tests for equality of means could be rejected for any of the statements in the "routine care" and "mental health care" groups.

Two of the five statements in the "urgent care" category were significantly different (see Table 24). FFS members had a more positive behavioral intent than HMO enrollees in seeking care if they or a family member had a broken arm or had sharp abdominal pains.

Table 24
Differences in Behavior: Urgent Care scale statements by Type of Plan

	t-value	sig		mean	SD	n
1. had a high fever	.90	.371	FFS	1.992	1.278	118
			HMO	1.824	1.145	68
3. had an asthma attack	- .52	.601	FFS	1.291	.708	117
			HMO	1.349	.734	66
11. had possible broken arm	-2.44	.017	FFS	1.042	.202	118
			HMO	1.324	.937	68
16. had a pain in the chest	-1.61	.112	FFS	1.339	.657	118
			HMO	1.559	1.013	68
21. had sharp abdominal pains	-2.15	.034	FFS	1.339	.657	118
			HMO	1.632	1.006	68

note: lower scores indicate stronger agreement with statement

There was no difference by plan membership in intent to seek care for a high fever, if a family member had an

asthma attack, nor if a plan member had a pain in the chest.

There were no significant differences between the FFS and HMO plans in intent to seek care for health care problem that were routine (see Table 25). There were six statements that had asked behavioral intent regarding routine care.

These statements asked respondents how likely they would be to seek care if they had a cold that would not go away, had a rash, had a sore back, had recurrent headaches, were feeling lightheaded, or had a sore that would not go away.

Table 25
Differences in Behavior: Routine Care scale statements by Type of Plan

	t-value	sig		mean	SD	n
2. cold would not go away	- .07	.947	FFS	1.915	1.009	118
			HMO	1.927	1.250	68
4. had a rash	- .02	.983	FFS	2.466	1.231	118
			HMO	2.471	1.409	68
6. had a sore back	-1.15	.250	FFS	2.458	1.272	118
			HMO	2.706	1.487	68
8. had recurrent headaches	- .25	.800	FFS	1.737	1.074	118
			HMO	1.779	1.118	68
13. were feeling lightheaded	- .18	.854	FFS	2.432	1.237	118
			HMO	2.471	1.440	68
18. sore would not go away	.12	.905	FFS	1.559	.790	118
			HMO	1.544	.905	68

note: lower scores indicate stronger agreement with statement

There was a significant difference by plan membership in two of the seven statements that addressed behavioral intent for preventive care problems (see

Table 26). In both instances, FFS respondents would be more likely to seek preventive care if they or a family member wanted a pap test or wanted to lose weight.

There was no difference between plans for respondents who wanted to stop smoking, wanted a test for HIV, wanted a chest x-ray, needed a vaccination, or wanted a general physical exam.

Table 26
Differences in Behavior: Preventive Care scale statements by Type of Plan

	t-value	sig		mean	SD	n
5. wanted to stop smoking	-1.70	.090	FFS	3.164	1.456	110
			HMO	3.559	1.405	59
7. wanted a pap test	-2.51	.014	FFS	1.133	.590	113
			HMO	1.492	1.062	65
10. wanted a test for HIV	.58	.560	FFS	1.949	1.455	118
			HMO	1.824	1.338	68
12. wanted a chest x-ray	- .76	.450	FFS	1.331	.641	118
			HMO	1.418	.924	67
15. needed a vaccination	.60	.547	FFS	1.393	.742	117
			HMO	1.324	.781	68
19. wanted to lose weight	-2.28	.024	FFS	3.390	1.371	118
			HMO	3.851	1.222	67
22. wanted physical exam	-1.36	.178	FFS	1.348	.721	118
			HMO	1.559	1.164	68

note: lower scores indicate stronger agreement with statement

None of the four statements that pertained to mental health care had a difference that was significant for health plan comparison (see Table 27). The statements asked respondents how likely they would be to seek care if they had a loss of appetite, were feeling depressed, were not sleeping well, or were feeling tired and irritable.

Table 27
Differences in Behavior: Mental Health Care scale statements by Type of Plan

	t-value	sig		mean	SD	n
9. had loss of appetite	- .40	.690	FFS	2.712	1.308	118
			HMO	2.794	1.431	68
14. were feeling depressed	.11	.916	FFS	2.890	1.370	118
			HMO	2.868	1.392	68
17. were not sleeping well	.63	.528	FFS	3.271	1.238	118
			HMO	3.147	1.374	68
20. feeling tired and irritable	- .76	.447	FFS	3.432	1.317	118
			HMO	3.588	1.395	68

note: lower scores indicate stronger agreement with statement

Overall, there were four of 22 statements that were significantly different in a comparison by plan membership. Each of the four statements with a significant difference had a more positive behavioral intent from members of the FFS arrangement; that is, FFS respondents would be more likely to seek care.

Cognition. The overall results of t-tests on the cognition statements, which were taken from the Patient Satisfaction Questionnaire III (PSQ-III), showed that the null hypothesis for equality of sample means could be rejected for 19 out of the 50 statements.

These t-test statistics are reported in Tables 28 to 34. Statements that were negatively worded are identified with boldface type; data for these statements were reverse-coded prior to conducting t-tests. Note that lower scores denoted higher satisfaction, as the

Likert scale range was 1=strongly agree to 5=strongly disagree.

Four of the six general satisfaction statements had significance values that indicated a difference in the sample means, with the two other statements in this category having a significance value under .08 (see Table 28). The four significant statements each favored a positive direction for FFS respondents. FFS members were more positive in responding to statements *I am very satisfied with the medical care I receive; the medical care I have been receiving is just about perfect; and all things considered, the medical care I receive is excellent.*

FFS enrollees were more positive in their responses to the negatively-worded statement *There are some things about the medical care I receive that could be better.* This statement was reverse-coded prior to the t-test. Two other negatively-worded statements that also were reverse-coded -- *There are things about the medical system I receive my care from that need to be improved, and I am dissatisfied with some things about the medical care I receive* -- were significant at a p value less than .08. For both of these statements, there was a tendency for FFS respondents to respond more positively.

Table 28
Differences in Cognition: General Satisfaction scale statements by Type of Plan

	t-value	sig		mean	SD	n
3. very satisfied with care	-3.03	.003	FFS	2.009	.882	118
			HMO	2.485	1.113	68
11. care is perfect	-2.14	.034	FFS	2.593	1.088	118
			HMO	2.941	1.035	68
21. things need improved	1.74	.083	FFS	2.458	1.099	118
			HMO	2.177	.992	68
32. things could be better	2.30	.023	FFS	2.471	1.111	119
			HMO	2.119	.930	67
41. care is excellent	-3.11	.002	FFS	2.239	.988	117
			HMO	2.706	.978	68
48. dissatisfy some things	1.77	.079	FFS	3.000	1.125	118
			HMO	2.687	1.221	67

boldface identifies reverse-coded statements; lower scores indicate higher satisfaction

Three of the 10 statements under the "quality" heading revealed differences in plan comparisons (see Table 29). FFS members were more positive in responding to the statement *my doctors are very competent and well-trained.* Likewise, FFS respondents were more positive in responding to the negatively-worded statements, *some of the doctors I have seen lack experience with my medical problems, and I have some doubts about the ability of the doctors who treat me.*

Two other quality statements were significant at p=.066. FFS members again were more positive in responding to the statements *I think my doctor's office has everything needed to provide complete care, and the medical staff that treats me knows about the latest medical developments.*

There was no difference in plan comparisons regarding statements that asked if doctors need to be more thorough, if respondents wonder if the diagnosis is correct, if everything is checked during an examination, that no unnecessary risks are taken, or in getting advice on avoiding illnesses.

Table 29
Differences in Cognition: Quality scale statements by Type of Plan

	t-value	sig		mean	SD	n
2. need to be more thorough	1.64	.103	FFS	3.314	1.210	118
			HMO	3.015	1.178	68
8. complete care at dr office	-1.85	.066	FFS	2.364	1.083	118
			HMO	2.662	1.002	68
12. wonder diagnosis correct	.38	.707	FFS	3.373	1.146	118
			HMO	3.309	1.069	68
15. exam checks everything	-1.64	.103	FFS	2.390	.952	118
			HMO	2.632	1.006	68
23. knows latest developments	-1.85	.066	FFS	2.229	.841	118
			HMO	2.456	.742	68
30. no unnecessary risk	- .11	.914	FFS	2.457	.888	116
			HMO	2.471	.722	68
35. doctors lack experience	2.74	.007	FFS	3.771	.973	118
			HMO	3.358	1.011	67
40. advice on avoiding illness	- .33	.743	FFS	3.441	1.075	118
			HMO	3.493	.959	67
44. some doubt in drs ability	2.09	.038	FFS	3.788	.941	118
			HMO	3.485	.970	68
49. doctors competent	-3.89	.000	FFS	1.932	.713	118
			HMO	2.373	.756	67

boldface identifies reverse-coded statements; lower scores indicate higher satisfaction

Neither of the two statements under the "time" grouping were different (see Table 30). The statements asked if providers hurry too much in providing care and if doctors spend plenty of time with their patients.

Table 30
Differences in Cognition: Time scale statements by Type of Plan

	t-value	sig		mean	SD	n
34. providers hurry too much	1.37	.173	FFS	3.288	1.163	118
			HMO	3.045	1.160	67
45. drs spend plenty of time	-1.30	.194	FFS	2.653	1.105	118
			HMO	2.868	1.050	68

boldface identifies reverse-coded statements; lower scores indicate higher satisfaction

Two of the seven statements that determined interpersonal relations were significantly different at $p<.05$ (see Table 31). FFS respondents were more positive in their beliefs that their doctors were genuinely interested in them as a person, and that their doctors treated them in a friendly and courteous manner. A statement that *doctors always do their best to keep me from worrying* was significant at $p=.06$, with FFS respondents more positive in this belief.

There was no difference by plan membership in responses to four negatively-worded statements regarding interpersonal relations. These negative statements asked if doctors should treat them with more respect, if doctors made them feel foolish, if doctors were too businesslike and impersonal, and if enough attention was paid to their privacy.

Table 31
Differences in Cognition: Interpersonal Relations scale statements by Type of Plan

	t-value	sig		mean	SD	n
9. more respect from doctors	- .27	.781	FFS	3.686	1.152	118
			HMO	3.735	1.300	68
17. genuine interest from drs	-2.76	.007	FFS	2.237	.893	118
			HMO	2.662	1.074	68
26. drs make me feel foolish	.78	.435	FFS	3.729	1.035	118
			HMO	3.603	1.095	68
29. doctors too businesslike	1.22	.223	FFS	3.763	.912	118
			HMO	3.588	.981	68
33. courteous treatment	-2.94	.004	FFS	1.803	.660	117
			HMO	2.149	.925	67
38. more attention to privacy	-1.11	.269	FFS	3.308	1.170	117
			HMO	3.493	1.035	67
46. drs keep me from worrying	-1.89	.060	FFS	2.483	.928	116
			HMO	2.750	.920	68

boldface identifies reverse-coded statements; lower scores indicate higher satisfaction

Only one of the five statements in the communication category could be rejected at $p<.05$ (see Table 32). FFS members were more positive in assessing the statement that doctors listen more carefully to what they have to say.

Two other communication statements were significant at $p<.08$. FFS members again were more positive in their responses to the statement that doctors are good about explaining the reason for medical tests. Likewise, FFS members were more positive than HMO enrollees in responding to a negatively-worded statement that doctors sometimes ignore what they tell them.

There was no difference in responses to statements regarding the use of medical terms and that respondents

can say everything they think is important during their medical visits.

Table 32
Differences in Cognition: Communication scale statements by Type of Plan

	t-value	sig		mean	SD	n
6. doctors explain tests	-1.77	.078	FFS	2.153	.966	118
			HMO	2.412	.950	68
13. say everything important	-1.40	.165	FFS	1.932	.922	118
			HMO	2.132	.976	68
18. medical term use	-1.51	.134	FFS	3.500	1.092	118
			HMO	3.735	.987	68
37. doctors ignore what I say	1.75	.082	FFS	3.695	.929	118
			HMO	3.433	1.062	67
42. doctors listen carefully	-2.79	.006	FFS	2.180	.795	117
			HMO	2.529	.872	68

boldface identifies reverse-coded statements; lower scores indicate higher satisfaction

While five of the eight statements in the financial group had a p value less than .05, the remaining three statements were significant at a value less than .08. These were the only cognitive statements that were significant for a more positive direction from HMO members (see Table 33).

HMO members were more positive concerning their confidence that they could get medical care without a financial set back, and that they were protected from financial hardship. HMO members were more positive on negatively-worded statements that they worried about large bills, had a problem covering their share of the

cost for medical visits, and that they had to pay for more of their care than they could afford.

In addition, the other three statements addressing financial matters were significant at a .08 p value. There was a trend for HMO members to be more positive about the statement that the amount they had to pay for their medical needs was reasonable, and that they were insured and protected financially against all possible medical problems. The HMO members were more positive in responding to the negatively-worded statement that they had to go without medical care they needed because it was too expensive.

Table 33
Differences in Cognition: Financial scale statements by Type of Plan

	t-value	sig		mean	SD	n
4. worry about large bills	-3.55	.001	FFS	2.345	1.265	119
			HMO	3.103	1.478	68
10. problem cover cost share	-3.80	.000	FFS	2.924	1.296	119
			HMO	3.691	1.385	68
14. no financial setback	2.19	.030	FFS	2.975	1.153	119
			HMO	2.603	1.053	68
19. go without due to cost	-1.75	.082	FFS	3.555	1.267	119
			HMO	3.882	1.166	68
24. pay more than can afford	-3.52	.001	FFS	3.101	1.245	119
			HMO	3.691	1.011	68
27. protected finance hardship	2.66	.008	FFS	3.471	1.080	119
			HMO	3.029	1.106	68
31. reasonable cost	1.76	.080	FFS	2.681	1.112	119
			HMO	2.388	1.044	67
43. insure finance all problems	1.87	.063	FFS	3.412	.995	119
			HMO	3.118	1.100	68

boldface identifies reverse-coded statements; lower scores indicate higher satisfaction

Five of the 12 statements in the access scale had a positive favor for FFS enrollees (see Table 34). FFS respondents were more positive that if they needed hospital care, they could be admitted without any trouble; that it was easy for them to get emergency care; that they had easy access to the medical specialists they needed; that if they had a medical question, they could reach a doctor without any problems; and that they were able to get medical care whenever they needed it.

Table 34
Differences in Cognition: Access scale statements by Type of Plan

	t-value	sig		mean	SD	n
1. admitted with no trouble	-3.44	.001	FFS	1.992	.859	119
			HMO	2.515	1.072	68
5. easy to get emergency care	-3.98	.000	FFS	2.168	.994	119
			HMO	2.806	1.145	67
7. long wait in doctor's office	.20	.838	FFS	3.331	1.206	118
			HMO	3.294	1.094	68
16. short notice care	.66	.510	FFS	3.311	1.213	119
			HMO	3.191	1.162	68
20. convenient hours	- .04	.970	FFS	2.656	1.069	119
			HMO	2.662	1.114	68
22. need more office hours	1.01	.313	FFS	2.814	1.086	118
			HMO	2.647	1.076	68
25. easy access to specialists	-4.89	.000	FFS	2.227	.943	119
			HMO	3.000	1.093	68
28. wait too long for ER care	- .11	.911	FFS	3.102	1.057	118
			HMO	3.118	.856	68
36. places convenient located	-1.43	.154	FFS	2.210	.901	119
			HMO	2.433	1.076	67
39. reach doctor, no problem	-2.41	.017	FFS	2.647	1.154	119
			HMO	3.030	.969	67
47. hard to get appointment	.88	.378	FFS	3.127	1.237	118
			HMO	2.971	1.119	68
50. get care when need it	-2.96	.003	FFS	2.424	1.057	118
			HMO	2.897	1.039	68

boldface identifies reverse-coded statements; lower scores indicate higher satisfaction

There were no differences in the convenience of office hours, nor in the convenience of the locations of places where they received their care. Likewise, there were no differences in the negatively-worded statements that asked for respondents' thoughts about their waiting time in their doctors' offices, that they could get care on short notice, that offices have to be open for more hours, that they had to wait too long for emergency care, or that it was hard to get an appointment right away.

Overall there were statistically significant differences or trends in the majority of statements in four of the seven scales for the cognition component of attitude.

FFS members were more positive in their responses to statements in the general satisfaction, quality, and communication scales. HMO members were more positive in their responses to statements for the financial scale.

The general satisfaction and financial scales presented the most vivid differences in comparing responses by plan membership. Each of the six general satisfaction statements were significant at $p<.08$. Likewise, each of the eight financial statements were significant at $p<.08$.

Reenrollment. Only two of the eight questions that queried respondents on their reenrollment intent proved

to be significant at .05 (see Table 35). Both of the questions had a more positive direction from enrollees in the FFS arrangement.

One question asked how positive the respondents were when they discussed their health care plan with their friends; FFS respondents were more positive. The other question that was significant for a mean difference asked how likely the respondent would be to always enroll in their current health plan if that plan always remained an option; here, the FFS respondents again were more positive.

Table 35
Differences in Reenrollment questions by Type of Plan

	t-value	sig		mean	SD	n
16. next time asked plan you want	-.05	.960	FFS	2.195	1.422	118
			HMO	2.206	1.410	68
17. how often discuss with friends	-.07	.943	FFS	2.432	.800	118
			HMO	2.441	.853	68
18. when discuss with friends	-2.75	.007	FFS	1.927	.631	110
			HMO	2.213	.686	61
19. encourage friends to join	-1.88	.062	FFS	2.288	.971	118
			HMO	2.574	1.041	68
20. change plans in future	1.81	.071	FFS	3.297	1.157	118
			HMO	2.985	1.072	68
21. change plans next period	.91	.364	FFS	3.689	1.148	119
			HMO	3.529	1.165	68
22. plan what you expected	.35	.724	FFS	2.009	.383	117
			HMO	1.985	.503	68
23. likely reenroll in current plan	-2.37	.019	FFS	2.092	1.000	119
			HMO	2.456	1.028	68

note: lower scores denote more positive responses

Scale Development

The next step was to identify the variables that would comprise the various scales. The statements regarding choice and the questions regarding reenrollment were intended to complement each other and group together. The PSQ-III, as previously noted, provided seven scales that would be used to measure cognition. The behavior and affect statements also were designed to provide multiple scales that measured different aspects of these components.

In developing these scales, the data were recoded to reverse the direction of the negatively worded questions in the PSQ-III. There also were three statements in the choice section that were recoded to reverse the negative direction, *(I enrolled in the only plan I could afford, I would have preferred a different plan than the one in which I am enrolled, and the plans that were offered to me were very different from each other)*.

There were three questions in section four of the survey instrument that had responses that were recoded to match the direction of the other statements and questions. These were reenrollment questions that asked what health plan a respondent would select next time they are asked to make an enrollment decision, how likely a respondent would be to change health care plans in the

future, and how likely a respondent would be to change health care plans during the next reenrollment period.

Factor Analysis

Factor matrices were used to study all variables designed for the choice, affect, behavior, and reenrollment intent scale groupings. The cognition scales, taken from the PSQ-III (Patient Satisfaction Questionnaire) were patterned after previously proven uses of that instrument. Using the varimax (orthogonal) rotation, what emerged were groupings that, for the most part, were expected. The varimax method attempts to minimize the number of variables that have high loadings on a factor (Cliff, 1987).

The amount of variance from the rotation explained by a factor is its communality; this is an indication of the strength of the linear association among the variables (Cliff, 1987). Because one of the goals in factor analysis is to reduce a large number of variables to a smaller number of factors, factor scores are estimated for use in analyzing the values of factors; these were obtained in a factor score coefficient matrix using the regression method.

Estimates of the initial factors were obtained using the principal components analysis. The first principal component is the combination that accounts for the

largest amount of variance, with succeeding principal components explaining progressively smaller portions of the total sample variance. All of the components are uncorrelated with each other. The portion of variance accounted for by the common factors is the communality of the respective variables. Factor extraction for this scale development was begun with a principal components analysis.

The success of an orthogonal rotation is determined by the loadings it provides on a factor (Gorsuch, 1983). While rotation does not affect the goodness of fit of a factor solution, the factor matrix does change in order to redistribute the explained variance for the individual factors.

An indicator of the strength of the relationship is the partial correlation coefficient, which was examined through the anti-image correlation produced by the SPSS program; the anti-image correlation provides a negative of the partial correlation coefficient. If variables share common factors, the partial correlation coefficient should be small when the linear effects of the other variables are eliminated; thus, the partial correlations are estimates of the correlations between the unique factors (Norusis, 1992). The unique factors are assumed to be uncorrelated with each other.

An index for comparing the magnitude of the observed correlation coefficient to the magnitude of the partial correlation coefficient is the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. If the sum of the squared partial correlation coefficients between all pairs of variables is small when compared to the sum of the squared correlation coefficients, the KMO measure is close to 1; small KMO values indicates that a factor analysis might not be a good idea because correlations between pairs of variables cannot be explained by the other variables (Kaiser, 1974). KMO measures in the above .90 were characterized by Kaiser as marvelous; above .80, meritorious; above .70, middling; above .60, mediocre; above .50, miserable; and below .50, unacceptable.

Anti-image correlation matrices and KMO measures were obtained through the factor analysis program of SPSS and were used in determining the adequacy of the scales being developed in this study.

Choice. When all seven of the choice variables were considered, two distinct patterns emerged (see Table 36). The first four variables hung together, with factor (coefficient) loadings ranging from .624 to .844. These variables, as previously explained, were designed to elicit a global measure of choice, with the choice53

statement *(only plan could afford)* measuring the financial relationship to choice. This choice variable had the lowest loading, but removing it from the scale lowered the alpha; it was retained.

Variable choice51 *(felt had many options to choose from)* accounted for 51% of the variation in the unrotated pattern; choice52 *(selected best plan for situation)*, 49%; choice53 *(only plan could afford)*, 39%; and choice54 *(preferred different plan)*, 71%. These are the communality measures of the variables.

Table 36
Factor Analysis for Perception of Choice variables

	varimax rotation -- converged in 3 iterations			*coefficient matrix*	
choice statement	communality	factor 1	factor 2	factor 1	factor 2
51. many options to choose from	.507	**.711**	.035	.350	.066
52. best plan for situation	.494	**.650**	-.267	.301	-.126
53. only plan could afford	.389	**.624**	.006	.305	.042
54. preferred different plan	.713	**.844**	-.023	.411	.038
55. plans very different	.700	.057	**.835**	.079	.524
56. considered different aspects	.557	-.022	**-.746**	-.057	-.466
57. plans have same benefits	.337	-.192	**.548**	-.060	.329

The other three variables had been targeted toward specific aspects of the choice issue, and they loaded as a separate factor with a KMO of .55. Variable choice56 *(considered different aspects)* had a negative relationship with the remaining two variables, choice55 *(plans very different)* and choice57 *(plans have same benefits)*.

The anti-image correlation with the seven variable matrix produced no large coefficients, with a KMO of .61 (mediocre). Running the data with the four-item scale raised the KMO to .69, almost middling. Varimax converged in three iterations.

Affect. The loadings from a factor analysis of the 18 items designed to measure the affect component of attitude, presented four factors from the solution. Three scales had been planned for this data section. These loadings are shown in Table 37.

The "services" and "convenience" affect scales performed well, loading as had been designed. The "benefits" scale, however, produced a two-factor solution. The fourth affect scale that emerged from the "benefits" statements included two statements that addressed the ability to see a specialist by referral only and the ability to get emergency care services. This two-item scale was not used in subsequent equations because it had a KMO of only .50. However, each statement was considered individually in the analysis as these two statements had presented a statistically significant difference in comparing health plans. Therefore, in subsequent use, the benefits scale of affect was used with the 4-item loading.

These affect scales performed well when loaded separately, with KMOs in the middling to meritorious range: service, .87; access, .80; and benefits, .74. These three factors accounted for a cumulative total of 58.8% of the variance.

Each of these subscales also was run in combination with a subscale from one of the other summary scale groups. For example, the 7-item services scale from affect was factored with the 8-item finance scale from cognition. Each subscale emerged as a separate factor, as intended.

Table 37
Factor Analysis for Affect variables

varimax rotation; converged in 7 iterations

	1	2	3	4	communality
services					
1. general attitude of doctors	**.809**	.183	.141	.156	.731
2. treatment by admin staff	**.438**	.246	.256	.204	.336
5. quality of doctors	**.724**	.307	.060	.314	.729
9. time doctors spend with you	**.829**	.318	.078	-.012	.700
10. information drs give you	**.838**	.230	.133	-.007	.674
16. selection of doctors	**.625**	.095	.004	.524	.577
17. problems cared best way	**.571**	.045	.379	.412	.548
convenience					
3. time wait in doctor's office	.218	**.669**	.161	-.047	.495
4. see doctor whenever need	.183	**.795**	.149	.295	.743
6. days wait for appointment	.117	**.810**	.179	.210	.719
7. availability of all care need	.405	**.596**	.125	.317	.636
8. location of medical group	.263	**.551**	.216	-.011	.399
benefits					
11. amount benefits received	.333	.129	**.730**	.184	.694
12. information on plan use	.316	.044	**.594**	.252	.519
15. payment of bills and claims	-.005	.267	**.828**	.040	.758
18. out-of-pocket expenses	-.021	.261	**.815**	-.151	.756
13. ability to see specialist	.086	.094	.039	**.765**	.603
14. ability to get ER care	.223	.382	.123	**.573**	.540

Behavior. Five factors were extracted from the 22 behavioral items. Portions of the intended subscales grouped strongly together. Table 38 shows these loadings.

Table 38
Factor Analysis for Behavior variables

varimax rotation; converged in 9 iterations

	1	2	3	4	5	communality
urgent care						
11. possible broken arm	-.017	-.076	**.877**	.015	.061	.778
16. had pain in the chest	.234	.278	**.539**	.128	-.009	.439
21. abdominal pain	.085	.394	**.659**	.005	.185	.632
1. had high fever	.300	**.416**	.056	.529	-.324	.651
3. had asthma attack	.048	**.518**	.014	.042	.396	.430
routine care						
2. cold won't go away	.208	**.506**	.173	.379	-.114	.459
4. had a rash	.460	**.572**	.163	.039	-.100	.586
6. had a sore back	.538	**.436**	.156	.017	.094	.532
8. recurrent headaches	.283	**.478**	.263	.279	.231	.517
13. feeling lightheaded	.495	**.418**	.080	.231	.131	.526
18. sore wouldn't go	.074	**.684**	.149	.136	.021	.369
preventive care						
10. wanted test for HIV	.322	.224	-.027	**.433**	.100	.352
15. needed vaccination	.044	.038	.243	**.827**	.158	.772
22. want physical exam	.140	.234	.314	**.475**	.415	.591
12. wanted a chest x-ray	.046	.075	**.757**	.287	.116	.676
7. wanted a pap test	.154	.047	.218	.114	**.784**	.701
5. want stop smoking	**.717**	-.092	.068	.229	.172	.609
19. want to lose weight	**.803**	-.026	.035	.087	.120	.669
mental health care						
9. had loss of appetite	**.555**	.487	-.120	.170	.233	.567
14. feeling depressed	**.695**	.273	.076	.178	-.141	.650
17. not sleeping well	**.766**	.294	.116	.040	-.017	.741
20. feeling tired &irritable	**.859**	.192	.071	.037	.042	.776

The urgent care scale, that was identified as a problem from the correlation matrix examination, produced two factors. Two of the statements that had been intended for the urgent care scale, loaded with the six items designed to measure routine care. These two items

asked the behavioral intent should the respondent or a family member have a high fever or an asthma attack. In retrospect, both conditions could be perceived as falling under the "routine care" umbrella, depending on individual respondents' personal definitions. Therefore, these statements were added to the routine care scale, creating an eight-item factor for this measure with a KMO of .86 (meritorious) and accounting for 43.1% of the variance.

An urgent care scale for behavior was created from the remaining three items -- had a possible broken arm, had a pain in the chest, and had abdominal pain -- which grouped strongly together. The KMO measure of sampling adequacy was .64 (mediocre), with the scale accounting for 60.5% of the variance.

The items intended for the preventive care scale of behavior did not group as planned. Two of these variables, which asked about stopping smoking and weight reduction, loaded well with the four items prepared for a mental health care measure of behavioral intent. Considering that the behavior modifications involved with stopping smoking and losing weight are both mental processes, the six-item loading was created as a measure for the mental health scale. The KMO was .86 (meritorious), explaining 61.6% of the variance.

Testing for HIV, needing a vaccination, and wanting a physical exam grouped as a three-item preventive care factor. This scale had a KMO of .58 (mediocre) and accounted for 54.4% of the variance. The variables that measured behavioral intent when respondents or their family members wanted a chest x-ray or a pap test were not used in any of the scales because they loaded separately and had a larger number of missing cases than the other behavior variables. The resulting four scales used to analyze behavioral intent accounted for a cumulative total of 55.1% of the variance.

Reenrollment. Seven items were considered for the reenrollment intent scale. The variable that asked *how often do you discuss your plan with friends* dropped out of the factor solution. This left a 6-item scale that proved itself in a single solution, with a KMO sampling adequacy measure of .82, accounting for 52.7% of the variance. These loadings are shown in Table 39.

Table 39
Factor Analysis for Reenrollment variables

varimax rotation; converged in 3 iterations

	factor 1	factor 2	communality
16. next time ask plan you want	**.743**	-.275	.628
18. opinion when discuss with friends	**.735**	-.154	.564
19. likely to encourage friend to join	**.801**	.143	.662
20. change plans in future	**.808**	-.222	.703
21. change plans next reenroll period	**.759**	-.420	.753
23. how likely reenroll in current plan	**.814**	.071	.667
17. how often discuss with friends	.029	**.901**	.813

Reliability

Reliability is defined as the ratio of true score variance to observed score variance; the less error, the more reliable the measure (Bohrnstedt, 1983). Conceptually, the different types of reliability measure stability and consistency: i.e., Will a respondent get the same score in more than one administration of the scale? Will a respondent get the same score on each half of the test if one test is split in two? Are all items on the scale consistent; that is, are they measuring the same concept? The reliability assessment in this study focused on measuring Cronbach's alpha, a measure of the internal consistency of the scales.

Alpha is measured under the assumption that if all items are measuring the same concept, respondents' answers to each item will correlate well with their answers to all the other items (Cronbach, 1951). An item with a low item-to-total correlation might be measuring a different concept. The development of building each of the scales and subscales proceeded as follows:

Choice. Developing a scale for choice proved to be the most problematic. Responses to the seven statements addressing this issue were combined into a variable titled "choice."

A reliability analysis was conducted for these variables. A correlation matrix showed little or

negative correlation between variables choice51 to choice54 *(many options to choose from, best plan for situation, only plan could afford, and preferred different plan)* and variables choice55 to choice57 *(plans very different, considered different aspects, and plans have same benefits)*, with an alpha of .37. The item-to-total correlation presented a negative correlation for each of the variables choice55, choice56, and choice57; these three variables consequently were removed from the scale. Table 40 shows these correlations.

Table 40
Correlation among Perception of choice variables

	matrix								*Alpha*
	51	52	53	54	55	56	*item-Total*	*R-sq*	*if deleted*
choice51	---						.400	.295	.165
choice52	.300	---					.248	.231	.310
choice53	.218	.271	---				.332	.189	.225
choice54	.514	.401	.403	---			.466	.418	.113
choice55	-.034	-.151	.003	.022	---		-.076	.184	.444
choice56	.054	.003	.119	.073	-.310	---	-.031	.121	.457
choice57	.011	-.214	-.122	-.190	.255	-.092	-.108	.140	.461

A separate scale was prepared to combine choice51, choice52, choice53, and choice54 *(many options to choose from, best plan for situation, only plan could afford, and preferred different plan)*. This resulted in an alpha of .68. The item-to-total correlations ranged from .38 to .62. Subsequent combinations using 3 of the 4 variables in each possible arrangement failed to raise the alpha, and in fact only proved to lower the alpha in each instance (ranging from .47 to .66).

Affect. The three affect scales were created from variables that were correlated and addressed a common topic: general satisfaction with services, with an alpha of .89; access and convenience, with an alpha of .83; and satisfaction with the plan benefits and administration, with an alpha of .80. Table 41 shows correlations within the three affect scales and Table 42 shows the correlation matrix of these affect scales and total combined.

Table 41
Correlations among variables comprising Affect Scales

services	1	2	5	9	10	16	*item-total*	*R-sq*	*Alpha if deleted*
1. general attitude of doctors	---						.779	.642	.858
2. treatment by admin staff	.465	---					.474	.261	.896
5. quality of doctors	.730	.444	---				.776	.644	.859
9. time drs spend with you	.668	.390	.600	---			.749	.711	.861
10. information drs give you	.640	.362	.619	.818	---		.728	.697	.864
16. selection of doctors	.550	.295	.643	.520	.502	---	.648	.501	.876
17. problems cared best way	.561	.383	.549	.487	.467	.578	.641	.439	.875
convenience	3	4	6	7	8				
3. time wait in doctor's office	---						.536	.287	.819
4. see doctor whenever need	.471	---					.749	.649	.754
6. days wait for appointment	.466	.779	---				.725	.635	.762
7. availability of all care need	.418	.592	.577	---			.654	.437	.787
8. location of medical group	.362	.396	.361	.444	---		.475	.247	.831
benefits	11	12	15	18					
11. amount benefits received	---						.632	.400	.739
12. information on plan use	.464	---					.480	.271	.803
15. payment of bills and claims	.549	.450	---				.709	.529	.690
18. out-of-pocket expenses	.522	.324	.665	---			.628	.479	.735

Table 42
Correlations among Affect scales

Affect scales			
1. satisfaction with services	---		
2. access/convenience	.593	---	
3. satisfaction with plan administration	.740	.663	---
4. affect (3 scales combined)	.871	.832	.723

Behavior. Correlations among the variables comprising the four behavior scales are shown in Table 43.

Table 43
Correlations among Behavior variables

								item-total	*R-sq*	*Alpha if deleted*
urgent care		11	16	21						
11. had possible broken arm		---						.478	.247	.584
16. had a pain in the chest		.329	---					.437	.193	.625
21. sharp abdominal pains		.475	.413	---				.536	.299	.479
routine care	1	3	2	4	6	8	13			
1. had a high fever	---							.497	.288	.796
2. cold would not go	.466	---						.557	.359	.787
3. had an asthma	.229	.192	---					.331	.127	.814
4. had a rash	.391	.484	.239	---				.642	.430	.772
6. had a sore back	.304	.345	.205	.490	---			.580	.407	.784
8. had recurrent headaches	.277	.299	.253	.398	.523	---		.561	.373	.786
13. were feeling lightheaded	.335	.387	.234	.490	.494	.464	---	.595	.381	.781
18. sore would not go away	.339	.376	.277	.396	.243	.349	.269	.470	.269	.800
preventive care		10	15	22						
10. wanted a test for HIV		---						.277	.084	.612
15. needed a vaccination		.276	---					.437	.237	.313
22. wanted physical exam		.203	.449	---				.353	.208	.374
mental health care	5	19	9	14	17					
5. wanted to stop smoking	---							.630	.426	.866
19. wanted to lose weight	.586	---						.685	.543	.856
9. had loss of appetite	.462	.462	---					.619	.392	.867
14. were feeling depressed	.475	.441	.471	---				.640	.445	.864
17. were not sleeping well	.483	.554	.552	.582	---			.733	.585	.849
20. feeling tired and irritable	.538	.687	.561	.615	.730			.802	.687	.836

The 3-item urgent care scale produced an alpha of .67; the 8-item routine care scale, an alpha of .81; the 3-item preventive care scale, .57; and the 6-item mental health scale, an alpha of .88. A correlation matrix of the behavior scales, including scales to total, is shown in Table 44.

Table 44
Correlations among Behavior scales

Behavior scales	1	2	3	4
1. urgent care	---			
2. routine care	.482	---		
3. preventive care	.360	.583	---	
4. mental health care	.275	.689	.474	---
5. behavior scales combined	.527	.921	.691	.884

Cognition. Acceptable alphas were reached for each of the cognitive scales, which were taken from the PSQ-III section, and these compared favorably with the alphas reported for the PSQ-III used in the Medical Outcomes Study. Table 45 presents a comparison of these subscales from the Health Plan Selection Study (HPSS) and the Medical Outcomes Study (MOS).

Table 45
Comparison of alphas and univariate statistics from HPSS and MOS

	Health Plan Selection Study			*Medical Outcomes Study*		
	alpha	mean	SD	alpha	mean	SD
general satisfaction	.86	2.95	.40	.88	2.59	.52
time	.87	2.78	.17	.87	2.93	1.03
quality	.84	2.50	.52	.85	2.79	.50
interpersonal relations	.83	2.36	.41	.82	2.99	.53
communication	.79	2.27	.30	.82	2.48	.61
financial	.88	2.94	.60	.89	2.99	.61
access	.84	2.69	.63	.86	2.67	.46

A comparison of the correlations among the dimensions of satisfaction with care show a pattern obtained for the Health Plan Selection Study as being similar to the patten from the Medical Outcomes Study, although the actual correlations consistently are slightly lower in the HPSS. These correlations are presented in the lower portion of Table 46, with the correlations from the Medical Outcomes Study presented in the upper portion.

Table 46
Correlations among PSQ-III scales from HPSS and comparison with MOS correlations

scales	1	2	3	4	5	6
1. time	---	*.85*	*.88*	*.90*	*.28*	*.73*
2. quality	.71	---	*.92*	*.94*	*.39*	*.81*
3. interpersonal	.70	.75	---	*.97*	*.39*	*.78*
4. communication	.71	.74	.79	---	*.37*	*.76*
5. financial	.24	.23	.29	.27	---	*.42*
6. access	.56	.67	.58	.56	.31	---
7. cognition (combination of 6)	.77	.87	.83	.83	.54	.83

correlations in lower portion are from HPSS; correlations in upper portion are from MOS

Reenrollment. The analysis of the reenrollment questions began with a consideration of a 7-item combination. Despite having a negative correlation with variable reroll17 *(how often discuss with friends)*, this combination produced an alpha of .83. Removing the negatively correlated variable produced a 6-item combination for reenrollment that had an alpha of .88. These correlations are shown in Table 47.

Table 47
Correlations among Reenrollment variables

	matrix						item-Total	R-sq	Alpha deleted
	16	17	18	19	20	21			
16. next time, plan wanted	---						.669	.554	.796
17. often discuss with friends	-.110	---					-.108	.057	.872
18. when talk with friends	.458	-.028	---				.635	.501	.799
19. encourage friends join	.567	-.049	.655	---			.688	.571	.784
20. change plans in future	.555	-.140	.475	.529	---		.728	.654	.776
21. change next reenroll	.694	-.185	.416	.490	.761	---	.692	.695	.784
23. reenroll in current plan	.478	.011	.551	.595	.640	.565	.722	.543	.778

Validity

Validity is defined as the extent to which a scale measures the concept that it purports to measure (Nunnally, 1978). The validity of a scale always is limited by its reliability, but a scale can have a high reliability and be completely invalid. There are several issues to assessing validity that were considered in developing the scales for this study.

Content validity examines the comprehensiveness of the areas of the concept covered in the scale. Does the scale include items that measure each important component of the conceptual domain? This was done in the process of choosing items for these scales, albeit in a limited way. Care was taken to pattern scales after successful efforts in other studies, such as the behavior scale that was replicated from the Curbow (1986) study. An effort was made to develop the choice and reenrollment scales with careful attention to the supporting theories.

In construct validity, one attempts to establish the validity of a scale by correlating it with other, theoretically related, concepts (Nunnally). One would expect that if a scale was measuring the concept it purported to, and if one had a measure of another concept, one could predict the direction of the correlation for the two scales. Table 48 shows a correlation matrix that presents the relationships among the scales of the components of attitude. The factor analysis showed that the results obtained from the scales used in this study were consistent with the theory presented.

For example, in Table 49 above, the four behavioral scales correlate among themselves in a range of .28 to .69. These correlations are higher than their correlations with items measuring other components of

attitude, with a range from .14 to .33 among the cognitive scales and a range of .27 to .36 among the affect scales. The intercorrelation among the affect scales ranges from .48 to .64.

Table 48
Correlations among Attitude Scales

scales	1	2	3	4	5	6	7	8	9	10	11	12	13
affect													
1. services	---												
2. convenience	.64	---											
3. benefits	.48	.51	---										
behavior													
4. urgent care	.34	.29	.26	---									
5. routine care	.34	.37	.37	.49	---								
6. preventive care	.32	.26	.31	.39	.61	---							
7. mental care	.36	.35	.34	.28	.69	.51	---						
cognition													
8. general satisfy	.77	.63	.47	.33	.34	.25	.34	---					
9. time	.75	.53	.32	.25	.19	.14	.24	.66	---				
10. quality	.80	.58	.35	.31	.21	.19	.25	.78	.69	---			
11. interpersonal	.73	.51	.40	.31	.27	.22	.28	.67	.70	.74	---		
12. communication	.75	.45	.38	.33	.29	.24	.28	.75	.70	.72	.77	---	
13. financial	.23	.32	.73	.17	.23	.26	.18	.29	.22	.22	.29	.27	---
14. access	.66	.80	.42	.33	.34	.24	.33	.70	.55	.69	.58	.56	.25

The factor analysis and correlation matrices also were used to establish discriminant validity, speculating that scales designed to measure two similar concepts should correlate positively (Campbell & Fiske, 1959). In addition, the new variables created by combining variables within a scale were used in a correlation matrix with the scale variables. These total-to-item correlations all related positively and are included in the correlations presented above.

Campbell and Fiske (1959) explained that in the resulting correlation matrix, the various items measuring each single construct should first correlate highly among themselves. The correlations among these items then should be higher than their correlations with items intended to measure other constructs. The pattern of correlation among the scales and subscales presented in this study are valid according to this definition.

Scales from the affect and cognitive components that were designed to measure a similar construct correlated highly with each other; for example, the convenience scale from affect and the access scale from cognition have a correlation of .80.

Summary

The results of the data collection for this study were detailed. The procedures used for determining the sample were explained. The subjects were described in accordance with their plan membership and use of health care services.

Bivariate analyses were conducted to compare respondents who were enrolled in the fee-for-service plan versus members of the prepaid arrangement; t-tests were used to identify if there was a difference in the means

on statements measuring choice, components of attitude, and reenrollment intent.

In general, there were no differences on the choice and reenrollment scales between respondents of the FFS and HMO health plans. There were some differences by plan membership in the affect scales, with FFS enrollees more positive in their responses. Likewise, there were some differences on the cognition scales. FFS plan members were more positive in measures of general satisfaction. HMO enrollees were more positive in measures of financial matters.

Factor analysis was used to develop scales to measure affect and behavior components of attitude. Reliable and valid scales were identified for choice; for the affect, behavior, and cognitive components of attitude; and for reenrollment intent.

Within the scales measuring affect, three scales were created to measure how respondents felt about the "services" provided by the plan in which they were enrolled, the "convenience" to access those services, and their general feeling about the "benefits" the plans provided. Four scales were created for different categories of behavior to measure urgent care, routine care, preventive care, and mental health care.

Scales used to measure cognition were in conformance with past applications of the PSQ-III. This instrument provided seven scales: general satisfaction, time, quality, interpersonal relations, communication, financial, and access.

The scales were reliable and valid.

V. Results, Part Two

The measures were designed to address a series of hypotheses related to the specific aims of this research. An analysis of the hypotheses is presented in the following sections after a restatement of the specific aims. This analysis is concluded with a discussion of attitude as a mediator in the relationship of choice to reenrollment intent.

Hypotheses

Specific Aim 1

To determine whether consumers believed they had a choice in the selection of their health care delivery plan.

Hypothesis 1: *There would be a normal distribution of scores on measures of perceived choice for those currently enrolled in both prepaid and fee-for-service plans.*

Not all consumers believed they had a choice in the selection of their health care delivery plan. This was revealed through an examination of the response totals for the two scales that were produced from a factor analysis of the statements that addressed the issue of choice. There was a range of scores on the Likert scale measures of perceived choice, as evidenced by the distribution of the summary totals for the two choice

scales. Univariate statistics on the distribution of total responses and segmented by responses of those enrolled in the fee-for-service (FFS) plan versus those enrolled in the prepaid (HMO) plans are reported in Table 49.

Table 49
Distribution of Responses to Perception of Choice scales

four-item choice scale:	Total (n=187	FFS (n=119)	HMO (n=68)
mean	9.738	9.395	10.338
standard error	.213	.225	.372
median	10.000	9.000	10.000
mode	8.000	8.000	7.000
standard deviation	2.913	2.778	3.065
variance	8.485	7.716	9.391
kurtosis	.351	.189	.447
s.e. kurtosis	.354	.440	.574
skewness	.404	.323	.442
s.e. skewness	.178	.222	.291
range	16.000	15.000	16.000
minimum	4.000	4.000	4.000
maximum	20.000	19.000	20.000

three-item choice scale:	Total (n=187)	FFS (n=119)	HMO (n=68)
mean	8.898	8.933	8.838
standard error	.104	.131	.172
median	9.000	9.000	9.000
mode	8.000	8.000	10.000
standard deviation	1.424	1.430	1.421
variance	2.027	2.046	2.018
kurtosis	-.163	-.127	-.215
s.e. kurtosis	.354	.440	.574
skewness	-.147	-.021	-.381
s.e. skewness	.178	.222	.291
range	8.000	7.000	7.000
minimum	5.000	6.000	5.000
maximum	13.000	13.000	12.000

The four-item choice scale approximated a normal distribution with a mean of 9.738 and a variance of

8.485. The skewness was .404, with a responses ranging from a minimum of 4.0 to a maximum of 20.0. The four statements in this scale addressed the issues of *had many options to choose from, selected plan best for my situation, only plan I could afford, and preferred a different type of plan.* The distribution of the four-item choice scale also had a positive skew for both health plan groupings (FFS, skew=.323, and HMO, skew=.442).

Another way to characterize the distribution, the kurtosis, showed a value of .351 for the total responses to the four-item scale. A distribution is exactly normal if the kurtosis is 0. The distribution of responses on the four-item choice scale from participants who were members of the FFS plan was closer to a normal distribution than the distribution of responses from HMO members. The kurtosis from the FFS response group was .189, and for the HMO group, .447. The three-item choice scale also approximated a normal distribution with a mean of 8.898, but with a variance of 2.027 and a skewness of -.147. The response range was 8.0, with a minimum of 5.0 and a maximum of 13.0. The three statements addressed in this scale were *plans were very different from each other, considered number of different aspects, and plans offered mostly same benefits.*

The skews for both of the plan groupings also were in a negative direction; FFS, -.021, and HMO, -.381. The kurtosis measures for the form of distribution was negative for the total, -.163, as well as for the health plans (FFS, -.127; HMO, -.215).

Scores on the four-item summary scale for perceived choice were related to the plan in which individuals were enrolled (FFS versus HMO), with a mean difference of -.943 between the two groups; $t=-2.15$, $p<.05$. The comparison of this difference suggests that membership in the FFS arrangement was more strongly related to perception of choice than membership in an HMO.

However, scores on the three-item summary scale for perceived choice were not related to the plan in which individuals were enrolled; $t=.44$, $p>.05$. A comparison of the choice scales by plan enrollment is show in Table 50.

Table 50
Comparison of Choice scales by Health Plan (FFS versus HMO)

	t-value	sig		mean	SD	n
four-item choice scale	-2.15	.033	FFS	9.395	2.778	119
			HMO	10.338	3.065	68
three-item choice scale	.44	.663	FFS	8.933	1.430	119
			HMO	8.838	1.421	68

Note: Low score denotes higher level of perceived choice.

Specific Aim 2

To examine whether consumers had positive attitudes toward their health care plan if they perceived they had a choice in selecting that plan.

Hypothesis 2: *Consumers who perceived that they had a choice in the selection of their health care plan would have positive scores on measures of their affect, behavior, and cognition components of attitude.*

There were strong associations between positive scores on the four-item choice scale and positive scores on scale measures of the affect, behavior, and cognition components of attitude. An examination of the Pearson correlations showed medium to large effects in the relationships of the four-item choice scale to the scales of the attitude components (see Table 51).

These correlations were equally strong in their effects on choice and attitude when segmented according to plan membership, FFS versus HMO. However, none of the tests for differences between the correlations for the health plans were statistically significant. Fisher z scores were calculated to compare the health plan correlations; a z larger than 1.96 is significant at the .05 level.

The correlation between choice and the services scale of affect was .525. in the total sample. The correlation of the convenience scale of affect and choice

was .463, and the benefits scale, .501. All correlations were significant at p<.001.

Table 51
Pearson Correlations of 4-item Choice scale and Attitude scales

	Total (n=154)	FFS (n=102)	HMO (n=52)	z-score
Affect				
services	.525**	.540*	.472*	.59
convenience	.463**	.457**	.446**	.10
benefits	.501**	.529**	.574**	.42
Behavior				
urgent care	.203*	.126	.229	.69
routine care	.271**	.218	.339*	.85
preventive care	.251**	.199	.331*	.92
mental care	.275**	.201	.384*	1.30
Cognition				
general satisfaction	.592**	.531**	.642**	1.10
time	.348**	.352**	.312*	.28
quality	.494**	.521**	.413*	.89
interpersonal relations	.480**	.478**	.461**	.14
communication	.423**	.396**	.432**	.28
financial	.460**	.488**	.590**	.93
access	.549**	.464**	.639**	1.64

** p<.001 * p<.01 two-tailed significance
Note: z score larger than 1.96 is significant at the .05 level

The correlations between choice and the behavior component of attitude were more modest. The correlations between the scales of behavior and choice were: urgent care, .203; routine care, .271; preventive care, .251; and mental health care, .275. These were significant at p<.01. When segmented by plan selection, the correlations of the behavior scales and choice dropped to a low level within the FFS grouping. The correlation of

the routine care scale of behavior and choice, for FFS respondents, was only .126 ($p>.05$).

The strongest association between choice and an attitude component was the correlation of the general satisfaction scale of cognition (.592, $p<.001$). The other scales of cognition were within the range of .348 (time) to .549 (access) and all were significant at $p<.001$.

The correlations between the three-item choice scale *(plans different from each other, considered a number of different aspects, and plans offered mostly same benefits)* and the scales of the attitude components showed mostly weak, negative effects. For the most part, these correlations were not significant for either the total sample or when broken down by plan enrollment.

There was one exception among these correlations, however. The three-item choice scale had a medium, albeit negative, association with the behavior component of attitude within the HMO plan grouping, but these were not statistically significant with $p>.10$. The correlation of -.284 ($p>.10$) for the preventive care scale, and -.315 ($p>.10$) for the mental health care scale, and choice, within the HMO group, showed a statistically significant difference from the correlation measures within the FFS plan.

The values in Table 52 show the correlations between the three-item choice scale and the attitude components, with the total sample by specific plan groupings.

Table 52
Pearson Correlations of 3-item Choice scale and Attitude scales

	Total (n=154)	FFS (n=102)	HMO (n=52)	z-score
Affect				
services	-.054	-.103	.039	.92
convenience	-.069	-.093	-.019	.48
benefits	.045	.134	-.110	1.58
Behavior				
urgent care	-.169	-.068	-.270	1.35
routine care	-.149	-.045	-.304	1.74
preventive care	-.088	.036	-.284	2.12
mental care	-.074	.048	-.315	2.41
Cognition	-.114	-.117	-.105	.08
general satisfaction	-.046	-.059	-.019	.26
time	-.133*	-.168*	-.065	.67
quality	-.130*	-.141	-.109	.21
interpersonal relations	-.061	-.095	-.005	.58
communication	-.090	-.052	-.154	.66
financial	.009	.069	-.114	1.18
access	-.164**	-.169*	-.156	.08

* p<.10 ** p<.05 two-tailed significance

Note: z score larger than 1.96 is significant at the .05 level

Specific Aim 3

To explore what plan characteristics influenced consumers in their selection of a health care delivery plan.

Hypothesis 3: *There would be a difference in plan characteristics that distinguish consumer groups enrolled in prepaid plans versus those enrolled in fee-for-service plans.*

It appeared unlikely that the sample means were equal for a number of the scales of the affect and cognition components when comparing the responses of FFS versus HMO enrollees. This exploration was begun by comparing the means of the plan options on each of the scales.

There were significant differences in the service delivery and plan benefits scales of the affect component of attitude. These are identified in Table 53. The scale that measured how respondents felt about the services provided by their plan showed that FFS enrollees had more favorable feelings about services, compared with HMO members ($t=-2.79$, $p<.01$). However, the scale that measured respondents' general feelings about the benefits their plan provided was related more positively with HMO membership than FFS enrollment ($t=2.52$, $p<.01$). The scale that measured the convenience/access to those

services showed no significant difference by plan membership.

Table 53
Comparison of Affect scales by Health Plan Enrollment (FFS versus HMO)

	t-value	*sig*		*mean*	*SD*	*n*
services	-2.79	.006	FFS	13.641	4.623	117
			HMO	16.030	6.078	67
convenience	-1.67	.097	FFS	12.171	4.077	117
			HMO	13.221	4.217	68
benefits	2.52	.013	FFS	11.368	3.544	117
			HMO	9.941	3.985	68

Note: Low score denotes high level of affect

In addition, there were two individual statements that were statistically significant in differentiating how plan members felt about their ability to see a specialist by referral only and their ability to get emergency care services. FFS members were more positive in their feelings regarding both of these statements.

It appeared that plan membership had no significant influence on the willingness of plan members to seek routine, preventive, or mental health care. The behavior subscales were not found to be significantly different (see Table 54) for these scales when compared by plan membership. Members of the FFS plan were more positive, however, in their intent to seek urgent care than HMO enrollees ($t=-2.59$, $p<.011$).

Table 54
Comparison of Behavior scales by Health Plan Enrollment (FFS versus HMO)

	t-value	*sig*		*mean*	*SD*	*n*
urgent care	-2.59	.011	FFS	3.720	1.124	118
			HMO	4.515	2.385	68
routine care	- .18	.857	FFS	15.821	5.365	117
			HMO	16.000	6.981	66
preventive care	- .01	.988	FFS	4.701	2.186	117
			HMO	4.706	2.413	68
mental care	- .91	.363	FFS	18.764	6.533	110
			HMO	19.712	6.286	59

Note: Low score denotes high level of behavior intent

There was, however, a significant difference on four of the seven scales measuring the cognition component of attitude: general satisfaction, quality, financial, and access.

Respondents who were members of the FFS plan had more positive beliefs than HMO members on measures of general satisfaction ($t=-3.37$, $p<.001$), quality ($t=-2.36$, $p<.02$), and access ($t=-3.63$, $p<.001$). In contrast, the plan comparison showed that HMO enrollees had more positive thoughts about their financial matters ($t=3.61$, $p<.001$). The results of these t-tests are shown in Table 55.

There were no significant differences by plan membership on the time, interpersonal relations, and communication scales of the cognition component of attitude.

Table 55
Comparison of Cognition scales by Health Plan Enrollment (FFS versus HMO)

	t-value	*sig*		*mean*	*SD*	*n*
general satisfaction	-3.37	.001	FFS	16.802	4.685	116
			HMO	19.273	4.891	66
time	-1.46	.145	FFS	5.364	2.115	118
			HMO	5.836	2.086	67
quality	-2.36	.019	FFS	23.626	6.265	115
			HMO	25.939	6.490	66
interpersonal relations	-1.47	.144	FFS	16.087	4.693	115
			HMO	17.209	5.418	67
communication	-1.70	.092	FFS	11.026	3.425	117
			HMO	11.940	3.684	67
financial	3.61	.000	FFS	22.168	6.217	119
			HMO	18.746	6.207	67
access	-3.63	.000	FFS	31.154	6.385	117
			HMO	34.727	6.418	66

Note: Low score denotes high level of satisfaction

Specific Aim 4

To determine whether consumers' perceptions of choice were associated with behavioral intentions in the use of their health care system.

Hypothesis 4: *Consumers who perceived that they had a choice in the selection of their health care plan would be more likely to state their intention to use services provided by that plan than consumers who perceived that they did not have a choice.*

As identified from Table 54, a difference in the intended use of a health care plan could not be

determined by enrollment in a fee-for-service versus a prepaid plan for all but the urgent care scale of behavior. However, the presence of perceived choice was related to the intentions to seek care for the various health care problems presented. This was significant for each of the scales measuring behavioral intent, as explained previously under Specific Aim 2.

The four-item summary scale for choice was used in a multiple regression analyses with each of the behavior scales, along with other independent descriptive measures -- gender, age, education, income, type of plan, and time length of membership in plan. The variable of choice emerged through the stepwise method of regression as the only variable consistently remaining in the equations. The statistics for the variables in the equation are shown in Table 56.

Variance from the urgent care scale was explained through linear relationships with the choice and plan membership variables. The linear relationship with the routine care scale was associated with income and education measures, in addition to choice. The choice variable emerged as the only variable remaining in the equations for both the preventive care and mental health care scales of behavior. In all instances, choice provided the strongest linear relationship with the behavior scales.

Table 56
Regression equation statistics for Independent Variables associated with Behavioral Intentions

	multiple R	Rsq	F(Egn)	SigF	Beta In
urgent care					
choice	.229	.052	8.653	.004	.229
plan membership	.289	.084	7.116	.001	.179
routine care					
choice	.284	.080	13.723	.000	.284
income	.324	.105	9.145	.000	-.160
education	.366	.134	7.966	.000	.190
preventive care					
choice	.248	.061	10.255	.002	.248
mental health care					
choice	.268	.072	12.140	.001	.268

Specific Aim 5

To examine whether consumers' perceptions of choice were associated with the likelihood of changing health care plans at time of reenrollment.

Hypothesis 5: *Consumers who perceived they had a choice in the selection of their health care plan would be more likely to state their intention to reenroll in their plan than consumers who perceived that did not have a choice.*

There was a relationship between consumers' perceptions that they had a choice in the selection of their health care plan and their intent to reselect that plan when it comes time to make an annual reenrollment decision.

There was a high correlation between the four-item choice scale and the reenrollment scale (r=.730, p<.001). The scatterplot of choice and reenrollment supported a belief that there was a linear relationship between these two scales. There was a weak, negative correlation between the three-item choice scale and reenrollment. The Pearson correlations are presented in Table 57, which also shows the correlations of the choice and reenrollment scales segmented by plan enrollment. This showed a strong effect of the four-item choice scale in explaining reenrollment intent in both the FFS (r=.712, p<.001) and HMO (r=.747, p<.001) plans.

Table 57
Pearson Correlations of Choice Scales and Reenrollment Scale

	Total	FFS	HMO
four-item choice scale	.730 (.001)	.712 (.001)	.747 (.001)
three-item choice scale	-.061 (.438)	-.057 (.262)	-.047 (.713)

(significance values shown in parenthesis)

A regression analysis showed that choice explained 55.7% (R-squared coefficient) of the linear relationship with reenrollment, a reasonable goodness of fit. The hypothesis that there was no linear relationship between choice and reenrollment, that the slope of the regression line is 0, was rejected with a significance level of p<.001 on the t-statistic.

A further examination of the choice scale differentiated, by plan selection, continued to support the conclusion that choice was a strong predictor for reenrollment intent. Placing the choice scale in a multiple regression equation along with all of the independent descriptive variables -- age, gender, education, income level, plan, and time as member in plan -- resulted in choice and age as the only variables remaining. Respondents were less likely to change plans as they got older. Results are shown in Tables 58 and 59. There was no interaction with choice from plan membership nor any of the other descriptive variables.

Table 58
Statistics for regression equation for variables predicting Reenrollment intent

variables remaining in the equation

	beta in	multR	Rsq	F(Eqn)	SigF
choice	.747	.747	.557	201.364	.000
age	-.166	.765	.585	111.825	.000

Table 59
Statistics for variables not in regression predicting Reenrollment intent

variables not in the equation

	beta in	partial	tolerance	T	SigT
gender	.002	.003	.999	.042	.967
education	-.002	-.002	.940	- .028	.977
income	-.068	-.100	.913	-1.267	.207
plan	.024	.036	.941	.457	.649
time as member	-.074	-.109	.906	-1.377	.170

Specific Aim 6

To examine whether consumers' attitudes were associated with the likelihood of changing health care plans at time of reenrollment.

Hypothesis 6: *Consumers who had a positive attitude toward their health care plan would be more likely to state their intention to reenroll in the plan.*

There was a strong association between intent to reenroll in a health care plan and the tripartite model of attitude; all factors comprising attitude helped drive a reenrollment decision. Primary among those factors were cost, general satisfaction, and the manner in which care is delivered.

The correlation matrix showed a varied connection between reenrollment and the scales used to assess attitude (see Table 60). These relationships held constant in a comparison of the Pearson correlations of the responses to the attitude and reenrollment measures for FFS and HMO plan members. These correlations were highly significant; all scales under the affect and cognitive scales had a significance of $p<.001$.

A comparison of these correlations by health plan membership identified two scales of the cognition scale that were statistically significant. The scales of general satisfaction and communication differed by plan membership. The cognition scales that measured time,

quality, and access were marginally significant for a difference by plan membership. This implies that general satisfaction and communication were more important to reenrollment intent for FFS members than for HMO enrollees.

Table 60
Pearson Correlations of Attitude Scales and Reenrollment Intent

	Total	HMO	FFS	z-score
Affect				
services	.631**	.569**	.696**	1.37
convenience	.480**	.465**	.474**	.08
benefits	.503**	.528**	.574**	.43
Behave				
urgent care	.224**	.106	.306*	1.36
routine care	.308**	.320**	.304	.05
preventive care	.298**	.217	.441**	1.64
mental care	.305**	.258*	.389**	.96
Cognition				
general satisfaction	.663**	.543**	.845**	4.07
time	.475**	.399**	.593**	1.68
quality	.522**	.432**	.635**	1.85
interpersonal relations	.462**	.376**	.579**	1.71
communication	.510**	.393**	.684**	2.72
financial	.435**	.482**	.544**	.55
access	.524**	.439**	.628**	1.77

** p=.001 * p<.01

Note: z score larger than 1.96 is significant at the .05 level

Presenting these scales as independent variables in a multiple regression equation with the reenrollment scale as the dependent variable resulted in only two attitude scales remaining as significant in the equation

-- general feelings about benefits provided from the affect component, and general satisfaction from the cognition component. Statistics from this process are shown in Table 61. The regression equation was run with all descriptive variables -- age, education, income, gender, and time as plan member -- included, with the same two attitude scales remaining.

Table 61
Regression of Attitude Scales on Reenrollment intent

variables in the equation

	Beta in	MultR	Rsq	T	Tsig
Affect:					
benefits	.486	.679	.461	8.350	.000
Cognition					
general satisfaction	.321	.722	.522	4.261	.000

variables not in the equation

	Beta in	Partial	T	Tsig
Affect:				
services	.136	.123	1.470	.144
convenience	-.001	-.001	- .014	.989
Behavior:				
urgent care	.028	.038	.452	.652
routine care	.037	.048	.576	.566
preventive care	.094	.129	1.542	.125
mental health care	-4.097E	-.001	- .006	.995
Cognition:				
time	.007	.007	.091	.928
quality	.038	.035	.413	.680
interpersonal	-.012	-.013	-.151	.881
communication	.019	.018	.211	.834
financial	.138	.137	1.641	.103
access	.022	.022	.261	.795

Attitude as a Mediator

Specific Aim 7

To examine the relationship of attitude as a mediator for choice in influencing reenrollment intent.

Hypothesis 7: *Attitude will mediate the influence of choice in consumers' intent to reenroll in their health care plan.*

A path analysis was accomplished in order to clarify the relationship of the variables influencing reenrollment intent. The independent variables were grouped into sets for reasons of their substantive content and in consideration of the function they played in the logic of the research (see Figure 2).

Cohen and Cohen (1983) likened the learning of path analysis to learning to sail. "About half the task involves learning the constructs and vocabulary of its practitioners. Most of the remaining learning requires that one come aboard and try it" (p. 353). A causal model can never be established as proved by a given path analysis; all that can be said is that the data care consistent with a given model or that they are not (Cohen & Cohen, 1983).

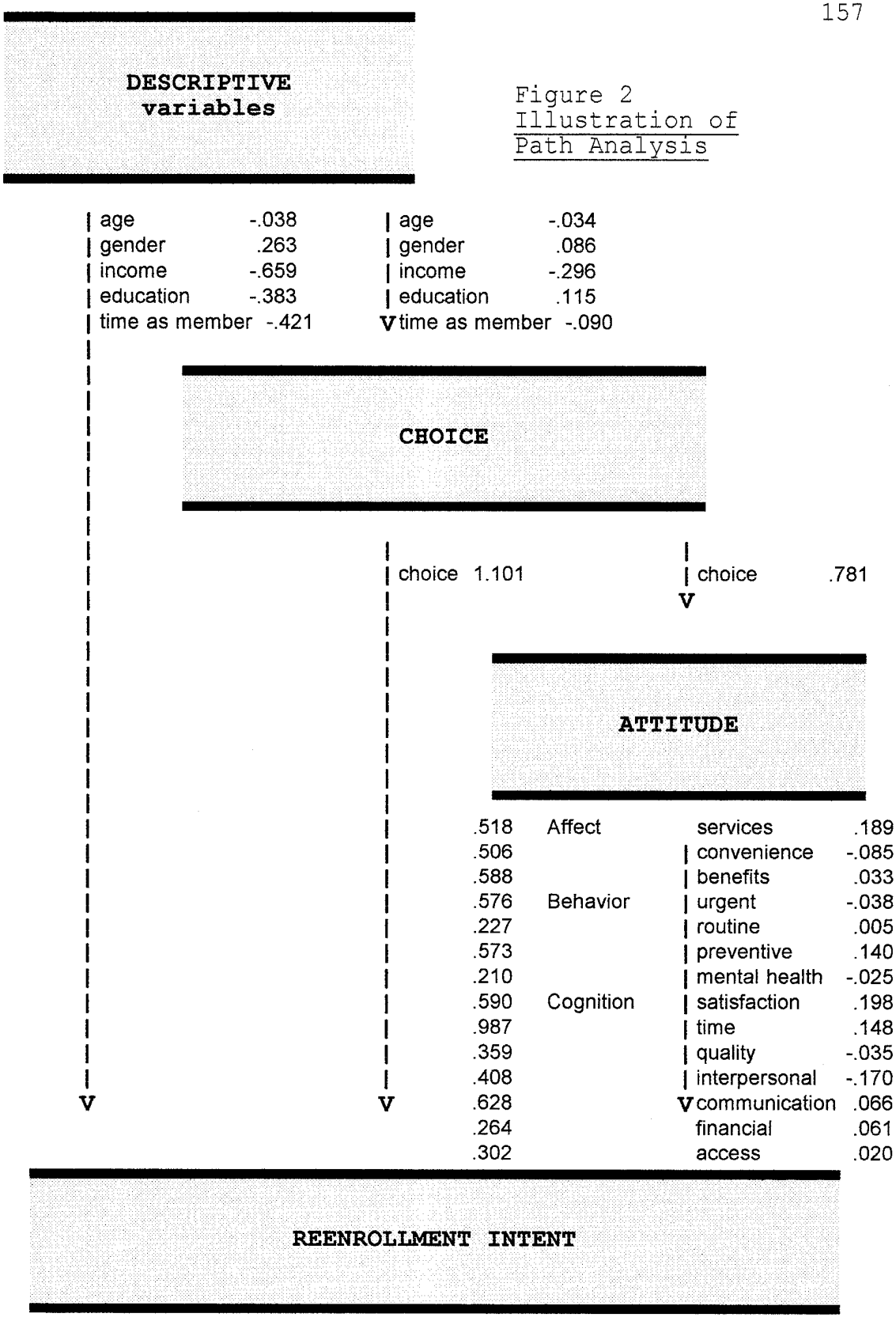


Figure 2
Illustration of
Path Analysis

The first step in preparing to examine the equations in this analysis was to prepare a correlation matrix that showed the relationships of all the independent variables and the dependent variable, reenrollment intent. The correlations of the descriptive variables (age, gender, income, education, time as plan member) and reenrollment intent were modest and negative. The correlation between choice and the dependent variable (reenrollment intent) showed the strongest association.

Three equations were prepared for the analysis (see Tables 62, 63, and 64). In the first equation, a set of descriptive variables was used to estimate reenrollment intent. The partial coefficients for age, gender, income, education, and time as plan member, each were negative. These partial coefficients represent the total effect from each of the descriptive variables within this set. These values are not the same as the zero-order or unpartialled coefficients because the influences were adjusted for the other descriptive variables in the set. The values from this analysis are listed in Table 62.

In the first equation, the effect on increased reenrollment intent is associated with male gender and lower age, education, and income. The only variable that was statistically significant in this regression, however, was income. Reenrollment intent increased as incomes decreased.

Table 62
Sequential Addition of Covariates; Path Analysis of Reenrollment Intent, equation one

equation 1:

	Zero-Order B	Partialled B	t Sig
Descriptive set			
age	-.038	-.010	.802
gender	.263	-.387	.628
income	-.659	-.524	.032
education	-.383	-.294	.238
time as member	-.421	-.366	.122

In the second equation, the variable of choice is added to the demographic set. The partial coefficients again are the total effects. The influence that the demographic variables exert via the choice variable are their indirect effects. These values are listed in Table 63. All of the descriptive variables had negative effects indirectly through choice, except for age. The total effects were negative for each descriptive variable, except for education.

That is, higher perceived choice leading to reenrollment intent was associated with increased age, but lowered education, income, and time as member. The choice variable, introduced in the second equation, had a total effect of 1.172 which was actually higher than its zero-order, unpartialled coefficient. This was explained by the effects of the descriptive variables.

Table 63
Sequential Addition of Covariates; Path Analysis of Reenrollment Intent, equation two

equation 2:	Zero-Order B	Partial B	Indirect (via choice)	t Sig
Demographic set				
age		-.059	.049	.024
gender		-.020	-.367	.970
income		-.204	-.320	.214
education		.069	-.363	.684
time as member		-.198	-.168	.212
Choice	1.101	1.172		.001

The set of variables that was used to measure attitude was introduced in the third equation (see Table 64). The indirect effects of the descriptive variables via the attitude components of affect, behavior, and cognition, each were negative, except for income. Income was the only descriptive variable that was even marginally significant.

The influence of choice on reenrollment intent had a total effect of .781 in the third equation with an indirect effect of .391 via the attitude variables. That is, higher reenrollment intent was associated with higher perceived choice, and higher perceived choice was associated with higher measures on the attitude scales.

The strongest explanations of choice through the attitude variables were through the services scale of affect ($B=.189$, $p<.067$) and the general satisfaction scale of cognition ($B=.198$, $p<.051$). The only variable emerging with a statistical significance throughout this analysis was the choice variable ($p<.001$).

Table 64
Sequential Addition of Covariates; Path Analysis of Reenrollment Intent, equation three

equation 3:	Zero-Order B	Partialled B	Indirect (via attitude)	t Sig
Descriptive set				
age		-.034	-.025	.220
gender		.086	-.106	.879
income		-.296	.092	.092
education		.115	-.046	.509
time as member		-.090	-.108	.580
Choice		.781	.391	.001
Attitude set				
Affect				
services	.518	.189		.067
convenience	.506	-.085		.447
benefits	.588	.033		.766
Behavior				
urgent care	.576	-.038		.812
routine care	.227	.005		.938
preventive	.573	.140		.291
mental health	.210	-.025		.656
Cognition				
satisfaction	.590	.198		.051
time	.987	.148		.437
quality	.359	-.035		.653
interpersonal	.408	-.170		.045
communication	.628	.066		.601
financial	.264	.061		.249
access	.302	.020		.760

The redundancy of information about reenrollment intent carried by the independent variables (choice and attitude scales) is reflected in the fact that the partial regression coefficients each are smaller in magnitude than their separate zero-order B's.

The interpretation of this is that for any given measure of attitude, on the average each additional unit measure of choice is associated with an increase in reenrollment intent of .781 rather than the 1.101 that

was found when attitude was ignored. The changes in these measures are a consequence of the redundancy of the two causal variables; i.e., the tendency for respondents who perceived they had a choice to have more positive measures of attitude.

A model that introduced attitude as a mediator in the relationship of choice and reenrollment intent was presented in Chapter 2. Mediation was tested through a series of three regression equations: first, regressing the mediator (each of the attitude scales) on the independent variable (choice); second, regressing the dependent variable (reenrollment intent) on the independent variable (choice); and third, regressing the dependent variable (reenrollment intent) on both the independent variable (choice) and on the mediator (attitude scales). These three regression equations tested the linkages of the mediation model. According to Baron and Kenny (1986), the following conditions must hold in order to establish mediation: first, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation. Table 65 shows results from these regression equations.

Table 65
Testing Mediation of Attitude

	regressing mediators on choice	*regressing reenrollment on choice*	*regressing reenrollment on choice & mediators*	
Affect				
services	.485	.730	.557	.631
convenience	.477	.730	.648	.480
benefits	.535	.730	.650	.503
Behavior				
urgent care	.231	.730	.709	.224
routine care	.285	.730	.691	.308
preventive care	.232	.730	.694	.298
mental health care	.256	.730	.696	.305
Cognition				
general satisfaction	.625	.730	.523	.663
time	.326	.730	.640	.475
quality	.490	.730	.621	.522
interpersonal relations	.468	.730	.654	.462
communication	.424	.730	.625	.510
financial	.477	.730	.673	.435
access	.528	.730	.622	.524

Baron and Kenny explained that if the conditions all hold in the predicted direction (which they do), then the effect of the independent variable on the dependent variable must be less in the third equation than in the second. Perfect mediation holds if the independent variable has no effect when the mediator is controlled.

A measure of tolerance was used to test for collinearity, a high multiple correlation through which collinear variables provide very similar information (see Table 66). If the tolerances were small, it would indicate an almost linear combinations of the variables. Another measure, actually a reciprocal of the tolerance, is the variance inflation factor (VIF). The VIF in these

relationships were reasonable to dismiss collinearity as a problem.

Table 66
Correlation coefficients of Attitude Scales in predicting Reenrollment (with choice)

	MultR	Rsq	Correlation	Semi-Partial	Partial	Tolerance	VIF
Affect							
services	.787	.619	.631	.282	.416	.715	1.398
convenience	.752	.566	.480	.168	.278	.798	1.253
benefits	.744	.554	.503	.130	.191	.712	1.405
Behavior							
urgent care	.729	.532	.224	.077	.113	.958	1.044
routine care	.736	.541	.308	.126	.183	.934	1.071
preventive care	.735	.540	.298	.121	.175	.937	1.067
mental health	.735	.540	.305	.107	.156	.923	1.083
Cogniton							
satisfaction	.786	.618	.663	.284	.418	.649	1.542
time	.765	.585	.475	.237	.345	.879	1.137
quality	.749	.560	.522	.180	.262	.745	1.342
interpersonal	.736	.541	.462	.128	.186	.767	1.304
communication	.761	.579	.510	.218	.319	.816	1.226
financial	.736	.541	.435	.103	.151	.777	1.287
access	.746	.557	.524	.171	.249	.729	1.373

The multiple R is the measure of the association between a dependent variable and an optimal combination of two or more independent variables. The R-squared is the proportion of variance shared with the optimally weighed composite of the independent variables. In this sample (see Table 66, above), 73.5% to 78.7% of the variance in reenrollment intent is linearly accounted for by the perception of choice and each of the attitude scales.

The portion of variance explained uniquely by each independent variable in a multiple regression equation is the squared semipartial correlation coefficients. This

equals the increase in the squared multiple correlation that occurs when a variable is added to another independent variable. The portion of variance uniquely explained by the attitude scales ranged from 7.7% in the urgent care scale of behavior to 28.4% from the general satisfaction scale of cognition.

The squared partial correlation is that proportion of the variance not associated with a variable that is associated with another independent variable. This answers the question of how much of the dependent variable variance that is not estimated by the other independent variables in the equation is estimated by this variable.

Summary

The hypotheses related to the specific aims of this study were examined in this chapter.

This analysis helped show that respondents who are members of fee-for-service (FFS) and prepaid (HMO) health care plans have differing perceptions of choice, with members of the FFS plan more likely to strongly agree that they had a choice in their plan selection. There was a strong association between positive scores on the four-item choice scale and positive scores on measures of the affect, behavior, and cognition components of attitude.

It appeared unlikely that the sample means were equal in a number of the scales of the affect and cognition components in comparing means of FFS versus HMO plan enrollees. A difference in the intended use of a health care plan could not be determined by enrollment in a FFS or HMO plan. However, the presence of perceived choice was associated with intentions to seek care for the various health care problems presented.

There also was a relationship between a consumer's perception that they had a choice in the selection of their health care plan and their intent to reselect that plan when it comes time to make an annual reenrollment decision. Likewise, there was a strong connection between intent to reenroll in a health care plan and the tripartite model of attitude; all factors within the attitude components helped drive a reenrollment decision.

Finally, attitude was tested for its mediating effects on the relationship of choice and reenrollment intent. Modest mediations exist. A path analysis was conducted to further examine this relationship.

VI. Discussion

Viewed through the lens of path analysis, it is easy to understand how researchers can be misled about the causal import of a variable when they fail to include in their model other important causes. In the studies of the selection of health care delivery plans, researchers have focused on plan characteristics and have overlooked an important antecedent -- the issue of choice.

This chapter focuses discussion on the influence the perception of choice has on the intention of consumers to reselect their current health care plans at time of annual reenrollment. The discussion begins by following the issues identified as the specific aims of the study. The implications these findings have on the development of marketing strategies then are identified, followed by impacts on public health policies and general public health involvements. The chapter concludes with an examination of limitations of this study and suggestions for future research in the area of perceived choice.

Specific Aims

Specific Aim 1

To determine whether consumers believed they had a choice in the selection of their health care delivery plan.

Results from the sample examined in this dissertation study establish that the construct of perception of choice can be measured. This choice construct was normally distributed in the sample population. Not all respondents perceived they had a choice; many strongly agreed that they had.

Although the distribution of choice differed in comparing the fee-for-service (FFS) health plan versus the prepaid (HMO) arrangement, with the perception of choice more strongly related to FFS plan membership, this presents further evidence that the choice construct can be distinguished within the sample population.

A review of the health benefits program offered by the Johns Hopkins Hospital shows that there is a financial incentive to join the HMO; thus, especially for those respondents with limited incomes, this incentive drove enrollment toward the HMO and created a scenario in which the influence of choice was removed.

The HMO did not require a deductible; the FFS arrangement had a $200 deductible for an individual and $400 for the family. Doctor's services, outpatient surgery, and mental health were covered at 100% through the HMO and 80% after deductible for the FFS plan. Finally, the weekly cost was less for HMO membership ($9.15 a week for an individual, $475.80 annually; $24.17 a week for a family, $1,256.84) as compared with the cost

for the FFS arrangement ($9.91 a week for an individual, $515.32 annually; $26.66 a week for a family; $1,386.32 annually). Note that each employee was given $520 in benefit credits ($10 a week) to apply to the payment for the health care plan that they had selected. Unused credits could go into a tax-free spending account or be taken as taxable income.

In that the financial incentive favored joining the HMO, for some people selecting this health care alternative might have been a Hobson's choice; that is, really no choice.

Specific Aim 2

To examine whether consumers had positive attitudes toward their health care plan if they perceived they had a choice in selecting that plan.

There was a strong association between positive scores on the four-item choice scale and positive scores on each of the scales measuring the components of attitude. The correlations were medium to large. This association held constant when the sample was divided by plan membership, with the exception of the behavior scales. However, comparisons by health plan groupings were not statistically significant.

It might seem intuitive that these variables would be related. This could explain why past studies have not

addressed the issue of choice, although there were studies that found positive satisfaction associated with reenrollment intent when plans being compared were perceived as similar (Rosenberg, Bonner, Scotti & Wiman, 1989; Thompson & Rao, 1990).

Even though this could be the case, it should not be taken as a given that the two variables of choice and attitude are measuring the same construct. It is possible for consumers to have positive attitudes toward the health care plans in which they are enrolled, even if they did not have a choice, if those positive attitudes were developed through experiential involvement. The premise of associating the two variables, choice and attitude, is based on an increase in positive measures of attitude with the presence of choice. It could be expected that some measure of positive attitude, although lessened, would exist when choice is not present.

The three-item choice scale suggested a negative association between perception of choice and intent to seek care for respondents who were members of an HMO. This is counter-intuitive. A closer look at the three items comprising this choice scale leads to the conclusion that the items were neither reliable nor valid.

Specific Aim 3

To explore what plan characteristics influenced consumers in their selection of a health care delivery plan.

From a marketing analysis perspective, plan characteristics can be assessed through consumer polls. Placed within a model for health care delivery, these plan characteristics are expressed through attitudes and can be measured as such. This helps to elucidate a clearer understanding of how and why these opinions are formed.

Consistent with the literature, cost, general satisfaction, and the manner in which care was delivered, emerged as determinants for consumers' intent to continue enrollment in their health care plans. However, these measures did not clearly delineate a preference for either the fee-for-service plan or the prepaid arrangement with regards to these factors.

Two of the three scales for the affect component had statistically significant differences. The scale that measured how respondents felt about the services provided, suggested that members of the FFS plan had more positive feelings. The other affect scale that tested significant for a difference, however, showed respondents enrolled in the HMO option as being more positive in

their general feeling about the benefits their plan provided.

Likewise, four of the seven scales used to measure the cognitive component of attitude proved to be statistically significant, or marginally so, for a difference in the plan membership. The FFS enrollees were more favorable than HMO members on three of these scales that measured general satisfaction, quality, and access. Results from testing the differences on a financial scale showed that respondents had more favorable thoughts on the cost of the HMO arrangement.

Plan membership had only a slight influence on the willingness of plan members to seek care. T-tests found that neither the routine care, preventive care, nor mental health care scales were significantly different in comparing the mean values of responses from members of the FFS plan versus the HMO plan. There was a modest difference in the urgent care scale, with FFS members being more positive in their intent to seek this care. However, this scale was comprised of only three of the 22 items used to measure behavior.

More telling was the difference on the two statements under the benefits scale of affect that had asked respondents to express their agreement on their ability to see a specialist by referral only and the ability to get emergency care. For both statements,

there was a significant difference by plan membership, with FFS members more positive in their feelings about getting speciality care and emergency care.

The summation of this exploration underscores the importance of introducing the choice variable as a means of furthering the understanding of why and how consumers develop the importance of the characteristics specific to their plan selection.

Specific Aim 4

To determine whether consumers' perceptions of choice were associated with their behavioral intentions in the use of their health care system.

The four-item choice scale was used in multiple regression analyses with each of the behavior scales, along with other independent descriptive measures -- gender, age, education, income, type of plan, and time as a plan member. The variable of choice consistently emerged as the only variable explaining the variance in the linear relationships.

These findings duplicate those found from the Curbow (1986) study; i.e., increased perception of choice is related to increased intent to use health care services provided by the plan. While there was no difference in behavior intent in a comparison of plan membership, this identifies even more strongly that choice is the crucial

variable in understanding behavior intent. The specifics of plan offerings does not drive use of health care services as much as the perception by consumers that they had made the choice to involve themselves in the behavior.

The descriptive variables of income and education were significant in explaining the linear relationship with intent to seek care for routine problems; that is, increased income and education were associated with increased intent to seek routine care. In that education and income are highly correlated, this distinguishes the influence of these variables as being economically driven, moreso than by plan characteristics.

Specific Aim 5

To examine whether consumers' perceptions of choice could be used to predict the likelihood of their changing health care plans at time of reenrollment.

There was a strong association between perception of choice and intent to reenroll in the health care plan in which respondents currently were enrolled. The choice scale explained 54.0% of the variance in relating choice to reenrollment.

The belief that the kind of choice being considered in making a selection of a health care delivery plan was an autonomous choice was well supported and consistent

with theory. There were significant differences in comparing the means of plan membership groupings in six of 14 scales on the tripartite model of attitude. These differences varied, with two of the scales favoring membership in HMOs and four scales favoring the FFS plan. That so many variables were influential in the selection of a health care delivery plan, presents alternatives that were complex and different on several dimensions -- the definition of an autonomous choice.

Specific Aim 6

To examine whether consumers' attitudes could be used to predict the likelihood of changing health care plans at time of reenrollment.

Members of the fee-for-service plan were more likely to express their intent to reenroll in their current plan than were members of the HMO arrangement. The reenrollment scale tested significant for this intent, although only two of the six variables comprising the scale presented a statistically significant difference on the t-tests. Those two variables, which had more favorable responses from FFS members, asked how positive respondents were when they discussed their health care plan with their friends, and how likely it was that they would always enroll in their current health care plan if the plan always remained an option.

Regressing the attitude scale by itself on reenrollment intent also presented a strong association, (multiple R=.642). As noted, this is consistent with past studies reported in the literature which identified cost, quality, patient-physician relations, and access, as major factors influencing reenrollment in health care plans (Berki & Ashcraft, 1980; Juba, Lave & Shaddy, 1980; Lairson & Herd, 1987; Mechanic, Ettel & Davis, 1990). In this study, these major factors were considered as variables within the tripartite model of attitude.

Past studies, however, reported conflicting results in the importance of these variables and the influence they exerted on reenrollment. Some studies had these factors driving satisfaction, and consequently reenrollment, in HMOs, while other studies had the same variables influencing satisfaction and reenrollment in fee-for-service plans (Scotti, Bonner & Wiman, 1986; Allen, Darling, McNeill & Bastien, 1994).

The more plausible answer now appears to be the one that steps back from the association of these variables to reenrollment and considers what drives that association -- the issue of perceived choice.

A review of the Pearson correlations of the attitude scales and reenrollment intent showed moderate to large effects for all measures, and for each health plan grouping. One of the largest correlations was .845,

associating the general satisfaction scale of cognition with reenrollment intent in the FFS grouping, as compared with a .543 correlation in the HMO group. The overall correlation was .663. This difference was statistically significant.

Another telling contrast was in the communication scale of cognition. This scale measured an association with reenrollment intent of .684 in the FFS group. This compared with a correlation of .393 in the HMO delivery plan. This comparison was significant. The quality scale of cognition had a modest difference in comparing the health care plans.

While each of the other scales for the cognitive component of attitude had stronger associations with reenrollment intent within the FFS group than the HMO option, they were not statistically significant. Still, this helps explain that consumers' opinions, what they think of their health care delivery arrangements, that these factors are important whatever the delivery method.

Consistent with prior studies, these strong associations to reenrollment intent were to be expected; the literature was replete with example of studies that presented evidence that high measures of satisfaction lead to reenrollment (Shimshak, DeFuria, DiGiorgio & Getson, 1988; Hennelly & Boxerman, 1983a; O'Connor, Shewchuk & Bowers, 1991; Davies, Ware, Brook, Peterson &

Newhouse, 1986). Conversely, poor levels of satisfaction lead to disenrollment.

From this perspective, there were no telling differences between health plan membership in the affect component of attitude, nor in any of the affect subscales, on intent to reenroll. Although, again, the strong association for each of these factors identified that how consumers felt, their emotional reactions, was a significant force in determining whether or not they intend to continue enrollment in their health care plan.

The more moderate to low associations of behavior to reenrollment intent suggests that consumers do not select their health care packages based on their behavior patterns as much as they do based on their perception of the manner in which that care is provided.

Specific Aim 7

To examine the relationship of attitude as a mediator for choice in influencing reenrollment intent.

There was no clear delineation of plan preferences for reenrollment intent based on plan characteristics. But there was a distinction based on perception of choice.

More telling, however, was the mediating influence that the attitude variables had in examining the relationship of choice to reenrollment intent.

Regressing reenrollment intent on both the choice and attitude scales showed an even stronger association for choice, with the explained variance increased to 60.9%. This shows that those differing dimensions of the delivery plans were important and is was not immediately clear which alternative was better.

While choice exerted a strong influence on reenrollment intent, almost a third of its effect comes indirectly through attitude. More specifically, the indirect effect came from the affect or cognition components of attitude. When regressed separately, the behavior component scales had only a small indirect effect.

This explains further that the driving forces for plan selection are not so much for the services that the plans provided, but moreso for the manner in which those services are delivered.

Implications for Marketing Analysis

In a classical market assessment, marketers would study the environment to pinpoint plan characteristics that rank high on an importance scale for plan selection. The opinion poll, or satisfaction survey questionnaire, often are the tools used to gather this information. Demographic trends and forecasts further cast an identity

on competing health care plans as targeting specific population groups.

Consequently, formal research often has been directed toward substantiating and/or validating these marketplace findings. This has left a large gap in understanding the antecedents to the satisfaction levels derived from plan membership.

From a marketing perspective, the association of choice with reenrollment intent explained through the attitudinal components, would be defined as "brand loyalty." Consumers develop an attachment to a particular health care delivery plan, through habit or deliberation, and establish their comparison level for choice (Kotler, 1986). In proferring alternatives, marketers must make their competing plans be seen as similar. As long as the "brand loyalty" plan remains an option, a consumer will perceive they had a choice unless they are pressured to select the alternative. If no loyalty exists, the choice matters less and "brand switching" is a possibility so long as the alternatives are comparable (Kotler, 1986).

This brand loyalty helps explain the deviations in demographic descriptions of plan enrollees. Age often is an influence. Considered from the life cycle, and placed in context with the choice variable, older adults process less information in a progressively less efficient manner

and become less adept in general problem-solving (Lesser & Kunkel, 1991). Early adults have a more intrinsic desire to inspect environmental stimuli. More simply, older people become set in their ways.

Likewise, other demographic variables such as marital status, race, gender, education, income, each are situational. To conclude that population groups of a set description are more apt to select either the FFS or HMO plan is relevant only within the context of the environmental stimuli, of which choice is critical.

The use of marketing analysis in guiding health care planning is at an evolutionary stage (Cooper, 1994) in which the focus is moving from an emphasis on selling to one of consumer needs. In that incentives that drive a selling strategy are grounded in short-term gains, studies of consumer relationships with health care have supported this effort with satisfaction surveys and consumer polls.

An interest in the study of perceived choice would support a long-term strategy through which consumer loyalty would be primary. Much research on choice has been done within the domain of consumer psychology, with a major issue being the effect of the amount and display of information on the optimality of choice (Slovic, Fischhoff & Lichtenstein, 1977). The study of perceived choice for this dissertation was targeted toward

supporting the evolution of the marketing discipline within health care to an emphasis on consumer needs.

One risk in extending the choice construct to a study of health care consumerism is that those marketers who have a short-term focus could use the findings in a contradictory application. That is, knowledge that the perception of choice influences behavioral intent could drive an unethical strategy that restricts choice in an effort to decrease use of services. Likewise, knowledge that perception of choice influences reenrollment intent could cause marketers to develop an unethical strategy that purposely creates a "Hobson's choice."

Health Policy Implications

The influence of cost will always be a primary concern. However, this influence is better understood in context of whether or not the cost of a health plan offering preempts choice. Marketers who posture their plans as the low-cost producer/provider can now understand why they might be left wanting in carving their market niche.

The example in this dissertation study highlights this point. The Johns Hopkins Hospital health benefits plans included a hospital-sponsored HMO arrangement that, in addition to being the lowest cost, offered the best characteristics of a HMO in combination with an option

for subscribers to choose their own physician, a desired feature of the FFS arrangement. Logic would suggest that such an offering would create a model that large employers and government agencies would want to copy in designing their own health plan packages. But results of this study suggest that, due to lack of perceived choice, members of this plan were less likely than FFS enrollees to intend reenrollment and generally were less satisfied with the arrangement.

This lesson should be taught to, and learned by, proponents of health care reform who have been posturing to reduce the federal budget deficit by reducing Medicare costs through managed care arrangements. Insisting that participation in a prepaid plan would be voluntary for Medicare beneficiaries, designers of this effort intend to create this volunteerism through financial inducements.

The message for this type of reform and other revisions in the national health care industry is that the perception of choice is paramount to any success. The westernized culture of America has created a "basic human condition" in which individuals pride themselves on the independence of their decision making. This theme was constant throughout a study on the future of public health (IOM, 1988). "Government is responsible for striving to achieve a balance between the two great

concerns in the American public philosophy: individual liberty and free enterprise on the one hand, just and equitable action for the good of the community on the other" (p. 46).

Reactions to lack of perceived choice conceivably could lead to noncompliance with treatment regimens, delays in seeking needed care, and/or noncommunicative interactions with medical providers.

Strategies to compensate for lack of choice, especially for those who are forced to accept whatever health care plan is made available to them such as the uninsured or financially dependent, must include a measure of perceived "control." That is, designers of the health care system who are aware of the need for perceived choice could create a systematic relationship through which the consumers have a measure of control. This could include such issues as scheduling, selection of physician from a specific list or between lists of physician groupings, pre-screening for information needs and prompting for types of questions consumers might want to ask their care providers, and increased participation on the process by advocates such as family and friends who could be permitted to accompany the consumer through the process.

Certainly the issue of the amount and nature of information is paramount. More indepth consideration for consumer psychology is warranted.

Limitations

While the random sample appeared to be an accurate representation of the employee population of Johns Hopkins Hospital, the hospital does not necessary represent the "typical" employer offering a selection of health care plans to its employees. Respondents were mostly female (81.8%), highly educated (59.8% with a college degree or higher), with moderate incomes (average was in the $45,000 to $50,000 range), and an average age of 38.

Nevertheless, this should not present a weakness to this study. If anything, it should make the results more vivid and telling because one might expect that workers within the health care industry would have a heightened sense of awareness of medical matters and provisions of their health care plans.

Indeed, four out of five (79.3%) of the respondents reported having had a routine health care visit within the past year, and more than half (56.3%) had an urgent medical visit in the past year. This potentially could have impacted on respondents' assessments of their

attitudes; however, it should not have influenced the measure of their perceptions of choice.

There was a problem in assessing the three-item choice scale. Although the three items had high loadings as a distinct factor through the factor analysis, the results were out of step with the design. In retrospect, the three statements were too literal. In asking for responses to statements -- *the plans that were offered to me were very different from each other, I considered a number of different aspects of each plan, and each plan offered mostly the same benefits* -- assessments were planned based on theory. The statements were counterintuitive, in that consumers might expect that they had a choice if the plans were different, not similar. A more subtle approach would be needed to elicit a measure of this issue.

Such a subtle approach might include a checklist of attributes of plan characteristics that respondents could identify as being associated with the plan they selected and with the plans they did not select. This same type of checklist could be used to identify plan characteristics that were important in the decision making process. Placing plan attributes in rank order and/or rating the characteristics on scales for importance also could help clarify the subtle distinctions of perception of choice.

This study also was limited in that reenrollment intent was measured, as opposed to actual reenrollment decision made. A scale measure of reenrollment intent did provide a measure of the strength of the intended reenrollment decision, as opposed to the distinct yes/no decision that would have been provided by obtaining the actual reenrollment decision.

However, the plans that were offered to respondents for their selection at the next reenrollment period were changed with regard to the plan features and costs. Further, there would be problems of maturation in that circumstances of respondents might have changed between the time period in which they completed the survey instrument and the time they made their actual reenrollment decision; i.e., family size and needs, experiences with their health care plan, knowledge, etc.

The behavior scales were slightly limiting. Crites, Fabrigar and Petty (1994) had cautioned that the use of the tripartite model should assess the reliability and validity of the components to insure that the scales are comparable. The design of the affect, behavior, and cognition measures used similar evaluative terms and Likert scales. However, the reliability for the behavior scales resulted in alphas of only .57 for the preventive care scale, and .67 for the urgent care scale. The other two scales for behavior and all of the scales for affect

and cognition had alphas that were comparable, ranging from .79 to .88.

In order to improve the behavior scales a study of the literature should have been made to identify a listing of those medical conditions for which consumers most often seek treatment. Another approach could have been to assess the administrative records for the typical health care encounters submitted for billing.

Another important limitation in this study was that the measure of perceived choice was not accompanied by a measure for expectation of choice. There is reason to believe that income levels might drive choice (Dawson, 1989) and that persons who are uninsured might not expect to have a choice. This should be studied in the future.

Future Study

Other antecedents to perception of choice, in addition to the expectation of choice, should be considered in future study of this topic. Such antecedents could include medical history, medical conditions of family members and specific health care needs, religion, past experiences with the health care systems, personality measures, and cultural considerations such as ethnic membership.

Suggestions for future study of the issue of perceived choice include a controlled study and a focus on the economic impact from lack of choice.

By conducting a controlled study, researchers could more completely establish the causal effect of choice in influencing reenrollment intent by identifying that a change in the value of choice would be accompanied by a change on the average value of the measure for reenrollment intent. This would satisfy the conditions of causality (Cook & Campbell, 1979) that the antecedent precede the dependent variable in time, that a mechanism be posited whereby the causal effect operates, and, most importantly, that a change in the value of the antecedent be accompanied by a change on the average in the value of the dependent variable.

More revealing for health care reform proposals, could be results of a study on the economic impact from lack of choice. Such an economic analysis should consider the increased costs in health care delivery derived from delays in seeking care, complications in care, and noncompliance with treatment regimens, resulting from decreased behavior consequent to lack of choice.

Conclusion

The most important finding from this study is how strongly the issue of perceived choice was associated with intent to reenroll in a health care delivery plan.

Whereas we have knowledge from the literature on past studies on the influence of those factors considered within the tripartite model of attitude as being associated with reenrollment intent (cost, quality, services), this study places those factors in a more proper sequence of influence. Considering those factors as mediators helped clarify their relationship on reenrollment intent.

Further, this perception of choice had a strong influence on behavior intent. This has implications on efforts to increase individual responsibility for health.

The issue of choice should drive health care reform discussions. If reforms are forced on consumers, this could have negative association with behaviors of individuals in seeking/involving themselves in care. This also could drive up economic costs (delayed care leading to more involved treatment regimens, increased hospital stays, noncompliance). If the move to encourage Medicare population enrollment in managed care plans is to be successful, the alternative arrangements must be presented in a manner that creates a true choice.

Appendix A

JOHNS HOPKINS
HEALTH PLAN SELECTION STUDY

Division of Social and Behavioral Sciences
Department of Health Policy and Management
School of Hygiene and Public Health
The Johns Hopkins University
Baltimore, Maryland

Instructions: YOUR PARTICIPATION IS VOLUNTARY. You may use either a pen or pencil to complete this questionnaire. In order to insure confidentiality, please DO NOT place your name anywhere on this questionnaire or on the enclosed self-addressed, stamped envelope that is to be used to return the questionnaire.

In completing each of the following sections, please think about the health care plan in which you currently are enrolled and the physicians that currently are available to provide your care.

If you have questions, please call the Project Director, Ted Chiappelli, at 410-647-2312.

Section One: Please respond to the following statements by writing the number in the space provided that most closely represents your opinion. The choices are:

1 = strongly agree
2 = agree
3 = not sure
4 = disagree
5 = strongly disagree

_____ 1. If I need hospital care, I can get admitted without any trouble.

_____ 2. Doctors need to be more thorough in treating and examining me.

_____ 3. I am very satisfied with the medical care I receive.

_____ 4. I worry sometimes about having to pay large medical bills.

_____ 5. It is easy for me to get medical care in an emergency.

_____ 6. Doctors are good about explaining the reason for medical tests.

_____ 7. I am usually kept waiting for a long time when I am at the doctor's office.

_____ 8. I think my doctor's office has everything needed to provide complete care.

_____ 9. The doctors who treat me should give me more respect.

_____ 10. Sometimes it is a problem to cover my share of the cost for a medical care visit.

_____ 11. The medical care I have been receiving is just about perfect.

_____ 12. Sometimes doctors make me wonder if their diagnosis is correct.

_____ 13. During my medical visits, I am always allowed to say everything that I think is important.

_____ 14. I feel confident that I can get the medical care I need without being set back financially.

_____ 15. When I go for medical care, they are careful to check everything when treating and examining me.

_____ 16. It's hard for me to get medical care on short notice.

_____ 17. The doctors who treat me have a genuine interest in me as a person.

_____ 18. Sometimes doctors use medical terms without explaining what they mean.

_____ 19. Sometimes I go without the medical care I need because it is too expensive.

1=strongly agree 2=agree 3=not sure 4=disagree 5=strongly disagree

_____ 20. The office hours when I can get medical care are convenient (good) for me.

_____ 21. There are things about the medical system I receive my care from that need to be improved.

_____ 22. The office where I get medical care should be open for more hours than it is.

_____ 23. The medical staff that treats me knows about the latest medical developments.

_____ 24. I have to pay for more of my medical care than I can afford.

_____ 25. I have easy access to the medical specialists I need.

_____ 26. Sometimes doctors make me feel foolish.

_____ 27. Regardless of the health problems I have now or develop later, I feel protected from financial hardship.

_____ 28. Where I get medical care, people have to wait too long for emergency treatment.

_____ 29. Doctors act too businesslike and impersonal toward me.

_____ 30. Doctors never expose me to unnecessary risk.

_____ 31. The amount I have to pay to cover or insure my medical care needs is reasonable.

_____ 32. There are some things about the medical care I receive that could be better.

_____ 33. My doctors treat me in a very friendly and courteous manner.

_____ 34. Those who provide my medical care sometimes hurry too much when they treat me.

_____ 35. Some of the doctors I have seen lack experience with my medical problems.

_____ 36. Places where I can get medical care are very conveniently located.

_____ 37. Doctors sometimes ignore what I tell them.

_____ 38. When I am receiving medical care, they should pay more attention to my privacy.

_____ 39. If I have a medical question, I can reach a doctor for help without any problem.

_____ 40. Doctors rarely give me advice about ways to avoid illness and stay healthy.

1=strongly agree 2=agree 3=not sure 4=disagree 5=strongly disagree

_____ 41. All things considered, the medical care I receive is excellent.

_____ 42. Doctors listen carefully to what I have to say.

_____ 43. I feel insured and protected financially against all possible medical problems.

_____ 44. I have some doubts about the ability of the doctors who treat me.

_____ 45. Doctors usually spend plenty of time with me.

_____ 46. Doctors always do their best to keep me from worrying.

_____ 47. I find it hard to get an appointment for medical care right away.

_____ 48. I am dissatisfied with some things about the medical care I receive.

_____ 49. My doctors are very competent and well-trained.

_____ 50. I am able to get medical care whenever I need it.

_____ 51. When I selected my health care plan, I felt I had many options to choose from.

_____ 52. I selected the health care plan that was best for my situation.

_____ 53. I enrolled in the only health care plan I could afford.

_____ 54. I would have preferred a different type of plan than the one in which I am enrolled.

_____ 55. The plans that were offered to me were very different from each other.

_____ 56. I considered a number of different aspects of each plan in making my enrollment decision.

_____ 57. Each of the plans offered to me provided mostly the same health care benefits.

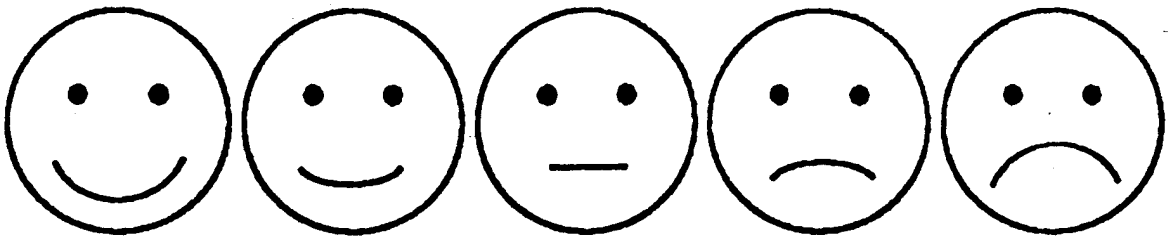
Section Two: If you or a family member had the following health problem, how likely is it that you would seek care using the health care plan in which you currently are enrolled? Your choices are:

1 = very likely
2 = somewhat likely
3 = not sure
4 = somewhat unlikely
5 = very unlikely

How likely would you be to use your health plan if you.....

_____ 1. had a high fever.
_____ 2. had a cold that would not go away.
_____ 3. had an asthma attack.
_____ 4. had a rash.
_____ 5. wanted to stop smoking.
_____ 6. had a sore back.
_____ 7. wanted a pap test.
_____ 8. had recurrent headaches.
_____ 9. had a loss of appetite.
_____ 10. wanted a test for HIV.
_____ 11. had a possible broken arm.
_____ 12. wanted a chest x-ray.
_____ 13. were feeling lightheaded.
_____ 14. were feeling depressed.
_____ 15. needed a vaccination.
_____ 16. had a pain in the chest.
_____ 17. were not sleeping well.
_____ 18. had a sore that would not go away.
_____ 19. wanted to lose weight.
_____ 20. were feeling tired and irritable.
_____ 21. had sharp abdominal pains.
_____ 22. wanted a general physical exam.

Section Three: Please tell us how you *FEEL* about the following aspects of the care and services provided by the health care plan in which you currently are enrolled. Please answer by writing the number of the face that most closely represents your feelings about the following:



1 2 3 4 5

_____ 1. The helpfulness and general attitude of your doctors.

_____ 2. How you are treated by the administrative staff.

_____ 3. The amount of time you have to wait in a doctor's office.

_____ 4. Your ability to see a doctor whenever you need.

_____ 5. The quality of doctors.

_____ 6. The number of days you have to wait for an appointment.

_____ 7. The availability of all the medical care you need.

_____ 8. The location of your medical group.

_____ 9. The amount of time the doctor spends with you.

_____ 10. The amount of information your doctor gives you.

_____ 11. The amount of benefits you receive.

_____ 12. The amount of information you receive on how to use your plan.

_____ 13. Your ability to see a specialist by referral only.

_____ 14. Your ability to get emergency care services.

_____ 15. The payment of your health care claims or bills.

_____ 16. Your selection of doctors.

_____ 17. All things considered, that your medical problems are taken care of in the best way possible.

_____ 18. The amount of out-of-pocket money you must pay to use your plan.

Section Four: Please answer the following questions by circling the response that best answers the question or by writing your answer in the space provided.

1. How long have you been a member of the health care plan in which you currently are enrolled?
   1. *0-5 months*
   2. *6-11 months*
   3. *1 year*
   4. *2 years*
   5. *3 years*
   6. *4 or more years*

2. Who is included in your plan membership? (circle all that apply)
   1. *yourself*
   2. *spouse*
   3. *children; if so, how many?*_____

3. Are prescription drugs a part of your benefit package?
   1. *yes*
   2. *no*
   3. *don't know*

4. Are eyeglass prescriptions provided as part of your plan?
   1. *yes*
   2. *no*
   3. *don't know*

5. How important were the following four factors in selecting your health care plan? Please rank the factors in order from 1= most important to 4 = least important.

   _____*access/convenience*

   _____*quality*

   _____*choice of doctors*

   _____*cost*

6. Have you or a member of your family been hospitalized in the past 12 months?
   1. *yes*
   2. *no*
   3. *don't know*

7. When was the last time you or a family member used your current health plan for a *routine* health care visit? (A routine visit is one which does not require immediate medical attention).
    1. *0-3 months ago*
    2. *4-6 months ago*
    3. *7-12 months ago*
    4. *1-2 years ago*
    5. *more than 2 years ago*
    6. *have not had a routine visit*

8. Did you call ahead to make an appointment or drop in?
    1. *called ahead*
    2. *dropped in*
    3. *don't recall*
    4. *does not apply*

9. When was the last time you or a family member used your current health plan for an *urgent* health care visit? (An urgent visit is one that you made for an illness or injury that required immediate attention).
    1. *0-3 months ago*
    2. *4-6 months ago*
    3. *7-12 months ago*
    4. *1-2 years ago*
    5. *more than 2 years ago*
    6. *have never had an urgent visit*

10. Did you call ahead or drop in?
    1. *called ahead*
    2. *dropped in*
    3. *don't recall*
    4. *does not apply*

11. Was there any time in the last 12 months in which you or a family member needed to make a health care visit but did not do so?
    1. *yes*
    2. *no*
    3. *don't know*

12. If yes, why_____

13. Was there any time in the last 12 months in which you or a family member paid for care that was not provided by the plan in which you are enrolled?
    1. *yes*
    2. *no*
    3. *don't know*

14. If yes, what kind of care was this?_____

15. During the past year, approximately how much money have you spent out of your pocket, if any, to provide health care for yourself and family members?_____

16. The next time you are asked which health care plan you want to be enrolled in, will you:
    1. *continue enrollment in the plan you now have.*
    2. *select another plan option similar to the plan you now have.*
    3. *select another plan that is different from the plan you now have.*
    4. *are not sure.*

17. How often do you discuss your health care plan with your friends?
    1. *often*
    2. *occasionally*
    3. *seldom*
    4. *never*

18. When you discuss your health care plan with your friends, are you:
    1. *very positive*
    2. *somewhat positive*
    3. *somewhat negative*
    4. *very negative*

19. How likely would you be to encourage a friend to join the health care plan in which you now are enrolled?
    1. *very likely*
    2. *somewhat likely*
    3. *not sure*
    4. *somewhat unlikely*
    5. *very unlikely*

20. How likely is it that you will change health care plans in the future?
    1. *very likely*
    2. *somewhat likely*
    3. *not sure*
    4. *somewhat unlikely*
    5. *very unlikely*

21. How likely is it that you will change health care plans during the next reenrollment period?
    1. *very likely*
    2. *somewhat likely*
    3. *not sure*
    4. *somewhat unlikely*
    5. *very unlikely*

22. All in all, based on what you expected your health care plan to be like when you joined it, would you say it has been:
    1. *better than you expected.*
    2. *about what you expected.*
    3. *worse than you expected.*

23. How likely is it that you will always enroll in the health care plan in which you currently are enrolled, if this plan always remains an option?
    1. *very likely*
    2. *somewhat likely*
    3. *not sure*
    4. *somewhat unlikely*
    5. *very unlikely*

24. On a scale of 1 to 10, with 1 being a low score and 10 a high score, how would you rate your health care plan for the following factors:

    _____ *access/convenience*

    _____ *quality*

    _____*choice of doctors*

    _____ *cost*

25. What is your gender?
    1. *male*
    2. *female*

26. How old were you on your last birthday?_____

27. What is the highest year of school you have completed?
    1. *grade school -- 1 2 3 4 5 6 7 8*
    2. *high school -- 9 10 11 12*
    3. *college -- 1 2 3 4*
    4. *graduate school -- master's doctorate*

28. What is your total family income?
    1. *under $15,000*
    2. *$15,000-$29,999*
    3. *$30,000-$44,999*
    4. *$45,000-$59,999*
    5. *$60,000-$74,999*
    6. *$75,000-$89,999*
    7. *$90,000 +*

29. What factors do you consider most important in selecting a health care plan?

_____

30. Additional comments:_____

_____

Thank you for your participation in this survey. *Please take a moment to be sure you have answered all the questions.* ***Please return your completed survey in the self-addressed, stamped envelope that has been provided.***

Appendix B

This appendix presents copies of the advance letter, cover letter, and follow-up reminder letters that were used in administering this study.

JOHNS HOPKINS HEALTH PLAN SELECTION STUDY
Division of Social and Behavioral Sciences
Department of Health Policy and Management
School of Hygiene and Public Health
The Johns Hopkins University
Baltimore, Maryland 21205

7 April 1995

Dear Health Plan Member,

Your name has been selected at random to receive a survey that asks questions about your attitude toward the health care plan in which you are enrolled through your employer, The Johns Hopkins Hospital. This letter is being sent to you in advance to ask you to participate in the survey and to tell you why your involvement is important.

Let me emphasize, your participation is voluntary and there will be no penalty if you choose not to participate. If fact, your employer will have no idea who has been sent a questionnaire and who has responded. Further, your responses will be held in strict confidence; this survey will not affect your Johns Hopkins Hospital benefits in any way.

The survey will ask questions about how satisfied you were with the different options you were offered when you selected your health care plan. The collective results of the survey will be shared with your employer and will be used in a research study that will suggest how employers can improve their offerings of health care plan options to their employees.

Your involvement is important. Because you are one of a select few who has been chosen to participate in this study, your response will speak for all the people who work at your firm. Thus, your response will count and could influence the shaping of policy regarding plans that are offered to you and others.

The survey questionnaire should be delivered to you in the next week or so. If you have strong feelings about not wanting to receive this survey, return the enclosed postcard to have your name deleted from the mailing list.

Thank you for your time in reading this letter and for the interest we hope you will have in the survey of your health plan.

Sincerely,

Barbara Curbow

Barbara Curbow, Ph.D.,
Associate Professor and Principal Investigator

Ted Chiappelli,
Project Director

JOHNS HOPKINS HEALTH PLAN SELECTION STUDY

Division of Social and Behavioral Sciences
Department of Health Policy and Management
School of Hygiene and Public Health
The Johns Hopkins University
Baltimore, Maryland 21205

25 May 1995

Dear Health Plan Member,

Please help.

You are one of a select few who had been chosen at random to receive a survey that asks questions about your attitude toward the health care plan in which you are enrolled through your employer, The Johns Hopkins Hospital. The survey instrument was mailed to you approximately a month ago. We are writing to once again ask for your participation and to again explain the importance of this survey. Another copy of the questionnaire is provided in case you have misplaced or discarded the previous issue.

If you have already returned the questionnaire, please excuse this follow-up letter and accept our gratitude for your response.

Your involvement is important. Because you are one of a select few who has been chosen to participate in this study, your response will speak for all the people who work at Johns Hopkins Hospital. Thus, your response will count and could influence the shaping of policy regarding plans that are offered to you and others in the future. The collective results of the survey will be shared with your employer to suggest how they can improve their offerings of health care plan options to you.

We again emphasize that your participation is voluntary and there will be no penalty if you choose not to participate. Your employer has no idea who has been sent a questionnaire and who has responded. Further, your responses will be held in strict confidence; this survey will not effect your Johns Hopkins Hospital benefits in any way.

Should you decide to participate, the survey can be completed in approximately 15 minutes. Thank you for your time and for the interest we hope you will have in this important survey of your health plan. If you have any questions, please call the Project Director at 410-647-2312.

Sincerely,

Barbara Curbow

Barbara Curbow, Ph.D.,
Associate Professor and Principal Investigator

Ted Chiappelli,
Project Director

JOHNS HOPKINS HEALTH PLAN SELECTION STUDY

Division of Social and Behavioral Sciences
Department of Health Policy and Management
School of Hygiene and Public Health
The Johns Hopkins University
Baltimore, Maryland 21205

10 July 1995

Dear Health Plan Member,

Please help.

You are one of a select few who had been chosen at random to receive a survey that asks questions about your attitude toward the health care plan in which you are enrolled through your employer, Johns Hopkins Hospital. The survey instrument was mailed to you approximately a month ago. We are writing to once again ask for your participation and to again explain the importance of this survey. Another copy of the questionnaire is provided in case you have misplaced or discarded the previous issue.

If you have already returned the questionnaire, please excuse this follow-up letter and accept our gratitude for your response.

Your involvement is important. Because you are one of a select few who has been chosen to participate in this study, your response will speak for all the people who work at Johns Hopkins Hospital. Thus, your response will count and could influence the shaping of policy regarding plans that are offered to you and others in the future. The collective results of the survey will be shared with your employer to suggest how they can improve their offerings of health care plan options to you.

We again emphasize that your participation is voluntary and there will be no penalty if you choose not to participate. Your employer has no idea who has been sent a questionnaire and who has responded. Further, your responses will be held in strict confidence.

Should you decide to participate, the survey can be completed in approximately 15 minutes. Thank you for your time and for the interest we hope you will have in this important survey of your health plan. If you have any questions, please call the Project Director at 410-647-2312.

Sincerely,

Barbara Curbow

Barbara Curbow, Ph.D.,
Associate Professor and Principal Investigator

Ted Chiappelli,
Project Director

Appendix C

```
Variable: ID                Label: control number
  No value labels           Type: Number  Width:  3  Dec: 0     Missing: * None *

Variable: PSQ1              Label: get admitted with no trouble
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ2              Label: drs need to be more thorough
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ3              Label: very satisfied with care
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ4              Label: worry about large bills
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ5              Label: easy to get emergency care
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ6              Label: drs explain visits
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ7              Label: wait long time in dr office
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ8              Label: complete care at dr office
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree

Variable: PSQ9              Label: more respect from drs
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   strongly agree                      2.00   agree
      3.00   not sure                           4.00   disagree
      5.00   strongly disagree
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```
Variable: PSQ10          Label: problem to cover cost share
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ11          Label: care is perfect
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ12          Label: wonder if diagnosis correct
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ13          Label: say everything important
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ14          Label: no financial setback
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ15          Label: exam checks everything
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ16          Label: short notice care
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ17          Label: genuine interest from drs
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ18          Label: medical term use
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
       5.00    strongly disagree

Variable: PSQ19          Label: go without care due to cost
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00    strongly agree                  2.00    agree
       3.00    not sure                        4.00    disagree
```

```
     5.00   strongly disagree

Variable: PSQ20         Label: convenient hours
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ21         Label: things that need improved
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ22         Label: open more hours
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ23         Label: knows latest med developments
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ24         Label: pay more than can afford
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ25         Label: easy access to specialists
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ26         Label: feel foolish
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ27         Label: protected from financial hardship
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ28         Label: wait too long for ER
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ29         Label: drs too businesslike
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
```

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     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ30          Label: no unnecessary risk
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ31          Label: reasonable cost
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ32          Label: some things could be better
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ33          Label: courteous treatment
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ34          Label: hurry too much
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ35          Label: drs lack experience
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ36          Label: places convenient located
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ37          Label: drs ignore what say
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree

Variable: PSQ38          Label: pay more attention
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                          4.00   disagree
     5.00   strongly disagree
```

```
Variable: PSQ39          Label: reach dr, no problem
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ40          Label: avoid illness advice
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ41          Label: care is excellent
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ42          Label: drs listen carefully
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ43          Label: feel insured & protected
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ44          Label: some doubts in drs ability
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ45          Label: time spend with drs
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ46          Label: drs keep worry away
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ47          Label: appointment right away
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
       5.00   strongly disagree

Variable: PSQ48          Label: dissatisfied with some things
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
       1.00   strongly agree                    2.00   agree
       3.00   not sure                         4.00   disagree
```

```
     5.00   strongly disagree

Variable: PSQ49          Label: drs competent
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: PSQ50          Label: get care when need it
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: CHOICE51       Label: felt had many options to choose from
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: CHOICE52       Label: selected best plan for situation
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: CHOICE53       Label: only plan could afford
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: CHOICE54       Label: preferred different plan
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: CHOICE55       Label: plans very different from each other
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: CHOICE56       Label: considered different aspects of each pla
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: CHOICE57       Label: each provided same benefits
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   strongly agree                    2.00   agree
     3.00   not sure                         4.00   disagree
     5.00   strongly disagree

Variable: BEHAVE1        Label: had a high fever (urgent)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very likely                       2.00   somewhat likely
```

```
      3.00   not sure                          4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE2        Label: had cold that would not go away (routine
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE3        Label: had an asthma attack (urgent)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE4        Label: had a rash (routine)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE5        Label: wanted to stop smoking (preventive)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE6        Label: had a sore back (routine)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE7        Label: wanted a pap test (preventive)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE8        Label: had recurrent headaches (routine)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE9        Label: had a loss of appetite (mental health)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE10       Label: wanted a test for HIV (preventive)
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                       2.00   somewhat likely
      3.00   not sure                         4.00   somewhat unlikely
      5.00   very unlikely
```

```
Variable: BEHAVE11      Label: had a possible broken arm (urgent)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE12      Label: wanted a chest x-ray (preventive)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE13      Label: were feeling lightheaded (routine)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE14      Label: were feeling depressed (mental health)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE15      Label: needed a vaccination (preventive)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE16      Label: had a pain in the chest (urgent)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE17      Label: were not sleeping well (mental health)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE18      Label: had a sore that would not go away (routi
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE19      Label: wanted to lose weight (preventive)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
      5.00   very unlikely

Variable: BEHAVE20      Label: were feeling tired and irritable (mental
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                      2.00   somewhat likely
      3.00   not sure                        4.00   somewhat unlikely
```

```
     5.00   very unlikely

Variable: BEHAVE21      Label: had sharp abdominal pains (urgent)
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very likely                      2.00   somewhat likely
     3.00   not sure                        4.00   somewhat unlikely
     5.00   very unlikely

Variable: BEHAVE22      Label: wanted a general physical exam (preventi
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very likely                      2.00   somewhat likely
     3.00   not sure                        4.00   somewhat unlikely
     5.00   very unlikely

Variable: FEEL1         Label: helpfulness & general attitude of drs
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
     3.00   not sure                        4.00   unhappy
     5.00   very unhappy

Variable: FEEL2         Label: treatment by admin staff
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
     3.00   not sure                        4.00   unhappy
     5.00   very unhappy

Variable: FEEL3         Label: time wait in drs' office
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
     3.00   not sure                        4.00   unhappy
     5.00   very unhappy

Variable: FEEL4         Label: ability to see dr whenever need
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
     3.00   not sure                        4.00   unhappy
     5.00   very unhappy

Variable: FEEL5         Label: quality of doctors
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
     3.00   not sure                        4.00   unhappy
     5.00   very unhappy

Variable: FEEL6         Label: days waited for appointment
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
     3.00   not sure                        4.00   unhappy
     5.00   very unhappy

Variable: FEEL7         Label: availability of all med care need
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
     3.00   not sure                        4.00   unhappy
     5.00   very unhappy

Variable: FEEL8         Label: location of medical group
  Value labels follow   Type: Number  Width:  2  Dec: 0     Missing:    -1.00
     1.00   very happy                      2.00   happy
```

```
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL9          Label: time dr spends with you
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL10         Label: amount of info dr gives you
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL11         Label: amount of benefits received
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL12         Label: info receive on use of plan
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL13         Label: see specialist by referral only
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL14         Label: ability to get ER care
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL15         Label: payment of claims
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL16         Label: selection of doctors
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy

Variable: FEEL17         Label: problems taken care of in best way
  Value labels follow    Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                          4.00   unhappy
      5.00   very unhappy
```

```
Variable: FEEL18          Label: out-of-pocket expenses
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very happy                        2.00   happy
      3.00   not sure                         4.00   unhappy
      5.00   very unhappy

Variable: TIMEMEM         Label: time enrolled in plan
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   0-5 months                       2.00   6-11 months
      3.00   1 year                          4.00   2 years
      5.00   3 years                         6.00   4 or more years

Variable: MEMBERS         Label: who included in plan
  No value labels         Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: DRUGS           Label: drugs part of plan
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   yes                             2.00   no
      3.00   don't know

Variable: GLASSES         Label: eyeglasses in plan
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   yes                             2.00   no
      3.00   don't know

Variable: HOSPITAL        Label: hospitalized in past year
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   yes                             2.00   no
      3.00   don't know

Variable: ROUTINE         Label: had routine visit?
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   0-3 months ago                   2.00   4-6 months ago
      3.00   7-12 months ago                  4.00   1-2 years ago
      5.00   more than 2 years ago            6.00   have not had a routine v

Variable: APPOINT         Label: how schedule routine visit, call ahead o
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   called ahead                     2.00   dropped in
      3.00   don't recall                     4.00   does not apply

Variable: URGENT          Label: make urgent visit?
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   0-3 months                       2.00   4-6 months
      3.00   7-12 months                      4.00   1-2 years
      5.00   more than 2 years ago            6.00   have never had an urgent

Variable: CALL            Label: how scheduled urgent visit, call ahead o
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   called ahead                     2.00   dropped in
      3.00   don't recall                     4.00   does not apply

Variable: NOTGO           Label: needed visit, but did not go
  Value labels follow     Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   yes                             2.00   no
      3.00   don't know
```

```
Variable: PAID              Label: care not covered
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   yes                                  2.00   no
      3.00   don't know

Variable: MONEY             Label: out of pocket expense
  No value labels           Type: Number  Width:  5  Dec: 0     Missing: * None *

Variable: REROLL16          Label: next time reenroll
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   continue enrollment in p             2.00   select another plan simi
      3.00   select another plan diff             4.00   not sure

Variable: REROLL17          Label: talk with friends
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   often                                2.00   occasionally
      3.00   seldom                               4.00   never

Variable: REROLL18          Label: friends talk
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very positive                        2.00   somewhat positive
      3.00   somewhat negative                    4.00   very negative

Variable: REROLL19          Label: encourage friends
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                          2.00   somewhat likely
      3.00   not sure                             4.00   somewhat likely
      5.00   very unlikely

Variable: REROLL20          Label: future changes
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                          2.00   somewhat likely
      3.00   not sure                             4.00   somewhat unlikely
      5.00   very unlikely

Variable: REROLL21          Label: next decision
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                          2.00   somewhat likely
      3.00   not sure                             4.00   somewhat unlikely
      5.00   very unlikely

Variable: EXPECT            Label: what is plan like
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   better than you expected             2.00   about what you expected
      3.00   worse than you expected

Variable: REROLL23          Label: always enroll in plan
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   very likely                          2.00   somewhat likely
      3.00   not sure                             4.00   somewhat unlikely
      5.00   very unlikely

Variable: GENDER            Label: gender
  Value labels follow       Type: Number  Width:  2  Dec: 0     Missing:    -2.00
      1.00   male                                 2.00   female
```

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Variable: AGE              Label: age at last birthday
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: EDUCATE          Label: highest school year completed
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: INCOME           Label: family income
  Value labels follow      Type: Number  Width:  2  Dec: 0     Missing:    -1.00
      1.00   under $15,000                    2.00   $15,000-$29,999
      3.00   $30,000-$44,999                  4.00   $45,000-$59,999
      5.00   $60,000-$74,999                  6.00   $75,000-$89,999
      7.00   over $90,000

Variable: FACTORS          Label: what factors considered important
  No value labels          Type: String  Width: 20            Missing: * None *

Variable: RANK1            Label: access, convenience
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: RANK2            Label: quality
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: RANK3            Label: choice of doctors
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: RANK4            Label: cost
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: RATINGS1         Label: access convenience
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: RATINGS2         Label: quality
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: RATINGS3         Label: choice of doctors
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: RATINGS4         Label: cost
  No value labels          Type: Number  Width:  2  Dec: 0     Missing:    -1.00

Variable: KINDPAY          Label: care plan no pay
  No value labels          Type: String  Width: 20            Missing: * None *

Variable: PLAN             Label: HMO or FFS
  Value labels follow      Type: Number  Width:  2  Dec: 0     Missing: * None *
     23.00   fee-for-service                50.00   HMO (Johns Hopkins)
     51.00   HMO (Freestate)
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Vitae

Theodore P. Chiappelli

EDUCATION AND TRAINING

1996	**Dr.PH**	*Doctor of Public Health,* Faculty of Social and Behavioral Sciences, Department of Health Policy and Management, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland.
1989	**M.S.S.M.**	*Master of Science in Systems Management,* University of Southern California, Institute of Safety and Systems Management, Pentagon Center; concentration in systems technology.
1985	**M.H.A.**	*Master of Health Administration,* University of Pittsburgh, Graduate School of Public Health; concentration in marketing and planning.
1975	**B.A.**	University of Pittsburgh at Johnstown; English, with major areas of concentration in writing and American literature.

PROFESSIONAL EXPERIENCE; MILITARY

1986-	Officer in the Medical Service Corps of the United States Air Force, serving in the followng assignments:
1992-	Air Force Institute of Technology, assigned to doctoral study at the School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland, working on a dissertation titled "The influence of perceived choice on consumer attitudes toward the selection of a health care delivery plan."
1990-1992	Commander, Detachments 2 and 5, Aeromedical Evacuation Squadron, Kelly AFB, Texas, and Keesler AFB, Mississippi; exercising command jurisdiction over all facets of activities at two geographically separate locations in support of aeromedical airlift missions originating, transiting and terminating in the Southeast and Southwest, serving an average of 135 missions and 3,200 patients each month. Concurrently served as consultant for Strategic Planning and Marketing for Wilford Hall USAF Medical Center, the largest medical facility in the Air Force inventory.
1986-1990	Assigned to Malcolm Grow USAF Medical Center, Andrews AFB, Maryland, a 285-bed hospital serving a military beneficiary population of 140,000 in the Washington, D.C., metropolitan area; budget $64.7 million; 1,352 staff members. Duty titles included Director, Medical Plans and Readiness; Commander, Medical Squadron; Executive Officer; and Assistant Administrator, Resource Management. Also assigned additional duty of Marketing Administrator and Planner.

PROFESSIONAL EXPERIENCE; CIVILIAN

1985 Pennsylvania Mines Corporation, Ebensburg, PA; served as Communications Specialist, with the assignment of communicating information regarding company policies, activities and accomplishments.

1980-1985 The Mercy Hospital of Johnstown, Johnstown, PA; held position of Communications Director, with specific function of marketing and public relations, and management responsibility for the printroom, mailroom, switchboard, information, and closed-circuit television system, and supporting clerical staff. Supervised staff of 17 people.

1973-1978 Johnstown Tribune Publishing Company, Johnstown, PA; served as a news reporter and photographer, including one year as manager of the newspaper's Bedford Bureau.

1970-1982 Self-employed as a printer, doing business as Graphic Creations by Chiappelli; business involved both offset and letterpress printing, photography, and freelance writing. Also published a weekly news magazine for one year.

PROFESSIONAL AFFILIATIONS

-- Fellow, American College of Healthcare Executives.

-- Member, Association of Military Surgeons of the United States.

-- Member, American Public Health Association.