

PERCEIVED SERVICE QUALITY: ITS MEASUREMENT AND  
RELATIONSHIP TO CONSUMER BEHAVIOR IN  
A MEDICAL CARE SETTING

By

DEAN E. HEADLEY

Bachelor of Science  
Emporia State University  
Emporia, Kansas  
1970

Master of Public Health  
University of Oklahoma  
Norman, Oklahoma  
1974

Master of Business Administration  
The Wichita State University  
Wichita, Kansas  
1982

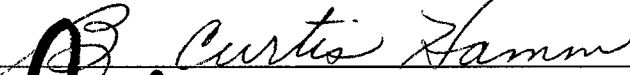
Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF PHILOSOPHY  
December, 1989

Thesis  
1989D  
H433p  
cop.2


PERCEIVED SERVICE QUALITY: ITS MEASUREMENT AND  
RELATIONSHIP TO CONSUMER BEHAVIOR IN  
A MEDICAL CARE SETTING

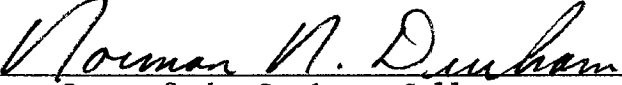
Thesis Approved:

  
Thesis Adviser







  
Dean of the Graduate College

C O P Y R I G H T

by

Dean E. Headley

December, 1989

## ACKNOWLEDGMENTS

I want to express my sincere appreciation to Dr. Stephen Miller for his patients and guidance throughout my graduate program and particularly my writing of this dissertation. My thanks also to Dr. Ray Fisk, Dr. Chuck Edgley, and Dr. Bob Hamm for their comments, suggestions, and time while serving as professors and committee members. All of the faculty in the Department of Marketing at Oklahoma State University deserve recognition and thanks for their efforts in creating an atmosphere that fosters scholarly pursuits, professional development, and a collegial atmosphere.

My sincere thanks also go to Mr. Steve Perkins, Chief Operating Officer, and Dr. Lloyd Hummer, Medical Director, of the Wichita Clinic, for allowing my research to invade the Clinic's routine. A special thanks goes to Charlotte Quinn, Quality Assurance Manager, and the staff of the Internal Medicine Department for tolerating and implementing my taxing research design.

The pursuit of a doctoral degree later in life presents many challenges and requires sacrifice by many. I thank my family and friends for their support, encouragement, and understanding throughout this educational process. Most importantly, I thank my best friend and wife, Esther, for her encouragement, suggestions, perseverance, support, and love during these years of disruption and growth. The degree may be attached to my name, but it took both of us to make it possible. Thanks kid, now it is your turn.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION . . . . .	1
Plan of Dissertation . . . . .	6
II. LITERATURE REVIEW . . . . .	8
Consumer Satisfaction Construct . . . . .	13
Construct Development . . . . .	14
Dimensionality . . . . .	17
Measurement of the Construct . . . . .	17
Conclusions . . . . .	20
Patient Satisfaction Construct . . . . .	20
Construct Development . . . . .	21
Dimensionality . . . . .	25
Measurement of the Construct . . . . .	27
Conclusions . . . . .	30
Service Quality Construct . . . . .	31
Construct Development . . . . .	32
Dimensionality . . . . .	35
Measurement of the Construct . . . . .	38
Conclusions . . . . .	43
Similarities and Differences of Constructs . . . . .	43
Behavioral Intent . . . . .	46
Areas of Research Interest . . . . .	50
III. RESEARCH DESIGN . . . . .	53
Research Hypotheses . . . . .	53
Adaptation of SERVQUAL . . . . .	53
Behavioral Intent Extension . . . . .	54
Measurement Issues . . . . .	56
Expectation/Perception Scales . . . . .	56
Overall Quality Scale . . . . .	57
Behavioral Intent Items . . . . .	58
Demographics . . . . .	59
Data Collection Methodology . . . . .	60
Data Analysis . . . . .	61
Dimensional Structure . . . . .	61
Overall Quality and Service Quality . . . . .	62
Behavioral Intent . . . . .	62

Chapter	Page
IV. RESEARCH RESULTS . . . . .	64
Methodology . . . . .	64
Measurement . . . . .	66
Perceived Service Quality . . . . .	66
Overall Quality . . . . .	72
Behavioral Intent . . . . .	73
Description of Sample . . . . .	75
Tests of Hypotheses . . . . .	83
Reliability and Dimensional Structure . . . . .	84
Convergent Validity . . . . .	88
Behavioral Intent and Perceived Service Quality . . . . .	91
Behavioral Intent and Dimensional Importance . . . . .	93
Demographic Analysis . . . . .	95
V. SUMMARY AND CONCLUSIONS . . . . .	98
Overview of Supporting Literature . . . . .	98
Research Methodology . . . . .	99
Research Hypotheses and Findings . . . . .	101
Contribution to Marketing Knowledge . . . . .	103
Limitations of Research . . . . .	104
Recommendations for Future Research . . . . .	106
REFERENCES . . . . .	108
APPENDIX A - THE SERVQUAL INSTRUMENT . . . . .	115
APPENDIX B - PRE-ENCOUNTER SURVEY . . . . .	119
APPENDIX C - POST-ENCOUNTER SURVEY . . . . .	126

LIST OF TABLES

Table	Page
I. Expectation Scale Items . . . . .	68
II. Perception Scale Items . . . . .	70
III. Comparision of Expectation and Perception Scores . . . . .	72
IV. Overall Quality Categorical Responses . . . . .	73
V. Behavioral Intent Item Means . . . . .	74
VI. Age of Respondents . . . . .	76
VII. Sex of Respondents . . . . .	76
VIII. Education Level of Respondents . . . . .	77
IX. Maritial Status of Respondents . . . . .	77
X. Size of Household . . . . .	78
XI. Number of Persons Under 18 Years of Age in Household . . . . .	78
XII. Occupation of Respondents . . . . .	79
XIII. Annual Household Income . . . . .	79
XIV. Level of Insurance Coverage for This Visit . . . . .	80
XV. Self-Reported Health Status of Respondents . . . . .	80
XVI. Frequency of Unexpected Medical Outcome . . . . .	81
XVII. Physicians Suggestions for Future Care . . . . .	82
XVIII. Discussion of Recent Visit with Others . . . . .	84
XIX. Factor Loadings Following Varimax Rotation of Six Factor Solution for Medical Care Sample . . . . .	86
XX. Factor Structure and Internal Consistencies of the Adapted Scale . . . . .	87



Table	Page
XXI. Factor Structure and Internal Consistencies of the Original SERVQUAL Dimensions . . . . .	89
XXII. Analysis of Variance Between Adapted Scale and Overall Quality Categories . . . . .	90
XXIII. Regression Analysis of Behavioral Intentions with Perceived Service Quality . . . . .	92
XXIV. Regression Analysis of Behavioral Intentions with Underlying Dimensional Structure of Service Quality . .	94

LIST OF FIGURES

Figure	Page
1. Comparison of Patient Satisfaction Scale Dimensions . . . . .	27
2. Service Quality Model . . . . .	36
3. Attitude Modification Process . . . . .	48

## CHAPTER I

### INTRODUCTION

It is not a matter of whether there is competition in the medical services marketplace, but rather a matter of how well providers will compete.

This observation by Kotler and Clarke (1987), suggests that a new perspective has come to the medical care services marketplace. In this view, we can see that the basic dilemma facing all medical care providers, regardless of their mode of delivery or profit orientation, involves competitive activity. A better informed public, availability of better technological medical procedures, changes in government regulations and reimbursement, and a focus on prevention rather than acute care by both the provider and consumer has forced a change in the delivery mechanisms for care services. In an effort to meet the competitive challenge and to respond to new demands, the growth of alternate delivery modes has brought outpatient and non-hospital based operations to a place of prominence in medical services delivery.

Providers have reacted to this new competitive environment in medical care services delivery by offering more cost efficient and access oriented outpatient services that address a variety of traditional and non-traditional consumer demands (e.g. one-day surgery; women's clinics; immediate care services; shopping mall locations). As a result of intensifying competitive activity in the medical services arena, service providers are seeking and relying on the opinions and

attitudes of consumers of the services as an avenue to discover and establish strategic advantage. This shift in status and role of the medical care service recipient is forcing the provider to adopt a market based approach to care service delivery and creates a new importance for marketing concepts in the medical services market place.

New competitiveness and consumer attitudes have forced traditional hospital based care systems to unbundle services offered. All manner of care services are available in an outpatient setting. This outpatient setting allows market place forces to better operate and reward providers that offers efficiency, quality, availability, price, and outcome advantages to consumers. In a sense, the large multi-speciality clinic of today is not unlike a supermarket. Consumers choose to go to a clinic (or a supermarket) because of habit, convenience, selection, price, quality, or personal contacts. If the competitive environment in medical care services is to be studied, it can be best studied in a context that allows the operation of market forces. The non-hospital, non-emergency, primary care clinic offers a setting that incorporates these considerations. The focus of research outlined here is on one critical aspect of consumer/ provider interaction: perceived service quality of medical services as found in a multi-speciality urban clinic.

In the non-medical marketplace, service quality has long been appreciated as a way to build customer loyalty. Thompson, DeSouza and Gale (1985) point out that advantages of high service quality include higher prices, reduced marketing effort, greater repeat business, higher market share, and increased profitability. This implies that service quality has a strategic role in the market place. These authors point out that service aspects of a product offering and the level of

perceived service quality can be a critical competitive edge in today's world economy. Further analysis of the PIMS data base by these authors indicates that in most markets, services and perceptions of service quality are centrally important to purchase decisions of the consumer.

— Reflect for a moment on the last encounter you had with a provider of medical care services. At the outset you were most likely motivated by some immediate physical or routine need to seek care services. This recognized need prompted a level of expectation about the care to be encountered. During your interaction with the provider, new information was gained about your medical problem, the service provider, and the operation of the medical care system. After the encounter, you most likely summarized your experiences and compared them to your initial expectations about your needs, the care provider, and the system in general. This comparison process resulted in a modified attitude regarding the level of quality you perceive regarding the service provider and the medical care system and your satisfaction with the particular encounter.

How did you modify your initial expectations as a result of the experiences? Positive experiences that meet or exceed initial expectations are generally seen as being satisfying or of good quality. Experiences that do not meet expectations are thought to be dissatisfactory or poor in quality. This global comparative process that results in a positive, neutral or negative perception of service quality is a central concern for marketers of services. Knowledge of what consumers expect going into a service encounter can be of help in better organizing and offering a service experience that is perceived as satisfactory or of acceptable quality.

What criteria or factors did you use to form this modified attitude about the quality of services received and the service provider? Your attitude might be based on medical outcome factors such as pain relief, or removal of a threat to life. It might be based on non-medical factors such as the manner in which the physician and nurses conducted themselves, or the pleasant nature of the physical surroundings. Both technical and functional factors are suggested as being important to the consumer when forming an attitude about service quality (Sasser, Olsen, and Wyckoff 1978; Gronroos 1982; Parasuraman, Zeithaml, and Berry 1985).

What affect will this positive or negative encounter have on your future consumer behavior for the services? Perceived poor quality may create obstacles that the consumer cannot overlook when future need arises for that service. Perceived high quality may motivate the consumer to use the services of that particular provider in the future with less hesitancy and to recommend that service to others. Either perception of quality will have an influence on the potential demand structure for the service.

Four streams of research have relevance for the questions previously posed. Literature in consumer satisfaction/ dissatisfaction areas, patient satisfaction, service quality, and behavioral intent all have potential to contribute to a better understanding of how service quality attitudes are formed and in what ways these attitudes are strategically important. The satisfaction/ dissatisfaction literature has provided the basic paradigm for research. A comparison, or discrepancy, approach is held to be most useful in understanding the inner workings of the quality construct. Consumers naturally make comparisons between expectations and outcomes when trying to establish a

level of satisfaction regarding a market transaction. Agreement as to how elements are to be measured is not commonly held, leaving a gap in the useful specific application of the construct.

Patient satisfaction, as a specifically applied instance of consumer satisfaction, has made great strides in the clarification of the construct in a specific service oriented field. Multiple measurement scales have been developed that use the discrepancy approach to assessing satisfaction, while at the same time establishing several dimensions which may explain the satisfaction construct in medical services.

Only recently has the service quality construct received attention in the literature. As with satisfaction/ dissatisfaction and patient satisfaction, the service quality construct relies on the discrepancy between expectations and perceptions of outcome to establish service quality attitudes. The addition that the service quality literature makes to the area of consumer satisfaction is the suggestion of a more elaborate model that incorporates consumer and provider aspects into the service quality construct. Also, the argument for a distinction between satisfaction and a more universal attitude of perceived service quality is made in the literature. Managerial usefulness and measurement elegance are suggested by the literature as well.

Consumer behavior literature that speaks to the intent of a consumer in a given situation has relevance to the strategic aspects of service quality. By associating perceptions of service quality with basic intentions to behave, a more useful pattern of managerial actions can be formulated. Very little work has been done in the area of service quality and behavioral intent regarding medical services.

## Plan of Dissertation

The research outlined here is restricted to the study of perceived service quality attitudes regarding medical care services and their association with specific behavioral intent categories of interest in a competitive environment. Much of the work done to date in patient satisfaction areas does not look at a complete range of connections between perceived service quality and basic consumer behavior. While it may be difficult to study this connection directly, there are preliminary steps that allow a better understanding of the role that perceived service quality plays in determining the behavioral intentions of a consumer in the medical care marketplace. Literature does not reflect this connection having been made. An examination of literature regarding satisfaction/ dissatisfaction in both general consumer behavior, the medical care field, and the emerging literature of service quality is used to suggest hypotheses for investigation.

At the center of this research is the work done by Parasuraman, Zeithaml, and Berry (1985, 1988) in modeling and measuring the service quality construct. The model of service quality they propose suggests the basic framework within which this research effort is based. The specific measurement instrument, SERVQUAL, that is suggested as a universal measure of perceived service quality is the specific focus of this research. Research objectives are 1) to adapt the SERVQUAL scale for use in a medical care services setting and to examine the adapted scale's dimensionality, reliability, and validity in that setting; and 2) to establish and explain connections between perceived service quality and relevant future consumer behavior.

It is necessary to outline the literature base for the service



quality construct. To provide an overview of relevant perspectives regarding service quality as a construct, Chapter II presents a review of three related literatures: 1) consumer satisfaction/ dissatisfaction; 2) patient satisfaction; and 3) service quality. This chapter provides discussion of theoretical and construct measurement issues that lead to the current focus on service quality and SERVQUAL as the construct and measurement scale of focus for this research. Also, this chapter suggests the pattern of connections between perceived service quality and a range of behavioral intents that are thought to be theoretically and strategically useful in extending our understanding of the service quality construct.

Chapter III outlines methodology, measurement, and data analysis aspects that are used to investigate the service quality construct in the medical services area for the specific research hypotheses. Original scale development efforts and areas of concern suggested by Parasuraman, Zeithaml, and Berry (1988) are used for guidance in this adaptation effort. To that end, many of the same analysis routines (i.e. Cronbach's alpha, factor analysis, regression analysis, and analysis of variance) are applied to new medical services consumer sample data.

Chapter IV provides results of research for the medical care sample. Results are presented for each hypothesis. A demographic profile of respondents and qualifying data regarding encounter experiences are also presented.

Chapter V summarizes the entire research effort and presents conclusions. In addition, limitations are discussed, future related research is suggested, and contributions to marketing knowledge are outlined.

## CHAPTER II

### LITERATURE REVIEW

Several areas of the marketing literature approach a conjuncture that suggest research opportunities. Researchers exploring consumer satisfaction/ dissatisfaction and those interested in perceived service quality are operating in similar domains and need to sort out their common ground. Both research streams rely on disconfirmation approaches that involve the comparison of initial expectations with perceived outcomes to establish a level of satisfaction or perceived service quality (Oliver 1980; Parasuraman, Zeithaml, and Berry 1985). Both suggest strategically critical roles for satisfaction and perceived service quality in shaping future consumer behavior. The connection that perceived service quality has to a consumer's intent to behave in regard to future use of the service is not documented in the literature. Common definitions and claims to strategic importance indicate a need to explore the consumer satisfaction/ dissatisfaction, service quality, and consumer intent literatures in an effort to develop a more unified approach to research and strategic usefulness. This literature review examines the consumer satisfaction/ dissatisfaction, service quality, and behavioral intent research with an emphasis on the medical services setting. To achieve a more rounded view, the literature on patient satisfaction will also be examined.

Historically, satisfied consumers have been a necessity for long-

term survival. Consumer satisfaction is generally assumed to play a central role in decisions by the consumer regarding repeat purchases of goods and services, favorable word-of-mouth communications between the consumer and potential consumers, and the level of of consumer loyalty toward the provider/ seller (Bearden and Teal 1983). To these ends, a better understanding of what satisfaction is, how it operates, and what it impacts seems important for better success in marketing goods and services. Detailed exploration of the satisfaction construct began to emerge in the marketing literature in the early 1970's. It has progressed to point of general agreement on a central paradigm, but has received little specific attention of late.

Recently, the construct of service quality emerged in the literature as an alternative to satisfaction. Growth of service sector marketing has focused the attention of practitioners and the academic community on the meaning and impact that perceived quality might have for consumer behavior in service settings. Similarities between service quality and satisfaction are increasingly being discussed in the literature. Historically, quality has been thought of in regard to products and has taken on a production orientation (i.e. lack of defects). The recent literature has taken a more customer oriented view in defining the critical determinants of product quality perceptions by emphasizing attributes of price, reputation, performance, and positioning (Riesz 1978; Reddy 1981; Wheatley, Chiu and Goldman 1981; Garvin 1983; Phillips, Chang and Buzzell 1983; Anderson and Zeithaml 1984; Curry 1985). This literature also reflects the recent move to include a service component in the product quality paradigm.

From a strategic view, the marketing concept suggests a critical

role for customer satisfaction and/ or service quality. A critical part of the marketing concept involves the focusing of marketing activities on meeting consumer needs. This implies a central importance for satisfying consumers. Unless we as marketers better understand what the satisfaction and service quality constructs involve, the successful implementation of the marketing concept will be difficult and our marketing efforts will be less than effective. Given that a consumer today is faced with multiple opportunities to exchange for similar goods and services, service quality or satisfaction as a strategic competitive advantage is a critical factor in shaping consumers' purchase behavior in the market place.

Satisfaction or perceived service quality may very well impact intent and subsequent behavior of an individual after an initial encounter. Knowledge of whether a consumer has a favorable or unfavorable attitude as he or she views future offerings seems an important element to consider in any successful marketing strategy. In the services sector, intangibility of the offering and the consumers reliance on experience and credence factors for attitude formation suggests an additional importance for service quality when considering services marketing (Zeithaml, 1981). It is entirely possible that service quality plays a dominant role in the acquisition and maintenance of competitive advantage within a services dominant marketplace.

Of particular interest to this researcher is the service quality construct as it operates within the medical services marketplace. A constrained and increasingly competitive environment in medical care services is prompting focal concern on more efficient delivery of medical care services. Medical quality, access, and cost are all

critical concerns for providers of health care services. High technical quality, easy access, and cost efficient care can be offered in accordance with a wide range of clinical, economic, and regulatory guidelines, but still fall short of satisfying the consumer. The individual may receive care at a level of technical quality and at a cost that is acceptable, thus giving the provider of that care the impression that the consumer is satisfied. It is entirely possible that non-medical factors that are more closely related to satisfaction or perceived service quality regarding services received may influence the consumer's continued consumption behavior regarding services more than medical outcome. If the result of care delivery efforts, either at an individual or system-wide level, leaves the consumer physically better but unhappy, dissatisfied, or doubting service quality, the provider of that care has met only part of the challenge for continued success in the marketplace. Being aware of and responsive to consumer perceptions regarding health care needs and expected outcomes is a necessity if the provider is to fully address the competitive environment in health care today. Realization of the basic connection between perceived service quality of care and its influence on a consumer's effort to seek medical advice or treatment, their compliance with treatment prescribed, and the maintenance of an on-going relation between provider and consumer must be incorporated into providers marketplace offerings (Larson and Rootman, 1976). The study of perceived service quality or satisfaction among patient populations can give health care providers more insight into how services can be modified to meet the challenge of a more competitive environment.

If consumer satisfaction and service quality constructs share

common ground, it seems appropriate to combine the work of consumer satisfaction and service quality. One area that has benefited from the work in consumer satisfaction is that of patient satisfaction. As the study of consumer satisfaction progressed, researchers began to focus attention on the field of health care as a specific applied area. The body of patient satisfaction literature utilizes much of the early consumer satisfaction literature to develop a base of theory and construct explication. For the most part, patient satisfaction is cast in a non-service context, and maintains a patient rather than a consumer perspective.

A distinct problem that confronts researchers in areas of consumer satisfaction and patient satisfaction is lack of a commonly useful scale of measurement. Literature indicates a need to combine current thinking from areas of consumer satisfaction and patient satisfaction with the newer view of perceived service quality. To facilitate this combined research, the work of Parasuraman, Zeithaml, and Berry (1985, 1986, 1988), offers a reliable and theoretically acceptable scale of measurement for perceived service quality. The scale, SERVQUAL, incorporates the past thinking of consumer satisfaction and offers a more generally useful approach for measuring perceived service quality in a services dominant setting. Consumer satisfaction literature indicates that a discrepancy approach (expectations vs. outcomes) is commonly accepted. Patient satisfaction literature contributes to this basic approach by better clarifying the domain and critical dimensions of patient satisfaction in a medical care setting. The service quality literature supplies a well tested, service oriented measurement scale that can accommodate considerations from these earlier literatures. The

adaptation of the SERVQUAL scale for use in a medical services setting and its testing, are the central focus of this dissertation. By implementing the scale in a medical services setting, reliability of the scale can be re-examined and validity questions can be addressed with a new perspective. It is anticipated that the dimensional structure suggested by SERVQUAL for non-medical services would not vary greatly for medical services.

Once perceived service quality of a medical service offering is measured, it seems appropriate to seek knowledge about the connection of this consumer perception to future consumer behavior in regard to the service under study. While it may be difficult to study this connection directly, there are intermediate steps suggested by consumer behavior theory that allow a better understanding of the role that perceived service quality plays in the behavioral intentions of a consumer in the medical care marketplace. As an extension, this dissertation attempts to measure future intentions of a consumer sample regarding a range of behaviors relevant to the medical care field. Perceptions of service quality by medical care consumers will be associated with behavioral intentions to establish a baseline of strategic importance for perceived service quality and consumer behavior regarding medical care services.

#### Consumer Satisfaction Construct

What we have come to know as consumer satisfaction relies on a simple but powerful paradigm: initial expectations must be exceeded by actual outcomes before satisfaction exists. The intuitive development of consumer satisfaction theory has taken several years, but there is strong agreement among scholars as to the basic approach: a discrepancy

paradigm. Dimensionality and measurement of satisfaction as a construct are not well explicated due to the situational nature of the subject matter. This light attention to measurement ability has not slowed the use of satisfaction as a strategic variable, nor has it lessened the usefulness of satisfaction as a central consideration in the implementation of the marketing concept. This section examines the consumer satisfaction construct, its dimensionality, and its measurement. Concluding remarks suggest that consumer satisfaction provides a strong base on which to build a more specific research effort.

#### Construct Development

Since its emergence in the early 1970's, consumer satisfaction/dissatisfaction (CS/D) literature has grown to include a number of diverse research efforts and contributors. Woodruff, Cadotte, and Jenkins (1983) summarize the focal activities of the research as pertaining to theory explication, model development, and testing of relationships between variables. The body of research reviewed by these authors has shown an acceptance of a confirmation/ disconfirmation paradigm wherein consumer satisfaction or dissatisfaction is viewed as resulting from a consumers comparison of expectations with perceptions of outcome.

Hunt (1977 a, b) summarizes much of the early literature on consumer satisfaction to provide a widely accepted view of satisfaction. Hunt suggests that the consumer evaluates an experience in a quasi-cognitive manner. He concludes that satisfaction/ dissatisfaction by a consumer is more of an evaluation rather than an emotion. Hunt defends



this evaluative reaction by noting that satisfaction is not solely the pleasurable-ness of the experience, but rather that it also includes the evaluation that the experience was at least as good as it was supposed to be. Westbrook and Cote (1980) support Hunt's view of satisfaction as a quasi-cognitive construct by emphasizing that satisfaction is not a purely cognitive process of comparing perceived outcome to expectations. They cite earlier work done by Czepiel and Rosenberg (1977) as an indication that satisfaction involves some degree of affect or feeling as well (i.e. when satisfied we feel good; when dissatisfied we feel bad). They suggest that satisfaction can be conceived of as an attitude in the sense that it is an evaluative orientation relative to the experience involved. The view that satisfaction as an attitude has both cognitive and affective elements seems acceptable to researchers and has been useful in developing the construct further.

Oliver (1980) notes that the vast majority of early research in the area of consumer satisfaction focuses on satisfaction as a function of an internal standard and some perceived discrepancy from this initial reference point. These standards and perceptions are consistent with cognitive and affective elements noted earlier. Research cited by Oliver suggests that expectations are thought to create a frame of reference, or belief, which an individual uses to make a comparative judgment with perceptual inputs regarding performance. In this sense, an individual is confirming or disconfirming cognitive and affective elements to arrive at an attitude. This attitude is generally regarded as satisfaction or dissatisfaction.

In a more recent review, Churchill and Surprenant (1982) indicate that most of the research examining the CS/D construct uses some

variation of a disconfirmation paradigm. They view the paradigm as being based on the idea that satisfaction is related to the size and direction of disconfirmation experiences rather than solely on a person's initial expectations and performance comparisons. In their view the literature suggests that an individual's expectations are: 1) confirmed (performance as expected), 2) negatively disconfirmed (performance below expectations), or 3) positively disconfirmed (performance above expectations). Expectations that are confirmed or positively disconfirmed lead to satisfaction, while expectations that are negatively disconfirmed lead to dissatisfaction. Disconfirmation occupies a central position as an intervening variable between expectation-performance and satisfaction in their view. Operationally, disconfirmation arises from discrepancies between expectations and performances. As noted, these discrepancies can be either positive or negative and lead to the formation of an attitude that is characterized as either satisfaction or dissatisfaction.

Use of expectancy approaches as the major model for conceptualizing consumer satisfaction reflects the growth of thought and construct explication. Initial contrast model ideas have given way to the more sensitive assimilation model and the assimilation-contrast model that are reflected by what was just described as the disconfirmation paradigm. LaTour and Peat (1979) conclude that the ambiguity of the particular attribute being evaluated by the consumer will determine how contrast and assimilation effects operate to form a satisfaction attitude. In their view, assimilation is used more by consumers as they evaluate more ambiguous attributes of the exchange, while the either/ or characteristics of contrast effects are more useful with concrete

attributes. This discussion implies that satisfaction is based on multiple attribute judgments and that satisfaction as a construct is multidimensional.

### Dimensionality

Regarding dimensionality of the consumer satisfaction construct, there seems to be substantial agreement that consumer satisfaction is multidimensional (Hunt 1977b, Pascoe 1983). Day (1977) notes that the majority of research indicates the use of a compensatory choice model for describing how an individual formulates an overall evaluation of satisfaction. This model implies that pertinent attributes or dimensions of a service are identified and evaluated by the consumer. Satisfaction is experienced so long as favorable evaluations occur for the majority of attributes or for dominant attributes. While specific attributes will certainly be different for different product/ service offerings, the fact that multiple dimensions do exist is well established.

### Measurement of the Construct

Pascoe (1983) notes three important measurement issues that should be addressed when assessing consumer satisfaction. These are: 1) expectation levels used as standards must be identified, 2) consumption system domain must be known, and 3) dimensionality of the construct must be evaluated. The work of Miller (1977) is cited in regard to basic expectations that require explication in understanding satisfaction. Miller suggests that subjective standards in the areas of ideal, minimum, expected, and deserved expectations are used to judge the

service offering. These standards represent maximum-minimum levels of acceptability as well as experiential and subjective outcome benchmarks for the individual. Any assessment of satisfaction must clearly indicate which base the consumer is to use in forming an attitude.

It has been shown that satisfaction may vary depending on the domain of the consumption system being investigated (Aiello, Czepiel, and Rosenberg 1977). Generally, satisfaction is considered to depend on the level of the system with which the consumer is dealing. These authors note that there is a distinction between macro and micro marketing system dissatisfaction. Individual consumers may have a favorable attitude toward all physicians and the general health care system (macro domain), but have a negative attitude regarding current care being received (micro domain) from specific providers. Mismatches between the two domains may cloud measurement and interpretation of satisfaction attitudes unless the domain under investigation is explicit and clearly addressed within scale development.

The third measurement issue noted by Pascoe as being important to assessing consumer satisfaction is that of dimensionality of the domain under consideration. One aspect of domain involves earlier macro/ micro considerations. It is entirely possible that differing dimensional elements will be called into play at each level as the individual determines their level of satisfaction. Pascoe notes that evaluative criteria used by the consumer will vary with attributes used in the formation of satisfaction. This suggests that an individual can use multiple dimensions to determine their level of satisfaction and these dimensions may change with different domains.

The fact that satisfaction is a function of expectations and

performance is reasonably clear. What remains at issue is the appropriateness of methods for measuring an individual's expectations and perceptions of outcome that lead to satisfaction or dissatisfaction. Investigators can utilize separate scales for measuring expectations and perceptions that allow comparison of compatible scale points and development of difference scores that indicate a level of satisfaction. These difference scores can be summed across the various dimensions of the construct to obtain an overall measure of satisfaction/ dissatisfaction. The researcher may alternately choose to allow the comparison of expectations and perceived outcome to be achieved within the individual subject, and thus arrive at a subjective, more global measure of the differences perceived by the consumer across the dimensions. Use of the external approach implies that we, as researchers, can identify all relevant elements and appropriately scale measurement items that indicate an accurate range of expectations and outcomes. This approach holds potential for increasing our understanding of the inner relationships of the construct and its dimensionality. The internal approach allows the individual an opportunity to include a wide variety of elements that may never be known to the researcher. This internal comparison is simple, but reduces clarity of the dimension and strength of satisfaction. Either approach has its weaknesses. Both approaches have been attempted with varying degrees of reliability. It may be that the domain under investigation should be the determining factor as to measurement approach used for measuring consumer satisfaction/ dissatisfaction attitudes.

## Conclusions

Satisfaction of the consumer is considered by most researchers as an attitude that is formed by comparing expectations prior to consuming with perceptions of outcome after consumption. This discrepancy approach is the generally adopted paradigm for use in understanding and explaining satisfaction as a construct. Successful arguments have been made for satisfaction being a multidimensional construct, with specific dimensions being dependent on the consumption experience under study. It has been suggested that as researchers trying to measure satisfaction, we should specify the domain (macro/ micro) and the relevant dimensions of that domain. Also, it is suggested that we select an approach to measurement (external difference/ internal global) that best matches the consumers ability to respond and needs of the research effort.

To this point, consumer satisfaction literature offers primarily conceptual guidance, and little specific insight as to dimensionality. Measurement and dimensionality considerations are left to needs of individual researchers and the situation under study. Since the focus of this paper is on medical care services, an exploration of specific patient satisfaction literature is in order to better determine pertinent measurement considerations and dimensional considerations that have been found to be relevant in the health services sector.

### Patient Satisfaction Construct

The general field of consumer satisfaction has been of interest to researchers in various fields of inquiry. In recent years, the satisfaction literature has found its way into health services research.

The patient satisfaction construct had received much attention in the past, but only recently have the constructs of consumer satisfaction and patient satisfaction come together with a research thrust that focuses on medical services recipients as consumers rather than as patients. Consumer satisfaction and patient satisfaction constructs are similar, but conceptual differences do exist that make research efforts in each area less than compatible and invites continued efforts to draw the two together.

#### Construct Development

Satisfaction of the patient in a health care setting has been of interest in the past, but new competitive forces in the field are recasting and intensifying interest in understanding patient satisfaction more as consumer-oriented rather than from a medical-outcome perspective. The intent behind this shift in orientation is consistent with a general desire to approach health services delivery from a more strategically oriented perspective. Characterization of patient satisfaction as a desirable strategic attitude in a medical care setting shares much of the same definitional elements as does the general consumer satisfaction literature. Some qualification regarding this commonality is maintained by Linder-Plez (1982) in her contention that satisfaction with services, particularly high involvement services, may be more influenced by a reaction to immediate experiences (the physician/ patient relationship) rather than by more non-specific expectations for the medical care system. Most patient satisfaction studies have used a discrepancy approach that defines patient satisfaction as expected care being matched with perceptions of actual

care received (Zastowny, Roghman, and Hengst 1983; Fox and Storms 1981; Weinberger, Green, and Mamlin 1981a, 1981b; Green, Weinberger, and Mamlin 1980; Ashcraft et al. 1978; Pope 1978; Larsen and Rootman 1976; Korsch, Gozzi, and Francis 1968). These discrepancy approaches generally assume that any deviation from what is expected produces dissatisfaction. A weakness of this assumption is its lack of consideration for a positive discrepancy, as noted in CS/D literature, and its effect on the formation of a consumers' attitude. Linder-Plez (1982) alternatively suggests that patient satisfaction is an attitude that is acquired by an evaluative process involving values and perceptions. This view is more consistent with the existing CS/D approaches. Neither of these dominant views has received strong empirical support. As suggested by Pascoe (1983); "patients have increasingly become viewed by patient satisfaction investigators as consumers of service. Patient satisfaction research has not attended to the conceptual and methodological developments of marketing-based modes of consumer satisfaction".

Two landmark reviews of early research assessing integration of consumer behavior and health care literatures were accomplished by Lebow (1974) and Ware et al. (1978). Both of these works cite a paucity of studies dealing with the satisfaction construct and health care services. While some positive elements were noted, the reviewers' dominant conclusions paint the early investigation efforts as lacking conceptual basis and scientific process that would allow wider acceptance. More specifically, they cite early problems with a lack of definition for patient satisfaction, a failure to follow sound scale development procedures, failure to cross utilize existing scales, use of



unrepresentative samples, lack of control for sources of bias, and generally weak data analysis. Much of these early criticisms are characteristic of any initial effort of construct investigation and measurement scale development.

Recently, Lebow (1983) and Pascoe (1983) re-examined literature on patient satisfaction and consumer behavior in health care. Both authors find considerable advances in quantity and quality of the research being done. Pascoe (1983) offers a review of constructs and research for both patient satisfaction in health care and the general consumer satisfaction literature. The comparisons drawn between the two parallel literatures is the first attempt to comprehensively compare detailed existing consumer satisfaction research and infuse those findings into patient satisfaction areas of research. His conclusions indicate that patient satisfaction can contribute to an understanding of health services consumption behaviors such as compliance and provider switching. Pascoe further suggests that any future measurement of patient satisfaction be based on more well developed conceptualizations of consumer behavior as found in the marketing literature.

Lebow (1983) suggests that studies in recent years are characterized by more programmatic approaches to studying patient satisfaction and utilization of reliable scales. He indicates that early work on dimensionality and associative properties of patient satisfaction and various populations provided a springboard for more specific research. The newer studies focus more on the nature of patient satisfaction and its relation to health behaviors. Several recent studies can be cited as examples of research that has been accomplished regarding more specific questions of consumer behavior

interest. Those of note are:

1. Patient satisfaction variables used in marketing a psychiatric practice (Christensen and Giese 1988).
2. The role of expectations in patient satisfaction with medical care (Ross, et al. 1987).
3. Satisfaction with physicians of varying levels of medical training (Tucker and Tucker 1985).
4. Differences in satisfaction patterns between groups of consumers, health care administrators, and physicians (Scammon and Kennard 1983).
5. Satisfaction and repeat purchase behavior of hospital based maternity services (Anderson 1982).
6. Patient satisfaction and physician communication skills (Comstock and Goodwin 1982).
7. Relationship between satisfaction and changes in provider (Marquis and Ware 1982).
8. Relation between satisfaction and accessibility of services (Penchansky and Thomas 1981).
9. Satisfaction and disenrollment from a health maintenance organization (Sorenson and Weisinger 1981).
10. Relation of satisfaction to service utilization (Roghmann, Hengst, and Zastowsky 1979).

In some cases, patient satisfaction is treated as an independent variable, some as a dependent variable, and in other instances satisfaction is studied only in a correlational sense. A movement away from global single item measures toward multi-item conceptually based scales has greatly improved the researchers ability to measure and clarify the nature of satisfaction that the patient/ consumer has with medical care services. This is reflected by the carefully constructed measurement instruments that are currently available for assessing the satisfaction construct in the medical care field (Larsen, et al. 1979; Pascoe and Attkisson 1983; Ware, et al. 1983). These measures focus on both system-wide (macro) and encounter specific (micro) levels of

measurement for satisfaction.

### Dimensionality

Understanding of the dimensionality of patient satisfaction was significantly enhanced by a monumental effort by Ware and several associates (Ware, et al. 1978). The authors completed a content analysis of some 900 published questionnaire item and responses to open-ended questions as well as multivariate studies of relations among satisfaction measures. Several dimensions emerged as source of satisfaction and dissatisfaction in a health care setting from this study. They were noted and defined as:

1. ART OF CARE pertains to the amount of caring shown toward patients. On the positive side this includes provider characteristics such as concern, consideration, friendliness, patience, and sincerity. On the negative side this includes abruptness, disrespect, insult, embarrassment, and unnecessary worry caused the patient.
2. TECHNICAL QUALITY OF CARE focuses on the competence of providers and their adherence to high standards of diagnosis and treatment. This dimension refers to ability, accuracy, experience, thoroughness, training, mistake avoidance, explanation of expectations, over-prescribing outdated treatment, and risk taking.
3. ACCESSIBILITY/CONVENIENCE includes factors involved in arranging to receive care services. Variables such as time and effort required to get an appointment, proximity of service delivery site, time and effort required to get to delivery site, convenience of location, hours of operation, waiting time, availability of help via telephone, and availability of service in the home are all considered part of this dimension.
4. FINANCES speaks to the ability to pay for services or to arrange for payment. Financial aspects of access to care are a separate dimension of patient satisfaction, and are defined as the dollar costs of treatment (fees or prepaid premiums), flexibility of payment mechanisms (e.g. delayed payments, credit card acceptance), and the comprehensiveness of insurance coverage. Opportunity costs are viewed as non-financial aspects of access.

5. PHYSICAL ENVIRONMENT refers to the the general pleasantness of the atmosphere, comfort of seating, attractiveness of waiting rooms, clarity of signs and directions, good lighting, quiet, and clean, neat, and orderly facilities and equipment.
6. AVAILABILITY usually focuses on whether there are enough physicians, nurses, and other providers, and facilities such as clinics and hospitals in the area.
7. CONTINUITY OF CARE refers to the regularity of care source. It is generally defined in regard to the same facility, location, or provider, or in terms of availability of a continuous medical record for all visits for care.
8. EFFICACY/OUTCOME OF CARE is measured in terms of perceptions regarding the usefulness or helpfulness of medical care providers and specific treatment regimens in improving or maintaining health status.

By incorporating these dimensions, Ware developed and tested a 68 item macro measure of patient satisfaction called the Patient Satisfaction Questionnaire (PSQ) (Ware, et al. 1983). This scale is designed to assess an individuals level of satisfaction with the health care system based on global satisfaction judgments across a wide range of historically based experiences.

Regarding development of a micro domain scale, Nyugen, Attkisson, and Stegner (1983) have suggested a measurement scale that relates more specifically with the patients attitude regarding a particular medical service encounter. Their Service Evaluation Questionnaire (SEQ) seeks to establish the perceptions of patients regarding specific service encounters. Dimensions of satisfaction on which the SEQ scale is based are: physical surroundings; support staff; kind/ type of service; treatment staff; quality of service; amount, length, and quantity of service; outcome of service; general satisfaction; and procedures.

Figure 1 displays and groups dimensions of the PSQ and SEQ by focusing on the points of commonalty in the definitions of dimensions. While it is difficult to discern from the dimensions, scale items used

to assess SEQ dimensions are focused on similar but more service-specific aspects than with PSQ. It would be a leap of interpretation to equate dimensions, but it would be reasonable in the context of scale development to consider them to be equivalent in their respective macro and micro measurement domains.

PSQ (macro)	SEQ (micro)
* Physical environment	* Physical surroundings
* Finances	* Amount, length, or quantity of service
* Continuity	* Quality of service
* Technical quality	* General satisfaction; Treatment staff
* Availability	* Procedures
* Accessibility/convenience	
* Efficacy/outcome	* Kind/type of service; outcome of service
* Interpersonal manner	* Support staff

Figure 1. Comparison of Patient Satisfaction Scale Dimensions

#### Measurement of the Construct

Lack of standardization regarding the method of measurement for patient satisfaction is also a concern and hindrance. Pascoe (1983)

notes that instruments used to date have been simple, ad hoc measures. Most published studies of patient satisfaction have used measures composed of either a few broad questions about satisfaction or unstandardized single-item scales that seek reactions to only one or two health care dimensions. The construct of patient satisfaction has been assessed in two basically different ways: as a micro domain and as a macro domain. In the macro domain, overall system/ provider conduct is the focal point. This more generalized approach is characterized by the assessment of broad expectations regarding the health care system. More specific approaches to measuring patient satisfaction seek to identify actual outcome experiences of consumers with identified providers of care. This micro domain assessment is similar to measurement of outcome perceptions.

Reliability levels reported for macro and micro patient satisfaction measures are generally acceptable (alphas = .50+) given the early stages of scale development. Relative to reliability of the most noted scales, the PSQ has received the most rigorous reliability testing. It has been tested in multiple health care settings using different demographically oriented samples. Reliability (Cronbach alpha and test-retest) in all situations are consistent with Nunnally's (1978) criteria. The SEQ has a reported reliability based on limited split-half testing. The newness of the scale and its exclusive testing in mental health service settings prevents an extensive reliability discussion across services. Tests of validity for the PSQ have been conducted by; 1) the systematic review of literature (content validity); 2) factor analysis of the item structure and subscale components; 3) use of multi-trait multi-method approaches to compare results across

alternative, more direct measures of patient satisfaction (convergent-discriminant validity); 4) studying predictive validity of the PSQ scale in relation to health and illness behaviors thought to be influenced by individual differences in patient satisfaction (i.e., physician choice, use of specific services). The outcome to date indicates that PSQ is a respectably valid, reliable, multi-dimensional scale for measuring the macro domain of patient satisfaction. On the other hand, the SEQ as a measure of a micro domain with multi-dimensional qualities is still in the initial stages of validity and reliability confirmation. While the SEQ has some internal consistency, its validity, beyond content validity, across multiple health service settings is as yet untested.

With the growing sophistication of patient satisfaction measurement and its cross fertilization with consumer satisfaction, several new areas of basic study offer promise. While both the micro and macro approaches have been shown to be incomplete and to assess different domains of patient satisfaction (Stewart and Wanklin 1978; Roberts, Pascoe, and Attkisson 1983), the use of micro and macro measures in concert may be a logical and useful next step in developing a more comprehensive patient satisfaction measurement scale. Development of a broadly based measurement scale that assesses patient satisfaction using both the macro and micro domain levels would facilitate a more detailed understanding of correspondence between levels and the importance of dimensions to patient satisfaction. In addition, the impact that satisfaction may have on a range of patient/ consumer behaviors with strategic importance (i.e., repeat purchase, complimenting, complaining, switching of providers, nonuse of health care system) can be better accomplished.

## Conclusions

Patient satisfaction and consumer satisfaction cross-fertilization of ideas and approaches have been accomplished with some degree of success. While the constructs are similar, there remain some differences that need further attention.

Patient satisfaction researchers have progressed significantly in regards to construct dimensionality and measurement approaches. It would appear that as the two areas of research have come together, earlier ideas about domain and measurement approach have been incorporated. At least two widely accepted scales have been developed that address the need to better measure patient satisfaction from an expectations/ outcome discrepancy perspective. The work done in developing these scales has produced a sound foundation on which to build a better understanding of the dimensional structure of the patient satisfaction construct.

Consumer satisfaction has contributed the basic approach (discrepancy between expectations and outcome), and specific efforts in patient satisfaction have extended our ability to measure both the macro and micro domains along a variety of critical and compatible dimensions. An earlier suggestion that the macro and micro domains be combined in a single measurement scale now seems relevant and accomplishable. This combining of two domains would facilitate external measurement of satisfaction and allow for examination of satisfaction using a more consistent difference score approach. This approach allows for a more comprehensive investigation and broader base of extensions into areas of strategic relevance in a competitive health care marketplace. The need for strategic information and basic scale development takes on new



and important overtones in light of the importance of services in our economy. This is particularly important to the health services field as we explore contributions that marketing can make to a services dominated offering such as medical care services.

### Service Quality Construct

The new construct of service quality focuses on many of the same aspects as consumer satisfaction. Definitional relations specified for expectations and perceptions are very similar. Service quality is being suggested by many managers as an avenue for strategic advantage. However, it is unclear as to how service quality fits with consumer satisfaction.

The current thinking on satisfaction is summarized by Oliver (1981 p.27) where he defines satisfaction as "a summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience." Oliver goes on to suggest that satisfaction is a transaction specific judgment. He suggests that "satisfaction soon decays into one's overall attitude toward purchasing products." Parasuraman, Zeithaml and Berry (1988) suggest that this temporal arrangement of satisfaction and attitude is the appropriate distinction between service quality and satisfaction. They argue that service quality be considered the higher order construct. Earlier work by these authors (Parasuraman, Zeithaml, Berry 1985) suggests that service quality and satisfaction are related. Incidents of satisfaction by the consumer will, over time, result in perceived service quality by the consumer. This approach emphasizes the perceived versus objective

nature of service quality (Garvin 1983; Dodds and Monroe 1984; Holbrook and Corfman 1985; Jacoby and Olson 1985; Zeithaml 1987) that is consistent with basic differences between services and goods. The attitudinal orientation of the service quality construct is suggested by Olshavsky (1985) and supported by Parasuraman, Zeithaml and Berry (1985). Quality, as a more global evaluation of a product/ service, is most similar to attitude and it's more enduring and affective oriented aspects. In that light, work done in consumer satisfaction and patient satisfaction is useful as building blocks for the explication and measurement of the service quality construct in a medical services setting.

#### Construct Development

The nature of quality, regarding both services and products, as a research construct and as an approach to enhancing business outcomes is receiving increased attention in academic and popular literature. General consensus in the literature is that product quality does have an important role to play in the formulation of business strategies and can impact ultimate results of corporate performance (Riesz 1978; Reddy 1981; Wheatley, Chiu, and Goldman 1981; Garvin 1983; Phillips, Chang, and Buzzell 1983; Anderson and Zeithaml 1984; Curry 1985). With growth in importance of the services sector of our economy, it seems logical that academic and practitioner emphasis be placed on understanding the service quality construct and it's strategic implications as well. Service providers already rely on quality as a means to achieve favorable exchanges, but they could benefit further from a more detailed understanding of the construct.

There are characteristic elements of services that distinguish them from products/ goods. Intangibility, inseparability of production and consumption, heterogeneity and perishability aspects of services have received substantial support in the literature as being characteristic elements that set services apart from goods (Zeithaml, Parasuraman, and Berry 1985). Each of these characteristics has a potential for influencing quality of a service performance in a way that is different from goods, and from service to service. Individuals will often suggest that they know quality when they see it. As marketers try to accommodate the consumer's desires, this after-the-fact recognition of quality is troublesome. The few existing models of service quality attempt to incorporate these characteristics of services and a view of quality as being a perceptual activity.

An early view of service quality was offered by Sasser, Olsen, and Wyckoff (1978) wherein they theorize that there are two levels to a customer's perception of a service. A dimension of desired service outcome and a dimension involving the manner in which the service is delivered are both expected to play a role in the formation of a service quality perception. This early theory holds that if the outcome perception is not satisfactory, quality will not be perceived. A negative quality perception based on outcome can be influenced by the surroundings in which the service is delivered, according to this theory, but cannot overcome the more dominant outcome perceptions in judging quality. This idea of outcome and environmental inputs to quality is carried forward by others in refinements of the perceptual approach to service quality.

An initial attempt at modeling the service quality construct was

offered by Gronroos (1982). The popular thought that service quality is a function of the match between service delivered and customer expectations is the basic premise of the model. Gronroos posits that a service consumer evaluates quality by developing expectations of a service and comparing these expectations with perceptions of the service actually received. By identifying two types of service quality dimensions, technical quality and functional quality, Gronroos incorporates what the consumer receives and how the consumer receives the service into the model. Gronroos (1982, p.39) summarizes basic service quality as:

The perceived service is the result of a consumer's view of a bundle of service dimensions, some of which are technical and some of which are functional in nature. When this perceived service is compared with the expected service, we get perceived service quality.

In a similar approach to service quality, Lehtinen and Lehtinen (1982) also highlight delivery processes and outcome as central to service quality. They view service quality as resulting from the interaction between customer and service provider. Lehtinen and Lehtinen note three dimensions of quality as 1) physical quality, which is partially equivalent to surroundings (i.e. buildings and equipment); 2) corporate quality, which more directly incorporates the service provider's image and is somewhat expectancy based; and 3) interactive quality, which allows for the interaction between service delivery personnel, the individual consumer, and other consumers that might be part of the exchange forum. This view of service quality expands the dimensions of the service quality construct.

In a detailed investigation of service quality, Parasuraman, Zeithaml, and Berry (1985) developed a more elaborate model of service

quality that incorporates previous theoretical works. Detailed qualitative interviews of service providers resulted in specification of a service quality model and delineation of some initial determinants of service quality perceptions. Their model specifies that:

... service quality as perceived by the consumer depends on the size and direction of the gap between expected and perceived services, which in turn depends on the nature of the gaps associated with the design, marketing, and delivery of services (Parasuraman, Zeithaml, and Berry 1985, p.46).

Their preliminary work produced a list of ten service quality determinants that, regardless of service type, are theorized to be used by consumers in evaluating service quality. The authors offer in this article the most complete model of service quality to date (see Figure 2), and outline some testable propositions regarding service quality and the functional relation between its elements.

#### Dimensionality

Sasser, Olson and Wyckoff (1978) suggest that environmental inputs have an influence on perceptions of service quality by the consumer. Their suggestion that the environment can influence, but not overcome perceptions of quality associated with outcome were the first indications of the complexity of service quality. Gronroos (1982) extended this dimensional discussion by suggesting that a consumer's perception of service quality involves two interrelated but identifiable dimensions. He suggests that technical quality (what the consumer receives) and functional quality (how the consumer receives the service) are both important elements of perceived service quality. Gronroos posits that technical quality be considered a prerequisite for functional quality and that functional quality be considered an avenue

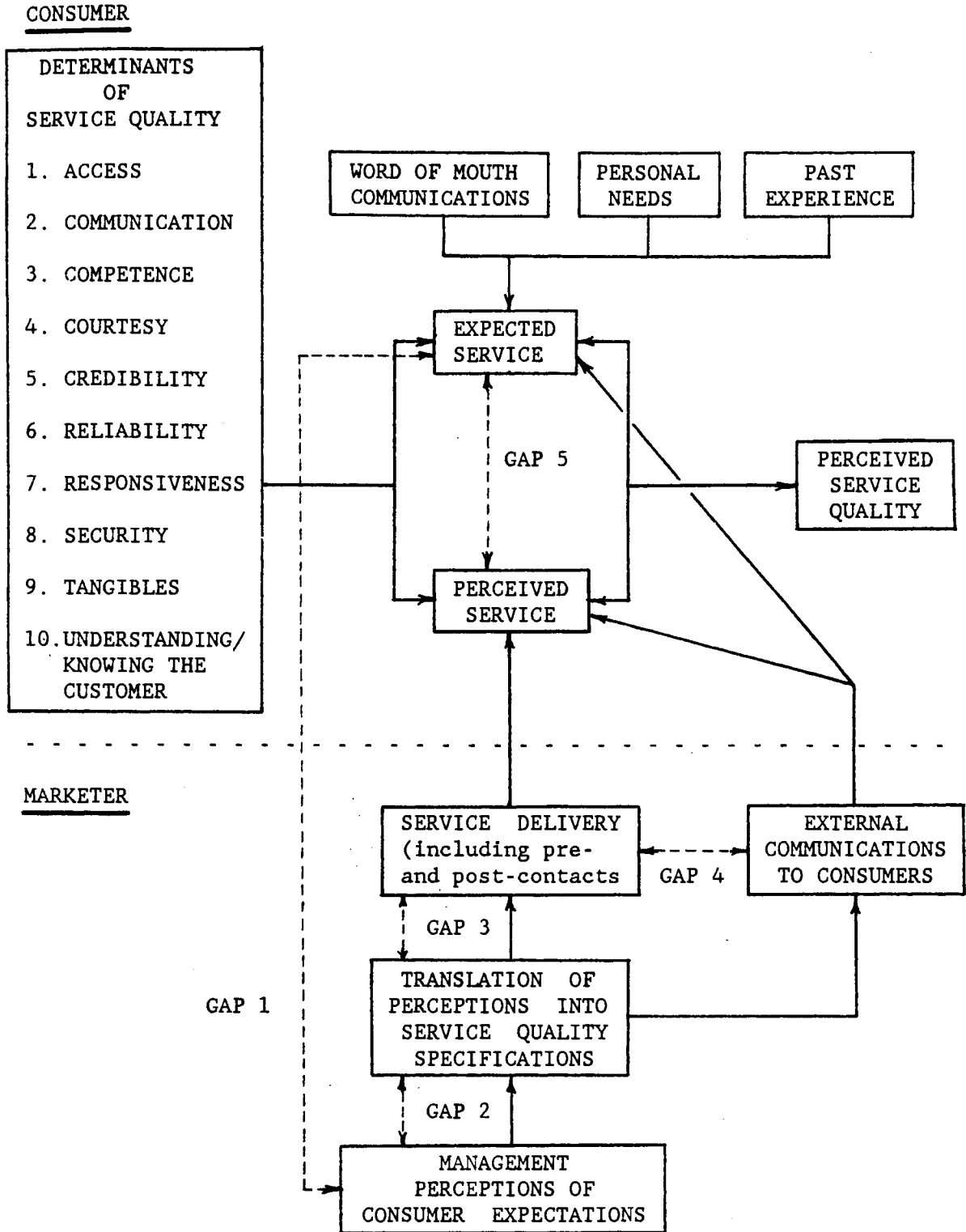


Figure 2. Service Quality Model

for influencing temporary functional quality lapses. It seems that Gronroos is suggesting that technical quality is a necessary but not sufficient condition for perceived service quality by the consumer. His implications suggest that functional and technical aspects of service delivery are interrelated in a dynamic way that is unique to each service encounter. In addition to these dimensions, Gronroos also suggests a role for provider image. Within his conceptual scheme, image is viewed as the direct modifier of perceived service quality. Both technical and functional quality perceptions are acquired by consumers over time, thus creating an image of the provider for that consumer. In a broad sense, provider image is the modifier to the match between expectations and outcomes in the model. Functional and technical quality are dimensions of the image modifier.

Lehtinen and Lehtinen (1982) posit a similar dimensional structure to Gronroos, but suggest that dimensions are physical quality, corporate quality, and interactive quality. Lehtinen and Lehtinen define physical quality as consistency of the physical evidence or tangible aspects of the service offering (i.e. buildings, equipment). In their model, corporate quality is very similar to Gronroos' ideas on the role of image. Lastly, Lehtinen and Lehtinen include interactive quality as a dimension that incorporates the dynamics of the interaction between the provider and the consumer of the service.

Exploratory work done by Parasuraman, Zeithaml and Berry (1985) produced a list of service quality dimensions that are used by consumers in evaluating service quality. Through extensive qualitative research, ten characteristic areas emerged as being consistently used by consumers across a wide range of service settings to evaluate a service offering

as to it's quality. The ten dimensions are:

RELIABILITY: Consistency of performance and dependability.

RESPONSIVENESS: Willingness or readiness of employees to provide service.

COMPETENCE: Possession of the required skills and knowledge to perform the service.

ACCESS: Approachability and ease of contact.

COURTESY: Politeness, respect, consideration, and friendliness of contact personnel.

COMMUNICATION: Keeping customers informed in language they can understand and listening to customers.

CREDIBILITY: Trustworthiness, believability, and honesty.

SECURITY: Freedom from danger, risk, or doubt.

UNDERSTANDING/ KNOWING THE CUSTOMER: Making the effort to understand the customer's needs.

TANGIBLES: The physical evidence of the service.

It should be noted that these dimensions are reflective of the earlier technical, functional and image dimensions suggested by Gronroos as well as the physical, corporate, and interactive elements suggested by Lehtinen and Lehtinen. Even though the sample frame of this research did not include medical care services, similarities between the dimensional structure of service quality and patient satisfaction (Ware, et al. 1978) can be noted.

#### Measurement of the Construct

Recently an elaborate process was undertaken for developing a measurement scale for service quality. The work of Parasuraman, Zeithaml and Berry (1986,1988) was focused on the consumer side of the model outlined in their preliminary work published in 1985. Following the earlier definition of perceived service quality as being the



difference between perceptions and expectations, a dual scale was developed, one for consumer expectations and one for consumer perceptions of outcome.

Initially, a total of 97 paired items that reflected either expectations about a service provider type or perceptions of outcome about a provider of that particular type of service were included in the research. A seven point Likert agreement scale was used to gather opinions from a sample of 200 consumers. The service quality perception measurement sought by the scale was the difference score between perceptions and expectations. Initial scale purification was accomplished using the sample of 200 respondents representing a cross section of service usage categories (appliance repair and maintenance, retail banking, long distance telephone, securities brokerage, and credit cards). Coefficient alpha and item-to-total correlations were computed as suggested by Churchill (1979) and the scales were reduced to 54 paired items (still with ten dimensions) with alpha values for each dimension ranging from 0.72 to 0.83. This 54 item scale was examined for dimensionality using a principal axis factoring procedure with an oblique rotation. Deletion of items and reassignment of items to dimensions was accomplished based on factor loadings. The result was a more parsimonious 34 item, seven dimension scale with alpha values ranging from 0.72 to 0.85 for each dimension.

A second, more elaborate, data collection effort was used to test the robustness and usefulness of the reduced item scale across different service provider types. Sample data was collected from another 200 respondents that had experience with one of four service provider types (banks, credit cards, repair and maintenance, and long distance

telephones) using the refined 34 item scales. Similar procedures for calculating alpha values, item-to-total correlations, and factor analysis produced a further refinement of the scale to a 22 item, five dimension (tangibles, reliability, responsiveness, assurance, empathy) instrument. The five dimensions in the final 22 item SERVQUAL scale represent a collapsed set of the original ten dimensions. Definitionally, the final five dimensions of the SERVQUAL scale suggest a combination of technical and functional characteristics. The more complete descriptive aspects of the final five service quality dimensions are:

**TANGIBLES:** Physical facilities, appearance of personnel, tools or equipment used to provide service, physical representations of the service (e.g. charge plate or statement), and other customers in the service facility.

**RELIABILITY:** Ability to perform the promised service dependably and accurately. It means the service provider performs the service right the first time. It also means the provider honors promises. Specifically, it involves accuracy in billing, keeping records correctly, and performing the service at the designated time.

**RESPONSIVENESS:** Willingness to help customers and provide prompt service. It involves timeliness of service regarding the mailing of transaction slips, calling the customer back quickly, and setting up appointments quickly.

**ASSURANCE:** Knowledge and courtesy of employees and their ability to inspire trust and confidence. This dimension contains the earlier dimensions of communication, credibility, security, competence, and courtesy. Aspects of these dimensions include:

**Communication:** Adjusting language for different consumers, explaining the service, explaining the cost of the service, assuring the consumer that problems will be handled.

**Credibility:** Keeping the customer's best interests at heart. Contributing to credibility are company name, company reputation, personal characteristics of contact personnel, and the degree of hard sell involved in customer interactions.

Security: This includes such customer concerns as physical safety, financial security, and confidentiality.

Competence: This aspect speaks to the knowledge and skill of the contact personnel, knowledge and skill of operational support personnel, and capability of the organization to know the market place.

Courtesy: Generally this aspect includes the politeness, considerate nature, and friendliness of the contact personnel. It can also include consideration for the consumer's property, and the appearance of public contact personnel.

EMPATHY: Caring, individualized attention the organization provides it's customers. This includes preliminary dimensions of:

Understanding/ knowing the customer: This involves an effort to learn the customer's specific requirements, providing individualized attention, and recognizing the regular customers.

Access: This means the service is easily accessible by telephone (e.g. lines are not busy and customers are not put on hold), waiting time to receive service is not extensive, the organization has convenient operating hours and is conveniently located.

The final reliability coefficient (0.92) for the reduced scale indicates that the 22 item paired statement SERVQUAL scale is potentially useful measure of perceived service quality. The authors of the scale suggest that the SERVQUAL scale is appropriate for measuring perceived service quality across all service categories.

Validity issues associated with the final scale are not clearly interpretable. Claims of content validity are reasonable and rely on the rigor of the development process used and specific attention to past theory regarding perceived service quality. Convergent validity was assessed by associating perceived service quality scores and respondents single items response to a question regarding overall quality as being excellent, good, fair, or poor. Analysis of variance was used to test for differences. While these differences were shown to be significant

and directionally correct, the lack of sufficient sample size for the fair and poor categories weakens the usefulness of the significant results. In that light, claims of convergent validity are questionable.

In its refined form, SERVQUAL provides a significant contribution to the measurement of perceived service quality. Some of the claims to convergent validity may be suspect, but the reliability demonstrated by the scale is a sound starting point for further work and application. The measurement instrument that emerged does represent the best available scale for assessing perceived service quality by a consumer of services.

Dimensionality of the scale in selected service settings is supported and an initial attempt has been made to correlate perceived service quality with an overall rating of service quality. The preliminary empirical and theoretical work regarding service quality has focused on the consumer side of the model. Lewis and Klein (1987) explore the suggested gaps in the provider side of the model and offer additions that extend the scope of the gaps as originally proposed. The provider component offers a more managerially relevant view of the factors that influence the consumers perceived service quality gap. To this end, increased strategic advantage is gained by focusing on the provider elements. On the other hand, the nature of perceived service quality by the consumer has only been measured in a limited range of service settings. The SERVQUAL scale has proven useful, but has not received attention of replication that would suggest full acceptance. This indicates a need for investigation of measurement issues that relate to the gaps suggested in the provider side of the model, as well as, the need for further refinement and wider application of the

existing measurement scale for perceived service quality for the consumer. Both research activities must move forward together.

### Conclusions

Our understanding of perceived service quality has continued to progress. Service quality is generally accepted as a perception acquired by the consumer as a result of comparing expectations of service with perceptions of experienced based outcomes. Initial empirical investigations of the construct indicate that perceptions of both technical and functional dimensions have an impact on perceived service quality. More specifically, consumer expectations and outcome perceptions along consistent and identifiable dimensions are suggested as appropriate dimensions to be measured. This has been accomplished with some reliability in limited service settings. Investigation of the universality of the theoretical underpinnings using available measurement ability across a wider range of service settings seems in order. One such area of further investigation, medical care services, is the focus of this thesis. Adaptation and replication of the service quality measurement scale in a medical service setting should provide an additional opportunity to examine claims of reliability and validity for the scale in a highly services dominant setting.

### Similarities and Differences of Constructs

Having reviewed the literature addressing consumer satisfaction/dissatisfaction, patient satisfaction, and service quality constructs, some comment can now be made regarding their commonalty. It is very difficult to find major, meaningful distinctions between the constructs

in regard to basic operational elements and definitions. All three constructs rely on cognitive and affective aspects of expectation and performance comparisons to form basic confirmation/ disconfirmation judgments. From these judgments a consumers attitude regarding either satisfaction or quality is achieved. By definition, the constructs rely on size and direction of disconfirmation to determine respective quality and satisfaction outcomes. This consistent use of terminology and definitional elements leads this researcher to conclude that consumer satisfaction is interchangeable with perceived service quality. Arguments against this interchangeability are noted by LaTour and Peat (1979) when they caution against the use of quality (perceived performance) as interchangeable with satisfaction even though there is a high likelihood of their correlation. Parasuraman, Zeithaml and Berry (1988, p.16) suggest that "consistent with the distinction between attitude and satisfaction (Oliver, 1981), is a distinction between service quality and satisfaction: perceived service quality is a global judgment, or attitude, relating to the superiority of the service, whereas satisfaction is related to a specific transaction." This view suggests that satisfaction may be appropriately viewed as an element of the expectation/ performance comparison made en route to the formation of an attitude regarding service quality. Satisfaction is seen as more reactionary, while service quality is viewed as more deliberate. Acceptance of this view would lead to adoption of service quality as a higher order construct than satisfaction.

The service quality, consumer satisfaction, and patient satisfaction constructs use similar definitional and operational elements to specify their domains. All use similar approaches to

measuring the degree of confirmation/ disconfirmation that results from a comparison of expectations and perceived outcomes. The basic difference is focused on the premise that perceived quality is an attitude, and thus, more global than situationally and emotionally based satisfaction.

Perceived service quality as a factor in consumer behavior is as yet not widely understood. The suggestion of this literature review is that service quality research in a specific service category such as medical care services, draw upon broad fields of consumer satisfaction, patient satisfaction and service quality to better measure and understand the construct. While there is a certain parsimony to combining the fields of research, the appropriate relationships are as yet unexplicated.

Key points to consider in developing a combined approach to measuring service quality are: 1) the dominant paradigm is one of a comparison between initial global expectations and related incident specific perceived performances that results in a perceived service quality attitude; and 2) multiple item measures for perceived service quality must be used to address dimensionality adequately and to afford adequate reliability and validity investigation.

The literature suggests variations of the disconfirmation paradigm as most useful in establishing a level of satisfaction or perceived service quality. At present, the literature reflects a dual effort to develop macro measures that seek to identify consumers' expectations and micro measures that seek to identify consumer perceptions regarding specific service experiences. Until recently, measurement scales were being developed with a theoretical tunnel-vision regarding the usefulness of combining these two approaches to measuring an attitude.

To this point, the service quality construct has been shown to follow a model that suggests a matching of expectations with perceptions of outcome. Expectations acquired through past experience or prior market information sources are either confirmed by perceptions of functional and/ or technical performances or they are not confirmed. The resulting perceptions are inferred as a service quality attitude that may affect the consumers future behavior regarding the service. A combined measurement scale based on the central theories of the consumer satisfaction/ dissatisfaction construct and extended to include patient satisfaction and service quality considerations could prove to be a unifying advancement. Furthermore, connecting perceived service quality attitudes and future behavior regarding a service extends the strategic usefulness of the service quality construct.

#### Behavioral Intent

It is generally accepted that satisfaction and dissatisfaction are dominant post-purchase attitudes developed by consumers after purchase and use of a good or service (Mowen 1987). All of the more widely accepted consumer behavior models include an attitude component (Engle, Blackwell, and Kollat 1978; Fishbein and Ajzen 1975; Howard and Sheth 1969). Fishbein and Ajzen (1975) define attitudes as "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object." The definition offered above implies a level of consistency to an attitude over time for similar stimuli. While not all researchers will agree with this definition, it does include basic elements that are agreeable to most, namely; emotion, experience, and consistency of response.



Perceived service quality is one of many factors that a consumer may use in the post-purchase evaluation of consumption experiences for services and goods. Attitudes regarding costs versus benefits, perceived risk, and social acceptability may also be of importance to a consumer as post-purchase evaluative factors. Perceived service quality is an important attitude that can have an impact on the formation of behavioral intent regarding future consumption opportunities. The focus of this section and the extension of this research effort is directed toward the as yet unexplored relation between service quality of medical services and behavioral intent regarding future actions involving medical services.

Ajzen and Fishbein (1980) suggest that intent is an appropriate intermediary focal point in the study of impact that an attitude has on behavior. Their theory of reasoned action posits that people consider the implications of their actions before they decide to engage in a given behavior. As such, they view a person's intention to perform a behavior as a more viable intermediate determinant of the ultimate behavior. Coupled with this intent is a social desirability factor that they suggest also influences the individuals ultimate behavior. Intent and social pressures are both relevant, but difficult aspects of a consumers behavior patterns. As researchers, we can discover a persons intent much easier and more efficiently than their behavior and the social valence of certain actions.

The consumer behavior literature bases behavior on the rational, systematic use of limited information. It is generally suggested that a individual will develop a predisposition, or intent, to behave as a result of experience with the service and exposure to other information

inputs regarding a service or product offering. This predisposition or attitude is seen as a determining factor in a consumers future behaviors toward the offering as future need arises. Acknowledging that behaviors have been and will continue to be very difficult to predict and understand scientifically, it is suggested that a person will generally act in accordance with predisposing intentions. These intentions are directly dependent on the consumers attitude toward the behavior. Attitude toward the behavior is the result of a belief structure that has positive and negative characteristics associated with the behavior by the individual. As the need for behavior arises, modified intent is acted upon in a manner consistent with the new attitude formed as a result of new information (see Figure 3).



Figure 3. Attitude Modification Process

This general view facilitates the study of perceived service quality and its relation to future consumption behavior regarding medical services. It ignores the general and specific influence that socially desirable behavior may have on the formation of intent to behave (Ajzen and Fishbein 1980). The focus here on general intent and its connection to perceived service quality of medical services is kept

at a basic level in an effort to establish a preliminary link between service quality and intent toward basic categories of consumer behavior in a medical services setting. Intent can be influenced by many factors, service quality is one, social desirability, cost of service, and need are others that might impact the multi-faceted intent of consumers. At this point, the study of perceived service quality and basic intent to behave are the focus. Other factors that have been ignored here would certainly contribute additional insight as moderators of the service quality attitude. Additional investigation is suggested following this initial effort to better clarify and develop a detailed pattern of relationships between attitude and intent. The need to clarify any basic relationships found relative to other factors that might play a role in the formation of a refined attitude regarding the consumption of medical services are suggested.

The individual uses the comparison of initial expectations and event specific outcomes to arrive at an attitude. Perceived service quality becomes the attitude toward the service. Literature suggests this type of comparison and attitude formation as being best measured externally, separately, and distinctly, and not relying on global measures that allow these comparison to be made within the individual subject. Intentions are measurable in the present, since they do not require actual behavior to occur. Literature in consumer behavior is rich with examples of connections between satisfaction and potential consumer action. Intentions include the broad categories of: repeat purchase; complimenting; complaining; switching providers; and, opting not to use any service at all. Each of these broad behaviors may have specific situation related dimensions that would describe the category

in detail. Initial connections between intent and perceived service quality in a medical service setting is the focus for this research.

By being better able to connect perceived service quality of medical services to a basic range of behavioral intentions regarding future consumer behavior, a better understanding of potential strategic impact for service quality of medical services can be gained. This connection is anticipated to be helpful in overcoming a troublesome situation with medical services: the potential lack of need for repeat purchase behavior. A consumer of medical services may only rarely consume the services offered. This lack of need for repeat consumer/provider interaction does not allow for a normal channel of communication about the service performance to develop. Long term or complete lack of need for another similar service experience with the medical service system is the norm. This infrequent interaction, and in many cases a distinct aversion to the use of services, offers a very poor opportunity to understand consumer attitudes and respond accordingly regarding service quality by the medical services provider.

The application of basic consumer behavior theories to the health care field represents a step forward in attaining a better understanding of this complex service dominant area of our economy. The relationship of perceived service quality to intentions suggested can be studied to form conditional statements regarding the strength, composition, and directional connection between perceived service quality attitudes and intent to act in a medical services setting.

#### Areas of Research Interest

Literature in the consumer satisfaction/ dissatisfaction, patient

satisfaction, service quality, and behavioral intent areas has been examined for similarity and usefulness. All of these areas have relevance for better understanding the role that perceived service quality plays in the consumer's behavior toward medical services. To best facilitate research along these lines, an adaptation and extension of the SERVQUAL scale is proposed for a medical service setting.

Objectives of this research are:

1. Adapt SERVQUAL in its current 22 item format for use in assessing service quality perceptions in a medical services setting.

The dimensionality of service quality has been well documented (Parasuraman, Zeithaml, Berry 1985). It is the authors contention that the key dimensions of tangibility, reliability, responsiveness, access, and empathy will also be consistent determinants of perceived service quality for medical services. Language and service specific references of the adapted scale should be consistent with those suggested by the SERVQUAL scale reported by Parasuraman, Zeithaml, and Berry (1988). Attention should be given to capturing the dimensional structure of SERVQUAL by utilizing a closely adapted scale structure and language. The 22 item format with specific language adaptation should be used to best facilitate a replication process. Scale item wording should consider the Patient Satisfaction Questionnaire (PSQ) and the Service Evaluation Questionnaire (SEQ) when appropriate.

2. Establish the reliability of the adapted scale and verify the dimensional structure of the adapted scale within the medical care settings chosen.

Churchill (1979) suggests the use of factor analysis, item-to-total correlations and Cronbach's alpha to establish reliability and parsimonious dimensional structure of a measurement scale. By applying

Churchill's suggested method the dimensional structure of the adapted scale and its reliability can be examined.

3. Establish the level of agreement between perceived service quality as measured by a multi-item scale and a global service quality judgment for the medical care settings of interest.

By using analysis of variance, the multi-item measure of service quality and a global measure of overall quality can be compared to establish a level of convergent validity for the adapted scale in the medical care setting. It is suggested that positive service quality will be more predictive of excellent and good overall quality, while negative service quality will be more predictive of fair and poor overall quality by the consumer.

4. Establish a pattern of relationships between consumer perceived service quality and a broad range of future behavioral intentions.

A series of items can be developed that seek the subjects likelihood of future behaviors across a wide range of potential relevant behaviors in the medical services field. The behavioral intents can be correlated with the subjects level of perceived service quality. In this way it is anticipated that positive and negative perceived service quality can be associated with relevant and strategically useful behavioral intentions for a consumer of medical care services.

## CHAPTER III

### RESEARCH DESIGN

This chapter provides a detailed explanation of the research design for the medical care services study. Research hypotheses are presented that address the adapted scale dimensionality, reliability, validity and its use in connecting perceptions of service quality to behavioral intents regarding medical care services. Specifics regarding measurement, methodology, sampling, and data analysis used to address the research hypotheses are outlined.

#### Research Hypotheses

There are four hypotheses that guide this research effort. These hypotheses are grouped into two sections, one addressing dimensionality, reliability, and validity of the adapted scale in a medical services setting, and a second section examining relationships between perceived service quality and various behavioral intents of consumers of medical services. All hypotheses are stated in alternative form.

#### Adaptation of SERVQUAL

Original SERVQUAL scale items were adapted to measure perceived service quality of medical services. Contained within the SERVQUAL scale are 22 items that address five underlying dimensions of the service quality construct.

H1: The dimensional structure for the SERVQUAL scale as adapted to the medical services setting will match the dimensional structure found in the non-medical areas of service settings.

Parasuraman, Zeithaml, and Berry (1988) suggest that the SERVQUAL scale is universal to all services. If their claims of transferability are accurate, dimensional patterns for perceived service quality of the medical care sample and the dimensions of tangibility, reliability, responsiveness, assurance, and empathy for the original developmental samples will be similar. With this adaptation, the reliability of the adapted scale can be examined in a specific service setting.

By directly adapting scale language for each item of the SERVQUAL scale, it is anticipated that the dimensional structure can be preserved in the new scale and will appear intact when considering perceived service quality in the medical services field.

H2: Overall quality is positively related to perceived service quality as a multi-dimensional construct.

Original construct development findings indicate that perceived service quality is a multi-faceted construct. The hypothesis just stated will be tested by means of analysis of variance procedures as suggested by Parasuraman, Zeithaml, and Berry (1988) to investigate the relationship of perceived service quality and overall quality in a medical services setting as a point of convergent validity for the adapted scale.

#### Behavioral Intent Extension

An extension of prior research examines the strategic usefulness of the service quality attitude as a marketing management concept. By connecting perceived service quality to a range of basic behavioral intentions that might result from a service experience in the medical



service field, the strategic usefulness of the service quality attitude is better understood.

H3: Behavioral intent regarding medical care services relates to perceived service quality.

- A. Intent to repurchase is positively related to perceived service quality.
- B. Intent to compliment is positively related to perceived service quality.
- C. Intent to complain is negatively related to perceived service quality.
- D. Intent to switch providers is negatively related to perceived service quality.
- E. Intent to not use any service is negatively related to perceived service quality.

It is suggested that the perception of service quality by a consumer is connected to a number of interrelated future consumer behaviors. Logic would indicate that perceived positive service quality would most associate with repurchase and complimenting intent by the consumer, and that perceived negative service quality would associate with consumer behaviors of complaining, switching providers, and non-use of any medical services.

H4: The relative importance of service quality dimensions in explaining behavioral intention to use medical services will differ among behavioral intent alternatives.

This hypothesis suggests that dimensions of service quality have differing importance for various behavioral intents. This researcher's contention is that dimensional elements are uniquely combined for each behavioral intent category, and that these patterns establish a strategically useful relationship for service quality attitudes and behavioral intents in a medical care services setting. For example, a strong likelihood of a consumer exhibiting complimenting behavior is anticipated to be more closely associated with the assurance dimension of perceived service quality in that this dimension includes the elements of courtesy, communication, and competence aspects of the service.

Discovery of dimensional importance for each of the basic behavioral intent categories broadens the strategic usefulness of service quality.

#### Measurement Issues

Measurement of service quality using the SERVQUAL scale requires a matched pre-encounter and post-encounter assessment of attitudes for each consumer regarding selected elements of the medical care service experience. This matched item measurement allows perceptions of actual outcome to be compared with general expectations. The discrepancy approach (service quality = perceptions - expectations) is used to establish perceived service quality. By gathering expectations and perceptions using a seven point Likert scale, an interval scale that ranges from -6.00 to +6.00 can be determined for perceived service quality.

The adaptation of the SERVQUAL scale closely followed the original 22 item format suggested by Parasuraman, Zeithaml, and Berry (1988). Attention to precise language use was given in translating the scale to the medical services field. Specifically, the following terms and definitions are used in the adapted form.

Medical services: used as the generic field of service being investigated.

Organizations: substitute term for the medical services field that indicates firm or service supplier/ provider.

Patient: conceptually the same in medical services as the consumer in other service settings.

#### Expectations/Perceptions Scales

Perceived service quality is based on the discrepancy approach noted earlier. This difference between pre-encounter expectations and

post-encounter perceptions of outcome is facilitated by the use of matched pairs of statements for each measurement item. Listed below is an example of a pre-encounter expectation scale item and its matched post-encounter perceptions scale item for the original SERVQUAL scale and the adapted scale. The full text of the original SERVQUAL scales and the adapted scales are included in the appendix.

SERVQUAL pre-encounter:

The appearance of the physical facilities of these firms should be in keeping with the type of services provided.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

SERVQUAL post-encounter:

The appearance of the physical facilities of XYZ is in keeping with the type of services provided.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

Adapted pre-encounter:

The appearance of the physical facilities of a medical care provider should be in keeping with the medical services provided.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

Adapted post-encounter:

The appearance of the physical facilities of XYZ clinic is in keeping with the medical services provided.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

### Overall Quality Scale

In addition to the adapted expectation and perception scales, respondents were asked to give their overall rating of service quality. The original scale development efforts for SERVQUAL used a single item measure of overall quality. The adapted scale also asked for response to a single item measure of service quality in the medical care sample as part of the post-encounter questionnaire. The item was presented as:

23. Using a scale of excellent, good, fair, or poor, please rate the overall quality of the recent experience you have had with The Wichita Clinic.

Excellent    Good    Fair    Poor

Behavioral Intent Items

The extension aspects of this research rely on the use of measurement items that gather responses from consumers of medical services regarding their behavioral intent as a result of a recent service encounter. Basic intent categories of repurchase, complimenting, complaining, switching of providers, and non-use of any services are scaled. Respondents were asked to indicate a level of likelihood for these behaviors, given their recent service encounter. This allows measurement of a range of intents and the respondents' intensity of attitude regarding the behavior. The post-encounter questionnaire included eight items designed to assess a range of basic behavioral intents for the patients. The specific behavioral intent items were presented as follows:

As a result of your recent visit to The Wichita Clinic, please rate the strength of your intent regarding each of the following behaviors. Using the following scale, indicate how likely it is that you would behave as each sentence describes.

- 1 = definitely
- 2 = very likely
- 3 = likely
- 4 = neutral
- 5 = maybe
- 6 = not likely
- 7 = definitely not

27. The next time the need for similar medical care arises, I will return to Wichita Clinic and see the same physician.

Definitely 1 2 3 4 5 6 7 Definitely not

28. As a result of this visit, I will recommend Wichita Clinic to my family and friends.

Definitely 1 2 3 4 5 6 7 Definitely not

29. As a result of this visit, I will complain to my family and friends about the care received at Wichita Clinic.

Definitely 1 2 3 4 5 6 7 Definitely not

30. As a result of this visit, I will compliment the management of Wichita Clinic about the care received.

Definitely 1 2 3 4 5 6 7 Definitely not

31. As a result of this visit, I will complain to the management of Wichita Clinic about the care received.

Definitely 1 2 3 4 5 6 7 Definitely not

32. As a result of this visit, I will complain to the local medical society about the care received at Wichita Clinic.

Definitely 1 2 3 4 5 6 7 Definitely not

33. The next time need arises for similar care, I will seek the care of a similar specialist at another clinic.

Definitely 1 2 3 4 5 6 7 Definitely not

34. The next time need arises for similar care, I will opt not to use any medical care service from any provider.

Definitely 1 2 3 4 5 6 7 Definitely not

### Demographics

In addition to the attitudinal data, a range of demographic variables are included on the survey. Information on age, sex, income level, marital status, employment status and occupation, size of household, insurance status, education level, perceived health status, unexpected outcome, disruptions, and further care requirements is helpful in interpreting findings. Data gathered are used to qualify responses and to investigate the representativeness of the response pool. A listing of the demographic variables and their response

categories can be found in the appendix.

Along with demographic variables, questions are included that ask about unexpected outcome, suggestions for further care by the physician, and the extent to which the visit under study was discussed with others. These variables are included primarily to discern any biases that might be introduced by individual circumstance.

#### Data Collection Methodology

Consumers of medical services that utilize the services of physician providers of primary care medical services are the focus of this research. It is anticipated that by focusing on the basic exchange component between provider and consumer, the findings can be better generalized to other medical and non-medical market based exchange situations and stronger conclusions can be drawn regarding the dimensionality, reliability, validity, and usefulness of the adapted scale in understanding relationships between consumer behavioral intent and perceived service quality.

To best facilitate comparison of medical care setting results and the original non-medical care findings, similar market dynamics and consumer choice characteristics were sought. For medical care this is best achieved by focusing on the traditional physician/ patient encounter at the primary care level. This more closely approximates the individual provider/ consumer contact outside the medical care setting. To access the one-on-one contact between physician and patient at a primary care level while controlling for extraneous differences, the patient population of primary care physicians at a large mid-western multi-speciality clinic were sampled. Sample units were drawn randomly

from the pool of regular daytime appointment lists of primary care physicians.

Pre-encounter surveys were mailed to the sample with an accompanying cover letter from the clinic's medical director. Patients received the pre-encounter survey approximately one week prior to their scheduled appointments. For those who completed the pre-encounter questionnaire and returned the survey, a post-encounter questionnaire and a postage paid return envelope were given to the patient by clinic staff after the appointment was completed. A unique code number was assigned to each pre-encounter questionnaire and post-encounter for matching purposes. The necessity of the code numbers was explained to the patient to avoid feelings of lost confidentiality.

#### Data Analysis

The data analysis techniques used reflect the techniques used in the original development of the SERVQUAL scale. For clarity, data analysis of the medical care services sample results is discussed as it relates to each hypothesis.

#### Dimensional Structure

H1: The dimensional structure for the SERVQUAL scale as adapted to the medical services setting will match the dimensional structure found in the non-medical areas of service settings.

Preliminary to dimensional investigation, adapted scale reliability is examined. Item-to-total correlations and Cronbach's alpha are calculated to establish the basic reliability of the adapted scale. After reliability is investigated, dimensional structure is examined. Discovery of dimensional structure within a multi-item interval scale is

best accomplished by applying factor analysis. Use of factor analysis with an orthogonal rotation produces an underlying factor structure for the data. Non-statistical comparison of factor structure for the adapted scale and the original development effort is the basic test of this hypothesis.

#### Overall Quality and Service Quality

H2: Overall quality is positively related to perceived service quality as a multi-dimensional construct.

The convergent validity of the adapted scale is examined by investigating the strength of the association between overall quality and service quality. This hypothesis suggests that positive service quality associates with favorable overall quality ratings, while negative service quality associates with less favorable ratings of overall quality. A one-way analysis of variance, with three categories (excellent/ good/ fair & poor) of the treatment variable, overall quality, and the dependent variable of perceived service quality is reported.

#### Behavioral Intent

- H3: Behavioral intent regarding medical care services relates to perceived service quality.
- A. Intent to repurchase is positively related to perceived service quality.
  - B. Intent to compliment is positively related to perceived service quality.
  - C. Intent to complain is negatively related to perceived service quality.
  - D. Intent to switch providers is negatively related to perceived service quality.
  - E. Intent to not use any service is negatively related to perceived service quality.

Use of regression analysis and the associated F statistic allow



assessment of strength and direction for any relationships between behavioral intent and perceived service quality of medical care consumers. It is hypothesized that positive service quality correlates most highly with a consumers intent to repurchase or compliment. Conversely, it is hypothesized that negative service quality perceptions correlate most strongly with a consumer's intent to complain, switch providers, or not use the service altogether.

H4: The relative importance of service quality dimensions in explaining behavioral intention to use medical services will differ among behavioral intent alternatives.

This hypothesis suggests a unique pattern of importance for the dimensional elements of service quality as it relates to individual behavioral intentions of a consumer of medical care services. A series of regression analyses, using the various behavioral intent items as dependent variables and the multi-item dimensions of the adapted scale as independent variables, allows investigation of dimensional importance and patterns of association for the various behavioral intents of interest. Comparison of explained variance and visual examination of beta coefficients, correlations, and F-values are the basis of this exploratory analysis.

## CHAPTER IV

### RESEARCH RESULTS

This research replicates and extends the service quality scale developed by Parasuraman, Zeithaml, and Berry (1986, 1988). These authors suggest that the SERVQUAL scale is a reliable, measure of perceived service quality that is generalizable over service settings. It was developed initially in the context of credit card, telephone, auto repair, and banking settings. While their initial findings indicate the SERVQUAL scale to be a useful measurement of the service quality construct, wider application of the scale over service settings is necessary and it's relationship to subsequent behavior merits study.

Four hypotheses were formulated as part of this research. Two address the reliability and validity of the adapted scale in a medical services setting, and two examine the relationship between perceived service quality and behavioral intent for consumers of medical services.

#### Methodology

The research setting for this study was the traditional physician/patient encounter at the primary care level. The patient population of primary care physicians at a large mid-western multi-speciality clinic were sampled. Sample units (patients) were drawn randomly from the pool of regular daytime appointment lists for eleven primary care (internal medicine) physicians on the staff of The Wichita Clinic. Appointments

targeted were scheduled during the 6/12/89 to 7/28/89 time frame.

A total of 967 pre-encounter survey instruments were mailed to patients. A number of factors were controlled by the selection of this research frame (i.e. parking, billing, atmospheric, medical condition). The accompanying cover letter from the clinic's medical director asked that the sample subject complete the first of a two part survey, seal it in an envelope provided, and return the completed survey to the clinic at the time of their scheduled appointment. The pre-encounter survey was not return mailed due to the need for matching with a post-encounter questionnaire. Patients received the pre-encounter survey from 3 to 10 days prior to their scheduled appointments. For those who completed the pre-encounter questionnaire and returned the survey, a post-encounter questionnaire and a postage paid return envelope were given to the patient after the appointment was completed. A unique code number was assigned to each pre-encounter questionnaire as it was returned and that same number was assigned to each post encounter questionnaire as it was given to the patient. This assignment of code numbers allowed the matching of pre- and post-encounter responses for each individual. The necessity of the code numbers was explained to the patient to avoid feelings of lost confidentiality.

Of the 967 mailed to the sample, a total of 244 pre-encounter surveys were returned. Of these, 34 were unmatchable due to miscues in the return process for the pre-encounter questionnaire, 10 were unusable due to incomplete responses or lack of identifying code labels on either the pre or post encounter survey, and 41 were unusable due to lack of a post-encounter questionnaire being returned. This left a total of 159 usable paired survey responses for a net return rate of 16.4 percent. A

portion of the non-response rate can be attributed to canceled appointments during the study period amounting to 14.0 percent. When both the unusable surveys and canceled appointments are considered, the effective response rate was 21.3%. The remaining non-response can be attributed to the wide range of factors that inhibit individuals from giving survey responses and do not indicate any particular response bias.

### Measurement

Several measures were taken for the medical care sample. Expectation and perception attitudes, overall quality, behavioral intent, and demographic variables were included in the pre- and post-encounter instruments.

#### Perceived Service Quality

Service quality, using the SERVQUAL scale, is measured as a difference score between expectations and perceived outcomes (service quality = perceptions - expectations). By using a seven point Likert scale for both expectations and perceptions, differences may range from -6.00 to +6.00.

Table I and Table II provide descriptive statistics by item for both expectations and perceptions of outcome scales. In the original survey instrument nine items are stated in negative terms. These nine items have been reverse scored prior to analysis for ease in interpretation. All questions are shown with positive language that agrees with the reversal of the scales.

Expectations of the sample are generally quite high (5.21 to 6.94).

Highest expectation scores are in the areas of record keeping, safe transactions, trust of employees, employees being polite, and the dependability of the provider. Expectations are lowest in the areas of employees knowing the needs of the patient, prompt service, responding promptly to patient requests, convenient operating hours, and employees giving personal attention.

Perceptions of outcome are likewise high (5.63 to 6.69). Highest outcome perceptions are in the areas of appearance of the facility, record keeping, equipment, pleasant facilities, employee dress, and employee politeness. Outcomes are lowest for convenient operating hours, employees knowing patient needs, and prompt response by employees.

It is insightful to view the difference scores for expectations and outcomes to ascertain whether expectations were confirmed or disconfirmed. Table III displays means, difference scores, and standard deviations of the differences for items in each scale. Mean values can range from -6.00 to +6.00, with values of 0.00 indicating that perceptions and expectations are matched.

Results indicate that expectations generally exceed perceptions of outcome for most items. Outcomes exceed expectations in the areas of facilities, prompt service, prompt response to patients, personal attention, knowing patient needs, and operating hours. When service quality is calculated for the sample, as a summated scale, a negative service quality perception of -0.15 is found. It should also be noted that all difference scores are less than one scale point. This small difference between perception and expectation scores should be considered when interpreting results. Also, since expectations were

TABLE I  
EXPECTATION SCALE ITEMS

ITEM	MEAN <sup>a</sup>	SD
Q1. Providers should have up-to-date equipment (E14).	6.79	0.58
Q2. Facilities should be pleasant and visually appealing (E1).	6.45	0.96
Q3. Employees should be well dressed and appear neat (E19).	6.65	0.67
Q4. Facilities should be in keeping with services provided (E9).	6.31	1.18
Q5. When provider promises to do something, they should do so (E21).	6.61	0.74
Q6. Provider should be sympathetic and reassuring (E2).	6.56	1.00
Q7. Provider should be dependable (E18).	6.87	0.62
Q8. Should provide services at time promised (E13).	6.58	0.93
Q9. Provider should keep accurate records of medical history (E8).	6.94	0.31
Q10. Provider is expected to tell when services will be performed (E17). <sup>b</sup>	6.03	1.71
Q11. Expectations of prompt service are realistic (E3). <sup>b</sup>	5.30	2.24
Q12. Employees should always be willing to help (E12). <sup>b</sup>	6.26	1.61
Q13. Not okay to be too busy to respond promptly to patient requests (E7). <sup>b</sup>	5.53	1.90
Q14. Patient should be able to trust employees of care providers (E16).	6.92	0.53
Q15. A patient should feel safe in their transactions with providers (E4).	6.94	0.24
Q16. Provider employees should be polite (E11).	6.91	0.42
Q17. Employees should get support from the organization to do their jobs (E6).	6.74	0.67

TABLE I (continued)

ITEM	MEAN <sup>a</sup>	SD
Q18. A provider should be expected to give individual attention to patients (E22). <sup>b</sup>	6.22	1.61
Q19. Employees should be expected to give personal attention to patients (E5). <sup>b</sup>	5.61	2.03
Q20. It is realistic for provider employees to know the needs of patients (E20). <sup>b</sup>	5.21	2.01
Q21. It is realistic to expect the provider to have the patient's best interests at heart (E15). <sup>b</sup>	6.42	1.53
Q22. A provider should have convenient operating hours (E10). <sup>b</sup>	5.56	1.87
EXPECTATION SCALE TOTALS	6.34	0.59

<sup>a</sup> 7=strongly agree; 1=strongly disagree.

<sup>b</sup> These items reflect wording changes for consistency with score reversal.

TABLE II  
PERCEPTION SCALE ITEMS

ITEM	MEAN <sup>a</sup>	SD
Q1. The clinic has up-to-date equipment (P18).	6.57	0.96
Q2. The clinic's facilities are pleasant and visually appealing (P14).	6.57	0.92
Q3. The clinic's employees are well dressed and appear neat (P10).	6.55	0.81
Q4. Appearance of the clinic facility is in keeping with services provided (P1).	6.69	0.75
Q5. When the clinic promises to do something, it does so (P22).	5.91	1.47
Q6. The physicians and staff of the clinic are sympathetic and reassuring (P19).	6.31	1.22
Q7. The clinic is dependable (P15).	6.54	0.94
Q8. The clinic provides services at the time promised (P6).	6.01	1.43
Q9. The clinic keeps accurate medical records (P2).	6.59	0.92
Q10. The clinic tells patients exactly when services will be performed (P20). <sup>b</sup>	5.96	1.66
Q11. Prompt service from clinic employees was received (P11). <sup>b</sup>	5.88	1.78
Q12. Employees of the clinic are always willing to help (P7). <sup>b</sup>	6.01	1.67
Q13. Employees of the clinic are not too busy to respond promptly to patient requests (P3). <sup>b</sup>	5.72	1.75
Q14. I can trust the employees at the clinic (P16).	6.41	0.96
Q15. I feel safe in my transactions with physicians and staff at the clinic (P12).	6.49	1.05
Q16. Clinic employees are polite (P8).	6.55	0.96



TABLE II (continued)

ITEM	MEAN <sup>a</sup>	SD
Q17. Employees get adequate support from the clinic to do their jobs (P4).	5.92	1.25
Q18. The clinic gives me individual attention (P21). <sup>b</sup>	6.16	1.47
Q19. Employees at the clinic give me personal attention (P17). <sup>b</sup>	6.05	1.53
Q20. Employees of the clinic know what my needs are (P13). <sup>b</sup>	5.69	1.73
Q21. The clinic has my best interests at heart (P9). <sup>b</sup>	5.87	1.80
Q22. The clinic has convenient operating hours (P5). <sup>b</sup>	5.63	2.02
PERCEPTION SCALE TOTALS	6.19	0.82

<sup>a</sup> 7=strongly agree; 1=strongly disagree.

<sup>b</sup> These items reflect wording changes for consistency with score reversal.

TABLE III  
COMPARISON OF EXPECTATION AND PERCEPTION SCORES

ITEM	DESCRIPTION	MEAN DIFFERENCE (P - E)	STD DEV
Q1	Up-to-date equipment	-0.22	1.06
Q2	Pleasant facilities	+0.12	1.14
Q3	Employees well dressed and neat	-0.10	0.90
Q4	Facilities in keeping with services	+0.38	1.21
Q5	Promise to do something, then do so	-0.70	1.54
Q6	Provider is sympathetic	-0.25	1.54
Q7	Dependability	-0.33	1.09
Q8	Provides services when promised	-0.57	1.73
Q9	Keep accurate records	-0.35	0.90
Q10	Tell when services performed	-0.07	2.11
Q11	Prompt service	+0.58	2.85
Q12	Employees willing to help	-0.25	2.18
Q13	Respond promptly to requests	+0.19	2.63
Q14	Trust employees	-0.52	1.10
Q15	Feel safe with provider	-0.45	1.08
Q16	Polite employees	-0.36	1.02
Q17	Employees get support from organization	-0.82	1.29
Q18	Provider gives individual attention	-0.06	2.14
Q19	Employees give personal attention	+0.44	2.45
Q20	Employees know patient needs	+0.48	2.43
Q21	Provider has patients best interests at heart	-0.55	2.16
Q22	Convenient operating hours	+0.07	2.70
SERVICE QUALITY SCALE TOTALS		-0.15	0.97

quite high even disconfirmations indicate generally high approval on an absolute basis.

#### Overall Quality

As in the original scale development efforts reported for SERVQUAL, a single item measure of overall quality is included in the

post-encounter questionnaire for this medical care sample. The item asked the respondent to rate the overall quality (excellent, good, fair, poor) of the recent experience they had with The Wichita Clinic. Table IV displays the categorical responses and the mean service quality scores for the categories. It is obvious that overall perceptions of service quality are high, with 64.8 percent rating it as excellent.

TABLE IV  
OVERALL QUALITY CATEGORICAL RESPONSES

CATEGORY	GROUP SIZE	MEAN SERVICE QUALITY SCORE
EXCELLENT	103	0.08
GOOD	50	-0.37
FAIR & POOR	6	-2.22
TOTAL	159	-0.15

### Behavioral Intent

The post-encounter questionnaire included eight items designed to assess a range of basic behavioral intents for patients as a result of their recent experience with The Wichita Clinic. Items asked the respondent to indicate the strength of their intent, using a 7 point Likert scale, regarding behaviors as a result of their recent

experience. The behavioral intent items cover areas of return visits, recommending to family and friends, complaining to family and friends, complimenting clinic management, complaining to clinic management, complaining to local medical society, seeking care elsewhere, and not using any care provider. Table V displays the items and their means and standard deviations for the sample data.

TABLE V  
BEHAVIORAL INTENT ITEM MEANS

ITEM	MEAN <sup>a</sup>	SD
The next time the need for medical care arises, I will return to Wichita Clinic and see the same physician.	6.74	0.94
As a result of this visit, I will recommend Wichita Clinic to my family and friends.	6.43	1.31
As a result of this visit, I will compliment the management of Wichita Clinic about the care received.	5.75	2.00
As a result of this visit, I will complain to my family and friends about the care received at Wichita Clinic.	1.50	1.38
As a result of this visit, I will complain to the management of Wichita Clinic about the care received.	1.28	0.99
As a result of this visit, I will complain to the local medical society about care received at Wichita Clinic.	1.09	0.56
The next time need arises for similar care, I will seek the care of a similar specialist at another clinic.	1.44	1.32
The next time need arises for similar care, I will opt not to use any medical care services from any provider.	1.47	1.43

<sup>a</sup> 7 = Definitely and 1 = Definitely not.

Scale values for behavioral intent items have been reversed for analysis. To allow for more consistent interpretation, all values reported for the intent items reflect this reversal. The behavioral intent values are reported in the same descending order of magnitude as the service quality values. In all cases, a higher scale value for service quality or behavioral intent indicates either more perceived service quality or a stronger intent to behave as indicated.

From these results, it is apparent that the patients in the sample will behave positively as result of the service experience. They seem unlikely to take negative action.

#### Description of Sample

The pre-encounter questionnaire included demographic items regarding age, insurance coverage, education, martial status, occupation, employment status, number of people in family, number of children, sex, income, and health status. These items are used to describe respondents and qualify findings regarding the hypotheses of interest. In addition, questions were included in the post-encounter questionnaire that investigated the nature of the care experience. Indications of the next step in the care process were gathered, as well as patient perceptions regarding disruptions, unexpected medical problems, and nature of discussions following the care experience.

Before analysis of the results, some understanding of sample characteristics help frame the findings. Demographic characteristics gathered are reported in Tables VI through XV, and provide details that support a respondent profile of:

An older (55+ years), well educated (at least some college) female patient that is married and living in a two person household

without children under the age of 18. The typical respondent is retired or indicates their occupation as homemaker. Annual household income is below \$30,000 and their health insurance covers all or a large portion of their medical care expenses. Self-reported health status is given as either good or fair with few reports of excellent or poor health.

TABLE VI  
AGE OF RESPONDENTS

YEARS	FREQUENCY	PERCENT
18 AND UNDER	2	1.3
19 - 24	2	1.3
25 - 34	7	4.4
35 - 44	22	13.8
45 - 54	16	10.1
55 - 64	22	13.8
65 AND OVER	87	54.7
NO RESPONSE	1	0.6
TOTALS	159	100.0

TABLE VII  
SEX OF RESPONDENTS

CATEGORY	FREQUENCY	PERCENT
MALE	48	30.2
FEMALE	109	68.6
NO RESPONSE	2	1.3
TOTALS	159	100.0

TABLE VIII  
EDUCATION LEVEL OF RESPONDENTS

CATEGORY	FREQUENCY	PERCENT
LESS THAN HIGH SCHOOL	17	10.7
HIGH SCHOOL	48	30.2
VO-TECH SCHOOL	7	4.4
SOME COLLEGE	33	20.8
UNDERGRADUATE DEGREE	15	9.4
SOME GRADUATE WORK	8	5.0
GRADUATE DEGREE	29	18.2
NO RESPONSE	2	1.3
TOTALS	159	100.0

TABLE IX  
MARITAL STATUS OF RESPONDENTS

CATEGORY	FREQUENCY	PERCENT
SINGLE	15	9.4
MARRIED	107	67.3
DIVORCED	12	7.5
WIDOWED	25	15.7
TOTALS	159	100.0

TABLE X  
SIZE OF HOUSEHOLD

NUMBER	FREQUENCY	PERCENT
1	39	24.6
2	71	44.7
3	14	8.8
4	16	10.1
5	10	6.3
6+	6	3.8
N/R	3	1.9
TOTALS	159	100.0

TABLE XI  
NUMBER OF PERSONS UNDER 18 YEARS OF AGE  
IN HOUSEHOLD

NUMBER	FREQUENCY	PERCENT
0	131	82.4
1	10	6.3
2	9	5.7
3	2	1.3
4	2	1.3
N/R	5	3.1
TOTALS	159	100.0



TABLE XII  
OCCUPATION OF RESPONDENTS

CATEGORY	FREQUENCY	PERCENT
PROFESSIONAL	25	15.7
MANAGERIAL	7	4.4
TECHNICAL	3	1.9
ADMINISTRATIVE SUPPORT	9	5.7
SALES	1	0.6
SERVICE WORKER	3	1.9
OPERATORS	2	1.3
LABORERS	1	0.6
ARMED FORCES	2	1.3
HOMEMAKER	21	13.2
RETIRED	49	30.8
UNEMPLOYED OR DISABLED	1	0.6
FULL-TIME STUDENT	1	0.6
OTHER	1	0.6
SELF-EMPLOYED	2	1.3
NO RESPONSE	31	19.5
TOTALS	159	100.0

TABLE XIII  
ANNUAL HOUSEHOLD INCOME

CATEGORY	FREQUENCY	PERCENT
LESS THAN \$10,000	19	11.9
\$10,000 - 19,999	26	16.4
\$20,000 - 29,999	44	27.7
\$30,000 - 39,999	15	9.4
\$40,000 - 49,999	12	7.5
\$50,000 AND OVER	24	15.1
NO RESPONSE	19	11.9
TOTALS	159	100.0

TABLE XIV  
 LEVEL OF INSURANCE COVERAGE  
 FOR THIS VISIT

LEVEL	FREQUENCY	PERCENT
NO COVERAGE	4	2.5
SMALL PERCENTAGE	9	5.7
APPROXIMATELY HALF	17	10.7
NEARLY ALL	88	55.3
ENTIRELY COVERED	35	22.0
NO RESPONSE	6	3.8
TOTALS	159	100.0

TABLE XV  
 SELF-REPORTED HEALTH STATUS  
 OF RESPONDENTS

LEVEL	FREQUENCY	PERCENT
EXCELLENT	22	13.8
GOOD	79	49.7
FAIR	48	30.2
POOR	10	6.3
TOTALS	159	100.0

As further qualification, respondents were asked to indicate if they had experienced anything disruptive during their clinic visit. Only five percent (5.0%) of the sample indicated that something was disruptive, and in all cases, this involved having to wait too long for the physician or the mis-handling of appointment scheduling. These aspects of the care experience are also part of the scaled items for service quality.

Some respondents indicated unexpected medical problems that came to light as a result of the visit under study. Table XVI outlines the general findings from the survey.

TABLE XVI  
FREQUENCY OF UNEXPECTED MEDICAL OUTCOME

Did any unexpected medical problem or condition come to light during your recent visit to the clinic?		
RESPONSE	FREQUENCY	PERCENT
NO.	135	84.9
YES, BUT IT IS NOT A MAJOR CONCERN TO ME.	11	6.9
YES, AND IT IS OF MAJOR CONCERN TO ME.	9	5.7
NO RESPONSE	4	2.5
TOTALS	159	100.0

This impact for extraordinary experiences is further clarified by better understanding the nature of the next step suggested by the primary care physician for the patient. Table XVII clarifies these care decisions made by the physicians.

TABLE XVII  
PHYSICIANS SUGGESTIONS FOR FUTURE CARE  
(n=159)

As a result of your recent visit to the clinic, did the physician you saw suggest that you:				
RESPONSE	YES		NO	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
DON'T NEED FURTHER MEDICAL ATTENTION.	18	11.3	85	53.5
RETURN FOR A ROUTINE FOLLOW-UP VISIT.	135	84.9	14	8.8
SEE ANOTHER PRIMARY CARE PHYSICIAN.	8	5.0	94	59.1
SEE A SPECIALIST FOR FURTHER CARE.	25	15.7	81	50.9
BE ADMITTED TO A HOSPITAL FOR CARE.	1	0.6	99	62.3

It would seem that some of the sample received unexpected medical outcome experiences, but that these were not admissions to hospitals. Referral to a specialist or a return visit were the most common further

actions suggested by physicians. While an unexpected return visit or an unexpected encounter with a specialist are not necessarily drastic, they were disruptive enough to some of the respondents to trigger a level of anxiety worthy of reporting. This may have biased the reports of service quality and behavioral intent, but beyond these measures just mentioned it is unknown as to how and to what extent. Given the limited impact suggested by the measures, it is assumed that the biasing effect of unexpected outcome has little impact.

It is possible that discussion of outcome perceptions with other individuals prior to expressing individual reaction via the post-encounter survey, could bias an individual's response. As a matter of qualification, respondents were asked to indicate the type of interaction they had with others regarding their recent medical experience. Table XVIII shows that 40.9 percent of the respondents did discuss the visit with family and friends or a medical care provider prior to completing the post-encounter scale. This discussion could influence the intensity of responses given. Since the majority indicate an individual opinion regarding post-encounter attitudes, this biasing effect should be limited.

#### Tests of Hypotheses

Results will be examined separately for each of the four hypotheses. In addition, comments regarding demographic findings will be presented. Demographic analysis was not part of the formal hypotheses stated, but demographics and sociological variables are heavily researched in health care and merit attention.

TABLE XVIII  
DISCUSSION OF RECENT VISIT WITH OTHERS

RESPONSE	FREQUENCY	PERCENT
Following your recent visit to the clinic, did you discuss your visit with others before you completed this survey?		
YES, I DISCUSSED MY VISIT WITH FAMILY AND FRIENDS.	60	37.7
YES, I DISCUSSED MY VISIT WITH A NURSE AND/OR PHYSICIAN THAT ARE PART OF THE CLINIC, BUT NOT PART OF MY RECENT CARE EXPERIENCE.	2	1.3
YES, I DISCUSSED MY VISIT WITH A NURSE AND/OR PHYSICIAN THAT ARE NOT PART OF THE CLINIC.	3	1.9
NO, I DID NOT DISCUSS THIS VISIT WITH ANYONE BEFORE RESPONDING.	86	54.1
NO RESPONSE.	8	5.0
TOTALS	159	100.0

### Reliability and Dimensional Structure

H1: The dimensional structure for the SERVQUAL scale as adapted to the medical services setting will match the dimensional structure found in the non-medical areas of service settings.

This hypothesis was not tested statistically. Instead, the structure of the scale was examined statistically then compared to the SERVQUAL scale reported by Parasuraman, Zeithaml, and Berry (1988).

As the first step in analysis of the scale, internal reliability

for the adapted scale was compared to that reported in the literature. In this medical services setting, total scale reliability as measured by Cronbach's alpha for the 22 item scale is 0.87. This compares favorably with the reliabilities measured of between 0.87 and 0.90 for the scale in the various non-medical settings reported by Parasuraman, Zeithaml, and Berry (1988). Tables I, II, and III reported earlier outline the basic statistics for the scale and describes it's 22 composite items.

The dimensional structure of the scale was examined using a principal component factor analysis with a varimax rotation. The traditional convention of including factors with eignvalues of 1.0 or higher led to the identification of five factors with a cumulative explained variance of 57.3 percent. However, three of the 22 items loaded on factors at less than the 0.50 level. A scree test indicated that a six factor solution may be justified since the sixth factor had an eignvalue of 0.98 compared to 1.06 for the fifth factor. Inclusion of the sixth factor improved the cumulative explained variance to 61.7 percent. It was felt that this would also aid in factor interpretation.

Results of factor analysis of the medical care services sample data using a six factor solution are provided in Table XIX. For the six factor solution, variables were assigned to factors based on the convention of factor loadings of 0.50 or higher and modest loadings on other factors. One variable, Q10, had a maximum loading of only 0.44. It was retained in the analysis, however, since it had previously been included in SERVQUAL.

Sub-scales of service quality measurement were constructed as summated scores of all variables assigned to each of the six identified service quality dimensions. The variables assigned and descriptive

TABLE XIX  
 FACTOR LOADINGS FOLLOWING VARIMAX ROTATION  
 OF SIX FACTOR SOLUTION FOR  
 MEDICAL CARE SAMPLE<sup>a</sup>

ITEM	F1	F2	F3	F4	F5	F6
Q1	0.00	-0.09	0.56	0.26	0.21	0.29
Q2	0.17	0.06	0.15	-0.08	0.82	-0.04
Q3	0.21	0.23	0.23	-0.05	0.39	0.60
Q4	0.04	-0.10	0.05	0.26	0.76	0.13
Q5	0.29	0.12	0.71	0.14	0.10	0.09
Q6	0.15	0.41	0.61	-0.13	0.05	0.19
Q7	0.81	0.21	0.28	0.11	0.03	-0.07
Q8	0.35	0.07	0.73	0.22	0.05	-0.15
Q9	0.58	0.34	-0.06	-0.26	0.25	0.18
Q10	0.44	0.25	0.22	0.16	0.15	-0.37
Q11	-0.06	0.38	0.38	0.52	0.00	0.14
Q12	0.31	0.32	0.16	0.52	-0.05	0.11
Q13	0.22	0.19	0.13	0.57	0.05	0.00
Q14	0.77	0.26	0.22	0.13	0.11	0.04
Q15	0.76	0.03	0.16	0.12	0.05	0.24
Q16	0.42	0.07	0.26	0.26	-0.05	0.59
Q17	0.51	0.00	0.07	0.41	0.06	0.13
Q18	0.25	0.59	0.22	0.30	-0.06	0.03
Q19	0.06	0.73	0.12	0.31	-0.18	0.22
Q20	0.10	0.61	0.21	0.19	0.27	-0.22
Q21	0.27	0.65	-0.06	0.14	0.00	0.04
Q22	0.00	0.39	0.03	0.64	0.21	-0.11

<sup>a</sup> Variance extracted by the six factors is 61.7%.

labels for the sub-scales are presented in Table XX. The number of items assigned each sub-scale ranged from six for Dependability, to two for Tangibles and Presentation.

The reliability of each sub-scale was evaluated through the calculation of Coefficient Alpha for the sub-scale and the subsequent alpha if each item within the sub-scale were deleted from the sub-scale.



TABLE XX  
 FACTOR STRUCTURE AND INTERNAL CONSISTENCIES  
 OF THE ADAPTED SCALE

FACTOR	NUMBER OF ITEMS	ITEM	RELIABILITY COEFFICIENT (ALPHA)	ALPHA IF ITEM DELETED
F1-DEPENDABILITY	6	Q7	0.77	0.70
		Q9		0.76
		Q10		0.84
		Q14		0.71
		Q15		0.71
		Q17		0.74
F2-EMPATHY	4	Q18	0.74	0.69
		Q19		0.63
		Q20		0.69
		Q21		0.72
F3-RELIABILITY	4	Q1	0.71	0.70
		Q5		0.58
		Q6		0.68
		Q8		0.61
F4-RESPONSIVENESS	4	Q11	0.69	0.64
		Q12		0.63
		Q13		0.62
		Q22		0.63
F5-TANGIBLES	2	Q2	0.62	-
		Q4		-
F6-PRESENTATION	2	Q3	0.58	-
		Q16		-
RELIABILITY OF TOTAL SCALE			0.87	

The sub-scale alphas ranged from 0.77 to 0.58, quite acceptable levels for internal validity. The alpha levels for sub-scales were less in all but one instance (Q10 with Dependability) when any item was removed from the scale. Finally, as shown later in Table XXI, these alpha levels are in the same ranges found for the original scale.

Regarding H1, the assignment of individual items to factors in the medical care sample data does not match the pattern reported in the SERVQUAL literature. However, there are strong similarities. Table XXI provides the results reported in the SERVQUAL literature. First, six factors were generated rather than five for the initial SERVQUAL scale, and second, none of the factors are identical. Factor 2 of the medical care sample and Factor 5 of the original samples contain nearly similar items, with a single deletion for the factor in the medical care sample. Likewise, Factor 3, Factor 4, and Factor 5 in the medical care sample have similar items as do Factor 2, Factor 3, and Factor 1 respectively in the original samples. In summary, the structure of the dimensions of perceived service quality for this research and the associated reliability measures resemble the original SERVQUAL research, but there are differences in item assignment.

### Convergent Validity

H2: Overall quality is positively related to perceived service quality as a multi-dimensional construct.

In the original research work for the SERVQUAL scale, convergent validity was tested based on an analysis of the relationship between the level of perceived service quality as measured by SERVQUAL and the consumer's global judgment regarding overall quality of service. Similar analysis was conducted for medical care services. Table XXII

TABLE XXI  
 FACTOR STRUCTURE AND INTERNAL CONSISTENCIES  
 OF THE ORIGINAL SERVQUAL DIMENSIONS

FACTOR	NUMBER OF ITEMS	ITEMS	RELIABILITY COEFFICIENT (ALPHAS) <sup>a</sup>			
			B	CC	R&M	LDT
F1-TANGIBLES	4	Q1 Q2 Q3 Q4	0.52	0.62	0.64	0.64
F2-RELIABILITY	5	Q5 Q6 Q7 Q8 Q9	0.80	0.78	0.84	0.74
F3-RESPONSIVENESS	4	Q10 Q11 Q12 Q13	0.72	0.69	0.76	0.70
F4-ASSURANCE	4	Q14 Q15 Q16 Q17	0.84	0.80	0.87	0.84
F5-EMPATHY	5	Q18 Q19 Q20 Q21 Q22	0.71	0.80	0.72	0.76
RELIABILITY OF LINEAR COMBINATION			0.87	0.89	0.90	0.88

a B = Bank; C = Credit Card Company; R&M = Repair and Maintenance Company; LDT = Long Distance Telephone Company.

provides a one-way analysis of variance using three categories of the overall quality variable.

The difference among groups is significant at the 0.01 level. As anticipated, higher levels of perceived service quality are associated with more favorable global assessments of quality. Pair-wise analyses of perceived service quality means were conducted using Duncan's multiple range test. Significant relationships were found between excellent and good categories and excellent and fair categories.

It appears that H2 is confirmed. Service quality as measured by the adapted scale is positively related to the global measure of quality in this medical services setting.

TABLE XXII  
ANALYSIS OF VARIANCE BETWEEN ADAPTED SCALE  
AND OVERALL QUALITY CATEGORIES

SOURCE	df	SS	MS	F-RATIO
BETWEEN GROUPS	2	33.67	16.84	22.64 (p<.000)
WITHIN GROUPS	156	116.00	.74	
TOTAL	158	149.68		

### Behavioral Intent and Perceived Service Quality

- H3: Behavioral intent regarding medical care services relates to perceived service quality.
- A. Intent to repurchase is positively related to perceived service quality.
  - B. Intent to compliment is positively related to perceived service quality.
  - C. Intent to complain is negatively related to perceived service quality.
  - D. Intent to switch providers is negatively related to perceived service quality.
  - E. Intent to not use any service is negatively related to perceived service quality.

The above hypothesized relationships between perceived service quality and various consumer intentions postulate that perceived higher service quality will generate favorable intentions (e.g. repurchase, complimenting) and that perceived lower service quality will lead to unfavorable intentions (e.g. complaining, switching, and non-use of any services). Each of the sub-hypotheses posed in H3 was tested by regression analysis using the relevant intention as the dependent variable and the perceived service quality score as the independent variable.

Table XXIII indicates results of the respective regression analyses of behavioral intents and perceived service quality. Six of the eight regression models are statistically significant at the 0.01 level. No statistically significant relationships were found for "complain to medical society" and "not use any provider." The t-test for beta values are not reported since bi-variate models were employed.

The  $R^2$  values for the various models indicated explained variation ranging from 23.0 percent to 8.0 percent for the statistically significant models. Additionally, the directional relationships between intent and perceived service quality as noted by the signs of beta

TABLE XXIII  
REGRESSION ANALYSIS OF BEHAVIORAL INTENTS  
WITH PERCEIVED SERVICE QUALITY

INTENT	MEAN INTENT SCORE <sup>a</sup>	CONSTANT	STD BETA	F-VALUE	R <sup>2</sup>
Return, see same physician	6.74	6.81	+0.47	43.98 (p<.000)	0.22
Recommend to family/friends	6.43	6.54	+0.48	47.02 (p<.000)	0.23
Compliment clinic management	5.75	5.83	+0.29	13.71 (p<.000)	0.08
Complain to family/friends	1.50	1.41	-0.42	33.15 (p<.000)	0.18
Complain to clinic management	1.28	1.24	-0.28	12.64 (p<.001)	0.08
Complain to medical society	1.09	-	-	-	0.02
Seek care elsewhere	1.44	1.36	-0.37	24.84 (p<.000)	0.13
Not use any provider	1.47	-	-	-	0.00

<sup>a</sup> Intent scale ranged from 7=definitely to 1=definitely not.

weights are as hypothesized.

General conclusions from this regression analysis indicate that hypothesized directional relations between perceived service quality and various behavioral intents of consumers of medical care services are confirmed. Most of the relationships examined are significant, but have weak explanatory power.

#### Behavioral Intent and Dimensional Importance

H4: The relative importance of service quality dimensions in explaining behavioral intent to use medical services will differ among behavioral intent alternatives.

The hypothesized relationship for perceived service quality dimensions and various behavioral intents suggests that as behavioral intent changes, dimensional elements of perceived service quality will have differential importance. Regression analysis was used to investigate these relationships for the medical care sample. Intentions are treated as dependent variables and mean sub-scale scores for each of the six dimensions are used as independent variables. Since any or all of the sub-scale dimensions may show a relationship with a given behavioral intent, stepwise entry of independent variables was used in constructing the various regression models. Table XXIV reflects relationships found and the order of entry for each sub-scale dimension.

It appears that intentions can be explained by use of service quality dimensions. Significant relationships were found for every intention except "not use any provider." Additionally, in every instance but one, the  $R^2$  values equaled or exceeded those provided by using the 22 item summated scale (see Table XXIII ). Of greater importance, are the dimensions found to be statistically significant

TABLE XXIV  
REGRESSION ANALYSIS OF BEHAVIORAL INTENTS  
WITH UNDERLYING DIMENSIONAL STRUCTURE  
OF SERVICE QUALITY<sup>a</sup>

INTENT	DIMENSION	CONSTANT	STD BETA	t-VALUE	F-VALUE	R <sup>2</sup>
Return, see same physician	F1 Dependability	6.91	+0.25	2.75	17.43	0.26 (p<.000)
	F3 Reliability		+0.19	2.25		
	F2 Empathy		+0.18	2.14		
Recommend to family/friends	F1 Dependability	6.76	+0.32	3.81	26.72	0.26 (p<.000)
	F3 Reliability		+0.26	3.06		
Compliment clinic management	F2 Empathy	5.71	+0.27	3.41	11.65	0.07 (p<.001)
Complain to family/friends	F3 Reliability	1.26	-0.27	-3.08	16.54	0.18 (p<.000)
	F6 Presentation		-0.21	-2.38		
Complain to clinic management	F3 Reliability	1.16	-0.29	-3.70	13.69	0.08 (p<.000)
Complain to medical society	F5 Tangibles	1.12	-0.19	-2.43	5.88	0.04 (p<.016)
Seek care elsewhere	F1 Dependability	1.31	-0.26	-2.96	13.35	0.15 (p<.000)
	F2 Empathy		-0.19	-2.14		
Not use any provider	No variables entered using the stepwise procedure.					

<sup>a</sup> Six dimensions with multiple-items were used.



among the intentions. Reliability appeared in four models, followed by Dependability and Empathy each in three models. The dimensions just mentioned show a significant relationship with perceived service quality and most behavioral intents under study. The literature suggests some importance for reliability, dependability and empathy as factors that influence consumer action (Ware, et al. 1978). This research confirms this association.

Only one dimension did not enter the regression models as an explanatory variable. Responsiveness does not appear to be useful in explaining differential behavior of consumers in a medical care setting.

#### Demographic Analysis

This research does not suggest hypothesized relationships between perceived service quality and demographic variables. It is, however, useful to investigate for patterns of association between perceived service quality and demographic characteristics as a matter of clarification. Chi-square analysis was used to examine the patterns of association between levels of perceived service quality and various demographic variables. The continuous perceived service quality scale was converted to a categorical scale by designating one point increments along the -6.00 to +6.00 possibility of continuous values. Crosstabulation was used to compare levels of perceived service quality and the various categorical responses of the demographic characteristics of the sample. Results of the analysis are reported as patterns of association without significance noted due to a large number of small cells for the various categories.

Generally, the more educated the respondent, the more frequently

they perceive negative service quality. As educational level increases, there is a marked predominance of negative service quality perceptions. Individuals with a college education generally perceive negative service quality. Respondents with less than a college education do not show this marked difference between positive and negative perceptions of service quality.

Age of the respondent appears to associate with different perceptions of service quality. Older age groups tend to rate service quality as more positive than do the younger age groups. Even when considering the older nature of the sample, patterns of positive versus negative service quality shows an association with age of the respondent.

Income level and perceptions of service quality show a pattern suggesting a relationship. Respondents indicating a lower income also indicate a generally positive attitude regarding service quality. As income rises, the perceptions of service quality switch to the negative. Specifically, those with incomes below \$10,000 per year predominantly report positive perceptions of service quality. Individuals reporting between \$10,000 and \$30,000 annual household income report a relatively even split between positive and negative service quality. When income rises above the \$30,000 level for the household, the dominant perception of service quality is negative.

These findings that suggest connections for perceived service quality with education, age, and income that are consistent with the literature (Ware, 1983) that generally reports a connection between patient satisfaction and socio-demographic variables. Sex of respondent, size of household, number in the family under 18 years of

age, occupation, employment status, marital status, health status, and insurance coverage do not show any distinctive patterns of association with either positive or negative perceptions of service quality for this sample.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

This chapter provides a summary of literature, research methodology, and findings. In addition, limitations of the research, contributions to marketing, and recommendations for future research are presented.

#### Overview of Supporting Literature

A basic dilemma facing all medical care providers is increased competition. As a result of intensifying competitive activity in the medical services arena, service providers are seeking opinions and attitudes of consumers of services as an avenue to discover and establish strategic advantage. This shift in status and role for the medical care service recipient is a major force behind the providers adoption of a market based approach to care delivery.

Research outlined here focuses on the study of perceived service quality attitudes regarding primary medical care services and their association with specific behavioral intent categories in a competitive multi-specialty urban clinic environment. Literature from consumer satisfaction/ dissatisfaction, patient satisfaction, service quality, and behavioral intent areas all contribute to our understanding of how attitudes regarding quality are formed and in what ways these attitudes are strategically important.

The satisfaction/ dissatisfaction literature provides the basic paradigm for research. A comparison, or discrepancy, approach between expectations and perceptions of outcome is felt to be most useful in understanding satisfaction. Patient satisfaction, as a specifically applied instance of consumer satisfaction, has made strides in clarifying the constructs that underlie satisfaction in the medical care field. Recently, the service quality construct emerged in marketing literature as a model of quality and with a scale for measuring perceived service quality. Similarities between satisfaction and quality literature and constructs have not been investigated, nor has service quality been widely applied to medical care services. The research reported here involves the adaptation and extension of the initial service quality scale development efforts of Parasuraman, Zeithaml, and Berry (1986, 1988). These authors suggest that the SERVQUAL scale is a reliable measure of perceived service quality. Initial scale development used samples of credit card, telephone, auto repair, and banking consumers to establish scale reliability and validity. Adaptation of the scale for the medical services setting extends initial validity claims, offers additional support for the reliability of the scale, and examines dimensionality in an alternate setting. An extension is reported that establishes basic connections between service quality and behavioral intent of consumers, thus clarifying basic intuitive patterns of association for quality and consumer behavior.

#### Research Methodology

Randomly selected adults were identified from appointment listings

of a large mid-western multi-specialty clinic during the summer months of 1989. A sample size of 159 usable matched pre-encounter and post-encounter responses from the patient populations of eleven primary care physicians form the data base for this research. Possible confounding factors such as location, physical facilities, payment mechanisms, and physician speciality are more consistently controlled with this single, large clinic operation as opposed to multiple clinic sites.

A mail survey format was used to facilitate the collection of matched pairs of expectations and perceptions of outcome. Patients with near-term appointments were contacted by mail prior to a scheduled appointment and asked to complete a pre-encounter questionnaire that sought their general expectations regarding any medical care provider, and some basic demographic data. After the service encounter was completed, a post-encounter scale was given to the patient by clinic staff, with a return mail envelope. The post-encounter scale asked for their opinions regarding the recent specific medical service encounter, their judgment of overall quality, and their judgment as to the likelihood of various behaviors resulting from their recent service experience.

The adapted version of the SERVQUAL scale used in this research closely follows the 22 item, seven point Likert scale format suggested by Parasuraman, Zeithaml, and Berry (1988) for measuring perceived service quality. Expectation statements seek to establish an initial level of attitude regarding medical care service providers. Outcome perceptions reference a specific provider of medical care services in a specific care experience.

In addition to adapted expectation and perception scales,

respondents were asked to give their overall rating (excellent, good, fair, poor) of service quality regarding the recent medical care service encounter. Also, basic intent categories of repurchase, complimenting, complaining, switching of providers, and non-use of any services were measured. Finally, a range of demographic variables were included for qualification of current data.

### Research Hypotheses and Findings

Hypotheses that address the adapted scale properties and it's dimensionality, reliability, and validity for medical care services are:

- H1: The dimensional structure for the SERVQUAL scale as adapted to the medical services setting will match the dimensional structure found in the non-medical areas of service settings.
- H2: Overall quality is positively related to perceived service quality as a multi-dimensional construct.

The adapted scale's reliability has been shown to be comparable with non-medical sample results. Cronbach's alpha for this medical sample is 0.87 and reflects that the 22 item adapted scale is a reliable measure of perceived service quality in a medical service settings. Factor analysis was used to identify underlying dimensions of perceived service quality. The dimensions identified in this research differ from those reported earlier for non-medical settings. While individual items in the medical care sample are grouped differently than in the original developmental samples, the dimensional structures are similar in many ways.

The second hypothesis of this research considers the convergent validity of the adapted scale and seeks confirmation of a relationship between perceived service quality and overall quality in a medical services setting. Analysis of variance confirms a significant relation

between perceived quality and levels of overall quality in the medical services sample. This finding is consistent with the nature of the convergent validity suggested at the time of the scales original reporting.

- H3: Behavioral intent regarding medical care services relates to perceived service quality.
- A. Intent to repurchase is positively related to perceived service quality.
  - B. Intent to compliment is positively related to perceived service quality.
  - C. Intent to complain is negatively related to perceived service quality.
  - D. Intent to switch providers is negatively related to perceived service quality.
  - E. Intent to not use any service is negatively related to perceived service quality.

Much of current marketing action is based on the assumption that the perception of service quality (either positive or negative) by a consumer is connected to future consumer behavior. Logic would indicate that perceived positive service quality would most associate with a repurchase or complimenting intent for the consumer, and that perceived negative service quality would most associate with consumer behaviors of complaining, switching providers, and non-use of services. This research measured the strength of behavioral intent regarding a range of future actions for a medical care sample. Regression analysis was used to investigate the strength of association between various behavioral intents and the directional relationships. Results indicate that significant relationships exist between perceived service quality and intent to repurchase, compliment, complain, recommend, switch, and not use services.

- H4: The relative importance of service quality dimensions in explaining behavioral intention to use medical services will differ among behavioral intent alternatives.

This hypothesis suggests that underlying dimensions of perceived



service quality have different relationships with various behavioral intents. A series of regression analyses, using various behavioral intent measures as dependent variables and the multi-item dimensions of the adapted scale as independent variables, indicate the dimensional importance and patterns of association for various behavioral intents.

Findings indicate that dependability, empathy, and reliability are the most useful dimensions of service quality in predicting behavioral intent of medical care consumers. All regression equations developed show significant relationships between the various dimensional elements and selected behavioral intent. Variance explained is low, but connections between behavioral intent and perceived service quality dimensions adds a level of statistical creditability to the basic intuitive operational relationships.

#### Contributions to Marketing Knowledge

Any adaptation, if done with sound research procedure, has the potential for making a contribution to our knowledge base. This adaptation has accomplished at least this first line of scientific usefulness. The adapted perceived service quality measurement scale has shown to be equally reliable in a medical service setting as it is in non-medical service settings. This should encourage further application of the scale in medical and non-medical settings.

This research effort also established a dimensional sub-structure for the service quality construct in a medical services setting. While the structure found is not entirely consistent with the dimensional structure outlined by the scale developers, there are definite similarities in the dimensional structures found.

Convergent validity was established for the adapted scale in the medical services setting. Both convergent and face validity are suggested by this research for the adapted scale. Coupled with earlier reliability findings, it would suggest a useful adaptation of the SERVQUAL scale for medical care services research.

As an extension, this research effort establishes that a relationship between perceived service quality and a range of basic consumer behavior intentions does exist. The research does produce significant relationships between perceived service quality and repeat purchase, complaining behavior, complimenting behavior, and switching behavior. The low explanatory power of relationships found suggests caution in their full acceptance, but the intuitive and statistical relationships have appeal for development of strategic approaches in the medical services arena.

As a secondary point, this research reaffirms connections cited in the literature for certain demographic variables and perceptions of service quality. Findings of the research indicate a relation between education, age, and income and perceived quality that are consistent with those reported using other measures of quality for medical services.

#### Limitations of Research

The most obvious limitation of the research is its focus on primary care medical care services. While the authors of the SERVQUAL scale do suggest that perceived service quality as measured by the scale is a service specific concern, the use of a single sample of primary care patients does limit generalizability of any specific findings. Basic

findings of scale reliability and convergent validity in an alternate setting are scientifically sound, but narrow in focus.

Dimensionality of service quality in a medical services setting is examined, but with only one sample, this dimensionality has only limited generalizability to the broader medical services field. While the dimensional structure is similar between the medical care sample and the original samples, it does have differences. This casts doubt on the complete transferability of the scale.

A second limitation centers on the older nature of the respondents in the sample. It can be argued that the generation represented here has a different reverence for medical service providers than do younger age groups. If the older consumer does have a more favorable opinion of medical service quality, the research has only captured the dimensional structure and behavioral intent relations for this older population with any certainty. The expression of these findings as being widely generalizable must be tempered with this potential age bias.

At this point, it is misleading to place great stock in findings of convergent validity. Findings reported here are consistent with results in the developmental samples, but both research efforts have similar problems with lack of category size for fair and poor responses to an overall quality question. With only limited numbers of responses, analysis of variance on which findings of convergent validity are built becomes strained. Without ample cases in all categories, the clear relation between perceived service quality and overall quality is not known, nor is the relationship that is found fully believable.

### Recommendations for Future Research

With the narrow focus of the sample used here the most obvious future research would be to replicate the work in other medical service settings. This would put claims of reliability and validity to a more rigorous test and solidify claims for scale properties in measuring perceived service quality in medical services settings.

The model of service quality on which the dimensional structure and the measurement scale are based has been only partially addressed. To develop a more complete picture of perceived service quality in any service setting, the full model should be tested. This suggests the need to measure provider opinions regarding service quality and to incorporate these findings with consumer opinions and attitudes. A preliminary effort has been reported that measures provider aspects of service quality using gap analysis (Brown and Swartz, 1989). By assessing provider perceptions of service quality and coupling these with consumer perceptions, a more strategically relevant picture can be developed.

Along these same lines, the elements that are cited in the model as influencing consumer expectations (word of mouth; personal need; past experience) should be considered in some detail. Research reported here attempts to hold these factors constant and focus on scale properties. Future research should address the impact that varying levels of word of mouth creditability, personal medical need, and past experience with the provider and the medical care system have on the formation of expectations.

Comparison of findings for perceived service quality should be made with findings of quality as measured using other multi-item quality

measurement scales. Other scales that measure patient satisfaction using a global measure to assess perceptions of quality should be compared with the adapted scale. To best argue for either scale, the scales would need to be used to measure quality in the same or very similar samples and service settings and compare respective reliability, validity, and predictive properties.

Literature suggests that outcome is affected by the degree of participation by the consumer in the delivery process. With consumers developing a more involved approach to health and medical care, it would be useful to explore the relation that participation level has on perceived service quality. Speculation would suggest that higher levels of participation by the consumer could result in more favorable quality assessments. With this approach, the level of involvement of the consumer can be used to predict service quality.

In addition, investigation of the varying impact that process and technical factors of a service have on level of perceived service quality would be of importance. Findings of this research indicate a distinct importance for the process aspects of a service. The adapted scale relies heavily on process oriented items to measure perceived quality. In the medical services field, the necessity of at least acceptable medical outcome should not be ignored. Some study of the role that medical outcome or technical elements play in formation of service quality perceptions seems necessary.

## REFERENCES

- \* Aiello, A., J. A. Czepiel, and L. A. Rosenberg (1977), "Scaling the Heights of Consumer Satisfaction: An Evaluation of Alternative Methods," in R. L. Day (ed.) Consumer Satisfaction, Dissatisfaction and Complaining Behavior, Bloomington, IN: Indiana University Press 43-50.
- Ajzen, Icek and Martin Fishbein (1980), Understanding Attitudes and Predicting Social Behavior, Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Anderson, Carl and Carl P. Zeithaml (1984), "Stage of the Product Life Cycle, Business Strategy, and Business Performance," Academy of Management Journal, 27 (March), 5-24.
- Anderson, Douglas C. (1982), "The Satisfied Consumer: Service Return Behavior in the Hospital Obstetrics Market," Journal of Health Care Marketing, 2, (Fall), 25-33.
- Ashcraft, M., et al., (1978), "Expectations and Experience of HMO Enrollees After One Year: An Analysis of Satisfaction, Utilization, and Costs," Medical Care, 16, 14-32.
- \* Bearden, William O., and Jesse E. Teel (1983), "Selected Determinants of Consumer Satisfaction and Complaint Reports," Journal of Marketing Research, 20, (November), 21-28.
- Bearden, William O., and Richard L. Oliver (1985), "The Role of Public and Private Complaining in Satisfaction with Problem Resolution," Journal of Consumer Affairs, 19, 222-240.
- Brown, Stephen W. and Teresa A. Swartz (1989), "A Gap Analysis of Professional Service Quality," Journal of Marketing, 53, (April), 92-98.
- Campbell, Donald T., and Julian C. Stanley (1963), Experimental and Quasi-Experimental Designs for Research, Boston, MA.: Houghton Mifflin Company.
- Christensen, Donald E. and Thomas D. Giese (1988), "Research in Brief: Assessment and Application of Patient Satisfaction Variables in Marketing a Psychiatric Practice," Journal of Health Care Marketing, 8 (September), 47-49.

- Churchill, Gilbert A., Jr., (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," Journal of Marketing Research, 16 (February), 64-73.
- Churchill, Gilbert A., Jr. and Carol Surprenant (1982), "An Investigation into the Determinants of Consumer Satisfaction," Journal of Marketing Research, 19 (November), 491-504.
- Cleary, Paul D. and Barbara J. McNeil (1988), "Patient Satisfaction as an Indicator of Quality Care," Inquiry, 25 (Spring), 25-36.
- Comstock, L.M., E.M. Hooper, J.M. Goodwin and J.S. Goodwin (1982), "Physician Behaviors that Correlate with Patient Satisfaction," Journal of Medical Education, 57 (February), 105-112.
- Curry, David J. (1985), "Measuring Price and Quality Competition," Journal of Marketing, 49 (Spring), 106-117.
- Czepiel, John A. and Larry M. Rosenberg (1977), "The Study of Consumer Satisfaction: Addressing the 'So What' Question," in H. Kent Hunt, ed., Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction, Cambridge, MA: Marketing Science Institute, 92-119.
- ✓ Day, Ralph L. (1977), "Toward a Process Model of Consumer Satisfaction," in H. Kent Hunt, ed., Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction, Cambridge, MA: Marketing Science Institute, 153-183.
- Dodds, William B. and Kent B. Monroe (1984), "The Effect of Brand and Price Information on Subjective Product Evaluations," Advances in Consumer Research XII.
- Fox, J.G., and D.M. Storms (1981), "A Different Approach to Socio-demographic Predictors of Satisfaction with Health Care," Social Science and Medicine, 15A, 557-564.
- Garvin, David A. (1983), "Quality on the Line," Harvard Business Review, 61 (September/October), 65-73.
- \_\_\_\_\_ (1988), Managing Quality. New York: The Free Press.
- Ginsburg, Paul B. and Glenn T. Hammons (1988), "Competition and the Quality of Care: The Importance of Information," Inquiry, 25 (Spring), 108-115.
- Gould, Stephen J. (1988), "Consumer Attitudes Toward Health and Health Care: A Differential Perspective," Journal of Consumer Affairs, 22, (Summer), 96-118.
- Green, J.Y., M. Weinberger, and J.J. Mamlin (1980), "Patient Attitudes Toward Health Care: Expectations of Primary care in a Clinic Setting," Social Science and Medicine, 14A, 133-138.

- \* Gronroos, Christian (1982), "A Service Quality Model and Its Marketing Implications," European Journal of Marketing, 18 (4), 36-44.
- Holbrook, Morris B. and Kim P. Corfman (1985), "Quality and Value in the Consumption Experience: Phaldrus Rides Again," in Perceived Quality, J. Jacoby and J. Olson (eds.), Lexington, MA.: Lexington Books, 31-57.
- Hunt, H. Kent (1977a), "CS/D Bits and Pieces," in R. L. Day, ed., Consumer Satisfaction, Dissatisfaction and Complaining Behavior, Bloomington, IN: Indiana University Press, 38-41.
- \_\_\_\_\_ (1977b), "CS/D--Overview and Future Research Directions," in H. Kent Hunt, ed., Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction, Cambridge, MA: Marketing Science Institute, 455-488.
- Jacoby, J. and J. Olson, eds. (1985), Perceived Quality, Lexington, MA: Lexington Books.
- Korsch, B.M., E.K. Gozzi, and V. Francis (1968), "Gaps in Doctor-Patient Communication," Pediatrics, 42, 855-869.
- Kotler, Philip and Roberta N. Clarke (1987), Marketing for Health Care Organizations, Englewood Cliffs, New Jersey: Prentice-Hall, Inc..
- Larsen, D.E., and I. Rootman (1976), "Physician Role Performance and Patient Satisfaction," Social Science and Medicine, 10, 29-32.
- Larsen, D.L., C.C. Attkission, W.A. Hargraves and T.D. Nguyen (1979), "Assessment of Client/Patient Satisfaction in Human Service Programs: Development of a General Scale," Evaluation and Program Planning, 2, 197-207.
- LaTour, Stephen A. and Nancy C. Peat (1979), "Conceptual and Methodological Issues in Satisfaction Research," in William L. Wilkie, ed., Advances in Consumer Research, 6, Ann Arbor, MI: Association for Consumer Research, 431-437.
- Lebow, Jay L., (1974), "Consumer Assessments of the Quality of Medical Care," Medical Care, 12, 328-337.
- \_\_\_\_\_ (1983), "Similarities and Differences Between Mental Health and Health Care Evaluation Studies Assessing Consumer Satisfaction," Evaluation and Program Planning, 6, 237-245.
- \* Lehtinen, Uolevi and Jarmo R. Lehtinen (1982), "Service Quality: A Study of Quality Dimensions," unpublished working paper, Helsinki: Service Management Institute, Finland, OY.



- Lewis, Robert C. and David M. Klein (1987), "The Measurement of Gaps in Service Quality," in The Services Challenge: Integrating for Competitive Advantage, J.A. Czepiel, C. A. Congram, and J. Shanahan (eds.), Chicago: American Marketing Association, 33-38.
- Linder-Plez, S. (1982), "Toward a Theory of Patient Satisfaction," Social Science and Medicine, 16, 577-582.
- Marquis, M.S., A.R. Davies and J.E. Ware, Jr. (1982), "Patient Satisfaction and Change in Medical Care Provider: A Longitudinal Study," Medical Care,
- \* Miller, J. A. (1977), "Studying Satisfaction, Modifying Models, Eliciting Expectations, Posing Problems, and Making Meaningful Measurements," in H. K. Hunt (ed.) Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction. Cambridge, MA.: Marketing Science Institute.
- Nguyen, T. D., C. C. Attkisson, and B. L. Stegner (1983), "Assessment of Patient Satisfaction: Development and Refinement of Service Evaluation Questionnaire," Evaluation and Program Planning, 6, 299-314.
- Nunnally, Jim C. (1978), Psychometric Theory, 2nd ed., New York: McGraw-Hill Book Co.
- \* Oliver, Richard L. (1980), "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions," Journal of Marketing Research, 17 (November), 460-469.
- \* \_\_\_\_\_ (1981), "Measurement and Evaluation of Satisfaction Processes in Retail Settings," Journal of Retailing, 57 (Fall), 25-48.
- Olshavsky, Richard W. (1985), "Perceived Quality in Consumer Decision Making: An Integrated Theoretical Perspective," in Perceived Quality, J. Jacoby and J. Olson (eds.), Lexington, MA: Lexington Books, 3-29.
- \* Parasuraman, A., Valarie A. Zeithaml, Leonard L. Berry (1985), "A Conceptual Model of Service Quality and Its Implications for Future Research," Journal of Marketing, 49 (Fall), 41-50.
- \_\_\_\_\_ (1986), "SERVQUAL: A Multiple Item Scale for Measuring Customer Perceptions of Service Quality," Report No. 86-108, Cambridge, MA: Marketing Science Institute.
- \_\_\_\_\_ (1988), "SERVQUAL: A Multiple Item Scale for Measuring Customer Perceptions of Service Quality," Journal of Retailing, 64 (Spring), 12-40.

- Pascoe, Gregory C. (1983), "Patient Satisfaction in Primary Health Care: A Literature Review and Analysis," Evaluation and Program Planning, 6, 185-210.
- \* Pascoe, G.C. and C.C. Attkisson (1983), "The Evaluation Ranking Scale: A New Methodology for Assessing Satisfaction," Evaluation and Program Planning, 6, 335-347.
- Penchansky, R. and J.W. Thomas (1981), "The Concept of Access - Definition and Relation to Patient Satisfaction," Medical Care, 19 (February), 127-140.
- Phillips, Lynn W., Dae R. Chang, and Robert D. Buzzell (1983), "Product Quality, Cost Position, and Business Performance: A Test of Some Key Hypotheses," Journal of Marketing, 47 (Spring), 26-43.
- Pope, C. (1978), "Consumer Satisfaction in a Health Maintenance Organization," Journal of Health and Social Behavior, 19, 291-303.
- Reddy, Jack (1980), "Incorporating Quality in Competitive Strategies," Sloan Management Review, 21 (Spring), 53-60.
- Riesz, Peter C. (1978), "Price Versus Quality in the Marketplace, 1961-1975," Journal of Retailing, 54 (Winter), 15-28.
- Roberts, R. E., G. C. Pascoe, and C. C. Attkisson (1983), "Relationship of Service Satisfaction to Life Satisfaction and Perceived Wellness," Evaluation and Program Planning, 6, 373-383.
- Roghmann, K.J., A. Hengst and T.R. Zastowny (1979), "Satisfaction with Medical Care: Its Measurement and Relation to Utilization," Medical Care, 17, 461-479.
- Ross, Caroline K., Gayle Frommelt, Lisa Hazelwood, and Rowland W. Chang (1987), "The Role Expectations in Patient Satisfaction with Medical Care," Journal of Health Care Marketing, 7 (December), 16-26.
- \* Sasser, W. Earl, Jr., R. Paul Olsen, and D. Daryl Wyckoff (1978), Management of Service Organizations: Text and Cases, Boston: Allyn and Bacon.
- Scammon, Debra, and Lon Kennard (1983), "Improving Health Care Strategy Planning Through Assessment of Perceptions of Consumers, Providers and Administrators," Journal of Health Care Marketing, 3, (Fall), 9-17.
- Singh, Jagdip (1988), "Consumer Complaint Intentions and Behavior: Definitional and Taxonomical Issues," Journal of Marketing, 52, (January), 93-107.
- Sorensen, A.A. and R.P. Wersinger (1981), "Factors Influencing Disenrollment from an HMO," Medical Care, 19, 766-773.

- Stewart, M. A. and J. Wanklin (1978), "Direct and Indirect Measures of Patient Satisfaction with Physicians' Services," Journal of Community Health, 3, 195-204.
- ✱ Thompson, Phillip, Glenn DeSouza, and Bradley T. Gale (1985), "The Strategic Management of Service Quality," Quality Progress, 18, (June), 20-25.
- Tse, David K. and Peter C. Wilton (1988), "Models of Consumer Satisfaction Formation: An Extension," Journal of Marketing Research, 25, (May), 204-212.
- Tucker, F.G., and J.B. Tucker (1985), "An Evaluation of Patient Satisfaction and Levels of Physician Training," Journal of Health Care Marketing, 5, (Summer), 31-38.
- Ware, John E., Jr., Allyson Davies-Avery, and Anita L. Stewart (1978), "The Measurement and Meaning of Patient Satisfaction," Health and Medical Care Services Review, 1, (January/February), 1-15.
- Ware, John E., Jr., M. K. Snyder, W. R. Wright and A. R. Davies (1983), "Defining and Measuring Patient Satisfaction with Medical Care," Evaluation and Program Planning, 6, 247-263.
- Warshaw, Paul R. (1980), "Predicting Purchase and Other Behaviors from General and Contextually Specific Intentions," Journal of Marketing Research, 17, (February), 26-33.
- Weinberger, M., J.Y. Greene, and J.J. Mamlin (1981a), "The Impact of Clinical Encounter Events on Patient and Physician Satisfaction," Social Science and Medicine, 15E, 239-244.
- \_\_\_\_\_ (1981b), "Patient Perceptions of Health Care at a University-Based Ambulatory Care Clinic," The Journal of Ambulatory Care Management, 4, 55-64.
- Westbrook, Robert A. and Joseph A. Cote, Jr. (1980), "An Exploratory Study of Non-Product-Related Influences Upon Consumer Satisfaction," in Jerry C. Olson, ed., Advances in Consumer Research, 7, Ann Arbor, MI: Association for Consumer Research, 577-581.
- Wheatley, John J., John S. Y. Chiu, and Arie Goldman (1981), "Physical Quality, Price, and Perceptions of Product Quality: Implications for Retailers," Journal of Retailing, 57 (Summer), 100-116.
- Woodfuff, Robert B., Ernest R. Candotte, and Roger L. Jenkins (1983), "Modeling Consumer Satisfaction Processes Using Experienced-Based Norms," Journal of Marketing Research, 20 (August), 296-304.
- Zastowny, T.R., K.L. Roghmann, and A. Hengst (1983), "Satisfaction with Medical Care: Replications and Theoretic Reevaluation," Medical Care, 21, 294-322.

Zeithaml, Valarie A., Leonard L. Berry, and A. Parasuraman (1988),  
"Communication and Control Processes in the Delivery of Service  
Quality," Journal of Marketing, 52, (April), 35-48.

Zeithaml, Valarie (1987), Defining and Relating Price, Perceived  
Quality, and Perceived Value, Report No. 87-101, Cambridge, MA:  
Marketing Science Institute.

Zeithaml, Valarie A., A. Parasuraman, and Leonard L. Berry (1985),  
"Problems and Strategies in Services Marketing," Journal of  
Marketing, 49 (Spring), 33-46.

APPENDIX A  
THE SERVQUAL INSTRUMENT

THE SERVQUAL INSTRUMENT<sup>a</sup>

## EXPECTATIONS SCALE

DIRECTIONS: This survey deals with your opinions of \_\_\_\_\_ services. Please show the extent you think firms offering \_\_\_\_\_ services should possess the features described by each statement. Do this by picking one of the seven numbers next to each statement. If you strongly agree that these firms should possess a feature, circle the number 7. If you strongly disagree that these firms should possess a feature, circle 1. If your feelings are not strong, circle one of the numbers in the middle. There are no right or wrong answers -- all we are interested in is a number that best shows your expectations about firms offering \_\_\_\_\_ services.

- E1. They should have up-to-date equipment.
- E2. Their physical facilities should be visually appealing.
- E3. Their employees should be well dressed and appear neat.
- E4. The appearance of the physical facilities of these firms should be in keeping with the type of service provided.
- E5. When these firms promise to do something by a certain time, they should do so.
- E6. When customers have problems, these firms should be sympathetic and reassuring.
- E7. These firms should be dependable.
- E8. They should provide their services at the time they promise to do so.
- E9. They should keep their records accurately.
- E10. They shouldn't be expected to tell customers exactly when services will be performed. (-)<sup>b</sup>
- E11. It is not realistic for customers to expect prompt service from employees of these firms. (-)
- E12. Their employees don't always have to be willing to help customers. (-)

- E13. It is okay if they are too busy to respond to customer requests promptly. (-)
- E14. Customers should be able to trust employees of these firms.
- E15. Customers should be able to feel safe in their transactions with these firms' employees.
- E16. Their employees should be polite.
- E17. Their employees should get adequate support from these firms to do their jobs well.
- E18. These firms should not be expected to give customers individual attention. (-)
- E19. Employees of these firms cannot be expected to give customers personal attention. (-)
- E20. It is unrealistic to expect employees to know what the needs of their customers are. (-)
- E21. It is unrealistic to expect these firms to have their customers' best interests at heart. (-)
- E22. They shouldn't be expected to have operating hours convenient to all their customers. (-)

#### PERCEPTIONS SCALE

DIRECTIONS: The following set of statements relate to your feelings about XYZ. For each statement, please show the extent to which you believe XYZ has the feature described by the statement. Once again, circling a 7 means that you strongly agree that XYZ has that feature, and circling a 1 means that you strongly disagree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers -- all we are interested in is a number that best shows your perceptions about XYZ.

- P1. XYZ has up-to-date equipment.
- P2. XYZ's physical facilities are visually appealing.
- P3. XYZ's employees are well dressed and appear neat.
- P4. The appearance of the physical facilities of XYZ is in keeping with the type of services provided.

- P5. When XYZ promises to do something by a certain time, it does so.
- P6. When you have problems, XYZ is sympathetic and reassuring.
- P7. XYZ is dependable.
- P8. XYZ provides it's services at the time it promises to do so.
- P9. XYZ keeps it's records accurately.
- P10. XYZ does not tell customers exactly when services will be performed. (-)
- P11. You do not receive prompt service from XYZ's employees.(-)
- P12. Employees of XYZ are not always willing to help customers. (-)
- P13. Employees of XYZ are too busy to respond to customer requests promptly. (-)
- P14. You can trust employees of XYZ.
- P15. You feel safe in your transactions with XYZ's employees.
- P16. Employees of XYZ are polite.
- P17. Employees get adequate support from XYZ to do their jobs well.
- P18. XYZ does not give you personal attention. (-)
- P19. Employees of XYZ do not give you personal attention. (-)
- P20. Employees of XYZ do not know what your needs are. (-)
- P21. XYZ does not have your best interests at heart. (-)
- P22. XYZ does not have operating hours convenient to all their customers. (-)

<sup>a</sup> A seven-point scale ranging from "Strongly Agree" (7) to "Strongly Disagree" (1), with no verbal labels for the intermediate scale points (ie., 2 through 6), accompanied each statement. Also, the statements were in random order in the questionnaire.

<sup>b</sup> Ratings on these statements were reverse-scored prior to data analysis.



APPENDIX B  
PRE-ENCOUNTER SURVEY



Dear Patient:

In conjunction with The Wichita State University we are conducting a survey about what patients expect from health care providers. Enclosed is the first part of a two-part survey. You will receive the second part at the time of your Clinic visit.

We would appreciate your completing the questionnaire, sealing it in the return envelope and bringing it with you to your scheduled Clinic visit.

Your responses will remain anonymous and we sincerely appreciate your cooperation and input.

Sincerely,

A handwritten signature in cursive script that reads "Lloyd M. Hummer, M.D.".

Lloyd M. Hummer, M.D.  
Medical Director

## OPINION SURVEY

This survey deals with your opinions of medical care services in general. Please show the extent to which you think any providers of medical care services should possess the features described by each statement that follows. Do this by picking one of the seven numbers following each statement. If you strongly agree that medical service providers should possess a feature mentioned, circle the number seven (7). If you strongly disagree that medical service providers should possess a feature mentioned, circle one (1). If your feelings are not strong, circle one of the numbers in the middle. There are no right or wrong answers. All we are interested in is a number that best shows your expectations about providers of medical care services.

1. Physical facilities of care providers should be pleasant and visually appealing.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

2. When confronted with medical problems of an individual, a medical care provider should be sympathetic and reassuring.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

3. It is not realistic for a patient to expect prompt service from employees of care providers.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

4. Patients should be able to feel safe in their transactions with medical care providers.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

5. Employees of medical care providers cannot be expected to give patients personal attention.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

6. Employees of medical care providers should get adequate support from the organization to do their jobs.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

7. It is okay if medical services providers are too busy to respond promptly to a patient's requests.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
8. Accurate records should be kept of a patient's medical history by the medical care provider.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
9. The appearance of the physical facilities of a medical care provider should be in keeping with the medical services provided.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
10. Medical care providers should not be expected to have operating hours convenient to their patients.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
11. Medical care provider employees should be polite.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
12. Employees of medical care providers do not always have to be willing to help patients.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
13. Medical care providers should provide their services at the time they promise to do so.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
14. A medical care provider should have up-to-date equipment.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
15. It is unrealistic to expect medical care providers to have their patients best interests at heart.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
16. Patients should be able to trust employees of medical care providers.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
17. Medical care providers should not be expected to tell patients exactly when services will be performed.
- Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

18. A medical care provider should be dependable.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

19. Employees of a medical care service provider should be well dressed and appear neat.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

20. It is unrealistic to expect medical care employees to know what the needs of patients are.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

21. When a medical care provider promises to do something by a certain time, they should do so.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

22. Medical care providers cannot be expected to give patients individual attention.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

Just a few more questions about your individual situation. The following questions will help us classify your earlier responses. Please mark the category that best describes your personal experience or circumstance regarding each question.

23. Which of the following categories includes your age?

- 18 and under
- 19 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 and over

24. Which of the following categories best describes your anticipated health insurance coverage for a routine visit to a medical service provider ?

- No insurance coverage or payment for costs.
- A small portion of costs covered by insurance.
- Approximately half of cost paid by insurance.
- Nearly all of the costs paid by insurance.
- All of the cost covered by insurance.

25. Which of the following categories best describes the highest educational level you have completed.
- Less than high school.
  - High school graduate.
  - Vocational-technical school.
  - Some college.
  - Undergraduate college degree.
  - Some graduate work.
  - Graduate college degree.
26. Are you:  Single.  
 Married.  
 Separated.  
 Divorced.  
 Widowed.
27. Are you employed outside the home?  
 Yes  
 No Please skip to question 30.
28. If you are employed outside the home, are you employed:  
 Full-time.  
 Part-time.
29. What is your occupation? \_\_\_\_\_
30. Do you consider yourself unemployed at this time?  
 Yes  
 No
31. If you are married, is your spouse employed outside the home?  
 Yes  
 No  
 Not married.
32. Including yourself, how many people are in your immediate family?  
\_\_\_\_\_
33. How many in your immediate family are under 18 years of age?  
\_\_\_\_\_
34. Please indicate whether you are:  
 Male  
 Female
35. Which of the following categories includes your total annual household income?  
 Less than \$10,000  
 \$10,000 - \$19,999  
 \$20,000 - \$29,999  
 \$30,000 - \$39,999  
 \$40,000 - \$49,999  
 \$50,000 or more

36. Please indicate your personal assessment of your general health status at this time in your life.

Excellent

Good

Fair

Poor

PLEASE DO NOT MAIL THIS SURVEY !

Just seal this survey in the enclosed envelope and bring it with you to your scheduled appointment at the Wichita Clinic. The reception staff at your physicians office will be happy to receive your survey and forward it to the research team.

THANK YOU FOR YOUR TIME !

APPENDIX C  
POST-ENCOUNTER SURVEY





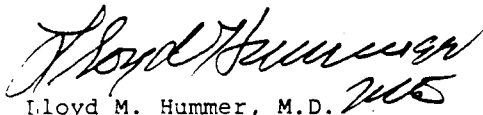
Dear Patient:

Thank you for completing phase I of the survey and returning it to the receptionist. We now ask that you complete this second part after you have finished your Clinic visit. This response and the original response will be paired, yet remain anonymous, so that the research team can properly complete their study.

Enclosed is a postage-paid return envelope. Please complete the survey and return it in this envelope within seven days of your visit.

Thank you for cooperating with us in this survey.

Sincerely,



Lloyd M. Hummer, M.D.  
Medical Director

LMH/ksh

## MEDICAL CARE SURVEY

The following set of statements relate to your feelings about Wichita Clinic. For each statement, please show the extent to which you believe Wichita Clinic has the feature described by the statement. Do this by picking one of the seven numbers following each statement. If you strongly agree that Wichita Clinic possesses a feature mentioned, circle the number seven (7). If you strongly disagree that Wichita Clinic possesses a feature mentioned, circle one (1). If your feelings are not strong, circle one of the numbers in the middle. There are no right or wrong answers. All we are interested in is a number that best reflects your perceptions about Wichita Clinic.

1. The appearance of the physical facilities of Wichita Clinic is in keeping with the medical services provided.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
2. Accurate records are kept of a patient's medical history by Wichita Clinic.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
3. Employees of Wichita Clinic are too busy to respond promptly to a patient's requests.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
4. Employees of Wichita Clinic get adequate support from the organization to do their jobs.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
5. Wichita Clinic does not have operating hours convenient to their patients.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
6. Wichita Clinic provides it's services at the time they promise to do so.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
7. Employees of Wichita Clinic are not always willing to help patients.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

8. Wichita Clinic employees are polite.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
9. Wichita Clinic does not have my best interests at heart.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
10. Employees of Wichita Clinic are well dressed and appear neat.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
11. I do not receive prompt service from employees of Wichita Clinic.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
12. I feel safe in my transactions with physicians and staff at Wichita Clinic.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
13. Employees of Wichita Clinic do not know what my needs are.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
14. Physical facilities of Wichita Clinic are pleasant and visually appealing.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
15. Wichita Clinic is dependable.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
16. I can trust the employees at Wichita Clinic.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
17. Employees of Wichita Clinic do not give me personal attention.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
18. Wichita Clinic has up-to-date equipment.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree
19. When I have medical problems, the physicians and staff of Wichita Clinic are sympathetic and reassuring.  
Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

20. Wichita Clinic does not tell patients exactly when services will be performed.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

21. Wichita Clinic does not give me individual attention.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

22. When Wichita Clinic promises to do something by a certain time, it does so.

Strongly Agree 7 6 5 4 3 2 1 Strongly Disagree

23. Using a scale of excellent, good, fair, or poor, please rate the overall quality of the recent experience you have had with Wichita Clinic.

Excellent  
 Good  
 Fair  
 Poor

24. As a result of your recent visit to Wichita Clinic, did the physician you saw suggest that you:

Don't need further medical attention?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Return for a routine follow-up visit?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
See another primary care physician?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
See a specialist for further care?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Be admitted to a hospital for care?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

25. Did anything happen (ie. physician being called away by an emergency, equipment failure, staff disagreement, etc.) during your visit to Wichita Clinic that was disruptive to the medical service being provided?

No  
 Yes (please explain) \_\_\_\_\_

26. Did any unexpected medical problem or condition come to light during your recent visit to Wichita Clinic?

No  
 Yes, but it is not a major concern to me.  
 Yes, and it is of major concern to me.

Considering your recent visit to the Wichita Clinic, please rate the strength of your intent regarding each of the following behaviors. Using the following scale, indicate how likely it is that you will behave as each sentence describes.

- 1 = Definitely
- 2 = Very likely
- 3 = Likely
- 4 = Neutral
- 5 = Maybe
- 6 = Not likely
- 7 = Definitely not

27. The next time the need for similar medical care arises, I will return to Wichita Clinic and see the same physician.

Definitely 1 2 3 4 5 6 7 Definitely not

28. As a result of this visit, I will recommend Wichita Clinic to my family and friends.

Definitely 1 2 3 4 5 6 7 Definitely not

29. As a result of this visit, I will complain to my family and friends about the care received at Wichita Clinic.

Definitely 1 2 3 4 5 6 7 Definitely not

30. As a result of this visit, I will compliment the management of Wichita Clinic about the care received.

Definitely 1 2 3 4 5 6 7 Definitely not

31. As a result of this visit, I will complain to the management of Wichita Clinic about the care received.

Definitely 1 2 3 4 5 6 7 Definitely not

32. As a result of this visit, I will complain to the local medical society about the care received at Wichita Clinic.

Definitely 1 2 3 4 5 6 7 Definitely not

33. The next time need arises for similar care, I will seek the care of a similar specialist at another clinic.

Definitely 1 2 3 4 5 6 7 Definitely not

34. The next time need arises for similar care, I will opt not to use any medical care services from any provider.

Definitely 1 2 3 4 5 6 7 Definitely not

35. Following your recent visit to Wichita Clinic, did you discuss your visit with others before you completed this survey? Please check the response listed below that best describes your situation.

Yes, I discussed my visit with my family and/or my friends.

Yes, I discussed my visit with a nurse and/or physician that are part of Wichita Clinic, but were not part of my recent care experience.

Yes, I discussed my visit with a nurse and/or physician that are not part of the Wichita Clinic staff.

Yes, I discussed my visit with (please specify)

---

No, I did not discuss this visit with anyone before responding to these questions.

Please return this survey to the Wichita Clinic in the postage paid envelope provided within seven (7) days after your visit.

THANK YOU FOR YOUR TIME !

2  
VITA

Dean E. Headley

Candidate for the Degree of

Doctor of Philosophy

**Thesis:** PERCEIVED SERVICE QUALITY: ITS MEASUREMENT AND RELATIONSHIP TO CONSUMER BEHAVIOR IN A MEDICAL CARE SETTING

**Major Field:** Business Administration

**Biographical:**

**Personal Data:** Born in Wellington, Kansas, February 6, 1948, the son of Elmer D. and E. Kathrine Headley. Married July 4, 1970 to Esther L. Headley.

**Education:** Graduated from Wellington Senior High School, Wellington, Kansas, in June, 1966; received Bachelor of Science in Business from Emporia State University, Emporia, Kansas, in June, 1970; received Master of Public Health degree from University of Oklahoma, Norman, Oklahoma, in December, 1974; received Master of Business Administration degree from The Wichita State University, Wichita, Kansas, in December, 1982; completed requirements for the Doctor of Philosophy degree at Oklahoma State University, Stillwater, Oklahoma, in December, 1989.

**Professional Experience:** Assistant Professor of Marketing and Small Business at The Wichita State University, Wichita, Kansas, August 1988 to present; Lecturer in Department of Health Administration and Gerontology at The Wichita State University, Wichita, Kansas, August 1987 to May 1988; Graduate Teaching Assistant in Department of Marketing at Oklahoma State University, Stillwater, Oklahoma, August 1985 to May 1987; Chairperson and Visiting Instructor in Department of Business at Kansas Newman College, Wichita, Kansas, September, 1982 to May, 1985; Assistant Director of Health Care Outreach at University of Kansas School of Medicine, Wichita, Kansas, November, 1978 to February, 1980; Director of Planning at Health Systems Agency of Southeast Kansas, Wichita, Kansas, May, 1976 to August, 1978; HMO Project Coordinator for Inter-Tribal Council, Inc., Miami, Oklahoma, May 1975 to May, 1976; Credit Analyst, Phillips Petroleum Company, Bartlesville, Oklahoma, June, 1970 to January, 1974.