CONSUMER/PATIENT PERCEPTION OF THE QUALITY OF HEALTH CARE SERVICE DELIVERY

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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
July, 1987

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THE QUALITY OF HEALTH CARE

SERVICE DELIVERY

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C O P Y R I G H T

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July, 1987

Dedicated to my mother

PREFACE

In the field of health care, it was not until a decade ago that the consumer's viewpoint started to be given attention in the form of patient satisfaction studies. One criterion for assessing whether any service system is benefiting its recipients is simply the recipients' perceptions of whether or not their needs are being met. Thus, despite the public's lack of technical expertise in health care, patient perceptions are also an important factor in health care quality assessment.

A model of the health care consumption process was used to conceptualize perceived quality as the consumer's evaluation of the quality of the health care service during the consumption stage. "Perceived quality" is conceptualized as being the result of a comparison of actual service received with the consumer's expectations, and is defined as a value judgment by the consumer of explicit aspects of the health care service. Consumers of health care base their evaluations of health care service quality on a number of attributes.

This study was exploratory and investigated the composition and structure of the construct of "perceived quality." The findings of this study will prove useful to public policy makers and health care providers, in addition

to academics in the disciplines of marketing and medical sociology.

I wish to express my sincere gratitude to all the people who assisted me in this work and during my stay at Oklahoma State University. In particular, I am especially indebted to my major adviser, Dr. Raymond P. Fisk, for his intelligent guidance, concern and invaluable help.

I am also thankful to the other committee members, Dr. Jane N. Hammer, Dr. James G. Hromas, Dr. Stephen J. Miller and Dr. Clifford E. Young for their helpful comments and suggestions during the course of this work.

I also wish to thank the College of Business Administration at Oklahoma State University for providing financial assistance for the study. I also appreciate the participation of the three hospitals that agreed to help survey their patients.

I also wish to thank my colleagues at Bentley College for their support and understanding as I completed the study.

My father, and all my friends deserve my deepest appreciation for their constant support, moral encouragement, and understanding.

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INTRODUCTION

The "consumer's viewpoint" has only recently been regarded as the basis for the foundation of the discipline of marketing. Towards the latter part of the nineteenth century, economic theorists or marginal analysts studied the consumer as "an 'economic unit' in the market, rather than as a 'consuming unit'" (Bartels 1976). Even in the early years of 'marketing' as a discipline in the twentieth century, the focus of marketing scholars was mostly on technical activities such as distribution. In tracing the history of marketing thought, Bartels (1976) noted that scholarly activity in marketing began with the conceptualization of marketing through three approaches: the commodity, the institutional, and the functional. The commodity approach dealt with the processes involved in the marketing of products. The institutional approach focused on the institutions of wholesale and retail distribution. The functional approach analyzed marketing activities or functions. The 1970s saw the marketing discipline focus on its responsibility to consumers and society in general (Bartels 1976). The discipline of marketing contends that consumption is the end and object of production. Thus, the

'marketing concept' itself, which is basically the philosophy that mandates satisfaction of consumer needs and wants as the goal of production, is a comparatively recent phenomenon (Stanton 1978, Kotler 1985).

However, in the field of health care, it was not until a decade ago that the consumer's viewpoint was given attention in the form of patient satisfaction studies. Even so, the critical value of these studies is only now being recognized and there is hope that consumers' perceptions will eventually be given their due place in the evaluation of quality of health care delivery.

Background of the Problem

Quality in health care has been a major concern of health care professionals for a long time. As early as the 1860s, Florence Nightingale advocated a uniform system for collecting and evaluating hospital statistics. One of the first studies reflecting serious concern with quality of medical care in the United States was the Flexner report in 1910, which was responsible for the closure of more than a third of the medical schools in the United States. The American College of Surgeons (established in 1913) initiated the concept of hospital accreditation with its inauguration of the Hospital Standardization Program in 1918. The responsibility of accreditation was given to the Joint Commission on Accreditation of Hospitals (JCAH),

established in 1952. More recently, this commission in 1981 implemented a new Quality Assessment Standard through a rigorous audit system (Graham 1982).

Some of the factors that have provided impetus for the current interest in the quality of medical care include: rising costs of medical care and the concern for cost-containment at the risk of a decrease in quality, rapid advances and the resulting sophistication of medical science, increased consumer expectations and proliferation of service institutions.

Rising costs of medical care have alerted government policy-makers and have forced health care providers to adopt methods to reduce these costs. These cost reduction methods may adversely affect the quality of medical care. The cost containment issue warrants concern if one looks at the trends in health care costs. National health expenditures rose from $100 billion in 1973 to over $350 billion in 1983. However, as a proportion of the Gross National Product, the rise in national health expenditures has been much steeper: from 7.8% to 10.8%. Hospital care expenses accounted for a substantial 41.4% of the total expenditure in 1983. From the base year (1967) to June, 1984, the medical care services price index has risen to 378. The hospital room price index, on the other hand rose from the same base year to a whopping 662 in June, 1984. In 1982, there were a total of 6,915 hospitals in the U.S.,

with 1,360,000 beds, with an average daily census of over a million patients and with almost 4 million personnel (Bureau of Census 1985).

Perhaps the most important factor responsible for the current interest in the quality of health services is the recent entry of the federal government into the health services system as a major third party purchaser of services for the poor and elderly through Medicare and Medicaid. Graham (1982, p.4) noted that as a legislative response, reflecting the increased demands for accountability of cost and quality, the federal government in 1972 created the Professional Standards and Review Organization (PSRO). The PSRO was required to formulate explicit criteria, norms and standards in order that it could monitor the quality of hospital and nursing home care.

Among the advocates of quality assurance in health care, there are three main pressure groups with differing perspectives and a differing set of priorities: government, consumers and professionals (Greene 1976). The government gives priority to efficiency - cost control without loss of quality, and effectiveness - ensuring efficacious care to all citizens. The consumer, on the other hand, wants easy access and continuity of care. Professionals generally advocate two tasks for quality assurance: efficacy of conventional medical practices and

technical competence among professionals.

A concerted effort is being made by public policy makers and health care administrators to plan, develop and implement quality assurance programs in health care systems, notably in hospitals (National Academy of Sciences 1976). The problem with these programs is that the guidelines have not been based, for the most part, on research that indicates what is important to the patient/consumer. Medical care assessment procedures initially relied solely on clinical and economic criteria. More recently, however, the consumer's opinion of services is being taken into account in assessments of quality (Locker and Dunt 1978). A report prepared for the National Academy of Sciences by the Institute of Medicine in 1976 noted that consumers of health care have traditionally not been considered in the quality of health care services and that additional work was needed to identify dimensions of health care that are important from the consumer's perspective. Consumer opinion, when taken into account in policy formulation, is a form of indirect consumer participation.

The Patient as Consumer

Adopting the marketing concept requires that the health care organization be consumer oriented. In other words, health care providers should concern themselves with

the satisfaction of consumers' needs and wants. The needs of the consumer of health care are two-fold: medical and psychosocial.

Consumers of a health care service are in a peculiar situation because their knowledge of health care is often limited. In addition, unlike consumers in other exchange processes, health care consumers place themselves in the hands of the provider who maintains control of the interaction (Rathmell 1974). Consumers' helplessness is heightened by their being unable to determine their specific medical needs, let alone solve their health problems. Consumers depend on many sources to help them decide on a provider. Sometimes the decision is made by others such as family, physician or financial guarantors.

It has been suggested that one criterion for assessing whether any service system is benefiting its recipients is simply the recipients' perceptions of whether or not their needs are being met (Berkanovic, et al. 1974). Scientific-technical criteria are not the only ones underlying professional definitions of need. Thus, despite the public's lack of technical expertise in health care, patient perceptions are also an important factor in health care quality assessment.

Patients, as consumers of health care, are painfully aware of the impersonality with which care is delivered by overworked professionals (Friedman and DiMatteo 1979). It

is obvious that consumers feel that the industry lacks sensitivity toward the psychosocial needs of the health care consumer. Hence, the notion of the patient as consumer brings home the point that the "best" procedures will vary depending on the needs and values of the patient. Also, by providing an account of their medical problems, (by following their treatment regimens and reporting reactions accurately and promptly), patients make a critical contribution toward the efficacy of their treatment. Therefore, it is important that these needs and values of the patients are understood by the providers because the consumer plays a major role in affecting the productivity of health services ("Toward a Consumer-intensive Health System," Social Policy, Nov/Dec 1975).

Justification

This research involved the process by which health care consumers evaluate the quality of the service they receive. This study focused on consumer needs and wants that are directly related to the satisfaction of the consumer of health care services. It is hoped that with a better understanding of how consumers evaluate the quality of health care services, quality assurance programs will be more effective and objective. Therefore, in addition to contributions to academics in the disciplines of marketing and medical sociology, this study will furnish both health

care providers and public policy makers with insights.

The issue of service quality has been neglected in most academic research on services (Gronroos 1982). Zeithaml (1981) and Gronroos (1982) have pioneered work in the area. Lehtinen and Laitamki (1985) provide a conceptualization of the dimensions of perceived quality in health care, which include physical, interactive and institutional quality. However, in the area of health care service, the issue of perceived quality from a customer point of view has been lacking.

Related research in health care satisfaction by marketing scholars has been sparse (Kennard 1983 and Lancaster 1983). Most of the research on health care satisfaction has been by medical sociologists. Patient surveys have been used to develop lists of attributes of a good physician (Mechanic 1974, Ware 1975). However, these studies have merely identified elements of services that patients complain about, are satisfied with or are dissatisfied with, rather than identifying and employing criteria for standards used by consumers themselves (Locker and Dunt 1978).

The results of this study will be generalizable to patients who have consumed the services of a health care service provider as well as to in-patients. These results will also indicate how the patients of these and similar providers evaluate the quality of the services provided by

such health care providers.

Research Questions

As with most other services, consumers find evaluating health care service more difficult than evaluating physical goods. This difficulty is primarily because of the intangibility and the simultaneity of production and consumption of services (Zeithaml 1981). The difficulty in evaluating health care services is more pronounced because the consumer does not know: (1) on which features of the service to base judgments; or (2) how to evaluate certain features of the service provider. This difficulty is especially true of the patients' evaluation of the more technical features of health care such as their own medical condition after consumption of the health care service and qualifications of personnel. This study addressed the question, "How does the consumer of a health care delivery system evaluate the service?"

During the consumption experience, consumers are presented with numerous cues from their encounters with various aspects of the service. Perception of quality in health care service is derived from a vague set of criteria based on perceptual cues that patients use. How do consumers form their impressions of the quality in the consumption of the service? With this understanding, providers of the service can anticipate and can satisfy

individualized non-medical or behavioral needs of the patient/consumer in addition to their medical needs. Specifically, this study attempted to answer the following questions:

a) What are the dimensions of quality as perceived by a health care consumer?

b) How are the components of these dimensions of quality related to each other?

c) Can consumers be categorized based on their use of quality attributes?

Perceived Quality of Health Care Service

A model of the health care consumption process was used in which the construct of perceived quality was viewed as an evaluation of the service during the consumption of the service. As such, this evaluation is on a cognitive dimension and is based on the patient's subjective standards or the patient's prior expectations. For the purposes of this study, the construct of perceived quality was proposed to be composed of four dimensions: technical quality, subjective quality, access and physical environment.

Satisfaction, on the other hand, includes an attitude of the patient following the evaluation of the health care service. Thus, perceived quality was conceptualized as an important determinant of satisfaction and, along with prior expectations, is one of the two major determinants of satisfaction.

The dependent variable was perceived quality and the independent variables was categorized into four dimensions: technical quality, subjective quality, access and physical environment (Ware, et. al. 1981). "Technical quality" was made up of four components: competence, credibility, reliability and security; "subjective quality" was made up of three components: courtesy, understanding/knowing the customer and communicativeness. Together, the above two dimensions are commonly referred to in the literature as "provider-conduct." "Access" was composed of two components: availability and responsiveness. Access and physical environment refer to system-related variables. Table I lists the components of perceived quality and their definitions.

TABLE I

DEFINITIONS OF TERMS

Competence means possession of the required skills and knowledge to perform the service. This could pertain to all personnel that are involved in delivering the service.
Credibility is the extent to which the name and reputation of the service provider is demonstrated by the service performance.
Reliability involves consistency of performance and dependability.
Security is the freedom from physical risk reflected in the consumers' confidence in successful medical outcome.

TABLE I (Continued)

Courtesy refers to the respect, consideration, politeness, friendliness of the personnel with whom the patient comes into contact.

Communicativeness refers to informing patients about various aspects of their consumption experiences and listening to patients expressing themselves about various aspects of their consumption experiences.

Understanding or knowing the consumer refers to the provider's demonstrated ability to show an interest on the service providers' part to understand the needs of the consumer.

Availability refers to ease of contact and approachability in regard to quantity of the personnel (or service).

Responsiveness refers to the willingness or readiness of employees to provide service and the timeliness of the service.

Physical environment (1) refers to any physical evidences of the service such as appearance of the personnel, design and layout of the facility, equipment used to provide the service.

Physical environment (2) refers to nonmedical services such as visitation hours, quality of the food service, etc.

*Adapted from Parasuraman, Zeithaml and Berry (1985).

Hypotheses

The research questions presented above were answered through the testing of three hypotheses:

1) Perceived quality is a function of eleven constructs: competence, credibility, reliability, security, courtesy, communicativeness, understanding, responsiveness, availability, and physical environment (1) and physical environment (2).

2) The eleven constructs of perceived quality can be structured into four dimensions: technical quality (competence, credibility, reliability and security), subjective quality (courtesy, communicativeness and understanding), access (availability and responsiveness) and physical environment (1) and (2).

3) The importance of the dimensions of perceived quality will differ based on such contingency variables as: age, income, education, exposure to close relative's hospitals experiences, severity of illness and number of previous exposures.

Research Design

The above hypotheses were tested with data collected from patients from three hospitals in three cities in the midwestern United States. The three hospitals in these cities were chosen because they were a cross-sectional representation of health care services in the area. Each patient spent at least one day in one of these hospitals. This duration of time ensured that the patient had adequate opportunity to be experience a substantial amount of the services provided by the health care institution.

The instrument used to collect the data was synthesized from several widely used patient satisfaction questionnaires. Responses were obtained for items in each of the four hypothesized dimensions of perceived quality - the independent variables. In addition, responses were also obtained for the dependent variable: perceived quality. The instrument also contained questions regarding the patients' sociodemographic status and their

predisposition toward health care providers.

Scope and Limitations

This study focused on the consumers' perception of the quality of a health care consumption experience based on their evaluation of the health care service provider. The study did not attempt to establish a relationship between the closely related constructs - patient satisfaction and perceived quality. Specifically, the construct studied in this research was perceived quality, which is one of the perspectives in evaluating quality of health care service. Other perspectives in the evaluation of quality focused on clinical or economic criteria. Therefore, this is only one of the types of measures of quality of a health care service. In other words, this study dealt with a much different approach than studies using patients' medical records as data sources, which in reality rely solely on providers' value judgments as to the quality of health care (Greene 1976). Patients' judgments of quality are valued in their own right and are not surrogate measures of certain dimensions of quality, such as clinical competence, on which the patient is incapable of making a technically competent evaluation.

The type of measure of quality that this study was concerned with has been called "acceptability" (Starfield 1973). Starfield described acceptability of care as that

which deals with the patients' judgments about the setting in which they received care, the personnel who delivered the services, and the way in which the encounter was conducted. In other words, this study investigated the quality of medical care by consumers' standards and not by health care professional standards.

In the broadest of contexts, discussions of quality of health care should include such issues as access to care; continuity of care; the organization of care; patient education, compliance, and satisfaction; and initial and continuing education of providers (Greene 1976). Of the above issues, this study focused on the issue of perceived quality, which is an antecedent to patient satisfaction. Therefore, it must be recognized that this study was by no means a comprehensive study on the quality of health care provided by an organization. The study restricted itself to those aspects of a specific health care provider that patients have evaluated in determining the quality of the service.

The study also delimited itself to the consumer's assessment of quality in a specific consumption experience, which is called a direct, micro measure of quality. In other words, the study did not purport to use an indirect, macro measure, which focused on the health care system in general.

Within the category of health care consumers, the

results of the study are specific to patients who have used a variety of the services provided by the health care provider, as opposed to out-patients. The study focused on consumers' perceptions of the quality of a specific health care consumption experience, namely consumption of a hospital's services and may not be generalizable to their perceptions of the health care system in general.

The sample may not be representative of the entire population, since it was delimited to three cities in the midwestern United States. The results are most appropriate to the type of consumers that patronise hospitals similar to the ones involved in the study.

Like most social science research, it must be acknowledged that it is probable that not all of the variables involved in this very complex human activity were captured in the study. Therefore, the constructs used to predict the consumer's perception of the quality of the health care service may not be all-encompassing.

Potential Contributions

The results of this study will be useful to health care professionals, the public policy-makers and academicians. The reader might note that the peculiar situation that the health care consumers are in, in terms of their needs and their frequent lack of capacity or knowledge about possible solutions, places the health care

consumer in a very different situation compared to most other consumers. Unlike the situation for goods marketers, the services marketer has the opportunity to participate actively in the consumption of the service. This simultaneity of production and consumption of a service gives the provider of the service the unique opportunity to monitor, if not control, the quality of the service.

Until recently, the health care profession did not actively practice marketing. Health care professionals do not receive any formal training in marketing and seem to have an inherent dislike towards the discipline. The marketing discipline is not fully recognized, understood or utilized by the health care industry (Dunlap and Dodson 1980, Rosenberg 1976). The marketing concept of a consumer orientation to satisfy consumer needs and wants is certainly applicable to a health care service, even though consumers of health care do not determine all the details of their service requirements. There is encouraging evidence that hospital planners and administrators are becoming aware that they must serve the needs of their clients (Fox and Storms 1976). Some hospitals have created marketing positions in their organizations. By providing a better understanding of consumer perceptions of the quality of their services, this study will enable health care providers to improve their services in areas that would increase consumer satisfaction.

The results will be of interest to the public policy-maker. The topic at the fifteenth annual symposium on hospital affairs was: "The hospital's role in assessing the quality of medical care," which focused on the issue of definitions of quality, in addition to criteria for its assessment (National Academy of Sciences 1976). Many hospitals have instituted quality assurance programs. The issue of quality has been a major concern of health care policy makers. There has been an urgency about this concern because of the health care crisis in America. (Berkanovic et al. 1974). Skyrocketing costs, insufficient numbers of health care professionals and the maldistribution of existing facilities and services have frequently been cited as sources of the crisis. Congress in 1972 enacted legislation that authorized the establishment of Professional Standards Review Organizations to monitor the appropriateness of health services financed by the Medicare, Medicaid and Child Health programs. The Institute of Medicine, National Academy of Sciences upon request by the Department of Health, Education, and Welfare reviewed quality assessment programs in the health care industry (1976). These assessments are increasingly taking into account the consumer's opinion of the service, in addition to the clinical and economic criteria used to measure outcomes. Traditionally, quality in health care has been defined by

the service provider rather than the customer (Laitamki and Lehtinen 1985). The growing role of marketing in health care has alerted health care professionals to the customer's perspective.

In addition, this study will benefit academic researchers in the disciplines of medical sociology and marketing by:

1. determining the dimensions used by patients to assess the quality of health care service;
2. exploring the possibility of categorization of health care consumers on the basis of differences in the process and dimensions used to evaluate quality; and
3. providing a better understanding of the health care consumer by using the framework of a service consumption process.

Organization Plan

The next chapter discusses the literature reviewed in the disciplines of marketing and medical sociology. Chapter III presents a model of perceived quality in health care services that was used as a framework for the study. Chapter IV explicates the research design and discusses the development of the research instrument. Chapter V explains the analyses of the data collected from the three hospitals involved in the study. Finally, Chapter VI summarizes the research, draws implications, examines contributions from the research, and suggests directions for future research.

CHAPTER II

LITERATURE REVIEW

Secondary sources of evidence pertaining to consumer perceptions of the quality of health care service are examined in this chapter. Perceived quality is conceptualized as an experiential precursor of satisfaction in the consumption of goods and services. There have been extensive studies on patient satisfaction with various aspects of medical care, but most of these studies have been devoid of theoretical bases (Ware et al. 1976, 1978; Locker Dunt 1978). The literature reviewed is drawn from two fields of study: medical sociology and marketing. In both these fields of study, perceived quality is embedded in the domain of satisfaction. Empirical studies on patient satisfaction and the theoretical foundation of consumer satisfaction are discussed. This is neither an exhaustive review of the topic areas nor of the specific sources cited.

Kisch and Reader (1979) discussed the contributions of sociology to medicine under two distinct areas: sociology <u>in</u> medicine and sociology <u>of</u> medicine. Sociology in medicine is that branch of inquiry dealing with the ecology and etiology of disease and the variations in attitude and

behavior regarding health illness. Sociology of medicine on the other hand deals with such aspects as recruitment and training of physicians, relations of physicians to others in the role set, medical organizations, and development of community health. The proposed study would fall under the second branch of inquiry namely the sociology of medicine. It deals with the quality in the delivery of services by hospitals from the client's perspective.

In the health care field, much of the research on patient satisfaction has focused on the construct either as the dependent variable or as an independent variable. As an independent variable, satisfaction has been studied as a predictor of subsequent behaviors such as treatment compliance, physician shopping etc. As a dependent variable, satisfaction has been studied as a result of determinants such as perceptions of service characteristics and patient characteristics. The literature cited from medical sociology includes patient satisfaction studies, where <u>patient perceptions</u> of various aspects of the health care service have been measured and correlated with an overall measure of patient satisfaction. It can be argued that these patient satisfaction studies actually measure patient perception of service quality (Pascoe 1985).

First, this chapter discusses the definition of the term "quality," as it has been used in various disciplines.

Second, methods of quality-assessment in health care that reflect the different perspectives involved are discussed. Consumers' perception of health care quality, which is one of the perspectives adopted among these methods of assessment, is labeled as "perceived quality." Third, a conceptualization of the construct of perceived quality in consumption is presented. Fourth, theoretical foundations in the consumer satisfaction domain are briefly discussed, where the literature reviewed deals with the construct of "perceived quality" as "perceived performance of products." Therefore, in this discussion, "perceived quality" is treated synonymously with "perceived performance." Fifth, to present the dimensions of quality in medical care as perceived by health care consumers, research in the evaluation of quality by consumers and their satisfaction with medical care are cited from the medical sociology literature. Finally, findings on the dimensions of service quality are also discussed.

Definition of Quality

"Quality" in everyday usage means "good" (Holbrook and Corfman 1985). With regard to an object, "quality" could mean: the ability of a product to perform its functions (Kotler 1983). A well known management consultant and writer, Philip Crosby (1984, p. 64), suggested that "quality" had to be defined as "conformance to requirements

and not as goodness." In the science of quality control engineering, "quality" is indeed defined as a conformance to standards or "zero-defects."

Webster's New Twentieth Century Dictionary (1985) defines quality as:

> 1) that which belongs to something and makes or helps to make it what it is; characteristic element, attribute; as, purity: tone is an important quality of music; and
>
> 2) any characteristic or character which may make an object good or bad, commendable or reprehensible, degree of excellence which a thing possesses; as, a fabric of poor quality. (p. 1858)

The above definition implies that "quality" could be used to mean either the degree of excellence that an object possesses or the properties that an object possesses. It is not surprising, therefore, that the term "quality" is defined differently in the hard sciences as compared to the social sciences. Even within the social sciences, the term is defined differently in economics, psychology, and sociology. Holbrook and Corfman (1985) reported disparity and confusion in the way "quality" is defined in various disciplines. They suggest a problem of inadequate conceptualization of the term "quality." In their view, "quality" has been treated in isolation and without conceptual relationships to other types of "value."

Treating "quality" as a type of value, Holbrook and

Corfman (1985) use the theory of value (or axiology) as a framework to distinguish "quality" from other types of value such as beauty, convenience and fun. They defined "value" as:

> ...a relativistic (comparative, personal, situational) preference characterizing a subject's experience of interacting with the object. The object may be any thing or event. (p. 40)

TABLE II

A TYPOLOGY OF "VALUE" IN THE CONSUMPTION EXPERIENCE

		Extrinsic	Intrinsic
Self-oriented	Active	convenience	fun
	Passive	quality	beauty
Other-oriented	Active	success	virtue
	Passive	reputation	faith

Source: Holbrook and Corfman (1985, p. 42)

Holbrook and Corfman developed a typology using three dimensions to distinguish between "quality" and other kinds of evaluative phenomena. They defined "quality" as an extrinsic, self-oriented passive value. By their classification (see Table II), "quality" is differentiated from other values such as convenience (self-oriented and

active) and reputation (other-oriented and passive), which are also extrinsic values. "Quality" is different from beauty, which is self-oriented and passive but an intrinsic value. Quality is a self-interest value that is utilitarian and instrumental and is something that a person apprehends and appreciates in the object or event.

In discussing the definition of "quality" as used in various disciplines, Holbrook and Corfman (1985) enumerate four kinds of definitions of "quality":

1) production-based definitions regard quality as something that is an implicit characteristic that depends on the inputs and processes used to create a thing or event;

2) reliability-based definitions focus on explicit aspects of the object or event such as a product's durability or freedom from defects;

3) qualitative definitions recognize that quality is subjective in that it depends on human responses but tend to treat such phenomena as implicit aspects; and

4) features-based definitions regard quality as a subjective response to explicit characteristics of the object or event.

The first two types of definitions tend to view "quality" as an objective aspect of an object or event, something that is present whether or not anyone happens to notice it. The latter two types regard "quality" as subjective responses of people to objects or events. Disciplines such as classical economics, value analysis and

quality control use definitions of the first kind, and disciplines such as micro and macro economics, and philosophy regard "quality" as a subjective response (Holbrook and Corfman 1985, p. 34).

Summarizing the semantic confusion surrounding the meaning of "quality," Holbrook and Corfman (1985, p. 42) caution the reader regarding the difference between "competence in linguistic use (as in our formal typology) and performance in psycholinguistic use (among real people engaged in everyday discourse)." They concluded from their empirical study that "perceived quality" is a relatively global value judgment. The subjects in their experiment were found to have treated "quality" as being somewhere between a specific and a global concept of value, indicating "...a gap exists between our logical typology and the colloquial usage of language to describe a consumption experience." (p. 53)

Since the proposed study deals with a customer perspective, it seems most appropriate to label the construct as "perceived quality," and to define it as a value judgment by consumers on the explicit characteristics of an object or event. The value is extrinsic, self-oriented, and passive in nature.

A review of the studies involving assessments of "quality" should reveal how the term has been operationally defined. The three most commonly used perspectives are

those of the government, health professionals, and the consuming population. As discussed in the previous chapter, the government has focused on the cost-quality trade-offs and access to health services; health professionals have laid out the criteria related to the process and outcome of medical care; whereas patients are more concerned about the access and the humaneness of medical care.

Assessment of Quality in Health Care Services

Numerous ways of studying health care have been proposed and tested. The models underlying the methods employed, study health care quality from different perspectives such as those of the health care institution, the medical staff, the patient and the patient's family (Lebow 1974).

Lebow lists five approaches to "care quality measurement." First, the "structural" approach considers only the organization of the care institution in terms of features of the design of the delivery system. This method focuses on the number of personnel and equipment in the system. One of the assumptions this method makes is that similarity of structures leads to similarities in the quality of services.

Second, the "process" approach to medical care

assessment includes more use of data than the structural approach and the actual care process is the focus of the study. Quality is assessed by comparing health personnel behaviors to a set of model behaviors. However, this involves previously determined criteria of "good" care, which vary across place and time.

Third, "end result measures" focus on the result of care rather than the process of care. This method should appear to determine the impact of both the structure and the process on patient well-being (Berkanovic, Reeder, Marcus and Schwartz 1974). Donabedian (1968) referred to this method as the ultimate validator of other quality measures, because in the final analysis, the medical outcome is the solution to the patient's problem.

Fourth, the "benefits to community" approach concentrates on the effects of the care to the community and therefore, it includes individuals that have not received care too. Lebow (1974) concluded that no one approach can be said to include the totality of aspects of medical care.

Fifth, a final approach to the evaluation of medical care is "patient perception of care" (Greene, Weinberger and Mamlin 1980), which Lebow reported was often wrongly grouped with process or end-result of care. Most of these assessments have been in the nature of patient satisfaction studies. Since these studies have paid very little

attention to conceptual or methodological issues (Locker and Dunt 1981), it is hard to discern what it is that the scales are actually measuring. Investigators have used terms such as "attitudes," "beliefs," and "perceptions" to describe their measures. Ware, Avery and Stewart (1978) noted that all the studies they reviewed (111 theoretical and empirical articles published during 25 years prior to 1976) obtained information regarding the patient's "evaluation" of characteristics of providers and services.

Berkanovic, et. al., (1974) stated that assessments of quality have conceptual and methodological problems, in addition to the problem of a lack of consensus in the definition of quality. Quality of care assessments are intertwined with societal, professional and patient expectations (Logerfo and Brook 1980; Lohr and Brook 1984); therefore, the definition of quality varies from study to study depending on the perspective adopted.

While defining the concept of quality, Donabedian (1980) attempted to reconcile the different perspectives of the assessment of quality in health care. He admitted tremendous difficulty in the task, "because each definition is legitimate within an appropriate context." (p. 16) He arrived at three definitions of "quality": the "absolutist," the "individualized," and the "social." The "absolutist" definition is stipulated by health care professionals. The "individualized" definition takes into

account the patients' expectations and valuations. The "social" definition includes an aggregation of the "individualized" definition along with a consideration of the distribution of the net benefit within a population.

Kisch and Reeder (1969) found that patients' evaluation of physician performance used criteria that correlated strongly with those generally accepted by health professionals. Therefore, it would seem that the "absolutist" definition and the "individualized" definitions might be less dissimilar than would be expected. This lack of difference is surprising, considering that the average health care consumer finds it harder to evaluate the service that they have received compared to consumers of most other services because of significant ignorance of the technical complexities of health care service. Consumers, therefore, rely on intangible evidences and use a unique set of cues to assess the quality of the service. Zeithaml (1981), pointed out the importance of the consumption phase when she argued that consumers primarily use experience qualities to appraise services.

Thus, this study adopted the fifth and final approach of health care quality assessment by Lebow's classification and will use an "individualized" type of definition of quality by Donabedian's classification. In other words, the phenomenon of patient expectations and evaluations of

health care services is the object of this study. The conceptualization in the marketing literature of the construct labelled "perceived quality" is presented in the following section.

Perceived Quality in Consumption

The issue of quality in the marketing literature had received scant attention until recently when the issue of perceived quality was addressed by researchers (e.g. Gronroos 1982; Parasuraman, Zeithaml and Berry 1985). Cox (1962), Olson and Jacoby (1972), and Szybillo and Jacoby (1972) were among the earliest marketing researchers to study how consumers utilize product cues to evaluate quality in physical goods. Product cues of experimental interest were price, brand image, packaging and actual composition of the product. Service quality is more difficult for the consumer to evaluate than goods quality (Fisk 1981; Zeithaml 1981). This difficulty in evaluation is because services, unlike goods, provide no tangible evidence for the consumer to evaluate quality. Consumers, therefore, depend on intangible cues to evaluate service quality.

Evaluations of quality in service consumption involve the process of service delivery as much as the outcome of the service (Gronroos 1982), because of the simultaneity of the production and consumption of services. Thus,

recognizing that services consumption is a dynamic process, some scholars have used an interactive framework to study the dimensions used by consumers to appraise services (Langeard, Bateson and Lovelock 1981). Also, the consumer satisfaction approach to service quality has helped raise sensitivity toward the dynamic, situational and subjective character of service quality (Klaus 1985). It seems widely accepted that the consumption process itself is as important as the actual outcome of the service when the service is being evaluated.

Scholars have suggested that quality in services is a result of a comparison of expectations with performance (Lewis and Booms 1983; Gronroos 1982). Smith and Houston (1982), among others, have used the disconfirmation paradigm in services. Gronroos (1982) states that perceived quality is the outcome of an evaluation process, where perceived service is compared with expected service.

Gronroos may have confused the conceptualization of the construct of perceived quality, by implying a difference between perceived service and perceived quality. As defined in a previous section of this chapter, perceived quality is a consumer's value judgment of explicit features of the product or service. Further, in equating perceived quality with the comparison of perceived service (or perceived performance) with expectations, Gronroos's conceptualization of perceived quality appears to be the

same as that of the construct of satisfaction.

Literature in the area of consumer satisfaction views the construct of satisfaction as the result of comparison between expectations and perceived performance (Oliver 1977, 1981; Swan and Trawick 1979, 1981; Sirgy 1982; Woodruff, Cadotte, and Jenkins 1983).

This author prefers to use the term perceived quality as synonymous with perceived performance. Perceived quality or perceived performance (consumers' perceptions of the quality of the service) is an evaluation of the service characteristics by the consumer. It results in perceptions of the actual service received as modified by expectations. Satisfaction is the emotional response based on perceived quality and expectations. This conceptualization of perceived quality or performance is congruent with consumer satisfaction literature.

The construct of perceived quality has received attention as "perceived performance" of products in the literature on consumer satisfaction/dissatisfaction. Efforts to explain and understand the construct of satisfaction have involved considerations of consumers' expectations and perceptions of product performance (Westbrook 1980). The image of a service provider can also influence the perceived quality of the service provider (Gronroos 1982). In other words, prior expectations of the consumer can also influence perceived quality. Olshavsky

and Miller (1972) found that expectations did indeed affect perceived product performance. Actual product performance when evaluated by consumers in the context of their expectations results in a confirmation or disconfirmation of these expectations. After reviewing the literature on consumer satisfaction, Oliver (1977) concluded that perceived performance is a positive function of expectation and confirmation/disconfirmation. Satisfaction in the consumption of a product is a function of these evaluations (or perceived product performance), expectations and the confirmation of disconfirmation of these expectations. Hunt (1977) referred to consumer satisfaction with a product as the favorability of the individual's subjective evaluation of the various outcomes and experiences associated with using or consuming the product.

Woodruff, Cadotte, and Jenkins (1983) noted that in the conceptualization of satisfaction very little effort had been made to explore the link between cognitive processes and emotion. In fact, Westbrook (1980) submitted that even though satisfaction had been conceptualized as an emotional response (Hunt 1977), most of the research had focused on the cognitive process in which consumers compare their prior expectations of product outcomes to those actually obtained from the product. The construct of perceived product performance (perceived quality) can be better understood with the help of theories that have been

used to explain the phenomenon of consumer satisfaction.

Theoretical Foundations of the Domain of Perceived Quality-Satisfaction

Marketing scholars working with the construct of consumer satisfaction have drawn from a rich array of socio-psychological theories. Many theories attempt to explain the phenomenon of consumer satisfaction: Helson's (1948) adaptation level theory, Hovland, Harvey and Sherif's (1957) assimilation-contrast theory, Festinger's (1957) dissonance theory, Solomon's (1980) opponent process theory, Carlsmith and Aronson's (1963) generalized negativity theory, Thibaut and Kelley's (1959) social comparison theory and Adams' (1963) equity theory. In general, all these theories predict that perceived product performance will be affected by prior expectations. Nevertheless, there is no immediate consensus on the magnitude and direction of the influence of expectations on perceived product performance.

Early conceptualizations of satisfaction were based on Festinger's (1957) theory of cognitive dissonance (Engel, Kollat and Blackwell 1968; Howard and Sheth 1969; Cardozo 1965). Social psychologists working with the theory suggested that an individual's cognitive elements need to be consistent with one another (Holloway 1967). Therefore, according to the theory, an unconfirmed expectancy creates

a state of dissonance (or psychological discomfort) because the experience with the product contradicts the consumer's original hypothesis (Brehm and Cohen 1962). Individuals respond to the dissonance by decreasing the disparity between perceptions of performance and their expectations. One of the ways that individuals reduce dissonance is by moving their perceptions of performance closer to their expectations.

Sherif and Hovland's (1961) assimilation theory also predicts that postexposure ratings are primarily a function of the expectation level because the task of recognizing disconfirmation is psychologically uncomfortable (Oliver 1977). Thus, both dissonance and assimilation theories make similar predictions. Only a few of the early studies in marketing lend support to this prediction (Olshavsky and Miller 1972; Anderson 1973; Olson and Dover 1976). In fact, many psychologists found conflicting evidence for the predictions (Chapanis and Chapanis 1964; Feldman 1966; Insko 1967; Rosenberg 1965; Cohen and Goldberg 1970).

Anderson (1973) found support for the assimilation-prediction in all but extreme cases of disconfirmation where he found support for a contrast-prediction. Sherif and Hovland's (1961) contrast theory would predict that satisfaction was a function of disconfirmation. Support for this theory can be found in the socio-psychological literature (Diab 1965; Freedman 1964; Whittaker 1965), and

in the marketing literature (Cardozo 1965; Cohen and Goldberg (1970). It was hypothesized that if disconfirmation fell within an individual's latitude of acceptance, then an assimilation effect would result; and if the disconfirmation fell outside the latitude of acceptance, a contrast effect would result (Anderson 1973).

Helson's (1948) adaptation level theory states that one perceives stimuli only in relation to an adapted standard. The standard itself is a function of perceptions of the stimulus, the context, and the psychological and physiological characteristics of the organism. The theory posits that once the standard is created, the adaptation level serves to sustain subsequent evaluations. The theory suggests that positive and negative deviations will remain in the general vicinity of one's original position. This theory has been used to understand and explain the concept of satisfaction (Oliver 1981). The prepurchase expectation level and the amount of disparity between expectations and product or service performance determine the level of satisfaction in the consumption of a product or service.

The opponent process theory adapted from Fletcher's (1942) phenomenon of homeostasis suggests that an individual would adapt to new stimuli in such a way that a constant level of excitation is maintained (Oliver 1981). This homeostasis is thought to occur because of a neurophysiological process known as opposition which

counters disruptive stimuli. Solomon and Corbit (1974) have applied this theory to emotional states of nature. Oliver applied it to the conceptualization of satisfaction suggesting that the level of homeostasis may be viewed as an individual's expectation and new stimuli as the disconfirmation experience.

In summary, consumer satisfaction is a function of expectations and perceived performance (or perceived quality). Further, the above sociopsychological theories would predict that prior expectations influence perceived performance to a great extent. Experiences with products that fall within a latitude of acceptance relative to the subjective standard would be assimilated; while experiences that are either more positive or more negative falling in a latitude of rejection would produce a contrast effect. In other words, when actual performance falls within acceptable limits of the subjective standards of quality, the performance (or quality) is perceived to be closer to the expectations than the actual performance.

Quality and Satisfaction in Health Care Services

In positioning the construct of perceived quality within the satisfaction domain, it becomes imperative to sketch the relationship between perceived quality and consumer satisfaction in health care. Unfortunately,

research in the area of satisfaction with health care services, has not been guided by a well-supported definition of patient satisfaction (Locker and Dunt 1978). In an excellent review and analysis of literature in patient satisfaction in primary health care, Pascoe (1984) concluded that patient satisfaction information can provide a dependent measure of service quality and serves as a predictor of health-related behavior.

Donabedian (1980) in his thesis on the definition of quality and the approaches to its measurement noted that client satisfaction is related to quality in many ways. Donabedian (1980) suggested that:

> client satisfaction is of fundamental importance as a measure of the quality of care because it gives information on the provider's success at meeting those client values and expectations which are matters on which the client is the ultimate authority. (p. 25)

Elaborating, he states that in being a distinct benefit of care, client satisfaction involves the balance of benefits and harms which are the fundamental core of the definition of quality. Whereas, in its influence on access and adherence to the treatment regimen, client satisfaction occupies a secondary position in the definition of quality. Also, since client satisfaction can be regarded as a judgment on the quality of care, it is not part of the definition of quality. In fact, most of the research conducted on patient satisfaction has focused on the

construct either as the dependent variable (determined by patient and service characteristics) or as an independent variable (predictive of subsequent behaviors) (Linder-Pelz 1982).

Patient satisfaction is defined as a composite of two psychological activities: (a) an evaluation of the structure, process and outcome of services; and (b) an affectively based response, or emotional reaction to the structure, process and outcome of services (Pascoe 1984). The evaluation is cognitive and perceptions of salient characteristics of the individual's health care experience are modified by a subjective standard. The result in effect is the perceived quality of the health care service. This perceived quality, in turn, determines the emotional response of the individual to the service, which is manifested in satisfaction or dissatisfaction of the patient with the health care service.

Linder-Pelz (1982) used Fishbein and Ajzen's attitude model to conceptualize patient satisfaction as an attitude and, therefore, as an emotional response. She defined patient satisfaction as an individual's positive evaluation of distinct dimensions of health care. Patient satisfaction is based on two distinct pieces of information: belief strength and attribute evaluations. According to Linder-Pelz, quality of care can be equated to the set of belief-strengths, meaning the extent to which

the particular service possesses or does not possess the attributes that were considered by the consumer.

As Donabedian (1980) stated, the patient's assessment of quality could "...pertain to the settings and amenities of care, to aspects of technical management, to features of interpersonal care, and to the physiological, physical, psychological, or social consequences of care." (p. 25). Reviews of early studies indicate that quality cannot be viewed as a unitary concept and that there is no single comprehensive criterion to measure the quality of patient care (Donabedian 1966).

The next section reviews some of the studies, conducted by medical sociologists, that have used scales featuring multiple dimensions. Also, studies of specific aspects of medical service that do not include the entire range of service characteristics are discussed. Literature from the field of marketing pertaining to dimensions of service quality is also discussed.

Dimensions of Quality

Andrews and Withey (1974) used a model of life-satisfaction "to assess perceived overall quality of life," which proposed that individuals indeed recognized multiple dimensions and used multiple criteria to judge their satisfaction with life. Research in the area of organizational behavior has viewed the construct of job-

satisfaction as being composed of multiple dimensions because there are "...discriminably different characteristics of jobs and job environments." (Hulin 1977) Multi-cue studies of perceived quality manipulate objective product cues to trace their effects on subjective quality judgments. Olson and Jacoby (1972) have criticized some of these studies for their atheoretical nature and their lack of any conceptual definition of quality. Gardner (1977), Monroe (1973), and Olson (1977) provide reviews that suggest that single cue and multi-cue studies have shown key differences in results.

Gronroos (1982) also differentiates between technical (what was delivered) and functional quality (how it was delivered). This dichotomy appears to correspond to Swan and Comb's (1976) conceptualization of product quality as the instrumental (physical dimensions) and expressive (nonmaterial, psychological) performance of the product.

Parasuraman, Zeithaml and Berry (1985) proposed a service quality model based on a series of gaps between perceptions/expectations of the service provider and those of the consumer. They conceptualized service quality as being composed of three categories of properties: experience, credence and search properties. They hypothesized that consumers typically rely on experience properties when evaluating service quality. Experience properties include courtesy, access, understanding the

customer, responsiveness and reliability. Credence properties are security (freedom from danger, risk or doubt) and competence (possession of the required skills and knowledge to perform the service). They state that credence properties are most difficult to evaluate and consumers are not certain of these attributes even after consumption. Search properties which include two dimensions - tangibility and credibility, can be determined in advance of consumption. This category would roughly equate to the image of the service provider.

Using the above framework, Parasuraman, Zeithaml and Berry (1985) visualized ten dimensions of service quality: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles. Their conceptualization of perceived quality is similar to Gronroos's in that perceived quality is thought to be the result of perceived service and expected service. Expected service is a function of personal needs and information on various aspects of the service provider derived from sources such as word-of-mouth and past experience.

Lehtinen and Laitamki (1985) conceptualized service quality in health care services to include physical quality (equipment and personnel), institutional quality (image of the provider), and interactive quality (provider-patient relations). Institutional quality influences interactive

quality and physical quality. They stated that institutional quality can also be experienced before consumption, whereas interactive quality and physical quality is experienced during consumption.

In the medical sociology literature, patient perceptions of medical care have been measured as independent variables in the measurement of patient satisfaction. The following discussion includes some of the medical sociological studies on patient satisfaction with various aspects of medical care.

Among the first to develop an instrument to measure patient satisfaction were Hulka, et al. (1970). Their Thurstone-type patient satisfaction scale featured subscales measuring patient-perceptions of professional competence, personal qualities of staff, and cost/convenience of treatment. Ware, et al. (1983) identified eight dimensions of patient satisfaction: interpersonal manner, technical quality, accessibility/convenience, finances, efficacy/outcomes, continuity, physical environment, and availability. (Further discussion of these two scales is presented in chapter IV.)

It is possible to conceive the above variables to fall into three major dimensions: physician conduct (interpersonal manner and technical quality), access (accessibility/convenience, finances, efficacy/outcomes,

continuity and availability), and physical environment. In fact, in an earlier study on patient satisfaction, Ware and Snyder (1975) arrived at four orthogonal factors in a factor analytic study: physician conduct, availability of care, continuity/convenience of care, access mechanisms. (This particular study started with a content analysis that yielded about 2,300 items from available instruments, publications in the health services literature and responses of convenience samples to open ended questions about medical experiences.)

Caring vs. Curing

At the very least, these instruments indicate that there was a dimension pertaining to the relationship between the physician and patient. Szaz and Hollander (1956) proposed three basic models of the doctor-patient relationship. The activity-passivity model suggests that treatment takes place regardless of the patient's contribution or the outcome, and the relationship is likened to a parent-infant situation such as in acute care. The guidance-cooperation model presumes that the physician possesses knowledge that the patient does not have, and the relationship is similar to the parent-child situation such as in primary and secondary care. The model of mutual participation views the relationship as an adult-adult partnership where the patient uses the expert help of the

physician such as in chronic ailments. They opined that each of the three models is appropriate under certain circumstances, and each is inappropriate under others.

Brook and Williams (1975) define quality of health care as:

Quality of Health Care = (Technical Care) + (Art of Care) + (Technical Care)*(Art of Care) + E

> Here, technical care includes the adequacy of the diagnostic and therapeutic processes. Art-of-care relates to the milieu, manner, and behavior of the provider in delivering care to and communicating with the patient. The interactive term emphasizes the notion that the two terms are not just additive. Finally, an error term is included as a reminder that measurement of any construct, such as quality, includes random error.... (p. 134)

Bloom (1963) referred to Hippocrates' fourth century writings on medical care to distinguish between the instrumental and expressive dimensions. It has been recognized that the patient evaluates the service quality on nontechnical or subjective as well as technical quality dimensions (Friedson 1961; Bloom 1963; Donabedian 1981). Technical quality describes <u>what</u> was delivered and includes the adequacy of the diagnostic and therapeutic processes. Subjective quality describes <u>how</u> the service was delivered and relates to the bedside manner, and behavior of the provider.

The foremost thinker in the area of patient satisfaction, Avedis Donabedian makes a similar

distinction. He (1980) noted that quality of interpersonal relationship is the extent of conformity to norms and expectations defined by society, whereas,

> ...the quality of technical care consists in the application of medical science and technology in a manner that maximizes its benefits to health without correspondingly increasing its risks, (p. 5)

In an early thesis on "patient views of medical practice," which discussed the data collected through a series of questionnaires and intensive interviews of subscribers to a health care delivery system in New York (for a detailed discussion, see Friedson, 1961), Friedson commented:

> Indeed in every intensive interview there were expressed two major criteria: first, in desirable medical care the practitioner must have interest in his patient; second, in desirable medical care the physician must be competent. (Friedson 1961, p. 45)

Friedson also stated that "interest" might be manifested by several characteristics, the most common being the willingness on the part of the physician to talk. Patients in these intensive interviews used epithets such as "curt" and "abrupt" to describe uninterested physicians. It seemed to him that patients felt uncomfortable with a physician's lack of interest and feared that the physician was not sufficiently motivated to competently practice medicine. The patients also seemed to accept that all physicians had minimum competence and they were really

assessing relative competence more than absolute competence. Most patients desired good technical care but insisted that without personal interest the practitioner could not use his full competence.

Friedson (1961) and Ben-Sira (1976, 1982) have found that subjective quality or mode of delivery may be more important to the patient than the content of service delivered. Whatever the relative importance, it appears that these two dimensions may be indirectly interrelated. DiMatteo (1979) suggested that physician-patient rapport influences patient satisfaction, treatment regimen compliance and medical outcome. Physicians and other health care workers who show concern and awareness for the patient can reduce the stress the patient experiences (Mechanic 1974, p. 15). This reduction of stress in the patient would improve the patient's response to medical treatment.

Willson and McNamara (1982) in an interesting study using video tapes of simulated physician-patient encounters with 127 students studied the extent to which competence and courtesy influenced patient perceptions of medical care and how these perceptions related to satisfaction. They found that satisfaction was strongly influenced by perceived physician courtesy and slightly less affected by perceived physician competence. Willson and McNamara also noted that courtesy and competence were distinctly

perceived, and that although subjects did not confuse the two, they were related to each other.

Zeev Ben-Sira (1972), in a general population study conducted in Israel on 1,892 subjects, found that the mode of medical care delivery was more important than the content. In fact, in another general population study (1982), this time with 1,141 subjects, he found that satisfaction with the affective behavior of the physician determined their evaluations of the physicians' competence.

There are numerous such studies that indicate that there are definitely at least two distinct dimensions: competence and courtesy. In a study of 900 primary care patients in a prepaid health insurance plan in Calgary, Canada, Larsen and Rootman (1976) studied the impact of the patient-physician relationship on overall satisfaction. They found that patient satisfaction increased when physician role performance met the patient's expectations. In a similar study done by Segall and Burnett (1980) in a Family Medical Center in Winnipeg, Canada, the researchers found that confirmation of patient's affective expectations was more important than administrative or procedural conformity. Woolley, et al. (1978) in studying 1,761 episodes of primary care found that 95% of these patients were satisfied even though 65% of the cases involved poor medical outcomes. They suggested that there were other factors besides technical competence that accounted for

patient satisfaction - especially the degree to which the doctor "cared" about the patient.

Access

Most of the research on access has focused on the financial aspects of health care, in particular, third party guarantors and costs of medical insurance (Aday, Fleming and Andersen 1984). Penchansky and Thomas (1981) define access as the degree of fit between the clients and the system. They conceptualized access to include the dimensions of availability, accessibility, accommodation, affordability and acceptability. "Availability" was defined as the adequacy of the type and volume of services to meet client needs. "Accessibility" was defined as the relationship between the location of supply to location of clients. "Accommodation" referred to the extent to which the organization of the services is able to accept clients' needs. "Affordability" related to the financial access of the client. "Acceptability" referred to the attitudes of the clients towards the personal characteristics of the provider such as age, sex, type of facility, neighborhood of the facility, religious affiliation, etc. They argued that several of the dimensions in the Ware, et al. (1983) taxonomy are identical or closely related to the access dimensions that they had identified.

How many dimensions?

Ware, et al. (1983) noted that the ability of the scales used by researchers to distinguish between the various dimensions of satisfaction had not been adequately proved. For instance, they found that the technical and subjective dimensions seemed to overlap and could be grouped under physician conduct (1975). Wolf, et al. (1978) also found substantial overlap between the three dimensions of satisfaction that they hypothesized: cognitive, affective and behavioral dimensions.

The "quality" literature reviewed indicates that there is a general consensus on the three dimensions of technical competence, humaneness of care and access to health care. The studies reviewed also showed that humaneness of care is probably more important to the patient than technical competence. This can be expected considering that health care consumers are aware of their inability to judge the complex technicalities of the service.

Summary

Much of the discussion in this chapter has defined and conceptualized the construct of perceived quality. Theoretical bases for the phenomenon of patient evaluation of health care as used in the consumer satisfaction literature indicate that "quality" of health care from the consumers' viewpoint is a value judgment on certain

features of the service.

Summarizing, it seems reasonable to hypothesize perceived quality to be composed of distinct dimensions and then test their reliability and stability before deciding the separability of the various dimensions. The more obvious dimensions used by patients to evaluate quality of health care, as suggested by the patient satisfaction literature reviewed are: interpersonal behavior of the personnel, technical competence and access. It is also apparent from the consumer satisfaction literature reviewed that patient evaluations of quality are influenced by their prior expectations.

CHAPTER III

MODEL OF PERCEIVED QUALITY

In order to conceptualize the research question regarding the composition of perceived quality, a model depicting the components of the perceived quality construct and the various relationships between the components is presented in this chapter.

Explanations of natural phenomena play an important role in all scientific inquiry. Models and theories serve as the primary tools aiding these explanations. A model is any structure that represents something else (Rigby 1965). A model is not expected to have the requisites of theoretical constructions. Instead, in being a representation of some phenomenon, it helps in the explanation of that phenomenon. An explanatory model according to Hunt (1983, p. 84), "...is any generalized procedure or structure which purports to represent how phenomena are scientifically explained." Models differ from each other because they use different kinds of logic and evidence to explain phenomena. In general, models serve four functions: (a) providing a broader context for the placement of findings; (b) identifying relationships between their component variables; (c) providing a common

perspective; and (d) identifying gaps in knowledge (Zaltman and Wallendorf 1979).

This chapter reviews a model of the process of evaluation of services by consumers. The model suggests that evaluation of the service by consumers is an ongoing process. A health care consumption process model using a similar structure, is presented to serve as a framework to study consumer perceptions of quality. The construct of perceived quality in health care services viewed as an evaluation by the consumer, is the result of a comparison between expected service and actual service received. Based on the marketing and sociomedical literature discussed in the previous chapter, a model of the construct of perceived quality is presented.

Service Evaluation Models

Only a few models (Czepiel and Rosenberg 1979, Day 1977, Fisk 1981, Lancaster 1983, Ortinau 1970) depicting consumer evaluations are to be found in the marketing literature. Generally, these models view the consumption process as composed of three stages: preconsumption, consumption and postconsumption. However, they assume that evaluation takes place only after consumption.

Lancaster (1983) studied patient satisfaction among geographically mobile families. He discussed health care consumption in three stages: preutilization, utilization,

and postutilization. Lancaster used the process framework to organize a host of complex variables and processes that affect consumers' decisions at each stage of the health care consumption process.

Fisk (1981) developed a model depicting evaluation of services by consumers as the result of triggering cues. He suggested that evaluation takes place after each stage in the consumption process. He assumed in his model that evaluation becomes most salient after behavioral acts (i.e. there is an act-behavioral linkage) and the perceptual focus of the evaluation is on the act it follows. Fisk's model uses a sequence of three evaluations during the consumption process when the consumer cognitively processes an experience with the serivce provider. The first evaluation takes place before the actual consumption of the service and is a function of three stages in the traditional consumer purchase process: problem recognition, information search, and alternative evaluation. Evaluation in the preconsumption stage seeks to identify the best solution to the consumer's problem and helps consumers form a set of expectations about the service. Evaluations in the consumption stage are proposed to be a function of the first evaluation and the choice of the service provider. The third evaluation occurs in the postconsumption stage and is a function of the first two evaluations and the experience with service. The result of

this last evaluation, according to Fisk, is satisfaction or dissatisfaction with the service. The result of this evaluation is the repurchase motivation of the consumer, which affects the first evaluation of future consumptions. The primary usefulness of the Fisk model in developing the health care consumption process model is in the idea of a sequence of three evaluations by the consumer.

A model will help conceptualize the health care consumption process and serve as a framework to capture the variables that influence the patient's evaluative processes before, during, and after the consumption of the service. The focus of this study was the construct of perceived quality, which is the manifestation of the evaluations of the consumer during the consumption of the service. The next section develops the model and positions the construct of perceived quality in the consumption process.

A Health Care Service Consumption Process Model

The model proposed here (Figure 1) is a "pattern model" by Hunt's (1983) classification of models. Kaplan (1964) stated that these models could use various combinations of relations between specific parts within a unified system. In the proposed model, the system is the consumption process of the health care consumer and perceived quality is one of the outcomes during this

FIGURE 1

THE HEALTH CARE CONSUMPTION PROCESS

Stages	Preconsumption	Consumption	Postconsumption
Influencing Factors	Word-of-Mouth	Technical Quality	Medical Outcome
	Past Experience	Subjective Quality	Marketer Effects
	Marketer Communication	Access	Nonmarketer Effects
		Physical Environment	
Evaluative Responses	Expectations	Perceived Quality	Satisfaction/ Dissatisfaction

process. The construct of perceived quality, as discussed in the previous chapter, is a cognitive response that is an evaluation by the consumer of the service received.

Thus, consumer evaluations of services can be studied within the framework of a consumption process model similar to the one described above. The model of the health care consumption process presented here builds on the Fisk (1981) model by borrowing some of its assumptions. The following are the two major assumptions that require mention.

First, the model assumes that the consumption process can be divided into three discrete stages: preconsumption, consumption, and postconsumption. Thus, a preliminary medical diagnosis made before the patient entered the hospital, for example, would be considered as part of the preconsumption stage. Also, follow-up treatment that patients receive after they leave the hospital would be a part of the postconsumption.

Second, it is assumed that the patient makes continual evaluations of the service during the whole process of consumption. At every encounter or contact with the health care provider, consumers evaluate the provider of the health care service. These evaluations are based on impressions or cues that consumers consciously or unconsciously process. Consumers obviously use impressions or cues that they are exposed to or that they experience at

each stage of the consumption process. For ease of operationalization and measurement, three consumer evaluations are posited. In other words, there are three instances when evaluations become most salient.

Three Stages of Consumption

The preconsumption stage involves problem recognition, information search and choice of the health care provider. Average health care consumers are not very knowledgeable about their health care needs. Knowledge of their own needs is limited to an awareness of physical discomfort. For the same reason, their information acquisition strategies as well as psychological outcomes of the consumption are very different from that of consumers of other services. The average health care consumer is ignorant about the highly technical and complex medical discipline and is a poor judge of the technical attributes of the service (Kisch and Reeder 1969, Andreasen 1979, and Kelman 1976). Health care consumers are, therefore, more often than not in a situation of high perceived risk. In such a situation, research predicts that the consumer goes through an intensive and extensive search for information on the service provider (Bettman 1978, Zeithaml 1981). Health care consumers, therefore, have family, friends or the family physician assist them in their choice of the health care provider.

Aside from their past experience, patients use both marketing as well as nonmarketing (or word-of-mouth) information about the provider, then, derive a preconsumption image of the health care provider and translate this image into expectations on various dimensions of the service. However, the consumer of health care services has a less developed level of expectations compared to expectations of physical goods (Parasuraman, Zeithaml and Berry 1985).

Table III presents an overview of the evaluations made by the consumers during the three stages of consumption and the factors that have influenced them in crystallizing their evaluations.

TABLE III

INFLUENCING FACTORS AND RESULTS OF EVALUATIONS

STAGE IN CONSUMPTION PROCESS	EVALUATIONS	INFLUENCING FACTORS
Preconsumption	Expectations	Personal experience
Consumption	Perceived Performance	Expectations and Actual Performance
Postconsumption	Satisfaction/ Dissatisfaction	Expectations, Perceived Performance

* adapted from Fisk (1981)

It has been suggested that service evaluation is an ongoing process (Fisk 1981). In his model, Fisk assumed that the first evaluation takes place in the preconsumption stage and is manifested in the expectations of the consumer. These expectations are derived during the information search activities of the consumer. They are based on previous experiences of the individual, including all vicarious exposures of the individual to health care services. Evaluations of the consumer in this stage result in a set of expectations resulting from values and norms regarding levels of salient service attributes that are acceptable to the consumer.

In the consumption stage, the consumer actually consumes the services of the health care organization and the experience provides the consumer with a firsthand impression of the service provider. Impressions about both instrumental as well as expressive performance of the service provider are used by the consumer to evaluate the quality of the service. The evaluation that takes place during the consumption experience is manifested in the quality perceptions of the consumer. In other words, perceived quality is the evaluation of the service provider's performance based on perceptions of the actual service and modified by the expected service. This second evaluation is thus dependent on the first evaluation which formed the expectations of the consumer.

The service provider is evaluated on both the subjective as well as the technical dimensions of the service delivery. The service is also evaluated on other features such as availability and responsivensess of the service ingredients. Tangible cues in the physical environment also account for the perceptions of quality of the service. (The construct of perceived quality is conceptualized in the next section of this chapter.)

The postconsumption stage involves the actual medical outcome of the service. Evaluation in this stage results in an emotional response to either a confirmation or disconfirmation of expectations and could result in either satisfaction or dissatisfaction. The evaluation can be influenced by marketer effects (such as posttreatment care) as well as nonmarketer effects (such as word-of-mouth influences), in addition to the actual medical outcome of the service-consumption. Thus, the third and final evaluation takes place in the postconsumption stage where the result is the postconsumption image of the provider and is influenced by the previous two evaluations, namely, expectations and perceived quality. Confirmation/ disconfirmation, defined as the result of cognitive-based comparisons between expectations and perceived quality, might be visualized as an intermediary construct to satisfaction or dissatisfaction of the consumer.

Proposed Perceived Quality of Health Care Model

Health care consumers have a very peculiar way of evaluating the quality of the health care service that they are consuming. This peculiarity in evaluation is due to their lack of knowledge about the complex technicalities of the medical discipline (Kisch and Reeder 1969). Researchers have developed patient satisfaction instruments that were based on thorough content analyses (Ware, Snyder, and Wright 1976 and Hulka, et al., 1970). Items were generated (as discussed in the next chapter) from publications and focus groups that included patients. The three major constructs discernible from their survey instruments include competence, interpersonal qualities and access.

In the health care consumption process model presented in Figure 1, expectations, perceived quality and satisfaction are treated as resulting from evaluations made by the consumer during the preconsumption, consumption and postconsumption stages of the health care service consumption process respectively. Expectations are derived from such information sources as past experience, family and friends, and physicians other than the service provider. In addition, marketing communications of the service provider also influence the expectations of the

consumer. Perceived quality is effectively an evaluation of the actual performance (composed of perceptions of the technical and subjective qualities, access and physical environment) based on the predisposition of the patient. Satisfaction or dissatisfaction is a function of the prior expectations, the perceived performance and the confirmation or disconfirmation of expectations.

A model of perceived quality, is presented in Figure 2. The model conceptualizes the nature of the relationships between the variables that influence the evaluation of the performance of the provider. Perceived quality is the construct that represents the perceptions of the consumer regarding the performance of the service provider or, in other words, the perceived service. This perception of the actual service delivered is influenced by the expectations of the consumer.

Gronroos (1982) viewed perceived quality as the result of a comparison between expected service and perceived service and as influenced by the corporate image. He suggested that corporate image is the composite of technical quality and functional quality. Technical quality refers to what was delivered and is a result of such factors as knowledge of the provider, employee's technical ability, computerization, etc. Functional quality refers to how the service was delivered and is a result of such factors as appearance, accessibility,

attitudes, behavior, service-mindedness, etc., of the provider.

The ten dimensions of perceived quality proposed by Parasuraman, Zeithaml and Berry (1985) (and discussed in the previous chapter) can be structured into four major dimensions. These four dimensions have been demonstrated by the patient satisfaction intruments. Technical quality, the first dimension presented in Table IV includes credibility, competence, reliability and security. Subjective quality, the second dimension includes courtesy, communicativeness and understanding the consumer. Two other dimensions were hypothesized as access (responsiveness and availability) and the physical environment.

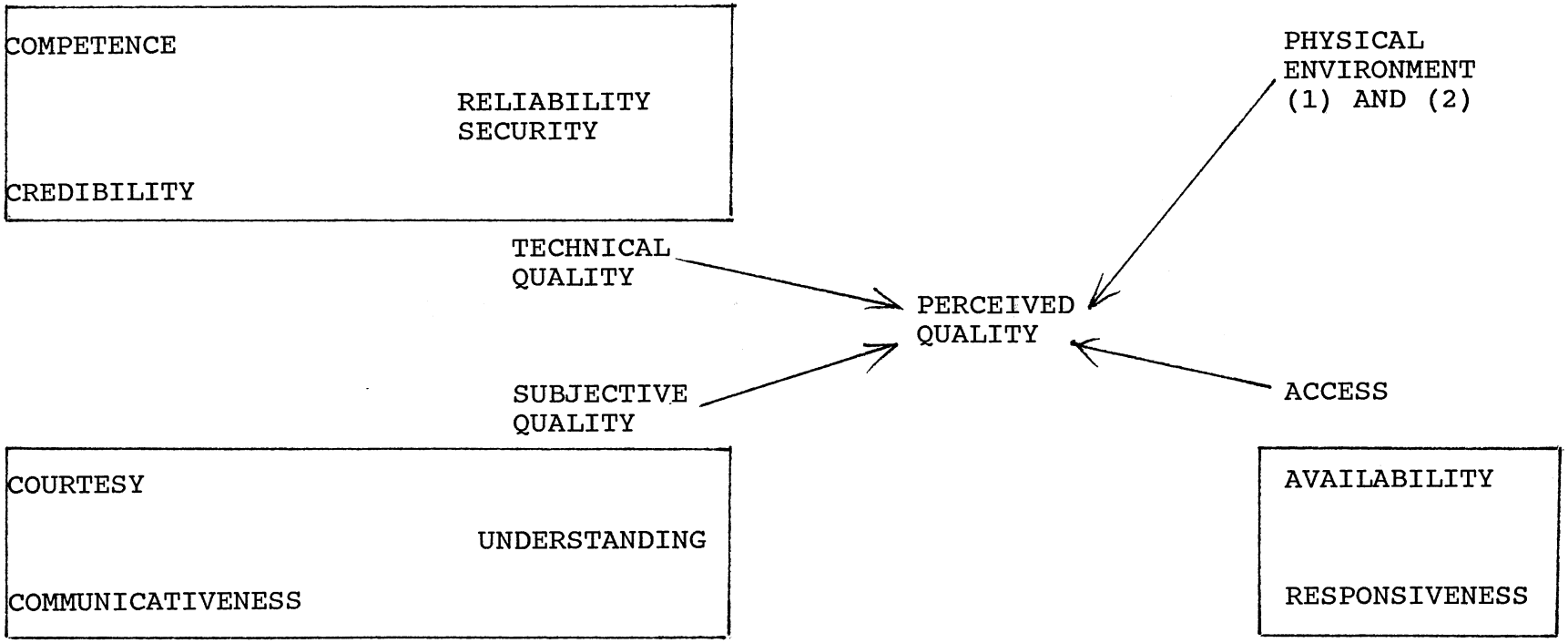
TABLE IV

DIMENSIONS OF PERCEIVED QUALITY

TECHNICAL QUALITY	SUBJECTIVE QUALITY	ACCESS	PHYSICAL ENVIRONMENT
Competence Credibility Reliability Security	Courtesy Communicativeness Understanding/ Knowing	Availability Responsiveness	Tangible- evidence

FIGURE 2

PROPOSED MODEL OF PERCEIVED QUALITY



In the model presented in Figure 2, perceived quality is viewed as being comprised of these four factors: technical quality, subjective quality, access and physical environment.

Technical quality is a function of competence, credibility, reliability and security. Competence refers to the perceptions of the consumer about the knowledge and skills of the contact personnel. Survey instruments measuring patient satisfaction (Ware, Snyder, and Wright 1976) seem to indicate that patients use such cues as the thoroughness of the physicians' examination of the patient in their perceptions of the technical quality of the service provider. Credibility is really the perception of the consumer of whether the service personnel are conforming to the name and reputation of the service institution. Reliability reflects the perceptions of the consumer regarding the dependability of the organization to provide consistently "good medical care." Parasuraman, Zeithaml and Berry (1985) operationalize the term - "perform the service right the first time" (p. 47). Security indicates the patients' perceptions of whether they can rely on the organization to satisfy their medical and nonmedical needs. Perceptions of competence and credibility influence the security that the patient perceives in the service provider.

Subjective quality is a function of courtesy,

communicativeness and understanding/knowing the consumer. The kinds of expectations and instructions that the physician provides the patient can alleviate the patient's anxiety and distress. Thus, this dimension refers to the interpersonal manner of the contact personnel in the providing organization. Courtesy refers to the respect, politeness and friendliness of the personnel as perceived by consumer. Communicativeness refers to those perceptions of the service that service personnel impress on the consumer by their willingness to listen and their sharing of all information of relevance to the consumer. Understanding/knowing the consumer reflects the concern and interest that the service personnel have in the consumer's specific requirements. It is suggested that the courtesy and communicativeness that patients perceive in the service provider will influence the extent to which patients feel that the provider is aware and understands their needs.

Access is a function of availability and responsiveness. In other words, access here is defined in terms of only nonfinancial access. The financial cost of medical care has been excluded from the access dimension because patients are not necessarily aware of the cost during or after consuming the services. Availability is the variable that relates to the consumer's impression of the quantity of the service features such as personnel and facilities. Responsiveness indicates the perceptions of

consumers regarding the willingness and promptness of the service provider in meeting their specific demands.

Physical environment includes all tangible evidences in the service delivery system such as appearance of personnel, cleanliness, sophistication of the facilities, etc. The concept has been generally ignored in the patient satisfaction literature. In the marketing literature, the concept has received a lot of attention in the area of retailing services. The term "atmospherics" has been used to describe "the conscious designing of space to create certain effects in buyers." (Kotler 1973, p. 50). The spatial aesthetics are communicated to the buyer through the sensory channels of sight, sound, scent, and touch. The perceptions of elements in the atmosphere have been suggested to have an effect on the buyers' information and affective state (Kotler 1973).

Summary

A health care consumption process model was first presented to arrive at this conceptualization of perceived quality. A model of perceived quality was then proposed based on ideas from two fields of study. First, it is based on the dimensions of service quality proposed by marketing researchers. Second, it represents a categorization of the dimensions of quality of the service as perceived by health care consumers. Thus, the

dimensions in the proposed model of perceived quality correspond to the dimensions of patient perceptions of the medical service that are demonstrated by the patient satisfaction instruments developed by medical sociologists. The construct of perceived quality itself is positioned as the manifestation of the evaluations of the consumer during the consumption stage.

CHAPTER IV

METHODOLOGY

This field study examined the perceptions and behaviors of individuals in a social and institutional situation - patient perception of the quality of health care service delivery. Data were gathered from responses to a questionnaire developed from instruments used in previous studies and validated for the purposes of this study. Data were collected from a sample of patients who had used the services of one of three hospitals. Questions in the instrument pertained to various aspects of the hospital service and responses elicited reflected the perceptions of the consumers concerning the various aspects of the service provider's performance. Data collected on patients' perceptions of various aspects of the service helped categorize the components of perceived quality under homogeneous dimensions, representing the composition of the construct of perceived quality. Further, sociodemographic data and data about patients' past experience indicating their predisposition toward the service provider were also collected. These data were used to answer the set of research questions regarding the influence of predispositional variables and the patients' perceptions of

the quality of service delivered by the hospitals.

This chapter discusses the procedures that were used to answer the research questions posed in chapter I. A description of the sample of respondents representing the population is outlined. The research design is described. The development and validation of the data collection instrument is discussed. The procedure for data collection is outlined. Finally, a brief description of the analysis is also presented.

Hypotheses

The following hypotheses, framed as operationalizations of the research questions, were developed from the literature reviewed in chapter II and the perceived quality model proposed in chapter III.

The three research questions addressed in this study were: (1) what is the composition of the construct of perceived quality; (2) what are the relationships between the components of the construct of perceived quality; and (3) what are some of the patients' predispositional correlates of perceived quality.

Composition of Perceived Quality

The following hypothesis concerns the first research question:

H 1: Perceived quality is a function of eleven

constructs: competence, credibility, reliability, security, courtesy, communicativeness, availability, understanding, responsiveness, and physical environment (1) and physical environment (2).

As presented in the model of perceived quality in chapter III, the construct of perceived quality is composed of eleven components: competence, credibility, reliability, security, courtesy, communicativeness, understanding, availability, responsiveness and physical environment (1) and (2). It may be possible to reduce these eleven components into fewer homogeneous dimensions. In other words, the eleven components were categorized into four hypothesized dimensions: technical quality, subjective quality, access and physical environment.

Technical quality was comprised of competence, credibility, reliability, and security; subjective quality was comprised of courtesy, communicativeness, and understanding; and access was comprised of availability and responsiveness.

Structure of Perceived Quality

H 2: The eleven constructs of perceived quality can be structured into four dimensions: technical quality (competence, credibility, reliability, and security), subjective quality (courtesy, communicativeness, and understanding) access (availability and responsiveness) and physical environment (1) ans (2).

Technical Quality. The dimension of technical quality refered to the "curing" aspect of health care

service and, as such, related to the apriori notion of patients regarding their medical outcome. It has often been stated that consumers of health care services do not have the expertise to judge the technical aspects of medical service (Ben-Sira 1976, Mechanic 1974). Medical sociologists have found that patient perceptions of technical competence are often derived from their impressions of the thoroughness of medical procedures (Ware, et al. 1976). It was hypothesized that the dimension of technical quality was comprised of the four components of "competence," "credibility," "reliability," and "security" and that these components were more related to each other than to any of the other components or perceived quality.

"Credibility" has been discussed in the literature on persuasion as composed of expertise and trustworthiness (Sternthal, Dholakia and Leavitt 1978). Thus, consumers perceive that the possession of the required skills by the service provider, would increase the likelihood of the provider meeting their needs.

Since the health care consumer is relatively ignorant of the technicalities of the service, they will indulge in more elaborate information search, than with other services. Also, since the perceived risk is high in health care consumption, consumers of health care will obtain information on providers from many different sources to

reduce this perceived risk (Zeithaml 1981). In order to reduce perceived risk, the patient seeks a competent provider. When the personnel that deliver the service are perceived to possess the required skills and knowledge to perform the service, the consumer can rely on the service provider to solve his or her medical needs.

"Reliability," defined as consistently good service, is affected by the impressions of the patient regarding the expertise of the provider. Unlike many products, consumers of health care services leave decisions up to the provider once they have made the choice of the provider.

Subjective perceptions of the technical quality of the service are likely to be influenced by the consumer's predisposition towards the provider, in terms of their confidence in the provider. Consumers' feeling confident in the provider has a positive relationship with technical quality perceptions. Thus, technical quality represents an index that includes patients' perceptions of the provider's competence, credibility, reliability and security.

Subjective Quality. This dimension refered to the "caring" aspect of health care services and has been found to be more important to consumers than technical quality (Ben-Sira 1976). In fact, subjective perceptions of the mode or manner of health care delivery has been found to have an impact on patient perceptions of the technical competence of the provider. It was hypothesized that the

dimension of subjective quality was comprised of the components of "courtesy," "communicativeness" and "understanding," and that these components were more related to each other than to any of the other components of perceived quality.

Subjective perceptions of a provider are more likely to be positive if the patient/consumer is favorably disposed to the provider. Courtesy shown by the provider would expectedly bring positive feelings to the patient about the interaction with service provider and would encourage better communication between the two parties in the exchange.

Since the design of the service rendered by the provider is not decided on by the consumer, the consumer could be relieved of some anxiety during the consumption experience if the provider is communicative (Friedson 1961). If the provider receives and provides information from patients, then, patients feel reassured that their complex medical and socio-behavioral needs are understood by the provider.

Since health care services are often highly individualized, consumers feel that the quality of the service is high if their individual needs are understood. This lack of standardization in health care services requires that the consumer be understood in order that the service be tailored to the specific needs of the consumer.

Individualized service contributes to the consumer's perception of a better performance by the provider. Thus, subjective quality represents an index that includes patients' perceptions of the provider's courtesy, communicativeness and understanding of the patients' needs.

Access. The dimension of access can been bifurcated into financial and nonfinancial access (Ware, et al. 1981). In this study, only the nonfinancial aspects of access were considered since the patient need not necessarily be aware of the cost of his treatment at the time he was responding to this survey. It was hypothesized that the dimension of access was comprised of the components of "availability" and "responsiveness" and that these components were more related to each other than to any of the other components of perceived quality.

"Responsiveness" and "availability" are complementary variables that constitute the dimension of access, which has a positive relationship with perceived quality of the service (Ware, et al. 1976). The total consumption experience in health care involves satisfaction of numerous needs, and the service provider is evaluated at every encounter. Ease of contact and approachability, along with willingness or readiness of employees to respond and provide the requested service, have a positive relationship with perceived quality. Thus, access represents an index that includes the patients' perceptions of the availability

and responsiveness of the provider.

Physical Environment. As was discussed in chapter III, the aesthetic appeal of the atmospherics in the providing system has been found to influence a consumer's perceptions regarding the service establishment (Kotler 1973, Parasuraman, Zeithaml and Berry 1985). Ware et al. (1981) included this dimension of physical environment in one of their versions of the patient satisfaction questionnaire.

Subjective perceptions of the quality of the service are influenced by the attractiveness of the facility or any tangible evidence of the health care delivery system. In fact, any evidence that is processed by the five senses can be included. These physical evidences could include anything from appearance of the personnel to design and layout of the service facility.

In general, the relative importance of these various dimensions were hypothesized to be in the following order: subjective quality, access, technical quality and physical environment (Ware, et al. 1981). However, patients may differ in the importance they place on the various aspects of the service. These differences might be borne out of the differences in their frames of reference. The frame of reference of the patient would depend on such factors as their past exposure to health care services and some sociodemographic variables.

The following hypothesis refers to possible differences in the relative importance of the various dimensions of perceived quality to the patient depending on some contingency variables.

Profiles of Patients

H 3: The importance of the dimensions of perceived quality will differ based on such contingency variables as: age, income, education, severity of illness, exposure to close realtive's hospital experience and number of previous exposures.

An attempt was made to describe the type of patient that has a well developed and realistic set of expectations. Expectations of consumers are affected by such variables as marketing and nonmarketing information as well as vicarious and personal experiences. The influencing predispositional factors are grouped into two categories: past exposure and sociodemographic variables.

As was discussed earlier, the average health care consumer is ignorant of the technical features of this highly technical service and, therefore, has a subjective standard to evaluate the service received. With increasing exposure to health care, patients have a more developed set of subjective standards or expectations from the service. The exposure could be either from direct personal experience or from vicarious experiences. By the same token, the older or more educated the patient, the greater the information that patients have about health care and

the more developed their expectations. Further, the increased exposure to the health care experience allows the patient to develop expectations that are more realistic and, therefore, more likely to be met by the service provider. When there is more likelihood of their expectations being confirmed, patients' perceptions of quality are likely to be more favorable than for those patients who have less developed and less realistic expectations.

Therefore, it seemed reasonable to expect that there were differences in the importance that patients attached to the eleven components of perceived quality, depending on their levels of exposure or their predispositional and sociodemographic variables. There is no evidence in the literature to indicate any definite uniformity in these differences. But, it might be interesting to note the differences in the predictors of perceived quality for various types of patients.

Population and Sample

The population in this study consisted of consumers of hospital services. The sample consisted of patients in three major midwestern hospitals. Patients surveyed were hospitalized for at least one day. Thus, respondents to the survey had adequate opportunity to have consumed some of the major services offered by the hospital and were,

therefore, in a position to identify their perceptions of the various aspects of the health care service.

The respondents had used the services of one of three hospitals in Wichita, Kansas, Tulsa, Oklahoma, and Oklahoma City, Oklahoma, that participated in the study. To maintain homogeneity in the sample of health care institutions, care was taken to select not-for-profit hospitals of approximately the same size (size of the hospital being determined by number of beds, number of employees, and range of services offered). (See Appendix A, for hospital profiles). Terminally ill and psychiatric patients were not included in the sample.

Research Design

The research design adopted was a field study using a survey approach. As a field study, the research attempted to measure consumers' experiences with health care delivery. The survey instrument was a questionnaire developed from existing patient survey instruments and validated for this study. The questionnaires and stamped envelopes were given by the hospitals to the respondents, at the time of their discharge from the hospital. In cases where it was inconvenient to distribute the questionnaire at the time of discharge of the patients, the survey was mailed to the patient. The return envelopes were addressed to the researcher. A total of 1,500 questionnaires were

distributed.

As with many social science studies, the proposed study was basically ex post facto research (Kerlinger 1973), in which there was no direct control of independent variables because their manifestations had already occurred and because they were inherently not manipulable. This presence or absence of control is the most important difference between experimental research and ex post facto research.

In the absence of manipulation, therefore, it was not possible to make conclusive or definite causal inferences about the relationships between the variables (Parasuraman 1986). Kerlinger (1973) lists three weaknesses of ex post facto research: (1) the inability to manipulate independent variables, (2) the lack of power to randomize, and (3) the risk of improper interpretation. However, he noted that:

> ...the most important social scientific and educational research problems do not lend themselves to experimentation, although many of them do lend themselves to controlled inquiry of the ex post facto kind. (p. 392)

A true experimental design could not be used in this study since it requires that the relevant variables be manipulated. For obvious reasons, this problem with manipulation is an inherent difficulty in health care quality research, where in most cases it would be unethical to manipulate such variables as the medical outcomes or the

various dimensions of quality of health care.

Considering the limitation of not being able to manipulate the relevant variables, a survey approach was used to collect the data needed to answer the research questions. Patients responded to the survey immediately after they were discharged from the hospitals when their perceptions of the services received were still fresh in their minds.

Instrument

A questionnaire was developed and validated in order to obtain data to answer the research questions. Questions pertained to three major aspects of health care services: first, predispositional variables which included past experience, second, sociodemographics of the patient and third, patient perceptions of various aspects of the health care service. These questions were selected after an examination of published questionnaires that had been developed by medical sociologists who had themselves conducted thorough content analyses of patient satisfaction literature.

Development of the instrument

Data obtained from the questions concerning previous hospital experience indicated the predisposition of the patient toward hospital services. This information

provided insight into the effect patient expectations had on their perception of quality of the services received. In addition to the above, sociodemographic data helped explore the possibility of categorizing patients. This data was used to investigate if patients with different backgrounds would emphasize different attributes of the service.

Patient perceptions of the various aspects of the health care service were tapped by items selected from widely used instruments that measure patient perceptions of health care services (Ware, et al. 1976 and Hulka, et al. 1970). These items pertained to the four hypothesized dimensions of perceived quality - technical quality, subjective quality, access and physical environment and included eleven variables of perceived quality as suggested by Parasuraman, Zeithaml and Berry (1985). In addition, there were questions which were global measures regarding the dependent variable of perceived quality. Some of these questions were global measures of patient perceptions of quality as well as satisfaction and intentions to return to the same hospital. Since, perceived quality has been found to have an impact on satisfaction as discussed in chapter III, questions pertaining to satisfaction were intended to serve as additional indicators of perceived quality. Similarly, repurchase motivations have been found to be affected by the consuemr's level of satisfaction. (These

multi-item measures of perceived quality were included to collect data that were intended for use in analysis at a later date.) There were also some questions that had been included as validity checks.

Questions in the instrument were drawn from items used in widely known instruments measuring patient perceptions of health care services developed by medical sociologists. These instruments were developed and validated by Hulka, et. al. (1974), Ware, et. al. (1975), and Wolf, et. al. (1978). There are two major differences in the development and validation of most of these instruments and the questionnaire that was developed and validated in this study.

First, since this study dealt with specific consumption experiences, some of the indirect and macro measures had been rephrased to convert them to direct and micro measures (Pascoe 1984). Indirect and macro measures elicit responses that indicate the opinions and attitudes of the public about health care services in general. These are used in general population studies that do not pertain to any particular consumption experience of the respondents. Direct and micro measures, on the other hand, pertain to a particular consumption experience.

Second, most of the questions in the patient surveys that are currently in use pertain to family and group physicians or the nursing staff in nursing clinics. This

study developed and validated an instrument that could also be used by large hospitals.

Ware, et. al. (1976) were entrusted with the goal of developing a short, self-administerable, patient survey for the general population, by the National Center for Health Services Research Division. They conducted a four year study at the Southern Illinois University. They started the research process with a thorough content analysis and their final version identified six major dimensions of patient satisfaction: nonfinancial access to care, financial aspects, availability of resources continuity of care, technical quality, and interpersonal manner (Ware, et al 1985). (It must be noted, however, that their definitions of these dimensions do not coincide with those used in this study. For example, in this study, the construct of "quality of care" (instead of involving just the technical quality as in the Ware studies), included the dimensions of access, availability, and physical environment.

Ware, et. al., applied the concept of a Factored Homogeneous Item Dimension developed by Comrey (1961). Their methodology consisted of several stages: (a) a comprehensive pool of potential scale items was formed from items already in use; (b) new items were created using sentence-completion methods and open-ended interviews; (c) items were grouped in terms of manifest content, and items

found to be redundant were eliminated; (d) retained items and administration procedures were pretested; (e) resulting scales were administered to a sample of adults; (f) correlations among each scale were factor analyzed; (g) reliability estimates were obtained for scores based on items which met factor analytic criteria; and (h) regression analysis was used to study the validity of the measures in relation to various outcomes.

From an initial total of over 2,300 items, the Ware, et. al. patient satisfaction questionnaire (PSQ) Form II consisted of 68 items. This final selection of items was achieved through an iterative process of systematic field testing that included 12 independent studies over a four-year period. The initial list of items were derived from a thorough content analysis of available instruments, published books and articles in the health service literature, and responses of convenience samples to open-ended questions about their medical experiences. The item generation studies yielded about 2,300 items, which were sorted into content categories by independent judges. A taxonomy of the various items helped Ware and his associates develop initial hypotheses about the nature and number of satisfaction constructs. After eliminating redundant and ambiguous items the list was shortened to 500 items.

Form I of the questionnaire, following these initial

pretests, contained 80 items that were again tested in three counties. All but four of these items were changed in the next version of the questionnaire. Substantial revisions at this stage resulted in Form II of the questionnaire which contained 68 items. Despite some problems with discriminant validity of scales assessing technical and interpersonal skills of providers, the researchers did not doubt that both scales measured patient satisfaction. Otherwise, the researchers reported adequate reliability estimates for their scales.

Hulka, et. al. (1970) examined the literature to determine the content areas around which they developed the statements concerning attitudes toward physicians and medical care. They started with a large set of about 300 statements with approximately 100 in each of the three content areas of professional competence, personal qualities, and cost/convenience. This initial set of 300 statements was edited with the help of the Educational Testing Service at Princeton, New Jersey. The 149 statements that remained, with approximately 50 in each content area were presented to three groups of judges, including physicians, social workers and members of a women's club. These judges were asked to score each statement on a nine-point scale as to the degree of favorableness or unfavorableness it expressed toward physicians. Scale values obtained for each statement when

compared among the three groups showed correlations above .98 in all three cases. From the 149 scored statements, two distinct scales, each containing 12 to 14 items in each of the three content areas were developed in order to test for parallel form reliability. These scales with a dichotomous, agree-disagree response choice were pretested on 49 respondents. Reliability estimates were satisfactory except for the cost/convenience content area. The personal qualities content area had a reliability score of .75; the professional competence content area had a reliability score of .63; and the cost/convenience content area had a low reliability score of .43. Their final version of the instrument consisted of 49 items in a Thurstone equal appearing interval scale.

In a subsequent study Zyzanski, Hulka and Cassel (1974) aware of certain inadequacies in the Hulka et al. scale, modified its content, format and scoring. The 149 statements preceding the final scale were again submitted to a panel of 39 experienced public health nurses. Of these, 79 statements were found to be acceptable: 21 in professional competence, 26 in personal qualities and 32 in cost/convenience. Three subsets of 14 items in each content area were selected producing a final scale of 42 items. The response format was changed from an agree-disagree response set to a Likert method of scoring with five response alternatives ranging from strongly agree to

strongly disagree. A new scoring scheme was developed utilizing both the weighting of the Thurstone scale value and the degree of the respondent's endorsement for each item. The new scale tested on a sample of 1,200 patients showed reliability coefficients of .75 for professional competence, .86 for personal qualities, .68 for cost/convenience and .90 for the total scale. These reliability scores were much higher that those of the previous scale.

Wolf, et. al. (1978) generated 63 items after interviews with patients, observations of consultations, and a review of the literature. These items were categorized into three 'clinically relevant dimensions' of patient satisfaction with patient-provider interaction: cognitive, affective and behavioral. Cognitive items referred to the doctor's giving explanations and information. Affective items referred to the patients' perception of the treatment relationship, including feelings of trust and confidence in the doctor, and perceptions of the doctor's regard for the patient and willingness to listen. Behavioral items measured the patient's evaluation of the physician's professional behavior, physical examination, diagnostic procedures and dispensation of advice.

Wolf et. al. developed the final questionnaire through three field tests. Following a pretest on 150 patients, a

preliminary version containing 30 items with five-point response alternatives was developed. This version was again pretested on 100 patients. A third field trial used a 33-item version on 50 patients. The final version of their Medical Interview Satisfaction Scale (MISS) contained 26 items which had a Cronbach's coefficient value of 0.93. The cognitive subscale contained nine items and had a reliability coefficient of 0.87; the affective subscale consisting of nine items had a reliability estimate of 0.86; the behavioral subscale contained eight items and had a reliability of 0.87. There was significant overlap between the three subscales. These authors found a significant correlation between occupation and satisfaction scores.

An examination of the above instruments led to the construction of the questionnaire described below.

Construction of Patient Satisfaction Survey Instrument

The survey instrument developed for the purpose of this study consisted of three sections. (See appendix B for the survey instrument and appendix C for a list of the major questions and what they measure.) The first section featured questions that obtained information regarding the predisposition of the patient toward the hospital. Questions addressed in this section included information on

the severity of illness, length of stay in the hospital, etc., in addition to predispositional questions such as reasons for choosing this hospital, what impression the patient had about the hospital before the current visit, whether this was the first visit to this hospital, how satisfying were previous hospital experiences, etc.

The second section of the questionnaire pertained to the perceptions of the patient regarding aspects of the services consumed during the stay in the hospital. The questions were featured as statements that formed the item-stems and a five-point response scale ranging from strongly agree to strongly disagree. There were two questions pertaining to each of the eleven independent variables: one was favorably worded and the other was unfavorably worded. These parallel forms were chosen to eliminate possible acquiescent responses. There were six global measures of perceived quality, satisfaction and behavioral intentions of which three were negatively worded and three were positively worded. Measures of satisfaction and behavioral intention were not intended for this study. In addition, there were three questions that were included as validity checks. All the questions were scrambled so that alternate or parallel forms of the same variable did not appear together, instead they were placed as far apart from each other as possible.

The last section contained demographic questions

pertaining to age, sex, marital status, occupation, education, and income. The very last questions were open-ended asking the respondent to list any changes or additions desired in the present range of services offered by the hospital. This last question was included to provide additional information for the use of the individual hospitals.

The questionnaire described above was a preliminary version prior to field testing. The instrument was tested for validity and reliability before it was used to collect the data needed to test the hypotheses discussed above. The field trial of the preliminary instrument and the process of validation and estimation of its reliability is briefly described below.

Validation of the instrument

The instrument was initially pretested on 34 patients who had just received the services of the Stillwater Medical Center. A question was included in this pretest version that asked respondents to indicate those questions that they found difficult to understand. Surveys, with cover letter from the hospital administrator and self-addressed, stamped envelope were handed out with the same instructions as those that were to be given to the patients participating in the final data collection.

Responses from thirty-four patients were analyzed

during this pretest stage. Initial pairwise-correlation of the thirty-one items measuring perceived quality, the dependent variable and independent variables of perceived quality revealed unsatisfactory correlations between most of the negatively and positively worded questions. Items in the questionnaire were tested for validity and reliability. Except for the question pair measuring perceptions of "courtesy," correlations for all the other question pairs were not significant at the 0.05 level of significance.

This lack of correlation between responses to positive and negative questions measuring the same construct was attributed to three reasons. First, respondent error from wrong entries of intended responses on the second page of the questionnaire because the response scale featured abbreviated titles of the response options at the top of the page (for e.g., SA, A, NS, D, SD, instead of strongly agree, agree, not sure, disagree and strongly disagree). Second, superlatives in the item statement may have forced respondents to collapse their range of responses towards the center and, thereby, reduced the polarity of their responses. Third, words effecting negativity of statements were not underlined or highlighted and respondents may have overlooked the negativity and mistaken them for positively worded statements.

Changes were made in the questionnaire to remedy the

defects described above. Two open-ended questions were dropped from the mini-pretest version because there was either no response to the questions or an uninformative response. One question that had a three-point response scale was changed to a five-point response scale. Nine of the thirty-one questions measuring the independent variables and the dependent variable were changed for the mini-pretest.

The instrument was again tested on twenty-one respondents in a miniature pretest on a convenient sample of students, faculty and office staff at Oklahoma State University, who had been admitted to a hospital for at least one day in the previous year. All the correlation coefficients were significant at the 0.05 level of significance, except for one construct. Surprisingly, "courtesy," which had satisfactory correlation in the first pretest and was, therefore, not changed, had a poor correlation in the second pretest.

Data Collection

The revised scale after the pretest was given to about 1,500 patients who had recently received medical services from three different hospitals (which will be called Hospital W, Hospital T and Hospital O) in the midwestern United States. The census figures at these hospitals indicate that about a hundred patients are discharged every

day. A cover letter from the appropriate public relations officer of the hospital explaining the nature of the survey asked the patient to complete and mail the questionnaire (Appendix - B).

About 500 questionnaires and stamped, pre-addressed envelopes were handed out by Hospital W to its patients at the time of their discharge from the hospital. Seventy-eight surveys were received from the patients who were at hospital W. Hospital T mailed out about 500 questionnaires with the stamped, pre-addressed envelopes to its patients. One hundred and twenty-three surveys were received from the patients who were at hospital T. Hospital O provided the researcher with the names and addresses of 500 of its patients that had used its services during the last two weeks in June, 1986. One hundred and fifty-two surveys were received from the patients who were at hospital O. A total of 353 usable questionnaires were received.

The data collected were then subjected to statistical procedures to test the hypotheses framed from the research questions. The results of these analyses are discussed in detail in chapter V.

Plan of Analysis

The analysis progressed in three stages. The first and second stages dealt with the first two hypotheses regarding the composition and structure of the construct of

"perceived quality." The third stage dealt with the third hypothesis regarding profiles of patients and their use of the components of perceived quality.

Data for the first and second stages were obtained from the 31 Likert questions. These questions included both global measures and measures of the hypothesized components of perceived quality. The independent variables of the construct of perceived quality were patient perceptions of the four hypothesized dimensions that were measured by 22 questions. These questions were multi-item measures of the eleven independent variables. There were four questions on the independent variable of physical environment.

Scores of responses to the independent variables were factor analyzed to produce homogeneous factors. In order to confirm the hypothesized structure of the eleven components of perceived quality, a varimax-rotation and confirmatory factor analysis were performed.

The third stage involved analysis of the responses to predispositional questions. These measures helped profile the patients into categories. The categories depended on the specific service preferences or subjective standards of patients as reflected in the differences in their use of the various components of their perceptions of quality. Statistical procedures included regression analysis. Separate regression analyses for the resulting reduced

factors was conducted for different levels of contingency variables such as age, income, education, length of stay, and number of previous exposures. These contingency variables were homologizer variables or moderator variables. The beta coefficients of the independent variables in the two sets of regression analyses were compared to note differences in the relative importance placed on the various aspects of the service by patients categorized by the contingency variables.

Summary

To answer the research questions regarding patient perceptions of health care quality, data were collected from in-patients. A scale was constructed for this study from patient satisfaction instruments that were developed by medical sociologists. This scale was pretested with data obtained from patients at a local hospital. The validated instrument was used to collect data from patients who had used the services of three major hospitals in the midwest. The data were analyzed to test the hypotheses that have been stated in this chapter.

CHAPTER V

ANALYSIS

In this chapter, the results of the data analyses are reported. The discussion of these analyses is divided into four sections. The first section presents descriptive statistics regarding the respondents in the sample. Each of the next three sections pertain to one of the three hypotheses: (1) composition of the construct of perceived quality; (2) structure of the construct of perceived quality; and (3) profiles of patients and their perceptions of quality of the health care service.

In order to test the hypotheses, a pretested survey was distributed to about 1500 patients who were admitted to one of three hospitals in the midwestern United States. Responses from 362 patients were received. Of these 362 surveys, nine were not usable in the analysis because they were incomplete.

Data from 353 patients (equivalent to a 24% response rate) were used in the analysis. Of these, 78 respondents (response rate of 15.6%) were patients at hospital W, 123 respondents (24.6% response rate) were patients at hospital T and 152 respondents (30.4% response rate) were patients at hospital O. The difference in the response

response rates between the hospitals was probably because of the different methods of distribution at the three hospitals.

A cover letter from the president of each hospital accompanied each survey. Hospital W handed out the surveys to patients as they were being discharged from the hospital. Hospital T mailed the surveys to patients from a list of their most recent patients. Surveys with a cover letter from Oklahoma State University were mailed to patients, who had been admitted to Hospital O, in addition to the letter from the president of that hospital explaining the nature of the study.

When surveys were mailed to recent patients, the response rate was better than when they were handed out to patients at time of their discharge from the hospital. It might be inferred from these differences in response rates that the likelihood of response could be improved if the patient felt that the survey was being conducted by a researcher who did not belong to the hospital. Indeed, of the three versions, the hospital (Hospital O) that had the highest response rate was the one that had two cover letters.

Descriptive Statistics

The following discussion presents summary statistics. The mean age of the respondents in the sample, was in

the 46-55 years category. The average education level of the respondents was a high school diploma and some college. The mean income level of the respondents was in the $20,001-$30,000 per year category. Table V presents some of the descriptive statistics discussed above, by hospital.

TABLE V

SUMMARY STATISTICS BY HOSPITAL

	HOSPITAL O	HOSPITAL T	HOSPITAL W
Number of patients	152	123	78
Mean Age category	46-55	36-45	36-45
Mean Education	college	college	college
Mean Income category	Patients at all three hospitals $20,001-$30,000		
Mean Number of previous admissions	2.36	1.92	1.76
Mean Number of doctors attending	2.88	2.74	2.42
Mean Length of stay	7.90	7.77	5.17
Per cent that underwent surgery	60%	66%	41.6%

For the respondents who responded to the question on the number of previous hospital admissions, each patient

had an average of two previous hospital experiences. Patients had at least one experience of a close relative admitted to a hospital. More patients were satisfied with their previous hospital experiences than those who were not.

On an average, each patient was attended by approximately three doctors during their most recent stay, and the average length of stay for a patient was 7.25 days. Among the respondents, more patients underwent surgery than those who did not.

Item-statements Measuring Patient Perceptions

Positive and negative statements were used to measure patient perceptions of the quality of the health care service received. These statements were polar opposites of each other and were used to eliminate acquiescent response bias (ARS) (Ware and Snyder 1981).

A preliminary correlational analysis between the responses of the patients to each positive and negative pair was used to test if the statements were actually perceived as polar opposites.

Ideally, each pair of positive and negative statements should have had a positive correlation of 1.0 (responses to the negative statements were reverse-scored) if they were perfect polar opposites to each other. However, as

experienced during the pretest of the instrument, some patients may not have been sensitive enough to the negativity of the negative statements, and this may have weakened the correlations. The results of this correlation analysis, suggest that the negative statements and the positive statements may have measured something different. Hence, only the positive statements were used in the analysis testing the hypotheses. Table VI shows the correlations between the responses for the positive and negative statements in the final survey.

TABLE VI

CORRELATION OF RESPONSES
BETWEEN NEGATIVE AND POSITIVE STATEMENTS

Variable	Pearson Correlation Coefficients
Competence	0.45143
Credibility	0.37750
Reliability	0.63535
Courtesy	0.50598
Communicativeness	0.47062
Understanding	0.66701
Availability	0.49459
Responsiveness	0.54159
Physical Environment (1)	0.21976
Physical Environment (2)	0.28865

How did the three hospitals compare on patient perceptions?

To determine if there were significant differences in the perceptions of the patients across the three hospitals, a multivariate analysis of variance was performed for all of the eleven dependent variables (Table VII). The Hotelling-Lawley Trace showed that there were significant differences (F- statistic = 1.65 and an associated probability value = 0.0313) in at least one linear combination of the variables across the three hospitals. Patients at hospital W judged overall quality at their hospital to be better than patients at the other hospitals. Indeed, in all but three of the eleven variables, patients at hospital W judged their hospital to be better than did patients at the other two hospitals. Except for "responsiveness," "physical environment (1)," and "physical environment (2)," hospital W ranked higher than the other two hospitals.

Patients at hospital T perceived the personnel at their hospital to be more responsive and found the services and equipment at their hospital to be better than did the patients at the other two hospitals. Patients at hospital O perceived that the nonmedical services at their hospital were better than did patients at the other two hospitals.

TABLE VII

PERCEPTIONS OF PERCEIVED QUALITY
DIMENSIONS ACROSS HOSPITALS

	HOSPITAL O	HOSPITAL T	HOSPITAL W	F-value
Number of patients	152	123	78	
Overall Quality	4.04	4.09	4.32	
Competence	3.95	4.03	4.18	2.50
Credibility	4.16	4.13	4.33	1.99
Reliability	3.87	3.95	4.22	4.28*
Security	4.23	4.23	4.54	6.26*
Courtesy	4.18	4.18	4.31	0.87
Communicativeness	4.16	4.11	4.39	3.81*
Understanding	3.90	3.95	4.14	2.21
Availability	3.91	3.81	3.94	0.68
Responsiveness	3.60	3.75	3.67	0.62
Phy. Environment (1)	3.87	3.93	3.86	0.28
Phy. Environment (2)	3.89	3.76	3.87	0.56

Scores were on a 5-point scale. Higher scores indicate better evaluations of the hospital on the attribute.

* indicates significant difference across three hospitals at the .05 level.

In order to determine which of the eleven variables were significantly different across the three hospitals, an analysis of variance was performed for each of the eleven dependent variables. The results of this analysis presented in the last column of Table VII, indicate that except for patient perceptions of "reliability,"

"security," and "communicativeness," there were no significant differences at the .05 level, for any of the other dependent variables across the three hospitals.

As can be seen in Table VII, patients at hospital W considered their hospital to be significantly more reliable than did patients at the other two hospitals. In addition, patients at hospital W were significantly more confident than patients in the other two hospitals that they could trust the hospital (security) to take care of their illness. Finally, patients at hospital W felt that they were significantly better informed about their illness (communicativeness) than did the patients at the other two hospitals. Thus, it can be concluded that the results of the analyses are sufficiently patient-specific and not hospital-specific.

The remaining analyses reported in the next three sections of this chapter pertain to each of the three hypotheses. The first section reports the results of the analysis testing the hypothesis that the construct of perceived quality in health care services was composed of eleven components: competence, credibility, reliability, security, courtesy, communicativeness, understanding, availability, responsiveness and physical environment (1) and (2). The second section presents the analysis of the hypothesis that these eleven components could be structured into four factors (technical quality, subjective quality,

access and physical environment). The last section reports the analysis of differences in quality assessment between different sets of patients.

Composition of Perceived Quality

H 1: Perceived quality is a function of eleven constructs: competence, credibility, reliability, security, courtesy, communicativeness, availability, understanding, responsiveness, and physical environment (1) and physical environment (2).

Simple correlations between each of the independent variables and the dependent variable indicate that all the independent variables were significantly correlated with perceived quality at less than or equal to the 0.01 level of alpha risk. Among the independent variables, "reliability" correlated the highest with the dependent variable with a correlation coefficient of 0.69, followed by "understanding," "competence" and "availability" with correlation coefficients of 0.59, 0.56 and 0.52 respectively.

Regression analysis was performed to test the hypothesis regarding the composition of the construct of perceived quality. In this study, the dependent variable was perceived quality and the independent variables were the eleven hypothesized components of perceived quality.

Percentage of variation in the dependent variable as indicated by R-square was 64%. The adjusted R-square was

63%. The F-statistic was 50.10 and was significant at 0.0001.

The beta coefficients in a regression model indicate the strength or the extent of the impact of the independent variable on the dependent variable, when all other independent variables are held constant. The t-test for each individual regression coefficient in the model is reported to assess whether the variable is significant in accounting for the variation in the overall perceived quality.

The regression model is presented in Table VIII. The largest beta weight is for "reliability" at .36 and is significant at the .01 level. Other significant variables were "competence," "credibility," "security," "understanding," "availability" and "physical environment (1)." None of the remaining four variables were significant at the .05 level in accounting for variation in perceived quality.

It is not surprising that "reliability" turned out to be the most significant variable because its definition -- "consistency of performance and dependability," and operationalization -- "the health care service quality was consistently good," may have been perceived as similar to the concept of overall quality. The others that were significant included variables in each of the three major aspects of health care quality that are considered

important in the medical sociology literature: "caring," "curing" and "access."

TABLE VIII

REGRESSION MODEL USING POSITIVE STATEMENTS

Adjusted R-Square: 63%
F - Statistic: 50.10
Number of respondents: 320

Construct	Standardized Regression Coefficients	Associated Probability Levels
Competence	.162	0.01
Credibility	.104	0.01
Reliability	.362	0.01
Security	.113	0.01
Courtesy	.061	0.14
Communicativeness	.013	0.75
Understanding	.109	0.03
Availability	.099	0.02
Responsiveness	.035	0.37
Physical Environment (1)	.082	0.03
Physical Environment (2)	.019	0.63

Multicollinearity

To obtain the best linear unbiased estimate of regression coefficients, one assumption must be met: the absence of severe multicollinearity. That is, none of the

independent variables should be significantly correlated with another independent variable or any linear combination of other independent variables. One method of ascertaining if multicollinearity is a problem, is to examine pairwise correlations. If any correlation is a 0.8 or higher correlation, then there is evidence of possible multicollinearity (Lewis-Beck 1980). As can be seen in Table IX, which presents the correlation matrix for the independent variables measured by positive statements, the highest pairwise correlation is 0.6. Consequently, there is no significant linear dependency.

As a word of caution, Weisberg (1980) has warned that inspection of these correlation coefficients is not sufficient for detecting anything more than pairwise multicollinearity. He suggests examination of the variance inflation factors (VIFs), which are the diagonal elements of the inverted correlation matrix. Weisberg (1980) stated:

> The VIF for each term in the model measures the combined effect of the dependencies among the regressors on the variance of the term. One or more large VIFs indicate multicollinearity. Practical experience indicates that if any of the VIFs exceeds 5 or 10, it is an indication that the associated regression coefficients are poorly estimated because of multicollinearity. (p. 300)

TABLE IX

CORRELATION MATRIX FOR INDEPENDENT VARIABLES

	COMP	CRED	RELI	SEC	COURT	COMMN	UNDSTD	AVAIL	RESPON	PHYEN(1)	PHYEN(2)
PQ	0.558	0.486	0.690	0.388	0.481	0.345	0.594	0.516	0.364	0.331	0.420
COMP	1.000	0.495	0.466	0.225	0.369	0.334	0.523	0.350	0.312	0.262	0.362
CRED	0.495	1.000	0.377	0.337	0.379	0.399	0.401	0.323	0.247	0.319	0.283
RELI	0.466	0.377	1.000	0.314	0.461	0.329	0.574	0.519	0.348	0.214	0.413
SECUR	0.225	0.337	0.314	1.000	0.281	0.353	0.224	0.286	0.129	0.244	0.255
COURT	0.369	0.379	0.461	0.281	1.000	0.356	0.501	0.355	0.269	0.291	0.327
COMMN	0.334	0.399	0.329	0.353	0.356	1.000	0.254	0.259	0.191	0.331	0.199
UNDSTD	0.523	0.401	0.574	0.224	0.501	0.254	1.000	0.486	0.406	0.291	0.443
AVAIL	0.350	0.323	0.519	0.286	0.355	0.259	0.486	1.000	0.372	0.186	0.362
RESPON	0.312	0.247	0.348	0.129	0.269	0.191	0.406	0.372	1.000	0.213	0.315
PHYEN(1)	0.262	0.319	0.214	0.244	0.291	0.331	0.291	0.186	0.213	1.000	0.275
PHYEN(2)	0.362	0.283	0.413	0.255	0.327	0.199	0.443	0.362	0.315	0.275	1.000

TABLE X

INVERTED CORRELATION MATRIX FOR INDEPENDENT VARIABLES

	COMP	CRED	RELI	SEC	COURT	COMMN	UNDSTD	AVAIL	RESPON	PHYEN(1)	PHYEN(2)
COMP	1.688	-0.459	-0.239	0.056	-0.010	-0.159	-0.428	0.004	-0.083	-0.022	-0.142
CRED	-0.459	1.581	-0.033	-0.210	-0.139	-0.241	-0.109	-0.072	-0.022	-0.157	0.004
RELI	-0.239	-0.033	1.903	-0.156	-0.245	-0.146	-0.473	-0.417	-0.084	0.107	-0.184
SECUR	0.056	-0.210	-0.156	1.289	-0.083	-0.248	0.091	-0.152	0.074	-0.101	-0.129
COURT	-0.010	-0.139	-0.245	-0.083	1.549	-0.214	-0.413	-0.045	-0.014	-0.111	-0.064
COMMN	-0.159	-0.241	-0.146	-0.248	-0.214	1.408	0.143	-0.047	-0.031	-0.239	0.068
UNDSTD	-0.428	-0.109	-0.473	0.091	-0.413	0.143	2.070	-0.296	-0.230	-0.135	-0.236
AVAIL	0.004	-0.072	-0.417	-0.152	-0.045	-0.047	-0.296	1.577	-0.236	0.055	-0.127
RESPON	-0.083	-0.022	-0.084	0.074	-0.014	-0.031	-0.230	-0.236	1.303	-0.086	-0.137
PHYEN(1)	-0.022	-0.157	0.107	-0.101	-0.111	-0.239	-0.135	0.055	-0.086	1.261	-0.162
PHYEN(2)	-0.142	0.004	-0.184	-0.129	-0.064	0.068	-0.236	-0.127	-0.137	-0.162	1.405

As can be seen from the inverted correlation matrix in Table X, none of the VIFs are larger than 2.07, indicating that although there are some intercorrelations, there is no severe multicollinearity with the regression model.

Summarizing, perceived quality is a function of the eleven components when considering simple correlations. Further, when considered simultaneously in a regression model, seven of the eleven independent variables were statistically significant.

Structure of Perceived Quality

H 2: The eleven constructs of perceived quality can be structured into four dimensions: technical quality (competence, credibility, reliability, and security), subjective quality (courtesy, communicativeness, and understanding) access (availability and responsiveness) and physical environment (1) and (2).

By using factor analysis, a statistical technique used to determine if a set of variables can be described in terms of a smaller number of "dimensions" or "factors" and used to indicate what characteristic each of the dimensions represent. The intention was to attempt a parsimonious description of the original set of variables (Lindeman, Merenda and Gold 1980).

An oblique rotation was performed. Only two factors emerged from this procedure and these factors were reasonably correlated with each other (0.3). The factor matrix is shown in Table XI.

A factor loading of .5 was considered as adequate to include a variable in a factor. Seven variables loaded under the first factor and four under the second factor. The first factor appears to involve perceptions of the patient regarding: thoroughness of medical procedures, consistency of performance, courtesy shown by personnel, interest in patient's concerns, availability of personnel, responsiveness of personnel, and quality of nonmedical services. This factor could be named: "attitude of hospital personnel."

TABLE XI

HARRIS-KAISER OBLIQUE ROTATION FACTOR MATRIX

CONSTRUCT	FACTOR 1	FACTOR 2
Competence	.54891	.26645
Credibility	.26908	.57660
Reliability	.71672	.17284
Security	.05758	.66565
Courtesy	.48038	.31919
Communicativeness	-.00478	.77160
Understanding	.78408	.09352
Availability	.67961	.08799
Responsiveness	.72736	-.17083
Phy. Environment (1)	.08863	.54624
Phy. Environment (2)	.60807	.08538

The four variables that loaded on the second factor involved perceptions of the patient regarding: ability of hospital to take care of patient's illness, patient's confidence in hospital, extent of information about patient shared with patient, and quality of medical equipment. This factor could be named: "confidence in hospital's ability to cure patient."

Thus, the hypothesized four factor structure was rejected and the oblique rotation procedure revealed a two factor structure. One factor pertained to the patient's perception of the attitude of the personnel and the other factor pertained to the patient's perception of the ability of the hospital to take care of the patient's illness.

Profiles of Patients

H 3: The importance of the dimensions of perceived quality will differ based on such contingency variables as: age, income, education, previous exposures, and severity of illness.

In order to verify if different sets of patients differed in the levels of emphasis on the components of perceived quality of the health care service, the sample of patients was separated into two groups. The sample mean or the presence or absence of the variable was used as a criterion to separate the sample into high or low levels in each of the following variables:

	Variable	High	Low
1.	Income	Above $20,000	$20,000 & below
2.	Age	Above 45 yrs	45 yrs & below
3.	Education	At least College	No college
4.	Number of previous admissions to hospitals	At least once prior to this one	No previous admissions
5.	Satisfaction with previous hospital experiences	Satisfied	Dissatisfied
6.	Number of hospital experiences of close relatives	At least one	None
7.	Severity of illness	Had surgery	No surgery

Separate regression analysis was performed on these two sets of patients, using their responses to the positive statements. The standardized beta coefficients for the two models were compared to see if the two sets of patients emphasized different components of the construct of perceived quality. Throughout this analysis a 0.05 level of significance was used. Further, the beta coefficients reported are standardized regression coefficients.

Income

The coefficient of determination, R-square, indicating the amount of variance in the dependent variable, perceived quality, accounted for by the independent variables was about the same whether the patient had a high or low level of income. Table XII shows the regression models for both

high and low income patients and the standardized regression coefficients for each of the independent variables. (The standardized regression coefficients for some of the independent variables for the model using low income patients were negative values, which is not intuitively correct.)

TABLE XII

REGRESSION MODEL - INCOME

	High	Low
Number of patients	185	99
R-Square	.72	.67
Independent Variables	Regression Coefficients	
Competence	.132*	.188*
Credibility	.111*	.028
Reliability	.364*	.391*
Security	.107*	.140
Courtesy	.196*	-.015
Communicativeness	.004	-.004
Understanding	.037	.248*
Availability	.143*	.054
Responsiveness	.008	-.082
Physical Environment (1)	.081	.036
Physical Environment (2)	.025	.007

* indicates significance at the .05 level.

Fewer independent variables were significant with patients earning a low income than were significant with those earning a higher level of income. Among high income patients, "competence," "credibility," "reliability," "security," "courtesy," and "availability" were significant in accounting for the variance in the perceived quality of the health care service. On the other hand, among patients with low levels of income, "reliability," "competence" and "understanding" were significant.

The fact that fewer variables were significant for lower income patients than for higher income patients would indicate that the higher the income of patients the more likely it is that they would base their overall evaluation of the quality of service on more attributes. Patients with a low income want a competent and dependable physician who understands their problems. Whereas, higher income patients place emphasis on additional attributes of the service such as courtesy of the hospital personnel and availability of these personnel when they were needed.

Since regression coefficients indicate the strength of impact of the predictor or independent variables on the dependent variable, examination of the regression model reveals that emphasis placed on "credibility," "courtesy," "understanding," "availability" and "physical environment (2)" was considerably different between the high and low income patients.

Age

The regression model (Table XIII) for younger patients accounted for a greater amount of variation in the overall perceived quality (73%) than that for older patients (62%). This finding suggests that, perhaps, there are other variables that older patients may be evaluating that were not captured by this instrument.

TABLE XIII

REGRESSION MODEL - AGE

	High	Low
Number of patients	176	138
R-Square	.620	.731
Independent Variables	Regression Coefficients	
Competence	.065	.303*
Credibility	.102	.165*
Reliability	.381*	.301*
Security	.118*	.085
Courtesy	.041	.080
Communicativeness	.044	-.084
Understanding	.156*	.073
Availability	.141*	.033
Responsiveness	.055	.078
Physical Environment (1)	.139*	.029
Physical Environment (2)	-.035	.097

* indicates significance at the .05 level.

With younger patients, "competence," "credibility" and "reliability" were significant in accounting for the variance in overall perceived quality. With the older patients, on the other hand, "reliability," "security," "understanding," "availability," and "physical environment" were significant. This difference indicates that older patients consider the caring aspect to be important and they want to feel secure in the hands of a physician whom they can trust to take care of their illness. Younger patients evaluate the quality of the service based on the medical reputation and skills of the attending physicians.

Regression coefficients, indicating the strength of impact of the independent variables on the dependent variable, were considerably different for the two groups for certain variables as can seen in Table XIII. Older patients' perceptions of overall quality were most affected by "reliability," followed by "understanding," "availability," "physical environment (1)," "security," and "credibility." Younger patients' perceptions of overall quality were most affected by "competence" followed by "reliability," and "credibility."

Education

The regression model for patients with high education levels accounted for a greater amount of variance (71%) in the overall perceived quality than did the regression model

for patients with low levels of education (61%). Table XIV presents both the regression models.

TABLE XIV

REGRESSION MODEL - EDUCATION

	High	Low
Number of patients	177	138
R-Square	.709	.611
Independent Variables	Regression Coefficients	
Competence	.170*	.190*
Credibility	.181*	.038
Reliability	.342*	.346*
Security	.113*	.154*
Courtesy	.128*	-.006
Communicativeness	-.018	.046
Understanding	.147*	.031
Availability	.095	.106
Responsiveness	.011	.074
Physical Environment (1)	.042	.121*
Physical Environment (2)	-.064	.097

* indicates significance at the .05 level.

Among patients with low levels of education, "reliability," "competence," "security" and "physical environment (1)" were significant. On the other hand, among patients with high levels of education, "competence,"

"credibility," "reliability," "security," "courtesy" and "understanding" were significant. For patients with a high level of education, "credibility," "courtesy," and "understanding" had a greater impact on the overall perceived quality than they did for patients with low levels of education. More importantly, it seems that patients who have been to college base their evaluation of the quality of service on a greater number of attributes than those patients that have not been to college at all. Patients that have not been to college, for example, base their evaluation of the quality of the health service on the appearance of medical equipment and amount of trust they can place on the physician as inferred from the reputation of the physician.

Number of Previous Admissions

Both the regression models (Table XV) for patients with no previous admissions, as well as for patients with previous admissions to a hospital, accounted for about the same amount of variation in overall quality.

Only "competence" and "reliability" were significant among patients with no previous admissions. For the group of patients with previous admissions, "competence" and "reliability," "credibility," "security," "understanding" and "physical environment (1)" were significant.

TABLE XV

REGRESSION MODEL - PREVIOUS ADMISSIONS

	High	Low
Number of patients	225	90
R-Square	.641	.635
Independent Variables	Regression Coefficients	
Competence	.170*	.173*
Credibility	.115*	.063
Reliability	.380*	.279*
Security	.107*	.116
Courtesy	.038	.142
Communicativeness	.010	.043
Understanding	.113*	.087
Availability	.091	.119
Responsiveness	.038	.040
Physical Environment (1)	.098*	.019
Physical Environment (2)	.017	.021

* indicates significance at the .05 level.

Patients with no previous admissions placed a greater emphasis on "courtesy" and "communicativeness" than did patients who had been admitted to hospitals previously. Also, patients who had been admitted to a hospital previously placed considerably greater emphasis on "credibility" than did patients who were never admitted previously.

As expected, patients who had previous hospital experience based their judgment of overall quality on a

greater number of attributes than those patients with no previous hospital experience. Patients with no experience based their evaluation of the quality of the service on the dependability of the physician to take care of their illness, as inferred from the thoroughness of their administration of medical procedures. Those who had previous experience based their overall evaluation on how well the physician understood their problems.

Satisfaction With Previous Hospital Experiences

Responses from patients who were dissatisfied with their previous hospital experiences accounted for much more of the variance (92%) in the overall perceived quality than did patients with high levels of satisfaction with previous experience (67%). Table XVI shows the regression models for both these groups.

The model for patients who were dissatisfied with previous hospital experiences shows negative regression coefficients for "security" and "physical environment (1)." This is not intuitively possible, but is not surprising in view of the fact that there were only 20 patients in this category, and therefore, the model would not show stable regression coefficients.

TABLE XVI

REGRESSION MODEL - PREVIOUS HOSPITAL EXPERIENCE

	High	Low
Number of patients	260	20
R-Square	.672	.918
Independent Variables	Regression Coefficients	
Competence	.151*	.417
Credibility	.024	.096
Reliability	.415*	.058
Security	.107*	-.417
Courtesy	.079	.318
Communicativeness	.012	.325
Understanding	.130*	.095
Availability	.161*	.056
Responsiveness	-.042	.020
Physical Environment (1)	.137*	-.010
Physical Environment (2)	-.017	.157

* indicates significance at the .05 level.

Number of Hospital Experiences

Of Close Relatives

Regression models for patients who had close relatives admitted to a hospital and for those who had no close relatives admitted to hospitals accounted for about the same amount of variance in overall perceived quality as can be seen in Table XVII.

For patients with no close relatives with hospital

experiences, "reliability," "security," "courtesy" and "physical environment (1)" were significant. On the other hand, for patients who have close relatives with hospital experiences, "competence," "credibility," "reliability," "security" and "understanding" were significant.

TABLE XVII

REGRESSION MODEL - EXPERIENCE WITH CLOSE RELATIVE

	High	Low
Number of patients	107	211
R-Square	.649	.684
Independent Variables	Regression Coefficients	
Competence	.344*	.050
Credibility	.164*	.049
Reliability	.185*	.458*
Security	.149*	.125*
Courtesy	-.009	.145*
Communicativeness	-.044	.005
Understanding	.186*	.094
Availability	.114	.059
Responsiveness	.052	.006
Physical Environment (1)	-.009	.137*
Physical Environment (2)	-.038	.039

* indicates significance at the .05 level.

There were considerable differences between the two

groups in the strength of impact of some independent variables on the overall perceived quality. "Competence," "credibility," "understanding" and "availability" had greater impact on the overall perceived quality for patients who had close relatives admitted to a hospital than they did for the other group. Patients who had close relatives admitted to a hospital placed an emphasis on how well the physician understood the patient, which was not important for patients who had no close relatives admitted to a hospital. Patients who had close relatives who had been to hospitals, having vicariously experienced the hospital services prior to their current visit would be more likely to base their evaluation of overall quality on more attributes than others.

Severity of Illness

Responses of patients with low severity of illness accounted for more of the variance in the overall perceived quality than others, as can be seen in Table XVIII.

Regression coefficients for patients who did not have surgery were significant for "competence," "reliability," "security," and "courtesy." For patients who underwent surgery, "reliability," "physical environment (1)" was significant at the .05 level.

TABLE XVIII

REGRESSION MODEL - SEVERITY OF ILLNESS

	High	Low
Number of patients	134	180
R-Square	.636	.667
Independent Variables	Regression Coefficients	
Competence	.060	.224*
Credibility	.093	.083
Reliability	.496*	.315*
Security	.093	.125*
Courtesy	-.020	.133*
Communicativeness	.042	.025
Understanding	.024	.108
Availability	.079	.099
Responsiveness	.023	.047
Physical Environment (1)	.136*	.058
Physical Environment (2)	.061	-.021

* indicates significance at the .05 level.

Regression coefficients indicate that "competence," "courtesy," and "understanding" had a greater impact on the overall perceived quality for patients who did not have surgery than it did for patients who did have surgery.

Patient Profile Summary

A summary of the discussion on hypothesis three, presenting all the contingency variables and all the independent variables of perceived quality is shown in

TABLE XIX

PATIENT PROFILE SUMMARY - HYPOTHESIS (3)

	INCOME		AGE		EDUCATION		# OF PREV. ADMISSIONS		CLOSE RELATIVE		SEVERITY OF ILLNESS	
	H	L	H	L	H	L	H	L	H	L	H	L
COMPETENCE	*	*		*	*	*	*	*	*			*
CREDIBILITY	*			*	*		*		*			
RELIABILITY	*	*	*	*	*	*	*	*	*	*	*	*
SECURITY	*		*		*	*	*		*	*		*
COURTESY					*					*		*
COMMUNICATIVENESS												
UNDERSTAND		*	*		*		*		*			
AVAILABILITY	*		*									
RESPONSIVENESS												
PHY. ENVIRONMENT (1)			*			*	*			*	*	
PHY. ENVIRONMENT (2)												

Table XIX. The asterisks indicate the independent variables that were significant in accounting for the variation in the perceptions of overall quality for patients in each of the categories of the contingency variables.

The purpose of this table is to discern any underlying patterns in the evaluations by different types of patients on the various independent variables of "perceived quality." Although no strong patterns seem to emerge from the table, a few rather weak patterns are discussed.

Patients with higher incomes and higher education levels placed more emphasis on "competence," "credibility" and "security" and "understanding" than did the others. Older patients and patients with higher incomes placed more emphasis on "security" than did the others. Patients who had close relatives admitted to hospitals and patients who had previous experiences themselves emphasized the same variables: "competence," "credibility," "security" and "understanding."

Patients in the same income and education categories were somewhat similar in the attributes that they used to evaluate the quality of the health care service. Similarly, patients with previous hospital experiences or with close relatives who had been to hospitals were similar in the attributes that they used to evaluate the quality of the health care service.

Summary

Perceived quality is a multidimensional construct. The independent variables of perceived quality account for a large amount of the variance in "perceived quality." These independent variables can be grouped into dimensions. However, the analysis performed on the data did not produce the reduced dimensions as hypothesized. "Reliability" appeared to have the greatest impact on the overall perceived quality.

Regression models for different groups of patients based on the extent of their previous experience with hospitals showed that those with experience emphasized both 'caring' and 'curing' aspects of the health service; whereas, patients with little or no experience emphasized only the 'curing' aspects of the health care service. The higher the income level, age, education level, number of previous hospital experiences, of patients, the greater the number of attributes that are used to evaluate the overall quality of the health care service.

CHAPTER VI

CONCLUSION

This chapter presents (1) an overview of the study, (2) interpretation of major findings, (3) contributions and (4) directions for future research.

Overview of the Study

This research study involved a preliminary investigation of the determinants of the construct of perceived quality of health care services. Perceived quality in health care services was conceptualized as a value judgment by consumers on the explicit characteristics of the health care service. Three research questions pertaining to the construct of perceived quality were investigated in this study.

First, the construct of perceived quality in health care services was hypothesized as being a multidimensional construct composed of eleven components: competence, credibility, reliability, security, communicativeness, courtesy, understanding and knowing the consumer, availability, responsiveness and physical environment (1) and physical environment (2). This hypothesis was based on a model of service quality developed by Parasuraman,

Zeithaml and Berry (1985).

Second, it was hypothesized that these eleven components of service quality could be grouped into four dimensions: technical quality, subjective quality, access, and physical environment. These hypothesized dimensions were based on literature in medical sociology, which indicated that perceptions of patients could be grouped into three areas: curing (technical aspects), caring (subjective aspects), and access (financial and non-financial aspects).

Third, it was hypothesized that patients with different backgrounds would place different emphasis on the various dimensions of service quality. Thus, the differential impact of contingency variables such as age, income, education, and previous experiences with hospitals on perceived quality of the health care service were also investigated.

An instrument was developed to measure patient perceptions of health care service quality. The questionnaire also measured some predispositional variables, which included some demographic variables and the patient's previous experiences with hospitals. The instrument was administered to a convenience sample of 1500 patients in three hospitals. Responses from 353 patients were analyzed using the statistical procedures of correlation, factor, and regression analyses.

Interpretation of Major Findings

This section presents the major findings of the study related to the three hypotheses. In addition, the constraints under which these findings are to be interpreted are discussed, focusing on two methodological issues (the survey instrument and external validity).

As was predicted by the first hypothesis, perceived quality was found to be a multidimensional construct. The study found that 63% of the variance in the perceptions of the health care service quality could be explained by the eleven components of perceived quality. Thus, although the model did not explain all the variance in the construct of "perceived quality," it did account for most of the variance in consumer perceptions of health care service quality.

"Reliability" was the most significant determinant of perceived quality, indicating that patients emphasized consistently good quality in the hospital's services. The others that were significant included: "competence," "credibility," "security," "understanding," "availability," and "physical environment (2)." Thus, seven of the eleven independent variables were significant at the .05 level in accounting for the variation in consumers' perceptions of the overall quality of the health care service.

These results seem to indicate that patients placed the most emphasis on the consistency of the success of

physicians' medical efforts. Patients rated the health care service as being good if they felt that the hospital personnel were interested in their concerns. Patients also based their assessment of the quality of the service on the availability of hospital personnel. Therefore, patients placed emphasis on the mode of delivery as well as on the content of delivery. In other words, in addition to the success of medical outcome, patients also emphasized the subjective factors of courtesy, understanding, and responsiveness of the hospital personnel.

The findings did not support the hypothesis that the eleven components of perceived quality could be grouped into four dimensions. This failure to find the hypothesized structure, might have occurred for several reasons. First, consumer perceptions of the various attributes of the service may have pertained to different types of contact personnel. Second, there was a high degree of correlation between the factors. Third, there were some inadequacies in the instrument that may have caused misinterpretation of the items.

An oblique rotation of the initial factor analysis revealed two factors of patient perceptions: attitude of the personnel and ability of the hospital to take care of patient's illness.

The findings did support the third hypothesis that the emphasis placed on the various components of the quality of

the health care service would differ based on the background of the patient.

Patients with higher incomes based their evaluation of the overall quality on more attributes than did those with lower incomes. Patients with lower incomes emphasized competence and dependability of the physician to cure their medical problem; whereas, patients with higher incomes also emphasized courtesy and availability of the hospital personnel.

Older patients placed a greater emphasis on "competence," "understanding," and "responsiveness" than younger patients. Younger patients only emphasized the thoroughness of the administration of medical procedures in accounting for their evaluation of the overall quality of the health care service.

Patients with higher education levels placed a greater emphasis on "credibility," "courtesy," and "understanding" than did patients with lower educational levels. In other, words, educated patients emphasized the reputation of the health care provider as well as the courtesy and the understanding of the hospital personnel. Whereas, patients with lower levels of education based their evaluations on the amount of trust they could place on the physician and on the appearance of the medical equipment.

Among patients with high levels of previous hospital experience, their emphasis was on the ability of the health

care provider to successfully treat the medical problem as well as on the understanding and caring shown toward the patient. Therefore, patients with previous health care service experiences based their evaluation of the quality of the health care service on the credibility of the hospital as well as on subjective factors.

Patients who had a higher level of satisfaction with the hospital experiences of close relatives placed a greater emphasis on the understanding shown to the patient than did those who had no previous experience with close relatives. Patients who did not have surgery placed emphasis on more attributes of the health care service than did those who had surgery. Patients who were severely incapacitated or had surgery were more interested in their medical outcome and were less concerned than others with the other components of perceived health care service quality.

The generalizability of the above findings, the deficiencies of the instrument and the possible reasons for the deviations of the results from the hypotheses are discussed next.

External Validity

The generalizability of the results depend on the external validity of the research design. The results of this empirical study must be generalized keeping in mind

that background factors (i.e., variability in settings, persons, and times) were not controlled in the study (Calder, Phillips and Tybout 1979). Four considerations need to be made before attempting to generalize the results of this study.

First, in this study, the sample was confined to patients from the three hospitals in the midwest that participated in the survey. The population in this region may be different from that in other regions of the U.S.

Second, the hospitals involved in this study were all of approximately the same size, and they were fairly large. Thus, it is not clear from this study if patients in smaller hospitals base their perceptions of the health care services on the same attributes.

Third, all the respondents in this study were hospitalized for at least one day. The results in this study may not be generalizable to nursing homes, to outpatients in hospitals, or to chronically ill patients who may pay regular visits to their primary physician.

Fourth, terminally ill and psychiatric patients were not included in the study for obvious reasons: operational difficulties and the possibility of erratic responses. In addition, the hospitals requested that these patients be excluded. Since these types of patients and the nonrespondents could not be included in the analysis, there was no way to determine if these nonrespondents might have

had different constructs of perceived quality.

Clearly, the results of this study are generalizable to patients who stay for at least one day in a hospital with similar characteristics. A sizable proportion of all hospital patients spend more than one day in the hospital, especially for maternity care, surgery, etc. Although the instrument developed in this study may not be applicable to all health care institutions, the interpretation of the results of the study may be insightful to any health care provider.

The Survey Instrument

The instrument used to collect the data was carefully pretested twice before its use. However, there were still minor flaws in it.

First, in order to eliminate acquiescent response bias, positively and negatively worded statements were used to measure each component of perceived quality. These statements were intended to be polar opposites of each other. Theoretically, the responses to the positive and negative statements of each variable should have a perfect correlation. However, the Pearson Moment correlation coefficients for some of the variables were unsatisfactory. These poor correlations could have occurred because:

a) the statements may not have been worded in such a way as to be perfect opposites of each other;

b) the respondents may have missed the negativity of

the negative statements and may have perceived the negative statements as being positive statements; and

c) there may have been a "halo effect," in that respondents tended to agree or disagree to instrument items, regardless of the item content.

Second, some respondents may have had some difficulty understanding the structure of the response scale for the items measuring perceptions. This difficulty was noticed during the first pretest, where abbreviations for the response choices were used. In the final version, the response choices were spelled out as headers on both the pages of the questionnaire featuring the statements measuring the perceptions of the respondents. Apparently, this modification only minimized the problem, but did not totally eliminate it.

Third, the item measuring the perception of reliability of the health care service, was very similar to the item measuring perception of overall health care service quality. Therefore, reliability was very highly correlated to the overall quality compared to the other independent variables and this may have obscured the importance of some of the other variables on overall perceived quality.

When interpreted with the appropriate cautions as discussed above, the results of this study are useful to the following audiences.

Contributions

The results of this study may be valuable to three primary audiences: the health care provider, the public policy maker, and academics in services marketing.

Health Care Providers

Health care providers are becoming aware of the need for the marketing of health care services. Increasing competition and the rising cost of health care have resulted in lower occupancy rates in hospitals. In addition, public demand for accountability from the health care provider has necessitated improvement of monitoring and control of health care quality. Hospitals are institutionalizing programs that involve systematic surveys of patient satisfaction. As reported in the results of this study, patients base their assessment of the quality of health care services on such attributes as "reliability," "understanding," "competence," "credibility," and "courtesy" of the service provider. Patients attach importance to the subjective aspects of health care service, such as the conduct of the health care professionals. Therefore, in addition to the evaluation of health care services based on clinical criteria by health care professionals, patient evaluations must also be taken into account.

Further, patients with differing backgrounds in terms

of demographic variables and of previous experience with health care providers place different emphasis on the various attributes of health care services. Therefore, health care providers need to anticipate the differential needs of patients and adjust their service-offerings accordingly.

Public Policy Makers

With the increasing demand for accountability in the health care industry, the issue of quality has become a major concern for the health care policy maker. The Institute of Medicine at the National Academy of Sciences oversees the quality assessment programs of the Professional Standards Review Organizations. These assessments need to take into account consumer or patient opinion in addition to the clinical and economic criteria that are now being used.

This study provides insight into the composition of the perceived quality construct and the dimensions on which the patients base their overall judgments of the quality of the health care service. Professional reviews of health care by peer review boards use only clinical criteria and ignore the importance of courtesy and responsiveness of hospital personnel. Formal assessment programs could incorporate the results of periodic or continuous patient surveys, such as the one used in this study, into their

overall assessment of the performance of all health care delivery organizations.

Services Marketers

The issue of consumer satisfaction is of central importance in marketing. Consumer satisfaction has generally been conceptualized as the outcome of a comparison between a consumer's expectations and the perceived performance of the product or service consumed. Very little research has been conducted on the construct of perceived performance.

Research on the service quality concept is still in its infancy. With the increasing importance of services in the U.S. economy, researchers in services marketing have focused on the elusive concept of service quality. The construct of perceived service quality is different from that of the perceived quality in physical goods and would have to be dealt with separately for two major reasons.

First, since services are different from physical goods in the degree of tangibility of the consumption experience, consumers use a different set of criteria in evaluating the quality of services. From a broad theoretical perspective, the results of this study provide some insight into the construct of service quality by investigating the attributes of a service provider that are important in the consumer's perceptions of the quality of

services.

Second, consumer evaluation of services is more difficult in the consumption of services. This is especially true of health care services, where the consumer has very little expertise to judge the quality of such a highly technical and sophisticated service. Therefore, a better understanding of the consumer's perception of service quality is required for the conceptualization of the relevant constructs in the consumption of services.

Like most applied sciences, the marketing discipline stands to gain by borrowing concepts from other basic sciences. Naturally, in the area of health care marketing, conceptual development will take place with the adaptation of the results of research done in the area of medical sociology. This study is an example of such an effort, where, medical sociology literature has been used to strengthen the conceptual development of the construct of perceived quality in the consumption of health care services.

Directions for Future Research

Given that this research is an early effort to establish an understanding of the relationship between the variables that constitute the construct of perceived quality, there are numerous avenues for future research. In this section, two major areas for future research

efforts are suggested: theoretical clarification and methodological refinements.

The structure of the determinants of perceived quality need to be investigated in order to test the model of perceived quality. This research study was exploratory, and confirmation of the proposed model would require the use of sophisticated statistical techniques such as causal modeling and structural path analysis. A confirmatory factor analysis should first be done to further investigate the possibility of reducing the eleven determinants of perceived quality into fewer dimensions.

A very recent study attempting to develop a multi-item scale to measure customer perceptions of service quality (Parasuraman, Zeithaml, and Berry 1986), reduced the ten components and found a five factor structure after an oblique-rotation of the initial factor structure. The five factors were "tangibles," "reliability," "responsiveness," "assurance," and "empathy." The data used in the analyses were collected from banking, credit card, repair and maintenance and long-distance telephone services. It would be interesting to see whether their instrument would produce the same factor structure if it were used in health care services. Following the determination of the factor structure of the construct of perceived quality, the direction and strength of relationships between these factors would have to be studied.

In order to test the structure of the model and the relationships of the various components, manipulation and control of the relevant variables are required, and a causal analysis would have to be conducted where the following questions would have to be addressed:

1. What is the source of the causality?
2. What is the direction of the causality?
3. What is the strength of the relationship between the variables? (Monroe and Petroshius, 1979)

The instrument that was used in this study needs to be refined before its validity is adequately established. The positive and negative statements that were used to measure the perceptions of health care service quality were not well correlated. It might be better to use either positive or negative statements for each variable instead of using both negative and positive statements. The reliability and validity of the instrument also needs to be examined in greater detail. A multi-trait and multi-method approach would be a suitable means to examine construct validity, discriminant and convergent validity. Perceptions of the patients could be measured by the interview method and by the survey method to control for a methods-bias.

In order to improve the generalizability of the results, the sample should also include outpatients and patients in hospitals of all sizes. The hospitals should represent a cross-sectional sample across the country.

In conclusion, it seems that there is need for further conceptual development and further refinement and validation of the instrument used to measure the construct of perceived quality. In addition, the instrument must be so developed that it can be used in health care institutions with differing characteristics.

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APPENDICES

APPENDIX A

HOSPITAL PROFILES

HOSPITAL PROFILES

	Beds	Admissions/year	Personnel
Hospital T	706	25857	2353
Hospital O	539	21369	2005
Hospital W	553	17879	1596

Source: Hospital Statistics 1984. Chicago: American Hospital Association.

APPENDIX B

SURVEY INSTRUMENT

PATIENT SURVEY

So that we have an idea of your experiences as a patient, please answer the following questions:

Was this your first stay at our hospital? ____ Yes ____ No

Have you visited our hospital for any reason before? ____ Yes ____ No

What were your impressions of our hospital from that previous visit/stay?

very favorable	favorable	neutral	unfavorable	very unfavorable
____	____	____	____	____

Not counting your recent stay, how many times have you been admitted to a hospital in the past five years? ____

Has any close relative (spouse/child/parent) of yours been admitted to any hospital in the last five years? ____ Yes ____ No

How satisfied were you with all your previous hospital experiences, excluding this last one?

very satisfied	satisfied	neutral	dissatisfied	very dissatisfied
____	____	____	____	____

For each of the following statements about your experience at our hospital, please check the appropriate space to indicate your response. There is no right or wrong answer. Your personal opinion is more important.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Example					
Medical care is better today than it was twenty years ago.				X	
[The above response indicates that you agree, that medical care is better today than it was twenty years ago.]					
Medical procedures were carefully administered in this hospital.					
The nonmedical services of this hospital needed improvement.					
I am satisfied with the medical care that I received at this hospital.					
The hospital staff was generally rude to me.					
I was confident that this hospital would provide the required services to solve my medical problem.					
If I needed the services of a hospital in the future, I would prefer not to go to this one.					
The doctors told me what was happening to me.					
The quality of care that I received was not high.					
The hospital services and equipment were quite sophisticated.					
I could not talk to any of the hospital staff when I wanted to talk.					

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
The hospital was not as thorough in its administration of medical procedures as it could have been.					
Doctors never look at their patient's records.					
I was not happy with the services of this hospital.					
The hospital staff was generally courteous to me.					
I could not depend on the hospital to provide the services necessary to meet my medical and nonmedical needs.					
I could get help as soon as I requested it.					
If I were to recommend a hospital to anybody, I would recommend this hospital.					
Just about all doctors make house calls.					
The quality of health care at this hospital was not consistently good.					
The hospital personnel were interested in my concerns.					
I doubted whether the doctors would be able to take care of my illness.					
The nonmedical services of the hospital were good.					
I had to wait a long time before somebody would answer my call.					
The doctors did not tell me what was happening to me.					
Hospitals hurt many more people than they help.					
Equipment and facilities in the hospital needed attention.					
I could trust the doctors to take care of my illness.					
The hospital personnel were not interested in my concerns.					
The health care service quality was consistently good.					
I could talk to a member of the hospital staff about my needs whenever I wanted to talk.					
Overall, this institution provided high quality services.					

Before your stay, did you speak to anyone who had used our hospital's services? ____ Yes ____ No

To what extent did each of the following influence you on the choice of this hospital?

	Very important	Quite important	Slightly important	Not at all
spouse	____	____	____	____
relative	____	____	____	____
friend	____	____	____	____
my doctor	____	____	____	____
my own choice	____	____	____	____

For what reason were you admitted to our hospital?_____

_____

Did you have surgery while you were at our hospital? ____ Yes ____ No

How many different doctors attended to you while at our hospital? ____

Date of admission to our hospital: _____

Length of stay at our hospital (during this visit): _____ day(s).

What is your age?

____ 18-25 ____ 26-35 ____ 36-45 ____ 46-55 ____ 56-65 ____ over 65

What is your sex? ____ Male ____ Female

What is your marital status?

____ Single ____ Married ____ Divorced/Separated ____ Widowed

What is your main occupation?

____ engineer/doctor/attorney
____ manager or owner of business
____ salesperson or agent
____ clerical or office worker
____ skilled operator/craftsman
____ student
____ teacher/professor
____ farmer
____ armed forces
____ laborer
____ housewife
____ retired
____ unemployed
____ other (please specify)_____

What is the highest level of education you have received?

____ Grade School ____ Some High School ____ High School Graduate
____ Vo Tech ____ Some College ____ College Graduate ____ Graduate Degree

What is your total annual household income?

____ Below $5,000 ____ $20,001 - $30,000 ____ $50,001 - $60,000
____ $5,001 - $10,000 ____ $30,001 - $40,000 ____ $60,001 - $70,000
____ $10,001 - $20,000 ____ $40,001 - $50,000 ____ Above $70,000

What is your zip code? _____

What services would you like to see added to our hospital?

_____

_____

What services in our hospital would you like to see changed?

_____

_____

THIS SURVEY DOES NOT REFLECT ANY OFFICIAL POLICY OR STATEMENT OF OKLAHOMA STATE UNIVERSITY.

THANK YOU VERY MUCH FOR YOUR GENEROUS ASSISTANCE.

APPENDIX C

WHAT THE QUESTIONS IN THE SURVEY MEASURE

WHAT THE QUESTIONS IN THE SURVEY MEASURE

Dependent Variable:

[Perceived Quality]

1. The quality of care that I received was not very high.
2. Overall, this institution provided high quality services.

Independent Variables:

[Independent Variable I - technical quality]

[competence]

3. Medical procedures were very carefully administered in this hospital.
4. The hospital was not as thorough in their administration of medical procedures as it could have been.

[credibility]

5. I was confident that the hospital would provide the required services to solve my medical problem.
6. I could not depend on the hospital to provide the services necessary to meet my medical and nonmedical needs.

[reliability]

7. The health care service quality was consistently good at all times.
8. The quality of health care at this hospital was very inconsistent.

[security]

9. I could trust the doctors to take care of my illness.
10. I doubted whether the doctors would be able to take care of my illness.

[Independent variable II - subjective quality]

[communicativeness]

11. The doctors always told me what was happening to me.
12. The doctors did not tell me what was happening to me.

[understanding]

13. The hospital personnel were interested in all that I had to say.
14. The hospital personnel were not always interested in my concerns.

[courtesy]

15. The hospital staff was generally courteous to me.
16. The hospital staff was generally rude to me.

[Independent variable III - access]

[availability]

17. I could talk to a member of the hospital staff about my needs whenever I wanted to talk.
18. I could not see any of the hospital staff when I wanted.

[responsiveness]

19. I could get help as soon as I requested it.
20. I had to wait a long time before somebody would answer my call.

[Independent variable IV - physical environment]

21. The hospital services and equipment were quite sophisticated.
22. Equipment and facilities in the hospital need attention.
23. All nonmedical services of the hospital were good.
24. Some of the nonmedical services of this hospital needed improvement.

[Validity Checks]

25. Hospitals hurt many more people than they help.
26. Doctors never look at their patient's records.
27. Just about all doctors make house calls.

[Independent variable II - subjective quality]

[communicativeness]

11. The doctors always told me what was happening to me.
12. The doctors did not tell me what was happening to me.

[understanding]

13. The hospital personnel were interested in all that I had to say.
14. The hospital personnel were not always interested in my concerns.

[courtesy]

15. The hospital staff was generally courteous to me.
16. The hospital staff was generally rude to me.

[Independent variable III - access]

[availability]

17. I could talk to a member of the hospital staff about my needs whenever I wanted to talk.
18. I could not see any of the hospital staff when I wanted.

[responsiveness]

19. I could get help as soon as I requested it.
20. I had to wait a long time before somebody would answer my call.

[Independent variable IV - physical environment]

21. The hospital services and equipment were quite sophisticated.
22. Equipment and facilities in the hospital need attention.
23. All nonmedical services of the hospital were good.
24. Some of the nonmedical services of this hospital needed improvement.

[Validity Checks]

25. Hospitals hurt many more people than they help.
26. Doctors never look at their patient's records.
27. Just about all doctors make house calls.

HOSPITAL O

Dear Patient:

No organization is perfect, and hospitals are certainly no exception. We at [redacted] want to provide the best service possible, but to do so we need to know what we're doing right, and what needs improvement. This means we must depend upon our patients to keep us informed. The research is being done in conjunction with Oklahoma State University.

We need the feedback. We need YOUR help.

Please fill out the enclosed survey and return as promptly as possible. Your opinion counts.

Many thanks.

HOSPITAL T

July 7, 1986

Dear Patient:

Having been a recent patient at . . we would like to solicit your help by letting us know your satisfaction with our services. We constantly strive to improve our services. Please give us a few minutes of your time to complete this survey.

This survey is part of research being conducted by Joby John, a doctoral student at Oklahoma State University. Your comments and suggestions will be kept confidential and will be gratefully received.

We are grateful for having had the opportunity of serving you. We hope your stay has been pleasant and comfortable. We would truly appreciate your assistance with the enclosed questionnaire. Please contact us if you have any questions.

HOSPITAL W

Dear Madam/Sir:

Your satisfaction with our services is our major concern and we are constantly striving to improve our hospital service standards. We need your help to do this. Therefore, please be kind enough to spend a few minutes to complete this survey.

This survey is part of research being conducted by Joby John, a doctoral student at Oklahoma State University. Your comments and suggestions will be kept confidential and will be gratefully received.

We hope your stay has been comfortable, and we will appreciate your assistance. Please contact us if you have any questions.

APPENDIX E

TEXT OF COVER LETTER (O.S.U) TO PATIENTS FROM HOSPITAL O

OSU

Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

July 11, 1986

Dear Madam/Sir:

The attached letter from
is a heartfelt request to participate in research being conducted by Joby John, a doctoral student in the College of Business at Oklahoma State University.

I am supervising Joby's research. This research is required for Joby to complete his dissertation and receive his diploma. Please contact me if you have any questions.

Your comments and suggestions will be anonymous and will be kept in strictest confidence. Joby and I will be very grateful to receive your reply.

Sincerely,

Raymond P. Fisk

Raymond P. Fisk
Associate Professor of Marketing
College of Business Administration

(405) 624-5085

RPF:jk

Attachment

VITA

Joby John

Candidate for the Degree of

Doctor of Philosophy

Thesis: CONSUMER/PATIENT PERCEPTION OF THE QUALITY OF HEALTH CARE SERVICE DELIVERY

Major Field: Marketing

Biographical:

Personal Data: Born in Trivandrum, India, August 2, 1957, the son of Mattamala John and Saramma Chacko.

Education: Graduated from Carmel Garden Matriculation School, Coimbatore, India, in April, 1973; received Pre-University degree from St. Joseph's College, Tiruchirapalli, India, in April, 1974; received Bachelor of Pharmacy (Honors) degree from Birla Institute of Technology and Science, Pilani, India, in May, 1978; received Master of Business Administration from University of Madras, Coimbatore, India, in May 1980; completed requirements for the Doctor of Philosophy degree at Oklahoma State University in July, 1987.

Professional Experience: Research Assistant, Department of Marketing, Oklahoma State University, January 1984 to August 1984; Teaching Assistant and Instructor, Oklahoma State University, September 1984 to July 1986; Assistant Professor, Marketing Department, Bentley College, September 1986 to present.