Understanding the Structure of Consumers' Satisfaction Evaluations of Service Delivery

Jagdip Singh
Case Western Reserve University

This paper examines the current state of the literature concerning the structure *(i.e., conceptualization, taxonomy, and operationalization) of consumers' satisfaction evaluations of a service delivery. In particular, relevant research in medical sociology, community health and marketing is reviewed. In so doing, advances as well as gaps in our current understanding of satisfaction evaluations are delineated. Drawing upon the services marketing, social psychology, and organizational theory literatures, we propose a hypothesis for the multiobject conceptualization of the satisfaction construct. This fills a major gap in previous research. Using data collected from four metropolitan areas, this hypothesis is subjected to empirical verification. Competing hypotheses are explicitly considered. The proposed conceptualization is also tested for convergent, discriminant, and nomological validity. Overall, the results support a multidimensional-multiobject model of the satisfaction construct. However, the objects are the major source of variation in satisfaction evaluations, accounting for about 61% of the total variance. In addition, object-based evaluations yield evidence of convergent, discriminant, and nomological validity. Implications for research into the structure of satisfaction evaluations for health care delivery in particular, and for multidyadic services in general, are discussed.*

INTRODUCTION

The understanding of the *process* (i.e., consequences and antecedents) and the *structure*[1] (i.e., content and dimensions) of consumer satisfaction appears to be a central concern for several constituencies. Researchers treat satis-

faction as a key variable in models of consumer behavior (e.g., Howard and Sheth 1969); practitioners regard customer satisfaction as the focal point for designing successful marketing strategies (Dixon 1989); and public policy officials/consumerist agencies recognize satisfaction levels as barometers of consumer welfare (Czepiel and Rosenberg 1977).

Despite its importance, much previous research in marketing has tended to focus mainly on satisfaction *processes*, paying little attention to its *structure*. As such, Oliver and DeSarbo (1988, p. 495) observe that, "more so than others in related disciplines, consumer researchers have advanced and tested the processes underlying satisfaction, placing less emphasis on (its) content." This lack of emphasis is surprising because problems due to poor conceptualization and operationalization of the satisfaction construct have been well documented in the marketing literature (e.g., MSI/NSF sponsored conference on the conceptualization and measurement of satisfaction; Hunt 1977). Specifically, it has been noted that the understanding of the structure of the satisfaction *construct* is critical not only for measurement/tracking purposes (e.g., for public policy officials and practitioners) but also for providing greater insights into satisfaction processes. Consequently, Westbrook and Oliver (1981, p. 94) suggest that the inadequate development of the satisfaction construct "hinder(s) the interpretation and synthesis of (satisfaction) research findings."

The purpose of this paper is to contribute to the understanding of the *structure* of consumer satisfaction data. Specifically, several alternative structures, based on a priori hypotheses, are investigated in the context of consumers' evaluations of their health care service. The choice of health care service was guided by three factors. First, in sharp contrast to marketing, the medical sociology and community health literatures have made significant advances in mapping out the structure of consumers' satisfaction with health care delivery (Zyzanski, Hulka and Cassel 1974; Locker and Dunt 1978; Ware, Davies-Avery and Stewart 1978; Mangelsdorff 1979; Penchansky and Thomas 1981). This offers an opportunity for marketing scholars to exploit the "pioneering advantage" of these literatures and integrate

with the research in marketing. Some attempts in this direction have recently appeared (Swan and Carroll 1980; Westbrook and Oliver 1981; Pascoe 1983). However, because these studies have not been published in the main marketing journals, it is likely that many researchers are unaware of these efforts.

Second, issues concerning the structure of satisfaction are especially critical for services. In contrast to products, services are usually intangible (e.g., medical care), often involve the customer in the "production" process (e.g., college education) and result from direct provider–client interaction (e.g., physician–patient) (Shostack 1977; Lovelock 1983). This increases the complexity of consumers' satisfaction evaluations (Parasuraman, Zeithaml and Berry 1985; Surprenant and Solomon 1987). Little empirical work, however, has been done to understand such evaluations for services.

Third, the measurement of consumers' satisfaction with health care delivery is itself a critically important issue. In particular, the turbulent environment of the 1980s is marked by regulation (e.g., enforcement of diagnosis-related groups), aggressive cost-cutting strategies, and competitiveness among health care providers. Although this environment may well hold, if not decelerate, spiraling medical costs, it is less clear at this time if the price of controlling cost increases will be paid in the coin of poor quality and lower patient satisfaction. Thus, consumer satisfaction concerns have become central issues for researchers, health care administrators, public policy officials, and consumers themselves (e.g., see Blendon and Altman 1984).

Below, first a review of the (patient) satisfaction (PS) construct in the medical sociology and community health literatures is presented, and areas where the marketing literature can contribute to or gain from this body of research are identified. Following this review, the paper draws upon the services marketing, social psychology, and organization theory literatures to build the case for incorporating multiple objects in satisfaction evaluations. Thus, unlike most previous research, this study explicitly hypothesizes that a service delivery system is *not* a homogeneous entity. Rather, it is composed of multiple objects or constituencies, such as the physician, the hospital, and the insurance provider in the case of health care service. In the third major section, the structure of consumer satisfaction data is examined empirically. In so doing, several competing models based on a priori hypotheses are explicitly examined. This investigation utilizes *restricted* factor analysis estimated by the method of Weighted Least Squares (WLS) via LISREL VII. This method represents a significant advantage in that it does *not* assume that Likert-type data have interval properties. Instead, it views such data as only ordinal in nature. As such, this approach departs from other conventional methods (e.g., ML estimation) in that it yields asymptotically correct standard errors of parameter estimates and χ^2 goodness-of-fit statistics. In addition, tests for the convergent, discriminant, and nomological validity are also performed. Finally, the findings and limitations of the study are discussed, and implications for future research into the satisfaction construct in general and satisfaction with health care delivery in particular are outlined.

A REVIEW OF THE MEDICAL SOCIOLOGY AND COMMUNITY HEALTH LITERATURE

Several excellent reviews have appeared in the medical sociology and community health literatures (Locker and Dunt 1978; Ware et al. 1978; 1983). In addition, the journal *Evaluation and Program Planning* devoted two full issues (1983, vol. 6) to the research involving the PS construct. These sources facilitate a focused and succinct discussion of the *conceptual*, *taxonomical*, and *operationalization* issues for the satisfaction construct. Readers are directed to appropriate references for detailed analysis and review.

Conceptual Issues

Initial attempts at conceptualizing the (patient) satisfaction (PS) construct are identified with Hulka and her associates (Hulka, Zyzanski, Cassel and Thompson 1970; Zyzanski, Hulka and Cassel 1974). They defined "satisfaction" as the consumer's "attitude toward physicians and medical care" (Hulka et al. 1970, p. 430). More specifically, they hypothesized a composite index of an individual's evaluative judgments concerning the quality of medical care received from physicians, nurses and other relevant sources to represent his/her level of "satisfaction." Within the community health literature, this conceptual definition has been widely accepted (Linder-Pelz 1982; Hines et al. 1977; Doyle and Ware 1977; Ware et al. 1978).

However, refinements in this definition have been advanced from at least three perspectives. The first perspective notes that an episode (or situation) is a major source of variation in satisfaction evaluations. This does not imply that consumers cannot or do not make global satisfaction judgments based on an aggregate of health care episodes. Rather, satisfaction studies should distinguish between *micro* (i.e., episode-specific) and *macro* (i.e., global) evaluations because empirical studies show that consumers do evaluate these aspects *differently* (Shore and Franks 1986). In addition, several researchers have argued that it may be more useful to conceptualize *satisfaction* as an individual's evaluation of the quality of care in a *specific medical-care situation*, not just as a global attitude aggregated across episodes. This argument is exemplified by a recent paper by Shore and Franks (1986). These researchers note that individual patient–physician encounters are "the basic unit of medical care" (p. 580) and, therefore, assessing satisfaction for "individual encounters may contribute to a fuller understanding of the nature of physician–patient relationship." Similar arguments have been advanced by Inui and Carter (1985) and Pascoe (1983). Consistent with this view, marketing researchers utilize an episode based conceptualization for the satisfaction construct (Oliver 1981; Westbrook and Oliver 1981). In fact, Westbrook and Oliver (p. 95) have criticized the PS literature in general, and Hulka et al.'s conceptual definition in particular, because it taps "generalized satisfaction with the overall domain of primary health care rather than evaluation of a specific experience."

Second, the conceptualization of satisfaction as a cognitive evaluation (i.e., attribute based) versus an emotional state (i.e., global feeling) has generated some debate. Mar-

keting researchers have tended *not* to conceptualize satisfaction as a cognitively based evaluation of product/service *attributes*. Instead, they typically define satisfaction as an emotional response to a product or service use (or consumption) situation (cf. Oliver 1981). As noted above, the medical sociology and community health literature have favored a cognitive view of satisfaction based on attribute evaluations, in contradiction to the marketing literature. In order to reconcile these differences, Westbrook and Oliver (1981) have advanced the notion of a "quasi-cognitive" conceptualization in that satisfaction may involve *both* emotional and cognitive evaluations. Thus, for instance, Westbrook and Oliver (1981, p. 96) observe that "evaluations dealing (with) particular aspects of the phenomenon . . . might be fruitfully applied to the assessment of product/service satisfaction." This approach seems to provide a richer understanding of the structure of consumer satisfaction data and appears to be gaining acceptance (e.g., Churchill and Surprenant 1982).

Third, Ross et al. (1987) argue that restricting satisfaction to perceptions of the "quality" of health care received is an "inherent weakness." These researchers support their position by the "healthy but unhappy" hypothesis; that is, several empirical studies indicate the presence of a significant segment of consumers who are healthy but claim that they are unhappy about the health care received. Thus, Ross et al. suggest that the conceptualization of the satisfaction should be enlarged to include other evaluations (e.g., waiting time, costs, etc.) in addition to quality perceptions. Hulka and Zyzanski (1982) acknowledge this position and appear to support a broader domain for the satisfaction construct.

In sum, a consumer's satisfaction with health care delivery may be conceptualized as a cognitive evaluation of a wide range of attributes of the care received, in addition to an overall emotional disposition, during a particular episode of health care service. Readers will note that the "wide range of attributes" is an ambiguous element in the definition. In particular, because different consumers are likely to utilize a variety of different attributes to evaluate their health care experience, taxonomical issues are critical for the understanding of consumer satisfaction. A taxonomy facilitates understanding by classifying a large number of relevant attributes into a parsimonious set of unique "dimensions" so that evaluations are perceived as relatively homogeneous within a dimension but not across dimensions. Such taxonomical issues are discussed below.

Taxonomical Issues

Several attempts for developing a taxonomy of satisfaction attributes have been reported in the literature. Hulka, et al. (1970) proposed one of the earliest satisfaction taxonomy. While these researchers do not provide the precise approach utilized, it appears that a two-step strategy was adopted. First, the literature was reviewed to determine "the appropriate content areas around which statements concerning attitudes towards physicians and medical care should be developed" (p. 430). Next, these content areas were subjectively classified into three dimensions: (a) profes-

sional competence, (b) personal qualities, and (c) cost/convenience.

For an alternative taxonomy, Ware, Davies-Avery and Stewart (1978) utilized a content analysis of the published literature and open-ended responses from about 700 consumers. They found support for an eight dimensional structure: (a) art of care, i.e., provider characteristics relating to the manner (or mode) of health care delivery (e.g., friendliness); (b) technical quality of care, i.e., professional competence; (c) accessibility/convenience, i.e., time and effort required to obtain medical care; (d) finances, i.e., cost/benefits of medical care; (e) physical environment, i.e., characteristics of the care environment (e.g., comfort, cleanliness, etc.); (f) availability, i.e., number of health care providers available; (g) continuity of care, i.e., regularity of the health care provider; and (h) efficacy/outcomes of care, i.e., improvement in health status attributable to medical care obtained. In the same article, however, Ware et al. reported that empirical support for the various dimensions was mixed. Specifically, it was noted that the "most well documented" empirical dimensions were physician conduct (i.e., art and quality of care) and accessibility/convenience. Furthermore, empirical attempts to distinguish between the art of care and quality of care were "much less convincing."

More recently, Smith, Bloom and Davis (1986) have sought to integrate previous taxonomical attempts in the community health literature with research in the marketing literature (e.g., Swan and Combs 1976). They have proposed a tripartite taxonomy for the satisfaction construct, consisting of: (a) *expressive*, implying notions of art of care: (b) *instrumental*, including factors such as quality of care, efficacy of treatment, and continuity of care; and (c) *access/cost*, i.e., notions of accessibility, convenience and cost.

For several reasons, Smith et al.'s integrative taxonomy has merit. First, note that Smith et al.'s tripartite taxonomy subsumes the one proposed by Hulka et al. (1970). Second, two of three dimensions in Smith et al.'s taxonomy (i.e., instrumental and access/cost) were found by Ware et al. (1978) to be *stable* and *consistent* in several different data. Third, evidence in support for the significance and distinction between the expressive and instrumental dimensions is forthcoming from the medical sociology literature. In particular, Ben-Sira (1976, 1980) utilized the social interaction theory to posit that the *affective* (or expressive) component of the physician's behavior toward the patient is a major factor in the assessment of the *instrumental* component of the physician's care. As such, Smith et al.'s taxonomy achieves considerable parsimony by classifying a wide range of attributes into three theoretically useful and empirically stable dimensions. For the preceding reasons, it appears desirable to utilize Smith et al.'s tripartite taxonomy in future research.

Operationalization Issues

Several attempts have been made to develop operational measures for the satisfaction construct. Hulka, et al. (1970) proposed one of the earliest operationalizations: a 42 item scale for assessing three dimensions of satisfaction. Of the

three dimensions, only the personal quality dimension had an alternate forms reliability greater than 0.7. For the professional competence and the access dimensions, the reliability was 0.63 and 0.43 respectively. When different samples were utilized, similar levels of reliability were found by Hulka and her associates.

Some researchers have proposed operational measures for one or more specific dimensions of the satisfaction. For instance, Aday and Anderson (1975) focused on cost-convenience and provider characteristics. Likewise, Bice and his colleagues (e.g., Bice and Kalimo 1971) developed measures for availability/convenience, physician conduct and utilization tendencies. More recently, Penchansky and Thomas (1981) provided an operational scale to measure the "access" component of satisfaction evaluations. These researchers posited that the access component itself is multidimensional and provided empirical support for five distinct dimensions, namely, availability, accessibility, accommodation, affordability, and acceptability.

Unlike the preceding attempts, Ware and his associates (e.g., Ware and Snyder 1975) conducted an extensive methodological study to operationalize most, if not all, potential dimensions of the PS construct. Based on a review of most existing scales, open-ended responses from consumers, and multisample analysis, an eighty item operationalization was proposed (PSQ, Form I). This measure was conceptually designed to assess twenty dimensions of the satisfaction concept. Empirically, however, Ware and Snyder found support for four basic factors, namely, physician conduct, availability of service, continuity/convenience of care, and access to care. Further analysis revealed that these four basic factors in turn represent just *two* second-order dimensions, pertaining to physician conduct/quality and accessibility/availability (Roberts et al. 1983).

Within the medical sociology and community health literatures, each of the preceding operationalizations have been utilized with some regularity. For instance, Tucker and Tucker (1985) report a study in which Hulka et al.'s operational measure was incorporated. In a study of primary care selection, Sullivan (1984) utilized Ware et al.'s operational measure. Finally, an example of a study that used the Penchansky and Thomas scale is the research by Tucker and Tucker (1985).

Despite this acceptance, caution in the use of the preceding measures is warranted for several reasons. First, these operationalizations measure satisfaction at the *macro* (i.e., global) level. To the extent that researchers are interested in *micro* (i.e., episode-specific) satisfaction, these measures cannot be directly utilized. However, some attempts to reword the preceding measures for micro level ratings have been reported (Weinberger et al. 1981).

Second, most of the preceding studies do not pay adequate attention to indirect versus direct measurement of satisfaction (cf. Pascoe 1983). A *direct* measure asks the respondent to articulate how s/he would evaluate her/his *own* health care service. An example of this item is, "The doctor has relieved my worries about my illness." By contrast, the *indirect* measure does not explicitly focus on respondent's own health care service. Rather, it leaves the focus ambiguous. An example of this item is, "Doctors always do their best to keep the patient from worrying." In

this sense, many of the preceding operationalizations are mixed; they contain direct as well as indirect items. After critically reviewing this issue, Pascoe (1983, p. 190) observes that there is enough "logical and empirical evidence" to conclude that "there is *not* a strong relationship between direct and indirect measures of satisfaction." For this reason, the inattention to direct/indirect measures in previous operationalizations is problematic.

Third, some researchers have cautioned against the use of the preceding operational measures for certain theory-testing situations (e.g., Hausknecht 1988). Specifically, Hausknecht observes that a summary measure of consumers' satisfaction with health care delivery may be desirable in some contexts, such as when testing antecedents and/or consequences of satisfaction. In such situations, researchers have tended to sum up the satisfaction ratings for individual attributes to arrive at overall satisfaction. This approach is arbitrary because it makes two assumptions: (a) consumers utilize a compensatory mechanism (i.e., summing up) in making overall satisfaction judgments, and (b) consumers give equal weight to individual attributes. Because these assumptions are untested, the use of attribute-based satisfaction evaluations (e.g., Ware et al.'s PSQ) may be less useful despite their richer insight. As an alternative, Hausknecht recommends an overall *episode-specific* measure of satisfaction. Consequently, it appears useful (in some situations) to include an overall measure of satisfaction with a health care service experience *in addition to* attribute-based evaluations. This allows a direct assessment of how the individual aspects contribute to overall consumer satisfaction; thus, avoiding the preceding arbitrary assumptions.

Finally, it has been noted that the satisfaction construct may have been underconceptualized (Pascoe 1983; Singh 1988). For instance, Pascoe (1983) notes that the conceptualization of PS may have been myopic in its focus on provider (i.e., physician) dimensions. As a result, non-provider dimensions (e.g., ancillary services) or other aspects of health care (cf. Singh 1988) are inadequately considered in satisfaction evaluations. This issue is discussed in greater detail below.

INCORPORATING MULTIPLE OBJECTS IN CONSUMERS' SATISFACTION EVALUATIONS

Although the medical sociology and community health literatures provide insights into the structure of satisfaction evaluations (i.e., questions along the lines of "*what* is consumer satisfaction?"), relatively less attention has been directed at issues such as "what is the consumer satisfied *with*?" in terms of identifying the *object* (e.g., physician, nurse) of such evaluations. As a result, in most operationalizations the satisfaction object is treated unsystematically. Consider, for instance, the eighty item PSQ measure proposed by Ware et al. Of the 80 items in PSQ, 57 items pertain to satisfaction with a doctor, 4 utilize the hospital as the object of reference, another 4 concern medical insurance, and the remaining 15 are general satisfaction items.

This lack of systematic attention to objects is surprising because research in services marketing, social psychology,

FIGURE 1
Service Delivery in MultiDyadic, Loosely Coupled, MultiOrganizational Health Care System
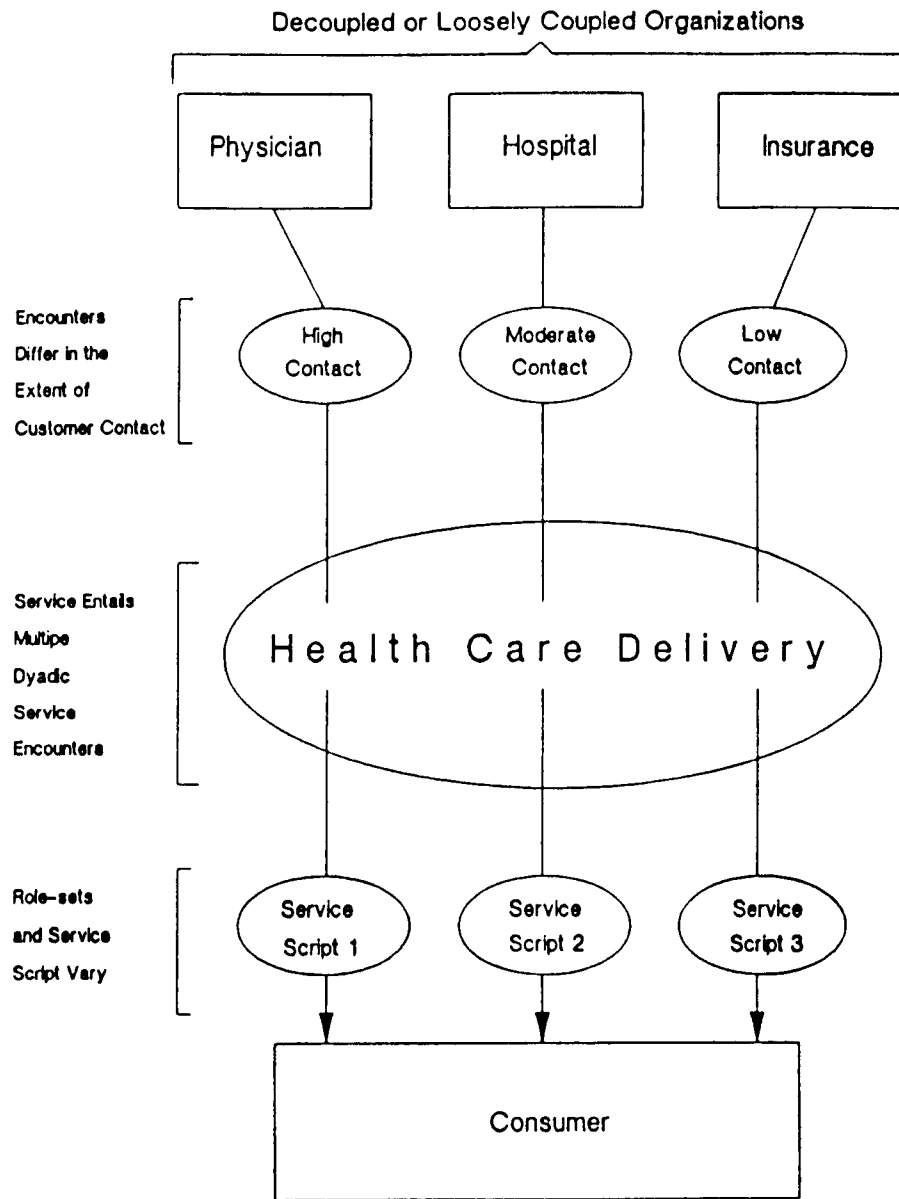
and organizational behavior indicates that objects are an important source of variation in consumers' evaluations. This is especially valid for "customer contact" (i.e., consumer involvement is needed in service delivery; Chase and Tansik 1983), "multiobject" (i.e., service involves interactions with multiple service personnel; Solomon et al. 1985), and "loosely coupled" services (i.e., the different organizations and/or departments involved in service delivery are loosely related; Weick 1976). These features manifest in several commonly used services, such as the health care service, restaurants, airlines, banks, and education. Figure 1 displays these features for health care service. Below, three streams of research which directly bear on the case for systematically incorporating multiple objects in satisfaction evaluations are summarized. Specifically, pertinent findings from the marketing (i.e., "service encounters and scripts"),

organization behavior (i.e., "boundary spanning roles") and management science (i.e., "customer contact model") are discussed.

Service Encounters and Scripts

The marketing literature recognizes that health care delivery is a relatively "pure" form of service. Specifically, this literature posits three prototypical attributes of services: (a) intangibility, that is services are relatively more intangible than products, (b) inseparability of production and consumption, that is services tend to be produced and consumed more simultaneously than products, and (c) customer participation, that is consumers actively participate in service delivery. Although different services possess more or less of these attributes, the health care service mostly evi-

dences all of the preceding attributes (Lovelock 1983; Sil-pakit and Fisk 1985). In particular, for such "pure" services, the quality of service delivery rests to a large degree on the way in which the provider–consumer interaction (i.e., service encounter) proceeds and, consequently, it is unpredictable a priori (Solomon et al. 1985). Furthermore, the service delivery is likely to be heterogeneous across interaction episodes.

In terms of satisfaction evaluations, this performance ambiguity coupled with service attributes (e.g., intangibility etc.) causes difficulties for consumers in evaluating the *service* received. For this reason, marketing researchers posit that consumers utilize the quality of the provider–consumer *interaction* itself as the basis for evaluating the *service* received. For instance, Solomon et al. (1985, p. 100) observe that in the case of pure services, "customer satisfaction and repeat patronage may be determined solely by the quality of personal encounter." Likewise, Ben-Sira (1976, 1980) has supported this perspective on the basis of social interaction theory. Consequently, the service encounter is a focal point for considering satisfaction evaluations.

It is the case with many services that the service encounters are "multiobject"—that is, they involve multiple service personnel (i.e., objects) in distinct and separate dyadic encounters. Consider the case of a medical service that requires hospitalization. The consumer most likely interacts (to more or less extent) with at least three distinct service providers: (a) the physician for diagnosis and treatment, (b) hospital and its staff[2] (e.g., nurses) for care and testing, and (c) insurance personnel for payment of services. Clear differences exist in the types of personnel involved and the goals sought in the various encounters. As a result of these differences, it is logical to expect that consumers may evaluate these encounters differently. Thus, it is plausible that, in a given health care experience, the consumer is very satisfied with his/her physician but not satisfied with the hospital staff. At the same time, the same consumer may be very dissatisfied with the insurance personnel.

Theoretical developments in social psychology concerning script theory provide further evidence in support of multiobject evaluations. Smith and Houston (1983) have argued that consumers utilize and/or possess "service scripts". These scripts contain information about the role-set (i.e., one's own expected behavior and the expected behavior of service provider) in dyadic service encounters. Furthermore, this line of research posits that consumers possess different service scripts for different types of service encounters (e.g., visit to dentist, obtaining auto-repair).

For the health care example (see Figure 1), it follows that consumers may possess a physician script, a hospital staff script, and an insurance script. Evidence supporting these differences emerges from the medical sociology literature (Parsons 1975; Waitzkin 1985; Ben-Sira 1980). For instance, in the case of physician–patient encounter, Buller and Buller (1987) observe that the "institutionalized roles" for the physician and patient favor greater "power, authority, professional detachment and status" in the physician's role. Clearly, this is less valid for patient interactions with hospital staff and insurance personnel. These disparate service scripts suggest that consumers may have different expectations (i.e., role-set) in interacting with different ob-

jects in a given service system. This lends support to the argument that objects may be an important source of variation in satisfaction evaluations.

Boundary Spanning Roles

In contrast to marketing's focus on consumer-provider encounters, the organizational researchers have documented and analyzed features of service organizations (Mills, Chase and Marguiles 1983). In this research, the boundary spanning roles (BSR) are usually the focal point of study (Bowen and Schneider 1988). Organizational theorists have noted that BSR personnel represent organizations by (a) acquiring and/or disposing services/products/resources, (b) maintaining the image of the organization, and (c) sustaining or improving the organization's legitimacy (cf. Aldrich 1979). BSR personnel are especially important in services because they often interact with the consumer in the creation of the service and because consumers tend to rely on their behaviors in forming service evaluations (Bowen and Schneider 1988).

In multiobject service systems (e.g., health care; Figure 1), several BSR personnel (e.g., physician, nurse) are involved in service delivery. More importantly, these BSR personnel typically belong to organizations that are functionally and physically either completely decoupled or only loosely coupled with each other (Weick 1976). In Figure 1, note that the insurance companies are usually completely decoupled from hospitals and physicians. Furthermore, physicians represent a professional organization that is only loosely coupled with the hospital's administrative organization. This is even more valid for private practitioners who are "attached" to different hospitals merely for the use of their facilities and staff. For these reasons physicians often consider themselves outside of the hospital's administrative hierarchy and control.

Furthermore, these decoupled or loosely coupled organizations often differ in their goals, objectives, and the image they wish to present to their public. For instance, in terms of their objectives, the insurance provider may be interested in balancing the coverage with the premiums, the hospital in increasing the bed occupancy rate, and the physician in the physical health of the consumer. Such differences most likely are reflected in BSR's behaviors and expectations—i.e., BSR's scripts of service encounters. Because these scripts influence how the service encounter proceeds, it follows that differences in BSR's scripts (e.g., due to organizational affiliation) would be important sources of variation in multiobject service encounters. Consequently, utilizing object based satisfaction evaluations may not only capture real differences in service encounters, but may also be desirable from an organization perspective (e.g., for diagnosis, BSR training).

Customer Contact Model

Management scientists (e.g., Chase and Tansik 1983) and service marketers (e.g., Langeard et al. 1981) have noted that the extent of customer contact (i.e., high or low) is an important factor in services organizational design and classification. In their customer contact model, Chase and Tan-

sik argue that service organizations which require high contact in service delivery most likely differ (from those that require low contact) in terms of design and operation due to efficiency and effectiveness considerations. Likewise, Silpakit and Fisk argue that differences in customer participation and contact underlie the various factors (e.g., see Lovelock 1983) utilized to classify services.

In a health care service, important differences in customer contact are evident for the multiobject encounters. In a physician-patient interaction, a high level of customer contact can be anticipated. For hospital's staff–patient service encounters, the extent of contact is likely to vary from low (e.g., with registration staff) to high (e.g., with nurses). By contrast, the interactions between the insurance personnel and the patient may not even be face-to-face. As a result, such interactions represent low customer contact. Because the extent of customer contact is a critical factor in services research (Chase and Tansik 1983; Langeard et al. 1981), it is reasonable to posit that encounters with wide variation in customer contact should not be lumped together. Instead, they should be treated as distinct and heterogeneous evaluations. This argues for incorporating multiple objects in consumers' satisfaction evaluations.

The preceding evidence emerging from three different literatures appears consistent and compelling enough to *hypothesize* that consumer satisfaction can be accurately understood as a collection of multiple satisfactions with various objects that constitute the service system. In particular, for the case of health care service, three distinct objects are posited: the physicians, the hospital, and the insurance providers. Likewise, multiple objects can be identified for other services that evidence the features noted in Figure 1.

Note, however, that the preceding is merely a hypothesis for the *multiobject* structure of satisfaction evaluations. Furthermore, since it is based only on conceptual and theoretical arguments, it is not yet known if this hypothesis is a valid representation of how consumers *actually* evaluate the service. In addition, it is less clear if objects or dimensions (or both) are the major source of variation in satisfaction evaluations.

Thus, two competing hypotheses are explicitly considered so as to ascertain the substantive usefulness of the proposed hypothesis. The first competing hypothesis pertains to a *multidimensional* structure for satisfaction evaluations. In this hypothesis, the objects of satisfaction (e.g., physician, insurance provider) do *not* provide much information about consumers' evaluations. Instead, attribute dimensions are sufficient to explain the structure of satisfaction evaluations. Based on the preceding review, a tripartite structure is considered, with expressive, instrumental, and access/cost as the hypothesized dimensions. Note, that this multidimensional view of satisfaction is implied in most previous research in medical sociology and community health.

The second competing hypothesis posits a *multiobject-multidimensional* structure for satisfaction evaluations. According to this hypothesis, neither objects nor dimensions are sufficient in and of themselves to explain variations in consumers' satisfaction evaluations. Instead, both are important factors. Note, that this hypothesis represents a full model (i.e., it contains objects and dimensions). Therefore,

it is obvious that this model will be *statistically* superior to the preceding models. In terms of substantive and parsimony criteria, however, the full model may not be more desirable. For instance, it is possible that the full model fails to explain significantly more variance in satisfaction evaluations (i.e., after adjusting for the number of additional parameters estimated) than the competing models. Likewise, if the addition of objects (or dimensions) yields only incremental substantive understanding of satisfaction evaluations, the full model would be less attractive. For these reasons, substantive and parsimony criteria were utilized for evaluating the competing models, in addition to statistical criteria.

The explicit consideration of such competing hypotheses is desirable because it provides a more reasonable basis for evaluating the proposed hypothesis than the traditional null hypothesis of no effects. Most likely, empirical analysis is necessary to sort through these hypotheses. An *initial* study was designed to address these issues in the context of health care service.

THE STUDY

The study was designed to shed empirical light on the structure of the satisfaction construct in the context of health care delivery. An ideal test would have required rewording current satisfaction scales (e.g., Ware et al.'s eighty items) to obtain separate evaluations for the physician, hospital and the insurance company. For Ware et al.'s scale, this implies in all about 240 items (eighty items times three objects). This was considered too unwieldy (in terms of questionnaire length) and premature given the current state of the literature. Instead, it was decided to opt for an elementary measurement for the individual dimensions and objects. The measurement was elementary in the sense that a small (e.g., compared with Ware's PSQ) but representative set of items was utilized to measure the individual constructs. Specifically, six items to measure each dimension/object (in all eighteen items) were selected. It was felt that this approach was appropriate to provide initial insights into focal questions and guide future research (e.g., whether to emphasize dimensions or objects).

Pascoe (1983, p. 188) has noted that satisfaction evaluations would be unambiguous if the consumption context was "explicit and consistent." In accord with this, a recent episode health care experience was explicitly defined as the *unit of analysis* for the present study. The use of a specific epsiode is consistent with Shore and Franks (1986) and Inui and Carter (1985). In addition, Pascoe (1983) provides empirical evidence supporting the argument that consumers can differentiate between (dis)satisfaction stemming from specific experiences and "global" health care. Respondents were asked to think about their *recent* experience so as to control for degrading effects of recall from memory.

Four different metropolitan areas were selected for conducting the study; Cleveland (Ohio), Jacksonville (Florida), Omaha (Nebraska) and Salt Lake City (Utah). In many previous studies, researchers have tended to sample from hospital lists without controlling for the metropolitan–rural mix of patients. Because patients who come from rural

areas may face different circumstances from those in metropolitan areas, it was considered desirable to control for this factor. For this reason the study identified metropolitan areas as the geographical domain for sampling patients. Although individual households within these areas were randomly selected, the areas themselves were not. Rather, a systematic procedure was developed in order to select these areas. This procedure was based on obtaining (a) geographical dispersion across the U.S., and (b) variation in the number of physicians per capita. The first condition controlled for an over-representation of a particular region within the US. The second condition controlled for restriction in range for the variation due to the extent of physician competition. While somewhat crude, the number of physicians per capita (computed from U.S. Census data) provided some estimate of this competition. Unfortunately, this data was not available for individual metropolitan areas. Thus, States were stratified into groups on the basis of physicians per capita, and the individual metropolitan areas were then selected to satisfy the first condition. The number of non-federal physicians per 1000 people in the four states selected were as follows: Nebraska = 1.55; Ohio = 1.69; Utah = 1.71; and Florida = 2.09.

Data Collection

Consumer self-reports through a mail survey was selected as the method for data collection. Self-reports are appropriate because satisfaction is defined as a perceptual construct. In addition, while mail surveys are susceptible to response-set bias (e.g., social desirability, cognitive consistency), Pascoe (1983, p. 195), after reviewing the effects of such artifacts, has observed "that while such effects do operate, patients' self-reports are not substantially biased by these artifacts." The population of interest was defined as the households who (a) had medical insurance coverage, since evaluations of insurance provider were important for this study, and (b) had a recent medical care experience. Sampling frames for such population are not easily available, however (except for hospital lists which have other limitations as noted above). For this reason, an alternative procedure was adopted in which a random sample of households were asked to preselect themselves if they can recall a recent hospital experience. Randomly selected households obtained from a mailing house for each of the four cities were mailed an identical questionnaire packet. In all, 1,500 questionnaires were mailed (375 for each city). Reminder cards (two) were used to encourage participation. About 10% of the surveys were returned because of nondelivery (e.g., due to moves, wrong addresses).

The number of responses received for analysis were as follows: Cleveland = 154, Jacksonville = 103, Omaha = 133, and Salt Lake City = 140. Differences in mean values for the various constructs (see measures below) were examined across the four sampling areas. The null hypotheses for no significant differences could not be rejected for the satisfaction measures (all F-values < 1.80, p > 0.05). Thus, it seems appropriate to pool data for analysis. However, because evaluations of insurance providers are essential for our research, only the 432 respondents with insurance coverage were retained for analysis. Furthermore, cases with one or more missing values were deleted, leaving 367 usable responses.

True response rates cannot be estimated precisely since this involves computing the proportion: (households who responded/ households who have insurance coverage and had a recent hospital experience). As noted above, the denominator of this term is an elusive number. However, secondary data provides an estimate for the proportion of households in the US who are without medical insurance coverage. Specifically, Kiesler and Morton (1988) estimate that about 17% of the US population is uninsured. Assuming that the selected geographical areas reflect trends in the overall US population, and adjusting for a 10% nondelivery rate, a lower bound estimate for the overall response rate in this study is 39%, with a usable rate of 34%. These are lower bound estimates because the response rate is not adjusted for the proportion of the households who did not have a recent hospital experience. Unfortunately, secondary data is not available to impute this term.

Responses in the range obtained here are not uncommon in PS research (Pascoe 1983). For instance, in research designs similar to the one utilized in this study, Harris (1978) has noted that response rates can be as low as 18%. While less than perfect, response rates in this study are about two-fold greater than the lower bound reported by Harris. This suggests that the degrading effects due to nonresponse may not be excessive.

Nevertheless, an attempt was made to investigate nonresponse bias. Although, an analysis of nonrespondents was not possible because of the promised anonymity of responses, the data was examined for possible nonresponse bias via wave analysis (Armstrong and Overton 1977). Wave analysis was performed by classifying responses into three categories based on the postmark date. Responses to the various measures of study (see details below) were examined for significant differences in the three waves. The null hypothesis for no systematic differences could not be rejected (F values < 2; p > 0.05). The demographic profile of the respondents (for the pooled data) is in the Appendix. Because the survey instructions asked respondents to complete the questionnaire only if they could briefly describe a health care experience (i.e., requiring hospital visit) which they remember clearly, and involves either themselves or a member of their family for whom they make decisions (e.g., children), the respondents' demographic profile can not be directly compared with the census profile of the corresponding geographical areas. Females constitute 84% of the respondents indicating that women play a major role in health care decisions. This is consistent with previous research (e.g., *The Keckley Report* 1986). The median age group is 36–40 years, but respondents range in age groups from 21–25 years (12% of sample) to over 60 years (16%), with no particular age group dominating the data. Fully 78% of the respondents are married, and 54% of the sample has had some education beyond high school. In terms of income, the median level is the range $20,001 to $30,000. Over 88% of the sample earns less than $50,000. In terms of race, however, our sample is somewhat skewed, since 95% of the sample is white. Although this may affect the representativeness of the sample, note that the focus of this study is relationships among variables, and not mean values

per se. For this reason the skew in some demographic characteristics should not pose a severe limitation.

Measures

The satisfaction items were measured utilizing a six point "very satisfied—very dissatisfied" scale. The specific items were based on Ware et al.'s research. As indicated above, the items were selected so as to provide elementary measurement of each of the three dimensions. Most of Ware et al.'s items are applicable for physicians. Thus, items were modified/reworded to be relevant for hospital staff and medical insurance providers. In addition, all items were worded so as to yield a *micro* (i.e., episode specific) measure of satisfaction. Table 1 lists these items. Note, there are six items for each dimension, and for each object. The Cronbach's α for the satisfaction measures utilized (see results below) were 0.83, 0.85, and 0.92 corresponding to the physician, hospital and insurance provider, respectively.

In addition, *four* "overall" satisfaction items were included. These items did not tap respondent's global satisfaction across several prior experiences. Rather, they were intended to provide an overall assessment of satisfaction in the specific recent experience stemming from (a) physician, (b) hospital staff, (c) insurance provider, and (d) overall health care service. For instance, in the case of physician, the respondents were asked, "Overall, with the care provided by my doctor, I felt . . ." These overall items are in accord with Hausknecht's (1988) suggestion that satisfaction should be assessed as an overall response to a specific episode. They also facilitate the investigation of convergent and discriminant validity of satisfaction items (discussed below).

Finally, additional items were included in order to investigate nomological validity of satisfaction items. These items tap behavioral intentions to switch physicians, hospitals, and/or insurance services in the future. Several studies provide empirical evidence for the nomological relationship between satisfaction and self-reports of switching intentions (DiMatteo, Prince and Taranta 1979; Needle 1975). The behavioral intentions were measured by a six item scale (two each for physician, hospital, and insurance provider). Table 1 lists these items as well. Response were obtained on a six point, "very unlikely—very likely" scale. The Cronbach's α for the switching intentions measures were 0.82, 0.79, and 0.65 corresponding to the physician, hospital and insurance provider, respectively.

Method of Analysis

The proposed hypothesis for the multiobject satisfaction evaluations was evaluated by three procedures. First, four alternative conceptual models were proposed as possible representations of data. These models correspond to: (a) the null model, M_0, positing that there are *no* underlying factors, (b) the multidimensional model, M_1, hypothesizing that the three satisfaction dimensions are sufficient to explain intercorrelations among items (see Figure 2), (c) the multiobject model, M_2, positing that the three satisfaction objects are sufficient (see Figure 3), and (d) the multidimensional multiobject model, M_3, which proposes that both

dimensions and objects are necessary to represent satisfaction evaluations (see Figure 4).

These models were then evaluated by estimating the competing models with LISREL VII (Jöreskog and Sörbom 1988); therefore, the Figures are depicted in the conventions of latent variable analysis. Specifically, circles represent latent constructs, boxes refer to observables, arrows connecting boxes and circles are measurement relations, and arrows without origins are error terms. The use of LISREL is desirable because of several reasons. First, it allows estimation of restricted factor analysis with *a priori* constraints on loadings. These constraints correspond to the specific model being estimated. Second, it provides a systematic basis for evaluating competing measurement models. This evaluation is based on various goodness-of-fit statistics. For each model, LISREL VII provides a χ^2 statistic (and associated degrees of freedom) corresponding to the test for the null hypothesis that the intercorrelations reproduced by the hypothesized model equal the observed correlation matrix. Also, a goodness-of-fit index (GFI), an adjusted goodness-of-fit index (AGFI; this adjusts the GFI for degrees of freedom), and root mean square residual (RMR) for the model estimated are provided. Unlike the χ^2 statistic, the GFI, AGFI, and RMR are less sensitive to the sample size. Following Bagozzi and Yi (1988), GFI and AGFI values exceeding 0.90, and low RMR values (typically less than 0.05) are indicative of models that are "good" representations of data. Third, two competing models (say M_1 and M_2) can be tested by utilizing the Bentler and Bonnet's (1980) normed fit index (NFI). This index provides a measure for the improvement in fit between models M_2 and M_1 as compared with the null model (M_0). NFI values exceeding 0.90 are indicative of adequate fits. Although competing models can also be tested by computing a χ^2 difference statistic (i.e., difference between the χ^2 of M_2 and M_1), this test is not technically appropriate here because the competing models are not properly nested within each other (Anderson and Gerbing 1988). However, for pedagogical reasons, this statistic is computed as well. Finally, additional assumptions about the data are not required in LISREL VII. In particular, for data obtained on a Likert-scale, it is not necessary to assume that such data have interval properties. Instead, LISREL VII treats such data as categorical with underlying continuous latent distribution(s) by computing polychoric correlations and analyzing by the method of Weighted Least Squares (WLS). This represents a significant advantage because methods that assume that Likert-type data have interval properties can "lead to greatly distorted parameter estimates and incorrect χ^2 goodness-of-fit measures and standard errors" (Jöreskog and Sörbom 1988, p. 192). This troublesome situation is avoided in LISREL VII by the use of WLS method.

Of the competing models, a particular model(s) is selected as the most appropriate, based on statistical, parsimony, and substantive criteria. The statistical criterion stems from the overall goodness of fit statistics (e.g., χ^2, GFI). One or more models are accepted as plausible representations of data if each model provides acceptable overall statistics (e.g., nonsignificant χ^2, NFI > 0.90, etc.). By contrast, the parsimony criterion argues for a simpler model over a complex model if both provide acceptable statistical

TABLE 1
Operational Measures for the Constructs of Study

Consumer Satisfaction

Object	Dimension	Mean[a]	Item[b]
Physician	Expressive	4.85 (1.25)	With my doctor's personal concern for me, I feel . . (#1)
		4.85 (1.21)	With my doctor's willingness to explain reasons for medical treatment, I feel . . (#2)
Physician	Instrumental	5.03 (1.04)	With my doctor's medical abilities, I feel . . (#3)
		3.91 (1.44)	*With my doctor's choice of hospitals, I feel . . (#4)
Physician	Access/Cost	4.21 (1.44)	With my doctor's ability to see me on time, I feel . . (#5)
		3.87 (1.46)	With my doctor's costs of medical visits, I feel . . (#6)
Hospital	Expressive	4.34 (1.18)	With my hospital's personal concern for me, I felt . . (#7)
		4.21 (1.26)	With my hospital's willingness to explain its procedures, I felt . . (#8)
Hospital	Instrumental	4.71 (1.04)	With my hospital's medical capabilities, I felt . . (#9)
		4.79 (1.12)	With my hospital's physical appearance, I felt . . .(#10)
Hospital	Access/Cost	3.27 (1.44)	With my hospital's costs, I felt . . (#11)
		4.86 (1.12)	*With my hospital's location, I felt . . (#12)
Insurance	Expressive	3.64 (1.41)	With my insurance provider's personal concern for me, I felt . . (#13)
		3.66 (1.39)	With my insurance provider's willingness to explain its procedures, I felt . . (#14)
Insurance	Instrumental	3.91 (1.42)	With my insurance provider's benefits, I felt . . (#15)
		3.70 (1.57)	With my insurance provider's speed when responding to my concerns/claims, I felt . . (#16)
Insurance	Access/cost	3.73 (1.44)	With my insurance provider's expectation of the cost I should pay, I felt . . (#17)
		3.66 (1.28)	*With my insurance provider's availability, I felt . . (#18)

Switching Intentions

Object	Mean[a]	Item
Physician		In regard to my physician, I will . . .
	1.64 (1.15)	1. continue to use my current doctor (reverse scored).
	2.21 (1.46)	2. look for other doctors.
Hospital		In regard to my hospital, I will . . .
	1.80 (1.14)	1. continue to use my current hospital (reverse scored).
	2.28 (1.36)	2. look for other hospitals.
Insurance		In regard to my insurance provider, I will. . .
	1.70 (1.07)	1. continue to use my current policy (reverse scored).
	2.67 (1.65)	2. look for other policy.

*This item was deleted on the basis of initial analysis.

[a]Standard deviation in parenthesis. For all scales, the means are based on a six point scale. For satisfaction items, the scale points were as follows: 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Somewhat Dissatisfied, 4 = Somewhat Satisfied, 5 = Satisfied, and 6 = Very Satisfied. For behavioral intention items, the scale points were as follows: 1 = Very Unlikely, 2 = Unlikely, 3 = Somewhat Unlikely, 4 = Somewhat Likely, 5 = Likely, and 6 = Very Likely.
[b]The item number in parenthesis at the end of each item is utilized to refer corresponding items in Figures 2, 3 and 4.

fits. A model is simpler if it posits fewer latent constructs and/or measurement relationships. Finally, the substantive evaluation is based on examining the amount of variation attributable to objects, dimensions, and error in satisfaction data. Utilizing the full model (i.e., M_3), the variance in each satisfaction item is partitioned into the three components by computing the squares of standardized loadings (i.e., λ^2). Note that λ^2 provides an estimate for the variance shared
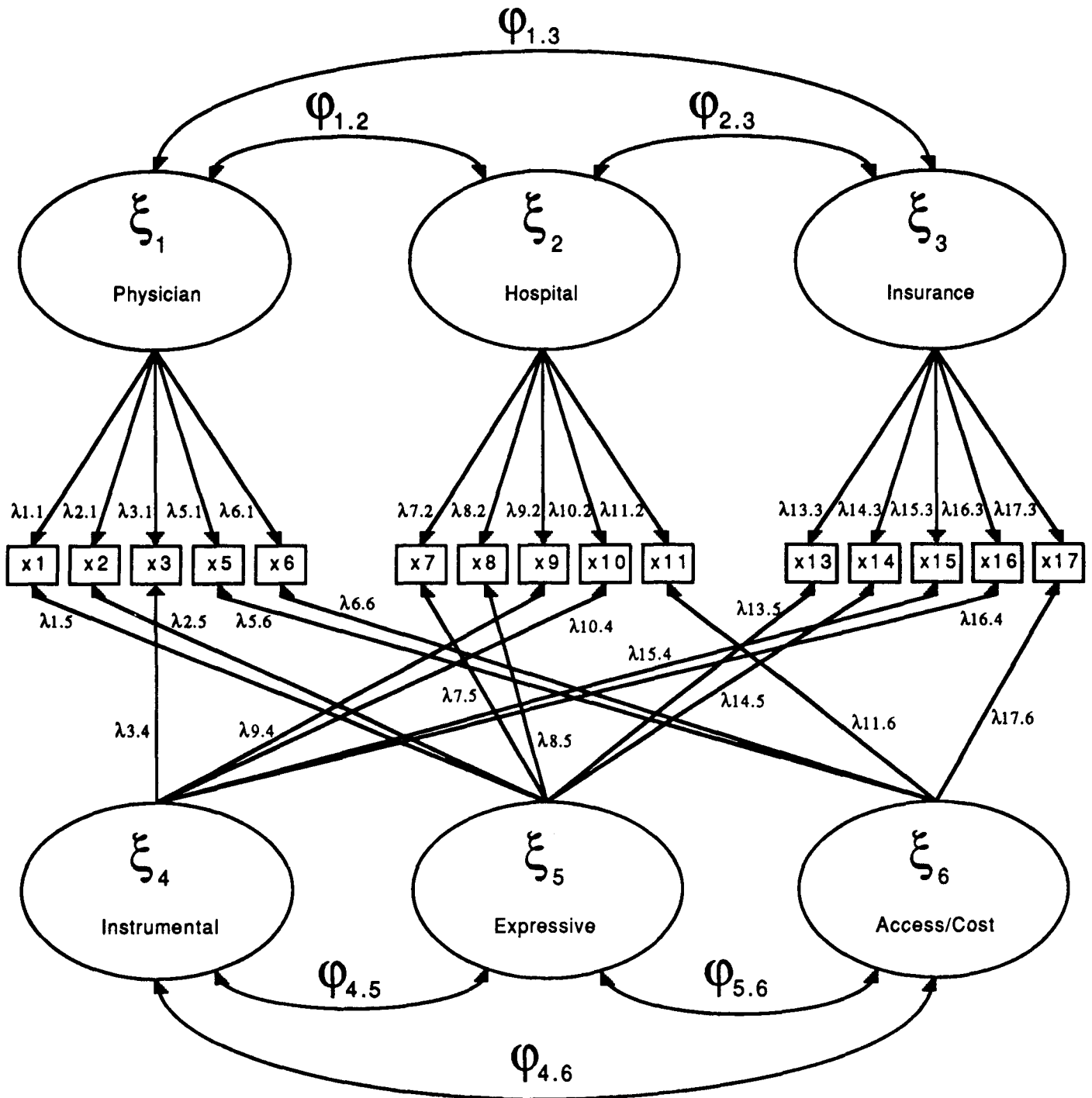
FIGURE 2
The Hypothesized Structure for the Multi-dimensional Model of Patient Satisfaction
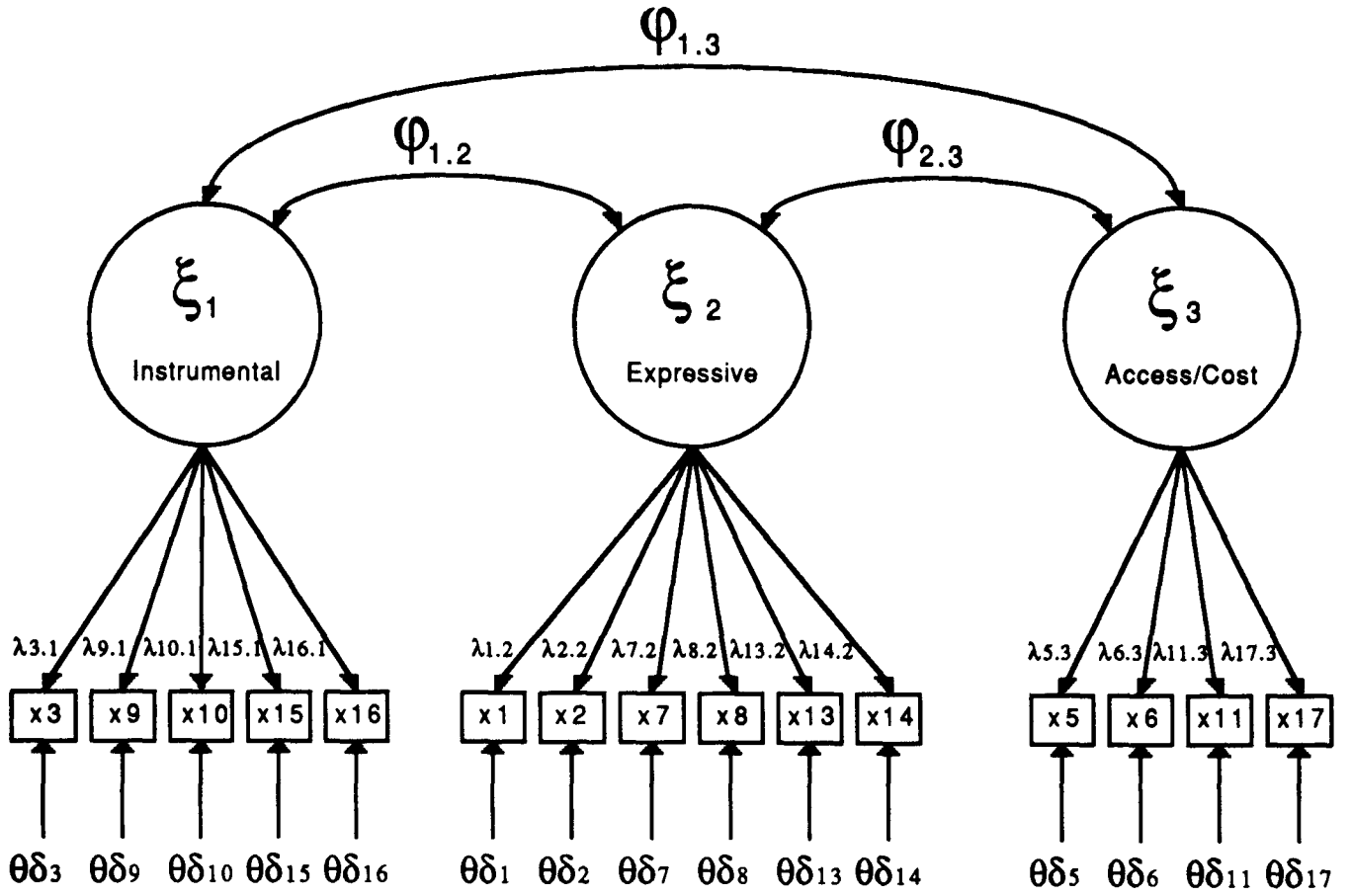
FIGURE 3
The Hypothesized Structure for the Multi-object Model of Patient Satisfaction
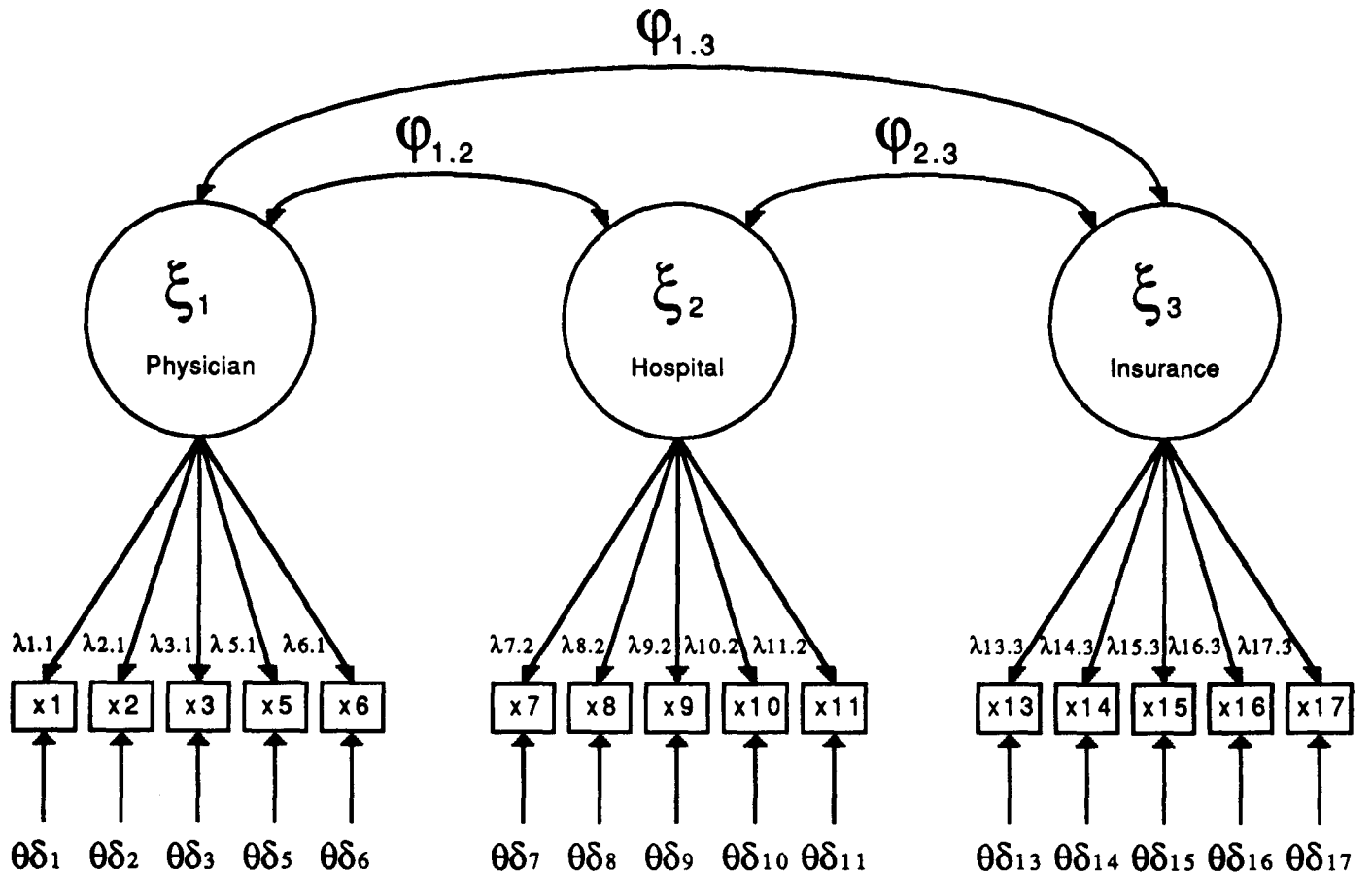
FIGURE 4
The Hypothesized Structure for the Multi-dimensional Multi-object Model of Patient Satisfaction


between the item and the corresponding factor. By so decomposing each item's variance, it can be ascertained if objects and/or dimensions are the major sources of variation in satisfaction evaluations.

Second, the convergent and discriminant validity of the multiobject satisfaction evaluations was examined. To accomplish this, a multitrait-multimethod (MTMM) matrix was analyzed by the method of hierarchically nested covariance structure models (Widaman 1985). In the

MTMM for this study, there are *three* different traits (i.e., physician, hospital, and insurance satisfaction), each of which is assessed by *two* methods, namely the overall item and the multiitem ratings (see measures section, above). Because these methods are not maximally dissimilar, this matrix is designated as a pseudo-MTMM. There is precedence for such an approach (e.g., Cadotte, Woodruff and Jenkins 1987). Also note that the overall items were not utilized in the first procedure. The posited model for the

FIGURE 5
The Model for the Analysis of Pseudo-Multitrait-Multimethod Consumer Satisfaction Data
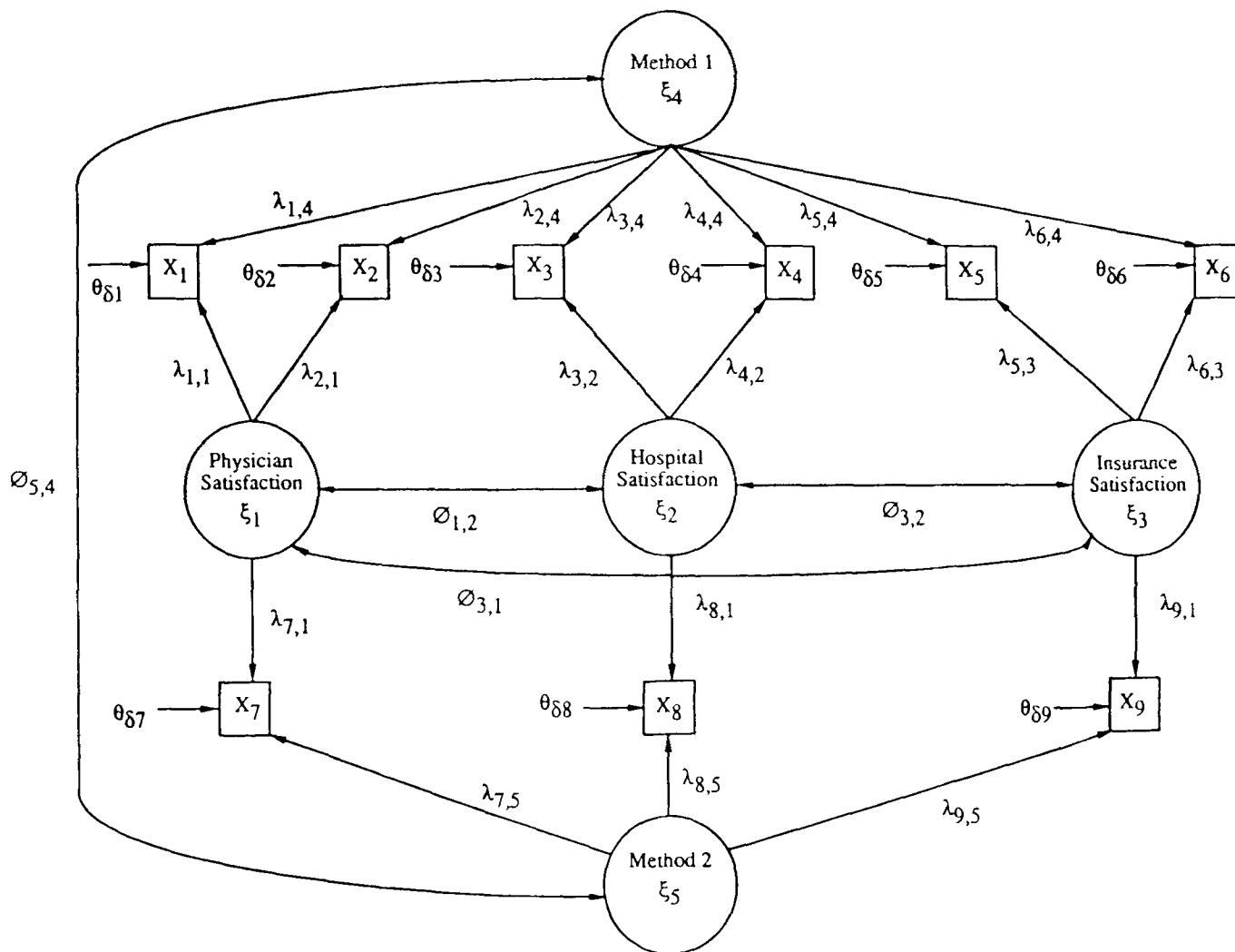
P-MTMM (see Figure 5) as well as other nested models were analyzed using LISREL VII by the method of WLS because of the reasons outlined above. Widaman (1985) suggests that the evidence for convergent and discriminant validity can be obtained by comparing the change in χ^2 between the unrestricted model (i.e., in which the methods and traits are allowed to correlate freely; see Figure 5) and an appropriate nested model. In particular, for discriminant validity, the appropriate nested model is the one in which all of the correlations among the traits are fixed to unity (model 2C in Widaman 1985). For this nested model, if the change in χ^2 is statistically significant (based on the difference in degrees of freedom), discriminant validity among the traits is tenable. Likewise, for convergent validity, the appropriate nested model is the one in which the loadings for the traits are set to zero *and* the inter-correlations among the traits are also set to zero (model 1C in Widaman 1985). Such a nested model attempts to fit the data with correlated method factors only. As such, if the change in χ^2 is statistically significant for this model, the traits are likely to possess convergent validity.

Finally, the nomological validity of the multiobject satis-

faction evaluations was investigated. A structural model was posited (see Figure 6) in which the individual object satisfactions (e.g., physician) were modeled as antecedents of behavioral intentions to switch the physician, hospital, or the insurance provider. For the multiobject hypothesis to be valid, structural coefficients must be higher (in absolute value) within the same object (e.g., physician satisfaction intentions to switch physician) than across objects (e.g., physician satisfaction intentions to switch hospital). Consistent with the previous models, the nomological network of Figure 6 was estimated by the method of WLS using LISREL VII. Note, the structural coefficients from this procedure are corrected for measurement error, and thus represent a reasonable basis to examine nomological validity within objects, and a lack thereof across objects.

RESULTS

Because the satisfaction items were specifically developed for this study, an initial analysis was performed to determine the quality of items. This analysis was based on

FIGURE 6
The Model for the Analysis of the Nomological Validity of Multiobject Consumer Satisfaction Data
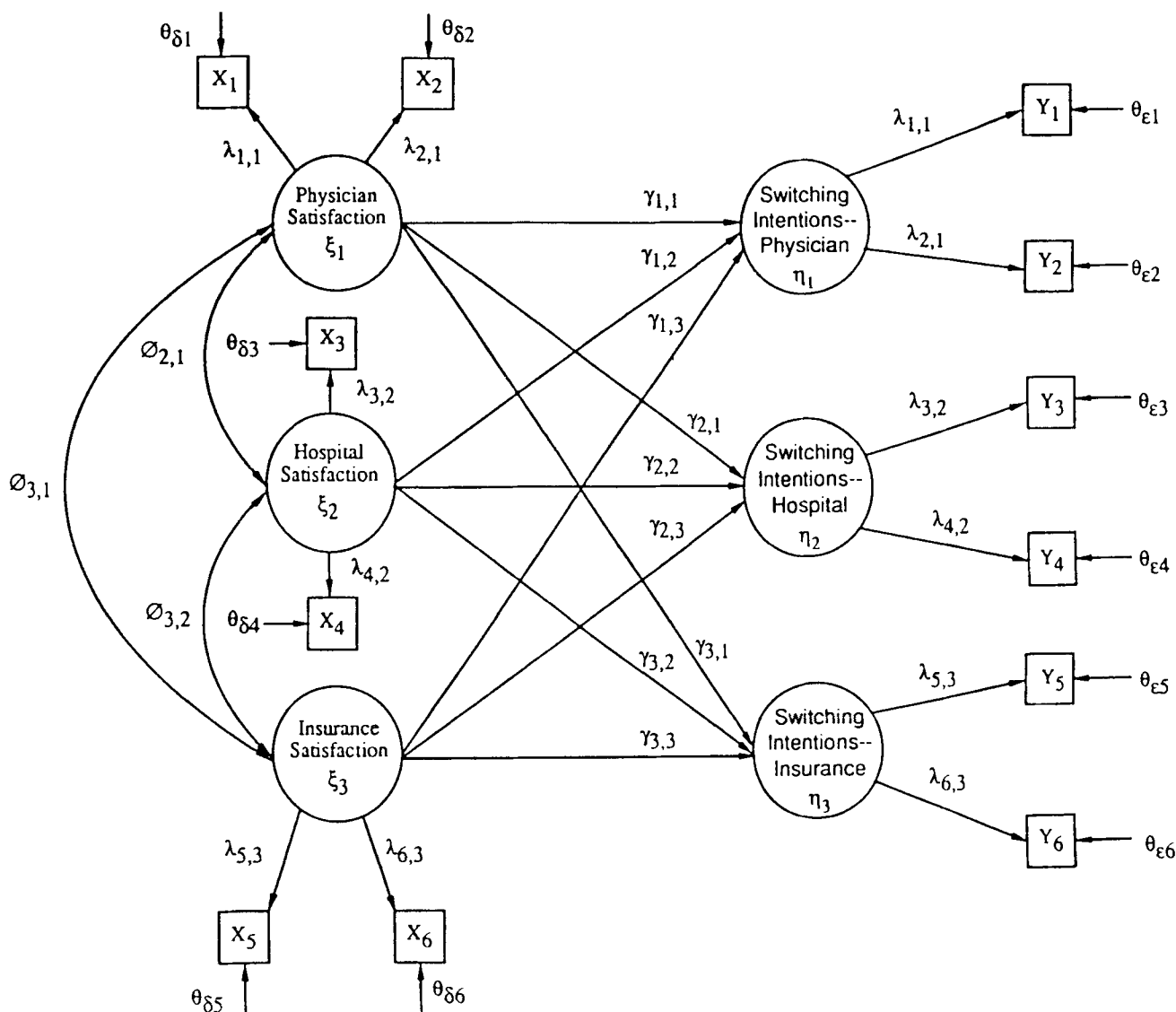
exploratory factor analysis and examination of inter-item correlations. Of the 367 usable responses, 150 were randomly selected for this analysis. The selection of a subset of the sample was preferred because it would not compromise the confirmatory nature of the study. This analysis revealed that 3 of the 18 items (see Table 1) were inconsistent with the remaining items. These items had low correlations with other items in its set and had poor loadings and/or cross-loadings in factor analysis. This loading pattern was evident even when six factors were extracted. For these reasons, the three items (indicated in Table 1) were deleted from further analysis. Univariate statistics (i.e., means and standard deviations) are also included in Table 1. The following analysis is based on the remaining 15 items.

Confirmatory Analysis of Alternative Models

Overall Model Fit. Results for the alternative conceptual models of satisfaction are shown in Table 2. Based on the

overall goodness-of-fit statistics, the M_3 model (i.e., Figure 4) yields satisfactory fit statistics (i.e., $\chi^2 = 103$, df $= 70, p = 0.006$, GFI $= 0.99$, AGFI $= 0.98$, and RMR $= 0.04$), indicating that the reproduced correlations nearly equal observed correlations in this model. In addition, the Bentler and Bonnet's normed fit index for this model is 0.99 suggesting that most of the intercorrelations in the data are captured by the model. Although the χ^2 is statistically significant, problems with the overall χ^2 test even in moderately large samples (e.g., $n > 200$; in our case $n = 367$) are well documented (Bentler and Bonnet 1980; Bagozzi and Yi 1988). For this reason, other indicators of fit (e.g., GFI, AGFI, RMR) are given greater prominence.

Comparisons of M_3 with M_2 and M_1 (see last two rows in Table 2) indicate that M_3 yields significant improvement in NFI relative to the M_1 model (value $= 0.25$), and comparatively smaller, though still significant, improvement relative to the M_2 model (value $= 0.05$). Furthermore, χ^2 differences for M_3 with all other competing models are sig-

TABLE 2
Tests for the Alternative Models of the Consumer Satisfaction Construct

| | | Model Tests[a] | | | | | Model Comparisons[b] | | | |
Model	Model Description	χ^2	df	GFI	AGFI	RMR	Model Comparison	χ^2	df	NFI[d]
M_0	Null	8469	120	0.25	0.25	0.40		d^c	d	
M_1	Figure 2	2210	87	0.80	0.73	0.20	M_0-M_1	6259	33	0.74
M_2	Figure 3	527	87	0.95	0.93	0.09	M_0-M_2	7942	33	0.94
M_3[e]	**Figure 4**	**103**	**70**	**0.99**	**0.98**	**0.04**	M_0-M_3	**8366**	**50**	**0.99**
							M_1-M_3	2107	17	0.25
							M_2-M_3	424	17	0.05

[a]All models were estimated by the method of Weighted Least Squares (WLS) using LISREL VII. The matrix of polychoric correlations was input to this method along with the asymptotic covariance matrix of the correlation matrix.
[b]All chi-square differences are significant at $p = 0.01$.
[c]This is the difference in the chi-square values of the models under comparison.
[d]NFI is the normed fit index based on Bentler and Bonnet (1980).
[e]For this model, a single Heywood condition was obtained for the theta delta parameter for item #15. This parameter was fixed at a very small value (0.001) and the model reestimated.

nificant at $p = 0.01$. Other indicators of fit (e.g., AGFI, RMR) provide additional evidence that neither M_2 (note high RMR and large χ^2) nor M_1 (note poorer on all statistics) are acceptable representation of data. This suggests that M_3 and *only* M_3 is acceptable as a plausible representation of consumer satisfaction evaluations.

Sources of Variation. Recall that the M_3 model posits that satisfaction is a multidimensional multiobject construct (Figure 3). Substantively, however, it is less clear if the dimensions or the objects (or both) are the major source of variance in satisfaction ratings. This is an important issue because it provides guidelines for the further development of the satisfaction construct. For instance, if the dimensions are the major source of variation, then future operationaliza-

TABLE 3
Sources of Variation in Satisfaction Evaluations[a]

| | Sources[c] | | |
Item[b]	Objects	Dimensions	Error
Physician Items			
Item #1	70	11	19
Item #2	74	14	12
Item #3	64	0	48
Item #5	49	3	38
Item #6	31	31	35
Hospital Items			
Item #7	77	1	22
Item #8	74	1	25
Item #9	70	1	29
Item #10	38	0	25
Item #11	42	32	61
Insurance Items			
Item #13	74	14	12
Item #14	77	10	13
Item #15	66	17	17
Item #16	61	6	23
Item #17	49	29	33

[a]All values are in percentages.
[b]Corresponds to items listed in the order in Table 1.
[c]Computed as the square of the corresponding factor loading.

tions must explicitly focus on dimensions, and the loss of information by ignoring objects may be negligible. By contrast, if both dimensions and objects share equal variance, arguments for ignoring either dimensions or objects in future research would be less persuasive.

Using the LISREL results for the M_3 model, Table 3 depicts the individual item variance partitioned into three parts: due to (a) dimension, (b) object, and (c) unique and random error. The corresponding WLS parameter estimates are in Table 4. Evidence here suggests that the objects are the major source of variance. First, note in Table 4 that estimates for object factor loadings are consistent and uniformly higher than the corresponding loadings for dimensions. Second, Table 3 reveals that object variance ranges from 31% to 77%, with an average contribution of 61%. By contrast, the dimensions produce isolated effects. For instance, the access/cost dimension (note: item pertains to costs) accounts for a significant portion of the variance for physician (item 6) and hospital (item 11) evaluations. The expressive dimension appears critical for the physician (variance contribution 11% and 14%) and the insurance provider (variance contribution of 14% and 10%). On the average, the dimensions account for only about 11% of the variance. Thus, the overall conclusion here is that the object evaluations constitute the major factors in consumers' satisfaction judgments. Next, we examine if the object evaluations achieve convergent, discriminant, and nomological validity.

Convergent and Discriminant Validity

Initially the unrestricted P-MTMM model of Figure 5 was estimated using the WLS procedure in LISREL VII. However, it was not possible to utilize the raw variables directly because problems were encountered in estimating the asymptotic covariance matrix of the ploychoric and polyserial correlations. This mainly occurred due to the "small" sample size relative to the number of variables (Jöreskog and Sörbom 1988, p. 192; note the number of variables have increased from the measurement models of Figures 2–4). To address this problem, the raw indicants for *each* of

TABLE 4
WLS Parameter Estimates for the Multidimensional Multiobject Model of Satisfaction Evaluations

	Objects			Dimensions		
	Physician	Hospital	Insurance	Expressive	Instrumental	Access/cost
WLS Factor Loadings[a]						
Item #1	0.83			0.34		
Item #2	0.86			0.37		
Item #3	0.80				0.11	
Item #5	0.70					0.17
Item #6	0.56					0.56
Item #7		0.88		0.09		
Item #8		0.86		0.09		
Item #9		0.84			0.11	
Item #10		0.62			0.07	
Item #11		0.65				0.57
Item #13			0.86	0.38		
Item #14			0.88	0.31		
Item #15			0.81		0.41	
Item #16			0.78		0.25	
Item #17			0.70			0.54

Goodness-of-Fit Measures	
Chi-square	103
degrees of freedom	70
Goodness of Fit Index	0.99
Adjusted Goodness of Fit Index	0.98
Root Mean Square Residual	0.04

[a]Corresponds to items listed in the order in Table 1.

TABLE 5
WLS Parameter Estimates for the Model in Figure 5: Test for Discriminant and Convergent Validity

Parameter[a]	WLS Estimate	t-value	Parameter[a]	WLS Estimate	t-value
Physician Satisfaction			**Method 1 (Multi-item Ratings)**		
$\lambda_{1,1}$	0.70	2.88	$\lambda_{1,4}$	0.71	1.98
$\lambda_{2,1}$	0.13	0.51	$\lambda_{2,4}$	0.69	3.95
$\lambda_{7,1}$	0.62	2.71	$\lambda_{3,4}$	0.51	1.12
			$\lambda_{4,4}$	0.76	3.69
Hospital Satisfaction			$\lambda_{5,4}$	0.51	3.07
$\lambda_{3,2}$	0.86	3.10	$\lambda_{6,4}$	0.50	2.34
$\lambda_{4,2}$	0.47	1.48			
$\lambda_{8,2}$	0.59	2.65			
Insurance Satisfaction			**Method 2 (Overall Ratings)**		
$\lambda_{5,3}$	0.64	2.92	$\lambda_{7,5}$	0.80	3.26
$\lambda_{6,3}$	0.72	2.43	$\lambda_{8,5}$	0.70	2.83
$\lambda_{9,3}$	0.79	3.04	$\lambda_{9,5}$	0.54	2.80
Intercorrelations: Satisfaction			**Intercorrelations: Methods**		
ϕ_{21}	0.31	2.08	ϕ_{54}	0.95	—
ϕ_{31}	0.16	1.87			
ϕ_{32}	0.24	2.20			

Goodness-of-Fit Measures	
Chi-square	3.46
degrees of freedom	17
p-value	0.99
Goodness of Fit Index	0.99
Adjusted Goodness of Fit Index	0.99
Root Mean Square Residual	0.05

[a]All parameters correspond to symbols in Figure 5.

the satisfaction objects (e.g., physician) were split randomly into two groups to provide alternate indicators for each object. There is precedence for such an approach (Bagozzi 1980; Michaels, Day and Joachimsthaler 1987). Because of this, Figure 5 depicts two indicators for each object satisfaction. The WLS estimates for the model in Figure 5 are in Table 5.

Results in Table 5 suggest that the model in Figure 5 is a reasonable representation of the P-MTMM data ($\chi^2 = 3.46$, df $= 17$, $p = 0.99$, GFI $= 0.99$, AGFI $= 0.99$, RMR $= 0.05$). Note, however, that in estimating this model a Heywood condition was obtained because of the very large correlation between the two methods. This is not surprising because the methods represent only different types of items (i.e., multiitem versus overall) and do not constitute two

listinct or maximally dissimilar methods. For this reason, the correlation between the two methods was constrained to 0.95.

As noted earlier, the test for *discriminant validity* among the three object satisfactions was based on a nested model which constrained the intercorrelations among the traits to unity. When compared to the model in Figure 5, the change in χ^2 was 47.7, df $= 3$, $p < 0.001$. This resoundingly rejects the hypothesis that the traits are perfectly correlated, thus suggesting that the three object satisfactions possess discriminant validity. Note, also that the estimates of trait intercorrelations in Table 5 are not very high; specifically, ranging from 0.16 to 0.31. This further supports the discriminant validity of the multiobject satisfaction evaluations.

TABLE 6
WLS Parameter Estimates for the Model in Figure 6: Test for Nomological Validity

Parameter	WLS Estimate	Standardized Estimate	t-value
Loadings: Physician Satisfaction			
$\lambda_{1,1}$	1.00^a	0.60	—
$\lambda_{2,1}$	0.94	0.57	5.51
Loadings: Hospital Satisfaction			
$\lambda_{3,2}$	1.00^a	0.56	—
$\lambda_{4,2}$	0.92	0.52	6.54
Loadings: Insurance Satisfaction			
$\lambda_{5,3}$	1.00^a	0.51	—
$\lambda_{6,3}$	0.72	0.36	3.24
Loadings: Physician Switching Intentions			
$\lambda_{1,1}$	1.00^a	0.93	—
$\lambda_{2,1}$	0.94	0.88	13.82
Loadings: Hospital Switching Intentions			
$\lambda_{3,2}$	1.00^a	0.93	—
$\lambda_{4,2}$	0.85	0.79	14.17
Loadings: Insurance Switching Intentions			
$\lambda_{5,3}$	1.00^a	0.89	—
$\lambda_{6,3}$	0.84	0.75	9.13
Intercorrelations			
ϕ_{21}	—	0.67	5.05
ϕ_{31}	—	0.36	4.68
ϕ_{32}	—	0.52	6.20
Structural Coefficients			
γ_{11}	-1.54	-1.00	-5.72
γ_{21}	0.21	0.13	0.41
γ_{31}	-0.35	-0.23	-2.62
γ_{12}	-0.25	-0.15	-1.22
γ_{22}	-1.68	-1.01	-8.53
γ_{32}	-0.44	-0.28	-3.10
γ_{13}	-0.02	-0.01	-1.30
γ_{23}	-0.27	-0.15	-7.87
γ_{33}	-1.76	-1.00	-7.92
Goodness-of-Fit Measures			
Chi-square		61.12	
degrees of freedom		50	
p-value		0.13	
Goodness of Fit Index		0.98	
Adjusted Goodness of Fit Index		0.98	
Root Mean Square Residual		0.15	

^{a}This parameter was fixed to 1.00 to fix the scale of measurement.

In order to test for *convergent validity*, a nested model was estimated which included method factors only. This produced a change in the χ^2 of 136.48, df = 12, $p < 0.001$ (i.e., compared to the model in Figure 5). This suggests that intercorrelations among the variables can not be attributed to method factors only. As such, a significant proportion of the covariation among the indicants is uniquely accounted for by the satisfaction objects. This strongly supports *convergent* validity of the multiobject satisfaction construct.

Nomological Validity

Figure 6 depicts the model tested for examining the nomological validity of the multiobject evaluations. This model is consistent with the preceding analysis in that the satisfaction measures were grouped into two alternative indicators for each object by grouping the raw variables. However, the inclusion of all of the structural coefficients created problems of instability and large standard errors. To address this, initially only within object structural coefficients were estimated (i.e., diagonals of the γ matrix). Following this, *three* additional models were estimated by freeing up the across object structural coefficients separately for *each* object satisfaction. This allowed the comparison of respective within and across object coefficients, for each object. Results from these analysis are in Table 6. Note that the loadings and overall goodness-of-fit measures are reported for the initial model only (i.e., in which the within object coefficients were estimated).

The results in Table 6 suggest that the model in Figure 6 fits the data reasonably well ($\chi^2 = 61.12$, df = 50, $p = 0.13$, GFI = 0.98, AGFI = 0.98, and RMR = 0.15). In addition, all of the loading coefficients are significant (i.e., t-values > 2.0) indicating that the individual constructs are measured well. More importantly, the nomological validity criterion, that within-object coefficients be greater than across-object coefficients (in absolute value), is strongly supported. For instance, the standardized coefficient between satisfaction with *physician* and intentions to switch *physician* is −1.00. This is the within-object coefficient. In comparison, the standardized coefficients across object for physician satisfaction (e.g., physician satisfaction and intentions to switch hospitals) are only 0.13 and −0.23. Likewise, hospital and insurance satisfaction ratings produce similar results. On the average, the within-object coefficient is −1.00. By contrast, the average across-object coefficient is only −0.12. This supports the *nomological-validity* of the multiobject satisfaction evaluations.

DISCUSSION AND IMPLICATIONS

The purpose of this paper has been three-fold: (a) to *review* the medical sociology and community health literature on the structure of satisfaction evaluations; (b) to *develop* a hypothesis, based on theoretical arguments drawn from the services marketing, social psychology, and organization theory literatures, for the multiobject conceptualization of the satisfaction construct; and (c) to examine this hypothesis empirically using consumers' evaluations in the context of health care delivery. Below, the results of this study are discussed and specific implications for theory, service practitioners, and future research are identified. First, however, some limitations to this study are enumerated.

Limitations

Not unlike other cross-sectional survey studies, the findings of this research should be evaluated in light of certain limitations. The results are based on a mail survey of four metropolitan areas. Although these areas were systematically selected, the findings may have limited generalizability due to this geographic restriction. Further, the high proportion of white and female respondents is likely to result in restriction of range and argues for replication with other health care users. Note, however, that the focus of the study is relationships among variables rather than mean values per se. The response rates in this study were of the order of around 39%. Also, additional responses were lost because respondents had provided incomplete responses yielding a usable rate of 34%. While response rates of this order are not unusual in PS research (Pascoe 1983), they may affect the validity of the results. Finally, the elementary measurement of various dimensions and the initial nature of the study suggests future replications and validation.

Discussion

Marketing researchers have tended to focus on the satisfaction processes, paying inadequate attention to the structure of satisfaction evaluations. By contrast, the medical sociology and community health literatures have closely examined the structure of patient satisfaction. However, our review of these literatures revealed that, although advances have been made in studying "what is consumer satisfaction?" in terms of the theoretical approach, dimensional structure (of attribute evaluations), and operationalizations, relatively little attention has been given to "what is the consumer satisfied with?" in terms of explicitly identifying the object of satisfaction evaluations. This state of affairs leaves an impression that objects are secondary, if not inconsequential, factors in satisfaction data. By contrast, dimensions appear to be regarded as the primary source of variance.

Our study attempted to examine critically the preceding state of affairs. *Theoretically*, compelling arguments based on the notions of service encounters (services marketing), service scripts (social psychology), boundary spanning roles in loosely coupled organizations, and customer contact (organizational theory) were forthcoming to support the hypothesis for incorporating multiple objects in satisfaction evaluations. *Empirically*, this initial study provided clear and compelling insights into the structure of satisfaction evaluations. Although, of the competing models, the multidimensional-multiobject model is unequivocally supported as an acceptable representation of data, the partitioning of item variances indicated that the objects were the major source of variation in consumers' evaluations. By contrast, dimensions were secondary factors contributing on the average just *one-fifth* as much variance as objects. In addition,

dimensions produced isolated effects. Thus, it seems apparent that the unsystematic treatment of objects in satisfaction evaluations, as evident in previous research, is unfortunate and should not be continued. Instead, researchers should carefully delineate the various objects in a service system (cf. Figure 1) and explicitly include them in satisfaction measurements.

Furthermore, the findings of this study show that consumers draw important distinctions between the various object satisfactions and may arrive at an overall satisfaction judgment that reflects evaluations for the individual objects. This conclusion stems from the evidence for the internal consistency, convergent, discriminant, and nomological validity of multi-object satisfaction evaluations. Each object evaluation evidenced a high level of internal consistency ($\alpha > 0.80$). Using a pseudo-MTMM, clear evidence of convergent and discriminant validity was obtained (Table 5). Consistent with this, nomological validity analysis indicated that, for each object, within-object correlations between satisfaction ratings and switching intentions were at least *three-fold* higher than across-object correlations (Table 6). Thus, it is apparent that object-based evaluations carry substantially significant and critically important information about consumers' satisfaction evaluations. Consequently, in most previous research, the (unintentional) lack of systematic attention to objects may have had the undesirable effect of the proverbial "throwing out the baby with the bath water."

Note, however, that the findings of this study do not suggest that the multiobject view is sufficient to understand consumers' evaluations. Rather, a multiobject, multidimensional structure is consistent with data. Thus, our findings should not be taken to imply that dimensions are inconsequential. Instead, it is appropriate to conclude that future analysis focusing on either dimensions or objects would necessarily provide an incomplete picture of how consumers actually evaluate their service encounters. For a complete picture, there appears to be sufficient evidence to conclude that both dimensions and objects should be explicitly incorporated in satisfaction data.

This may represent a natural evolution of the satisfaction construct from a concept concerned with evaluation of *aggregate* (i.e., ignoring object differences) satisfaction to a more *specific* formulation that specifies *what* particular object in the service system serves as the focus of consumers' evaluations. Similar evolution in the conceptualization and focus has occurred for other constructs in marketing research. Such evolutionary developments have often facilitated deeper understanding of the antecedents, consequences, and the structure of such constructs. For instance, a related construct in marketing—salesperson job satisfaction—has evidenced similar development. Early studies in job satisfaction viewed the construct as a global, attitudinal response to job (e.g., Hoppock 1935). In further development, Churchill, Ford and Walker (1974) conceptualized (and operationalized) the job satisfaction construct (INDSALES) as composed of several satisfactions with different aspects of the job, many of which were distinct objects in the salespersons' "job-system" (e.g., fellow workers, supervisor, top management, customers). The use of multifacet satisfaction has revealed richer insights into such

phenomena as turnover (Futrell and Parasuraman 1984), role stress (Fry et al. 1986), and performance (Futrell and Parasuraman 1984). Hence, Churchill et al. (1974) observe that studies that "fail to take these unique [multi-facet] characteristics into account are not likely to provide a complete and accurate picture of reality." A similar call appears justified for the consumer satisfaction construct.

At a more general level, this study directs attention to and offers some guidelines for conceptualizing the structure of consumers' satisfaction evaluations. Westbrook and Oliver (1981) have speculated that assessing satisfaction with the various aspects of the product/service may be fruitful because of its richer insights. Along these lines, this study suggests that the various aspects of satisfaction fall into two major *types* of evaluations. The first pertains to *attribute*-based satisfaction evaluations. Advances in the medical sociology and community health literature suggest that these attribute evaluations can be parsimoniously represented by a tripartite structure consisting of expressive, instrumental, and access/cost dimensions. We suspect that this dimensional structure may be applicable for other, if not most, services (e.g., banking, restaurants, airline travel, hotels, college education; cf. Chase and Tansik 1983).

The *object*-based evaluations appear as the second major component of satisfaction evaluations. Theoretically, this study has argued that, for services that involve multiple interactions with different people (i.e., objects), satisfaction ratings might evidence significant variability due to objects. Examples of such services include (a) college education, where consumers interact with professors, administrators, and staff, (b) banking services, where tellers, loan officers, and other people may be involved, and (c) airline travel, where travel agents, airline crew/hostess, and other ground staff may interact with the consumer in service delivery. For such services, inclusion of objects in satisfaction evaluations appears rewarding. A recent study by Crosby and Stephens (1987) underscores this recommendation. Crosby and Stephens examined antecedents of satisfaction in the case of whole life insurance. They conceptualized satisfaction as having three elements, namely, satisfaction with the (a) contact person, (b) core service, and (c) institution. Results of this study show that, in addition to being distinct (i.e., possessing discriminant validity), the three satisfaction components had differential relationships with the modeled antecedents. For instance, boundary personnel interactions (modeled by personal contact and customer service) appeared to mostly influence satisfaction with contact person only. Likewise, satisfaction with the core service and institution yielded unique and nonredundant relationships with the antecedents.

In summary, we advocate that marketing researchers pay greater attention to the structure of satisfaction evaluations. Especially in the case of multiobject services, we recommend that marketing researchers may wish to entertain a multidimensional-multiobject view of satisfaction evaluations. We believe that this view potentially affords a richer and more accurate picture of the nature and structure of consumers' satisfaction evaluations. In addition, adoption of this view is likely to yield better understanding of how consumers actually arrive at their satisfaction judgments

concerning consumption experiences (cf. Crosby and Stephens 1987). That is, our understanding of the *process* of satisfaction would be more insightful once issues pertaining to the *structure* of the satisfaction evaluations are satisfactorily addressed.

Implications

Our study offers three key implications. First, it suggests that further development of the satisfaction construct is both desirable and necessary. Issues that warrant the serious attention of researchers include: (a) explicitly recognizing the distinct objects in the service system, (b) developing operational measures that assess the unique *dimensions* for each *object*, and (c) conducting further psychometric studies for understanding the structure of satisfaction ratings. As an initial study in this direction, our research yields evidence in support of three distinct objects, namely physicians, hospitals, and insurance providers. Future research may wish to reproduce these results by utilizing more comprehensive measures. Also, replications using especially male and black/hispanic populations would provide useful insights into the validity of the obtained findings. In addition, other objects in the health care system could be identified. Along these lines Woodside, Frey and Daly (1988) examined service encounters during hospital stay and advanced the notion of satisfaction with four different service objects: specifically (a) admission and registration, (b) nursing care, (c) food service, and (d) housekeeping. This further decomposes the hospital satisfaction into finer evaluations. Similar decomposition may be achieved for insurance provider (cf. Crosby and Stephens 1987) and physician encounters. Future research should empirically examine whether consumers indeed make such fine evaluations. Such developmental work is important because it will facilitate better insights into issues such as, how consumers evaluate the health care system, why patients are satisfied (or dissatisfied), and what precisely can be done to improve satisfaction levels.

Second, the proposed conceptualization offers new avenues for investigation. Much previous research has asked if consumers are satisfied with their medical care. The results of this study suggest the pursuit of a new line of research questions. Examples of such questions are: Are some consumers more satisfied with their physicians than with their insurance providers? With what object are patients most dissatisfied? Do the satisfaction levels for the various dimensions (e.g., expressive, instrumental) vary across objects (e.g., hospitals, physicians)? That is, if such differential satisfaction levels indeed exist, then researchers should identify sources (or causes) that not only explain why consumers are satisfied but also why they are differentially satisfied with hospitals, physicians, and insurance providers.

Third, the multiobject perspective has the potential to offer more specific guidelines for practitioners. The measurement of the level of and the object of satisfaction ratings facilitates pinpointing areas for programs to enhance customer satisfaction. Previous conceptualizations do not allow such precise targeting. For instance, the use of Ware et al.'s

APPENDIX I
Demographic Characteristics of the Sample

Sex		Education	
Males	16%	≤High School	46%
Females	84%	Trade School	9%
		College	37%
Age		Graduate School	8%
≤25 years	12%		
26 to 30 years	19%	**Race**	
31 to 35 years	14%	White	95%
36 to 40 years	11%	Black	3%
41 to 45 years	8%	Hispanic/other	2%
46 to 50 years	8%		
51 to 55 years	6%	**Income**	
56 to 60 years	6%	<$10,000	10%
>60 years	16%	$10,000 to $20,000	19%
		$20,001 to $30,000	26%
Marital Status		$30,001 to $50,000	33%
Single	8%	$50,001 to $70,000	8%
Married	78%	$70,001 to $90,000	3%
Separated	4%	>$90,000	1%
Divorced	5%		
Widowed	5%		

PSQ may reveal that the major source of dissatisfaction is the "art of care," or in other words, the "mode" (cf. Ben-Sira 1980) in which the health care was delivered. It is clear that improving the mode of health care delivery would, in this hypothetical case, increase satisfaction. However, what is less clear is *who* should be the target for such changes? Should nurses be trained to be more pleasant? or Should physicians spend more time communicating with patients? Should insurance agents be more customer oriented? The current operationalizations cannot sort through these possibilities. By contrast, the proposed conceptualization for the satisfaction construct can address such questions precisely.

ACKNOWLEDGMENT

NOTES

1. The term "structure" is utilized to represent the nature, content, and dimensions of the satisfaction construct. In this sense, discussion of structure issues is synonymous with construct development questions. In contrast, the "process" issues relate to the underlying cognitive/affective mechanisms which lead to the formation of satisfaction judgments. Oliver and DeSarbo (1988) have recently reviewed the various theoretical approaches for understanding such processes. Although some early work has tended to blur these distinctions by viewing satisfaction as a derived construct, contemporary research draws clear distinction between the state (and hence the nature and structure of the construct) of consumer satisfaction and the processes of its formation (e.g., see Churchill and Surprenant 1982).

2. We recognize that several different objects are usually present within a hospital–patient interaction, such as nurses, registration staff, technicians, etc (e.g., see Woodside, Frey and Daly 1989). For the purposes of this initial study, rather than introduce this additional

complexity, we utilized the simpler notion that the "hospital" object represents the hospital itself (e.g., physical facilities) as well as encounters with the various hospital staff (e.g., nurses). In the implications section, however, we discuss this issue in greater detail. Also, in subsequent discussion we use the terms hospital and hospital staff interchangeably.

REFERENCES

Aday, L., and R. Andersen. 1975. *Access to Medical Care*. Ann Arbor, MI: Health Administration Press.

Aiello, A., J. Czepiel, and L. Rosenberg. 1977. "Scaling the Heights of Consumer Satisfaction: An Evaluation of Alternative Measures." Pp. 43–50 in *Consumer Satisfaction, Dissatisfaction and Complaining Behavior*. Ed. Ralph Day.

Aldrich, H.E. 1979. *Organizations and Environments*. Engelwood Cliffs, NJ: Prentice-Hall.

Anderson, James, and David Gerbing. 1988. "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach." *Psychological Bulletin* 103: 411–423.

Armstrong, J. Scott, and Terry Overton. 1977. "Estimating Nonresponse Bias in Mail Surveys." *Journal of Marketing Research* 14 (August): 396–402.

Bagozzi, Richard. 1980. "Performance and Satisfaction in an Industrial Salesforce: An Evidence of Their Antecedents and Simultaneity." *Journal of Marketing* 44 (Spring): 65–77.

Bagozzi, Richard, and Youjae Yi. 1988. "On the Evaluation of Structural Equation Models," *Journal of the Academy of Marketing Science* 16 (Spring): 74–94.

Ben-Sira, Z. 1980. "Affective and Instrumental Components in the Physician–Patient Relationship: An Additional Dimension of Interaction Theory." *Journal of Health and Social Behavior* 21 (June): 170–180.
————. 1976. "The Function of the Professional's Affective Behavior in Client Satisfaction: A Revised Approach to Social Interaction Theory." *Journal of Health and Social Behavior* 17 (March): 3–11.

Bentler, Peter, and Douglas Bonnet. 1980. "Significance Tests and Goodness of Fit Analysis in Covariance Structures." *Psychological Bulletin* 88: 588–606.

Bice, T., and E. Kalimo. 1971. "Comparisons of Health Related Attitudes: A Cross National Factor Analytic Study." *Social Science and Medicine* 5: 283–318.

Blendon, R., and D. Altman. 1984. "Public Attitudes About Health Care Costs." *The New England Journal of Medicine* 311: 613–616.

Bowen, D., and B. Schneider. 1985. "Boundary Spanning Role Employees and the Service Encounter: Some Guidelines for Management and Research." In *The Service Encounter*. Eds. J. Czepiel, M. Solomon, and C. Surprenant. Lexington, MA: D.C. Heath.

Bowen, D., and B. Schneider. 1988. "Services Marketing and Management." *Research in Organizational Behavior* 10: 43–80.

Buller, M., and D. Buller. 1987. "Physicians' Communication Style and Patient Satisfaction." *Journal of Health and Social Behavior* 28: 375–388.

Cadotte, E., R. Woodruff, and R. Jenkins. 1987. "Expectations and Norms in Models of Consumer Satisfaction." *Journal of Marketing Research* 24: 305–314.

Campbell, D., and D. Fiske. 1959. "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix." *Psychological Bulletin* 56: 81–105.

Chase, R., and D. Tansik. 1983. "The Customer Contact Model for Organizational Design." *Management Science* 29: 1037–1050.

Churchill, G., and C. Surprenant. 1982. "An Investigation into the Determinants of Consumer Satisfaction." *Journal of Marketing Research* 19: 491–504.

Churchill, G., Neil Ford, and O. Walker, Jr. 1974. "Measuring the Job Satisfaction of Industrial Salesmen." *Journal of Marketing Research* 11 (August): 254–260.

Crosby, L., and N. Stephens. 1987. "Effects of Relationship Marketing on Satisfaction, Retention, and Prices in the Life Insurance Industry." *Journal of Marketing Research* 24 (November): 404–411.

Czepiel, John, and Larry Rosenberg. 1977. "The Study of Consumer Satis-

faction: Addressing the 'So What' Question." In *Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction*. Ed. H. Keith Hunt. Cambridge, MA: Marketing Science Institute.

DiMatteo, M.R., L.M. Prince, and A. Taranta. 1979. "Patient's Perceptions of Physician's Behavior: A Study of Patient Satisfaction in a Family Practice Center." *Journal of Community Health* 4: 280–290.

Dixon, George. 1989. "Keep 'em Satisfied." *Marketing News* January 2.

Doyle, B., and J. Ware. 1977. "Physician Conduct and Other Factors that Affect Consumer Satisfaction with Medical Care." *Journal of Medical Education* 52 (October): 793–801.

Fishbein, M., and I. Ajzen. 1975. *Belief, Attitude, Intention, and Behavior*. Reading, MA: Addison-Wesley.

Fry, L., C. Futrell, A. Parasuraman, and M. Chmielewski. 1986. "An Analysis of Alternative Causal Models of Salesperson Role Perceptions and Work Related Attitudes." *Journal of Marketing Research* 23 (May): 153–163.

Futrell, C., and A. Parasuraman. 1984. "The Relationship of Satisfaction and Performance to Salesforce Turnover." *Journal of Marketing* 48 (Fall): 33–40.

Harris, R. 1978. "Improving Patient Satisfaction Through Action Research." *Journal of Applied Behavioral Science* 14: 382–399.

Hausknecht, D. 1988. "Emotional Measures of Satisfaction/Dissatisfaction." *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior* 1: 25–33.

Hines, B., Q. Clarkson, and D. Smith. 1977. "Development and Use of a Patient Satisfaction Questionnaire." *Journal of Family Practice* 4: 148–149.

Hoppock, R. 1935. *Job Satisfaction*. New York: Harper and Row.

Howard, John, and Jagdish Sheth. 1969. *The Theory of Buyer Behavior*. New York: John Wiley and Sons.

Hulka, B., and S. Zyzanski. 1982. "Validation of Patient Satisfaction Scale." *Medical Care* 20: 649–653.

Hulka, B., S. Zyzanski, J. Cassel, and S. Thompson. 1970. "Scale for the Measurement of Attitudes Toward Physicians and Medical Care." *Medical Care* 8 (September/October): 429–435.

Hunt, K. 1977. "CS/D: Overview and Future Research Directions." In *Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction*. Ed. H.K. Hunt. Cambridge: Marketing Science Institute.

Inui, T.S., and W.B. Carter. 1985. "Problems and Prospects of Health Services Research on Provider–Patient Communication." *Medical Care* 23: 521–530.

Jöreskog, K., and D. Sörbom. 1988. *LISREL VII: A Guide to the Program and Applications*. Chicago: SPSS Inc.

Keckley Report. 1986. "Women's Health Care: A Unique Market Opportunity or Much Ado About Nothing." Supplement to *Health Care Competition Week*. October 20, 1986.

Kiesler, Charles, and Teru Morton. 1988. "Psychology and Public Policy in the 'Health Care Revoultion'." *American Psychologist* 43 (December): 993–1003.

Kotler, P. 1988. *Marketing Management*. Prentice-Hall.

Langeard, E., J. Bateson, C. Lovelock, and P. Eiglier. 1981. *Services Marketing: New Insights from Consumers and Managers*. Cambridge: Marketing Science Institute.

Linder-Pelz, S. 1982. "Toward a Theory of Patient Satisfaction." *Social Science and Medicine* 16: 577–582.

Linn, L., and S. Greenfield. 1982. "Patient Suffering and Patient Satisfaction Among the Chronically Ill." *Medical Care* 20: 425–431.

Locker, D., and D. Dunt. 1978. "Theoretical and Methodological Issues in Sociological Studies of Consumer Satisfaction with Medical Care." *Social Science and Medicine* 12: 283–292.

Lovelock, C. 1983. "Classifying Services to Gain Strategic Marketing Insights." *Journal of Marketing* 47 (Summer): 9–20.

Mangelsdorff, A.D. 1979. "Patient Satisfaction Questionnaire." *Medical Care* 17: 86–90.

Michaels, R., R. Day, and E. Joachimsthaler. 1987. "Role Stress Among Industrial Buyers: An Integrative Model." *Journal of Marketing* 51 (April): 28–45.

Mills, P.K., and N. Marguiles. 1980. "Toward a Core Typology of Service Organizations." *Academy of Management Review* 5: 255–265.

Mills, P.K., R.B. Chase, and N. Marguiles. 1983. "Motivating the Client/Employee System as a Service Production Strategy." *Academy of Management Review* 8: 301–310.

Needle, R.H. 1976. "Patterns of Utilization of Health Services by College

Women: Their Reasons for Seeking Gynecological Services, and Levels of Satisfaction with Their Last Gynecological Visit." *Journal of American College Health Association* 24: 307–312.

Nunnally, Jum. 1978. *Psychometric Theory*. New York: McGraw-Hill.

Oliver, R. 1981. "Measurement and Evaluation of Satisfaction Processes in Retail Settings." *Journal of Retailing* 57 (Fall): 25–48.

Oliver, R., and W. DeSarbo. 1988. "Response Determinants in Satisfaction Judgements." *Journal of Consumer Research* 14 (March): 495–507.

Parasuraman, A., V. Zeithaml, and L. Berry. 1985. "A Conceptual Model of Service Quality and Its Implications for Future Research." *Journal of Marketing* (Fall): 41–50.

Parasuraman, A., V. Zeithaml, and L. Berry. 1988. "SERVQUAL: A Multi-Item Scale for Measuring Consumer Perceptions of Service Quality." *Journal of Retailing* 64 (Spring): 12–40.

Parsons, T. 1975. "The Sick Role and the Role of the Physician Reconsidered." *Milbank Memorial Fund Quarterly/Health and Society* 53: 257–278.

Pascoe, Gregory C. 1983. "Patient Satisfaction in Primary Health Care: A Literature Review and Analysis." *Evaluation and Program Planning* 6: 185–210.

Penchansky, R., and W. Thomas. 1981. "The Concept of Access: Definition and Relationship to Consumer Satisfaction." *Medical Care* 19 (February): 127–140.

Roberts, R., G. Pascoe, and C. Attkisson. 1983. "Relationship of Service Satisfaction to Life Satisfaction and Perceived Well-Being." *Evaluation and Program Planning* 6: 373–383.

Ross, C., G. Frommelt, L. Hazelwood, and R. Chang. 1987. "The Role of Expectations in Patient Satisfaction with Medical Care." *Journal of Health Care Marketing* 7 (December): 16–26.

Shore, B., and P. Franks. 1986. "Physician Satisfaction with Patient Encounters." *Medical Care* 24 (July): 580–589.

Shostack, L. 1977. "Breaking Free form Product Marketing." *Journal of Marketing* 41 (April): 73–80.

Silpakit, P., and R. Fisk. 1985. "Participatizing the Service Encounter: A Theoretical Framework." In *Services Marketing in a Changing Environment*. Eds. T. Bloch, G. Upah, and V. Zeithaml. Chicago: American Marketing Association.

Singh, J. 1988. "The Patient Satisfaction Concept: A Review and Reconceptualization." *Advances in Consumer Research*. Ed. Thomas Srull.

Smith, R., and M. Houston. 1983. "Script-Based Evaluations of Satisfaction with Services." In *Emerging Perspectives in Services Marketing*. Eds. L. Berry, L. Shostack, and G. Upah. Chicago: American Marketing Association.

Smith, R., P. Bloom, and K. Davis. 1986. "Research on Patient Satisfaction: Potential Directions." Pp. 321–326 in *Advances In Consumer Research*. Ed. R. Lutz.

Solomon, M., C. Surprenant, J. Czepiel, and E. Gutman. 1985. "A Role Theory Perspective on Dyadic Interactions: The Service Encounter." *Journal of Marketing* 49 (Winter): 99–111.

Sullivan, G. 1984. "Role of Referent Selection in Primary Care Provider Choice and Satisfaction." *Journal of Health Care Marketing* 4 (Summer): 27–36.

Surprenant, C., and M. Solomon. 1987. "Predictability and Personalization in the Service Encounter." *Journal of Marketing* 51 (April): 86–96.

Swan, J., and M. Carroll. 1980. "Patient Satisfaction: An Overview of Research—1965 to 1978." In *Refining Concepts and Measures of Consumer Satisfaction and Complaining Behavior*. Eds. K. Hunt and R. Day. Bloomington: Indiana University Press.

Swan, J., and L. Combs. 1976. "Product Performance and Consumer Satisfaction: A New Concept." *Journal of Marketing* 40: 25–43.

Tucker, F., and J. Tucker. 1985. "An Evaluation of Patient Satisfaction and Level of Physician Training." *Journal of Health Care Marketing* 5 (Summer): 31–38.

Uller, Frank. 1989. "Follow-Up Surveys Assess Customer Satisfaction." *Marketing News*. January 2: 14–16.

Waitzkin, H. 1985. "Information Giving in Medical Care." *Journal of Health and Social Behavior* 26: 81–101.

Ware, J., and M. Snyder. 1975. "Dimensions of Patient Attitudes Regarding Doctors and Medical Care Services." *Medical Care* 13 (August): 669–682.

Ware, J., A. Davies-Avery, and A. Stewart. 1978. "The Measurement and Meaning of Patient Satisfaction." *Health and Medical Care Services Review* 1 (January/February): 2–15.

Ware, J., Mary Snyder, W.R. Wright, and A.R. Davies. 1983. "Defining and Measuring Patient Satisfaction with Medical Care." *Evaluation and Program Planning* 6: 247–264.

Weick, K.E. 1976. "Educational Organizations as Loosely Coupled Systems." *Administrative Science Quarterly* 21: 1–19.

Weinberger, M., J. Greene, and J. Mamlin. 1981. "The Impact of Clinical Encounter Events on Patient and Physician Satisfaction." *Social Science and Medicine*: 239–244.

Westbrook, R. 1981. "Sources of Consumer Satisfaction with Retail Outlets." *Journal of Retailing* 57 (Fall): 68–85.

Westbrook, R. 1980. "A Rating Scale for Measuring Product/Service Satisfaction." *Journal of Marketing* 44 (Fall): 68–72.

Westbrook, R., and R. Oliver. 1981. "Developing Better Measures of Consumer Satisfaction: Some Preliminary Results." Pp. 94–99 in *Advances in Consumer Research*, Vol. 8. Ed. Kent Monroe.

Widaman, K. 1985. "Hierarchically Nested Covariance Structure Models for Multitrait-Multimethod Data." *Applied Psychological Measurement* 9 (March): 1–26.

Woodside, A., L. Frey, and R. Daly. 1988. "Linking Service Quality, Customer Satisfaction and Behavioral Intention: From General to Applied Frameworks of the Service Encounter." *Journal of Health Care Marketing* (forthcoming).

Zyzanski, S., B. Hulka, and J. Cassel. 1974. "Scale for the Measurement of 'Satisfaction' with Medical Care: Modifications in Content, Format and Scoring." *Medical Care* 12: 611–620.

ABOUT THE AUTHOR

Jagdip Singh is an Associate Professor of Marketing at the Weatherhead School of Management, Case Western Reserve University. His current research interests include consumer dissatisfaction and complaint responses, stress/dissatisfaction in boundary role personnel, and measurement issues in marketing. Professor Singh has published in the *Journal of Marketing. Journal of Marketing Research, Journal of Consumer Affairs*, and *Journal of the Academy of Marketing Science*, among others.