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The Structure and Measures of Service Quality Perceptions: A Study of Hospitals in Bangladesh

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Abstract

This paper examines a complex multiple-encounter service environment—hospitals in a developing country—and suggests that service quality measures ought to be tied to *key actors' performance metrics (KAPMs)*. Based on face-to-face surveys of 400 hospital patients in Bangladesh and using structural equations modeling, our findings show that for multiple-encounter services, the three dimensions of service quality that emerged reflect key actors' performance. We also corroborate, as a validation of our model, that there is a positive link between service quality and satisfaction, as well as between satisfaction and loyalty, reflecting a mediating role of patient satisfaction.

1   Introduction

Research on health care quality and the quest to improve service performance has led to a plethora of studies in the past two decades (Pai and Chary 2013). According to (Veillard, Champagne, Klazinga, Kazandjian, Arah and Guisset 2005), the World Health Organization's Regional Office for Europe has been working with its 52 member states to design a comprehensive framework for hospital performance known as PATH (Performance Assessment Tool for quality improvement in Hospitals). The Organization for Economic Cooperation and Development (OECD) also initiated the Healthcare Quality Indicator (HCQI) project aimed at assessing the performance of primary care systems (Marshall, Klazinga, Leatherman, Hardy, Bergmann, Pisco, Mattke and Mainz 2006).

The introduction and development of the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) survey and its use in the healthcare industry in USA reflects the importance accorded to the quality metric as a standard for assessing consumers' experiences with a variety of services including Medicare and Medicaid (Lake, Kvam and Gold 2005). Similarly, the World Health Organization (WHO) created a health system performance metric based on five composite measures to survey public health experts, and not patients, on the assumption that the performance of a health system is too complex for the general public to understand. Blendon, Kim and Benson (2001), however, showed that for seventeen industrialized countries the ratings differed substantially when compared to the perceptions of their citizens.

In the marketing literature, the seminal articles of Parasuraman, Zeithaml and Berry (1985; 1988) offered a structure to the concept and measures of service quality. However, debates have raged about the dimensions and measures of this important construct, about whether contexts (industry) and type of services have any influence on service quality perceptions, whether service quality ought to be assessed at the encounter level or more generally, or how cultures influence and modify the effects of service quality (Cronin and Taylor 1992, Furrer, Liu and Sudharshan 2002, Teas 1993).

2   Research Objective

The creation of value, a fundamental goal of service providers, derives from different configurations of people, technology, processes, and information (Maglio and Spohrer 2008). However, the significance of *"people"* (e.g., employees) will generally remain the focal point of value creation that drives the other three components, directly or indirectly, to enhance a customer's total encounter experience. In certain service contexts, encounters with key actors can drive customer relationships and retention where *"each encounter tests the organization's ability to keep its promise"* (Bitner 1990).

This paper primarily addresses the conceptualization of service quality for multiple-encounter service situations where the service experience is shaped by multiple actors. Past research has stressed the importance of the service encounter (Bitner 1990, Bitner, Booms and Mohr 1994) during which the customer interacts with a firm's

representative. The quality of the encounter, reflected in the training, motivation, and attitudes of the employees can determine whether a customer will be satisfied and remain loyal. When a customer interacts not with one but several service providers, Bitner (1990) suggests that certain encounters may be more critical than others.

Given the importance of the service encounter, it is important to delve into the structure of the encounters, especially its key dimensions. We propose that service quality evaluation for multiple-encounter services would be tied to *key actors' performance metrics (KAPMs)* where the service quality dimensions would be closely linked to a set of specific actors. These dimensions depend on the complexity of the environment, the salience of the services sought, and the need to interact with a variety of service providers.

This study, therefore, intends to explore an alternative conceptualization of the service quality construct in multiple-encounter situations and identify the dimensions and measures. We selected the health care industry— hospitals specifically— for two reasons. Given its vital role in health preservation and contribution to sustainable overall socioeconomic advancement, the importance of the industry is enormous and needs little elaboration: the positive externalities of keeping a population healthy is important for any country. Secondly, this industry enables close examination of a complex service involving multiple encounters with a variety of actors in different categories (doctors, nurses, administration, support staff, etc.) whose performance may separately influence the service experience. By identifying the KAPMs important to service recipients, we attempt to advance our understanding of how service quality is evaluated for multiple-encounter services and how such assessment might be translated into better health service delivery.

An intriguing question that arises for hospitals, thus, is whether it would be better to use metrics tied to specific actors — doctors, nurses, support staff — or whether the use of global measures such as SERVQUAL with its five dimensions be a more appropriate metric be the appropriate metric (lumping all actors together) to assess service quality.

The departure of our study from typical service quality studies is to assess whether the measures and dimensions of service quality are different for multiple-encounter services when compared to single-encounter services. Studies in the marketing literature have adopted the SERVQUAL dimensions as the central set of constructs without giving sufficient consideration to the situation of multiple-encounter services. This study specifically addresses the following questions:

- Given the multiple encounters that patients experience with key actors in the hospital setting, should

the structure of perceived service quality (PSQ) and its measures be key-actor based: i.e., primary, secondary, and tertiary KAPMs? We will argue for this position subsequently.

- Secondarily, we examine if there is a relationship between perceived service quality and satisfaction, as well as between satisfaction and loyalty, both relationships discussed extensively in the literature. The purpose of this part is to establish the predictive validity of the proposed structure and measures of service quality in a culturally and technologically different environment: Bangladesh.

3   Conceptual Framework

3.1   Service Quality

In the conceptual model developed by Parasuraman et al. (1985), consumers' service quality perceptions are influenced by a number of gaps, reflected in the difference between performance expectations and perceptions. Hence, service quality depends on the size and direction of the gap and will be favorable if the service performance exceeds the customer's expectations or unfavorable if service expectations are not met.

Although the SERVQUAL approach has made significant contributions to the service quality literature, scholars continue to debate the five dimensions of SERVQUAL and the measurement of service quality: as *perceptions* which more closely match customer evaluations of the services provided (Cronin and Taylor 1992) or as *disconfirmation*—the difference between perceptions and expectations (Parasuraman, Zeithaml and Berry 1994).

Support for the five dimensions has also been mixed. Differences in dimensionality have been explained by the different industries in which the studies were conducted (Asubonteng, McCleary and Swan 1996, Kettinger and Lee 1999). Some researchers argued that up to nine dimensions of service quality may exist depending on the type of service sector under investigation. Dotchin and Oakland (1994) had reservations about the five dimensions, arguing that the four service providers that were researched (retail banking, credit cards, brokerage, and repair & maintenance) were not high in consumer interaction, contact, and adaptation.

Criticism on the gap-score measure was also extensive (Babakus and Boller 1992, Cronin and Taylor 1992, Teas 1993), the main argument being that there is little theoretical support for the relevance of service expectations-performance gap as a basis for measuring service quality. Cronin and Taylor (1992) argued that the conceptualization and operationalization of SERVQUAL was inadequate and favored a simple performance-based measure of service quality, SERVPERF, which measures service

quality as an attitude using the five components and 22-items of SERVQUAL. The development of SERVPERF contributed to intense debate among researchers.

An alternative model to SERVQUAL was developed by Teas (1993), who argued that the disconfirmation model had conceptual, theoretical, and measurement problems. Teas suggested using alternative perceived-quality models, proposing a measure called Evaluated Performance (EP) which focuses on the gap between perceived performance and the *ideal point* on a feature instead of customers' expectations. He found empirical support that EP outperforms SERVQUAL with regard to validity. Similarly, Spreng, MacKenzie and Olshavsky (1996) examined gaps between performance and desire.

Given the varied points of view, (O'Reilly 2007) suggested the need to look at more context-specific approaches to understanding service quality. Since the participation of service users has become an increasingly important focus in quality improvement programs, they stress the importance of active participation of the consumer in defining and evaluating service quality. Embracing the P-C-P (pivotal-core-peripheral) model proposed by Philip and Hazlett (2001), they stress the need to let the relevant factors evolve from the user. According to O'Reilly (2007), the *"[P-C-P] model does not provide ready-made questions for each of the attributes ... and ... encourages the service provider to develop the service evaluation tool"* (O'Reilly 2007, p. 121).

In the multiple-encounter service environment of a hospital, especially in a different culture, it was felt that instead of using a pre-selected set of measures such as SERVQUAL, it would be important to let the evaluation criteria for perceived service quality emerge from the respondents. An apt system of breaking the complexity of hospital service down into meaningful categories for evaluation would appear to lie in the services provided by its key actors — primarily doctors, nurses and support service providers.

Using overall measures such as the five dimensions of SERVQUAL to evaluate a hospital's services may complicate information retrieval and attribution processes where multiple encounters are involved. For example, the nature and quality of the interaction with doctors may be very different from that provided by the nurses. Hence providing an overall assessment of any particular SERVQUAL *"dimension"* (e.g., responsiveness) in the hospital setting may be cognitively difficult for the patient to apportion. Similar encounters and experiences are also likely to be common to airlines, hotels, tourism, etc.

Based on patients' interactions and involvement with hospitals and their services, we felt that three categories of key actors in the hospital environment—primary, secondary and tertiary—would better enable patients to assess service quality in the multiple-encounter setting. The primary actor is the doctor whose service is the main reason a patient goes to a hospital. The next level of the key actors involves the nurses who are expected to provide prompt and caring services, and moral strength. Finally, tertiary actors, also important in their own rights as value creators, involve interactions at other levels that enable a patient to function effectively and efficiently in that environment. Tertiary KAPMs may or may not involve direct interaction with service recipients (registration, food services, cleaners, etc.), hence their tertiary status.

3.2 Patient Satisfaction

Satisfaction with services is a desired outcome of service encounters. Many hospitals in the developed world have begun to realize the importance of patient satisfaction as a strategic variable and a crucial determinant of long-term viability and success. Di Paula, Long and Weiner (2002) suggest that in order to assess clinical practice effectiveness, hospitals have been trying to measure and predict patient satisfaction. Donabedian (1988, p. 1476) also suggested that *"patient satisfaction may be considered to be one of the desired outcomes of care.information about patient satisfaction should be as indispensable to assessments of quality as to the design and management of health care systems."* To achieve patient satisfaction, Marley, Collier and Goldstein (2004) suggest that service providers (i.e., hospitals) must focus on both clinical and process quality improvements.

Research has also shown that service satisfactions can significantly enhance patients' quality of life (Dagger and Sweeney 2006) and enable service providers to better determine specific problems of customers to take corrective action (Oja, Kouri and Pakarinen 2006). Various studies have also shown a link between PSQ and satisfaction (Cronin and Taylor 1992, Parasuraman et al. 1988). Patient satisfaction is defined in (Oliver 1997) terms as the consumer's fulfillment response. It is a judgment that a product or service provides a pleasurable level of consumption-related fulfillment. In other words, it is the overall level of contentment with a service/product experience.

3.3 Loyalty

Scholars debate whether a customer who is satisfied with the quality of services will exhibit loyalty to the same provider. Szymansk and Henard (2001), in their meta-analysis, reported fifteen positive and statistically significant correlations between satisfaction and loyalty. Customer loyalty is generally considered a complex and multifaceted construct (Jacoby and Chestnut 1978) and most studies on loyalty conceptualize it as repeat-purchase behavior. Jacoby and Chestnut (1978) propose that loyalty is

repeat-purchase behavior based on belief acquisition, affect formation, and behavioral intention. Oliver (1999) enriched this framework by arguing that loyalty begins with repeated experiences, reinforced cognitions, and affective responses which leads consumers to develop motivation to rebuy and engage in brand-consonant behaviors.

Although there is no clear consensus with respect to the measurement of and relationship between the two constructs, satisfied customers would seem to have a higher usage level of service than those who are not satisfied (Bolton and Lemon 1999) and that they are more likely to possess stronger purchase intentions and recommend the product (Shankar, Smith and Rangaswamy 2003, Zeithaml, Berry and Parasuraman 1996). On the other hand, Caruana (2002) argued that customer satisfaction played a mediating role between service quality and loyalty. For multiple-encounter services, we test the notion, as confirmation, that satisfaction will co-vary with loyalty and that the effects of PSQ on loyalty will be mediated by satisfaction with services.

4 Research Design

4.1 Secondary Research

Some research, albeit limited, is now available in journal publications, government documents, and reports of international organizations on Bangladesh's health care system. However, patients' perceptions of health service quality and its links to satisfaction and loyalty have barely been examined. Most of the available studies use nominal variables (location, gender, and educational aspects of health service recipients). Given the overwhelmingly descriptive nature of most of the studies, where single-item scales dominate, secondary sources from other countries, thus, provided insights into the perceived service quality construct, its links to satisfaction and loyalty, as well as the controversies and challenges of conducting research on the topic. The different sources also led to the identification of a variety of research designs.

4.2 Qualitative Research

With the frame of reference being research findings in other countries, it was deemed essential to conduct qualitative research. The research team initially conducted in-depth discussions with ten patients about the process that patients go through to obtain the necessary care and their perceptions about the process. The framing question at this stage of the study was, *"How did you find the service and how did it affect your satisfaction with the hospital?"* The in-depth discussions pointed to a variety of elements in the service experience that depicted doctors' behaviors, attitudes of nurses, and treatment received from various

support staff members including gate-keepers, cleaners, registration staff, and bill payment staff. It is pertinent to note that an overwhelming majority of the patients' narratives involved two groups that were most important to them—doctors and nurses. Themes prominent in the SERVQUAL literature were also apparent, as discussed subsequently.

4.3 Measurement

There is no clear consensus among researchers regarding the conceptualization of service quality and its measurement. While most studies in the marketing literature begin with the 22-item set of measures (e.g., SERVQUAL, with minor adjustments), where respondents evaluate service quality on the chosen measures across contexts and countries, we felt that instead of using the pre-selected set of measures, it would be important to let the service evaluation criteria flow from the respondents following the P-C-P model of Philip and Hazlett (2001). In other words, we allowed the measures to evolve as dictated by the service recipients' experiences. While this approach does not ensure the use of comparable measurement instruments across countries, we felt that allowing this natural flow would be more meaningful, and provide a comprehensive and more relevant set of measures. In fact, Furrer et al. (2002) argued that the importance and perception of service quality are highly dependent on customers' values and beliefs which might vary from one culture to another.

The questionnaire used in this study included perceptual measures that were rated on five-point Likert scales. This design is consistent with prior studies on service quality, customer satisfaction, and loyalty. Each scale item was anchored at the numeral 1 with the verbal statement *"strongly disagree"* and at the numeral 5 with the verbal statement *"strongly agree."* Multiple items were used to measure each construct so that their measurement properties could be assessed for reliability and validity.

We did not use the gap score approach that measures the difference between perceptions and expectations as suggested by the original SERVQUAL framework because, according to Cronin and Taylor (1992), service quality can be predicted adequately by using perceptions alone. Teas (1993) also argued that measuring the gap between expectations and performance can be problematic. This approach is consistent with other studies (Andaleeb and Basu 1994).

4.4 Questionnaire Design

A preliminary questionnaire was developed in English, based on the qualitative research, but also informed bt the service quality literature. The questionnaire was translated into Bangla and retranslated few times until it was

deemed user-friendly and appeared to reflect the domain of the issues pertinent to hospital service recipients. The questionnaire was also pre-tested to arrive at appropriate wording, format, length, and sequencing of the questions. Pre-test feedback was used to refine the questionnaire until it was ready for data collection. Respondents were provided reasons for the study, offered complete confidentiality guarantees, allowed the right of refusal to answer specific questions, and asked not to provide any contact information according to internationally accepted research protocol. The last section of the survey instrument contained questions on demographics to help classify the respondents on gender, age, and related variables.

4.5   Sampling Method

The population was defined as in-patients in public and private hospitals in Dhaka City, Bangladesh and a subset who had experienced services in a foreign country. Dhaka's hospitals were deemed appropriate as it hosts the largest number of hospitals of varying quality and attends to a diverse set of patient needs. Due to resource constraints, a total sample size of 400 was targeted.

Two separate lists of public and private hospitals in Dhaka, along with their bed capacities, were obtained from the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh. From the list, Dhaka Medical College and Mitford hospital were chosen purposively as these two public hospitals are reputed to handle patients from all economic classes and with various health problems. In addition, three hospitals were chosen from the list of private hospitals using simple random sampling. These include Central Hospital (bed capacity 80), Holy Family Hospital (bed capacity 330), and Monowara Hospital (bed capacity 35). The list of patients, ready to be released on a particular date, was obtained from the respective ward-in-charge of the public hospitals and the patient relations in-charge of the private hospitals. From these lists, using systematic random sampling, patients were selected keeping the targeted sample size in mind. The snowball method was used to reach those who had experiences with a foreign hospital as there is no list available for this category of patients. A total of 400 usable surveys were ultimately completed as planned.

4.6   Data Collection Method

A ten-member team of final year BBA students from a private university were recruited for data collection and trained rigorously to collect data in a professional manner. The use of university students was our best option because of their interest, enthusiasm, and level of education that made it easy to convey to them the importance of the study.

A letter from the Ministry of Health and Family Welfare was forwarded to the respective hospitals to extend necessary cooperation to the data collectors. This was important to lend authenticity to the study and to gain the confidence of the different hospitals. The researchers supervised the data collecting teams at the different hospitals and provided assistance with obtaining the list of patients to be released, as well as with data collection. Upon receipt of the list of patients to be released, the data collectors used the systematic random sampling procedure to select the respondents.

5   Analysis and Results

5.1   Measurement Model

Confirmatory factor analysis (CFA) was conducted to estimate the properties of the service quality construct (Figure 1). All constructs were evaluated for unidimensionality, reliability, and discriminant validity (Andaleeb and Basu 1994, Anderson and Gerbing 1988). The measurement model was estimated based on a covariance matrix using the maximum likelihood estimation method (Chou and Bentler 1996), which is the most commonly used approach in structural equation modeling (SEM). The multidimensionality and fit of the measurement model for each construct was tested using confirmatory factor analysis (CFA). The data were examined for outliers; there were none. Using measure purification, the number of scale items was reduced and retained (Joreskog and Sorbom 1988).

The correlation matrix shows that all correlation coefficients are significant at $p < 0.001$ level (Table 1). As indicated by the results of CFA (Table 2), all items had significant loadings on their corresponding constructs with significant t-values ($p < 0.001$), the lower t t-value being greater than 8.00. Moreover, all factor loadings were significant, indicating convergent validity (Anderson and Gerbing 1988). The model had a significant χ^2 (222.71, 116, $p < 0.001$), which was expected given the sensitivity of the testing procedure to the large data set. However, the measurement model provided a good fit to the data based on several indices used statistics (CFI = 0.97, GFI = 0.94, NFI= 0.94, and RMSEA =0.048).

We then assessed validity measures for the measurement model. Construct validity is the extent to which a set of measured items actually reflect the theoretical latent construct they are designed to measure and is established via face, convergent, discriminant, and nomological validity. To assess convergent validity we checked the extent to which indicators of a specific construct *"con verge"* or share a high proportion of variance in common by examining construct loadings and average variance extracted (AVE). Table 3 shows that the standardized loadings es-
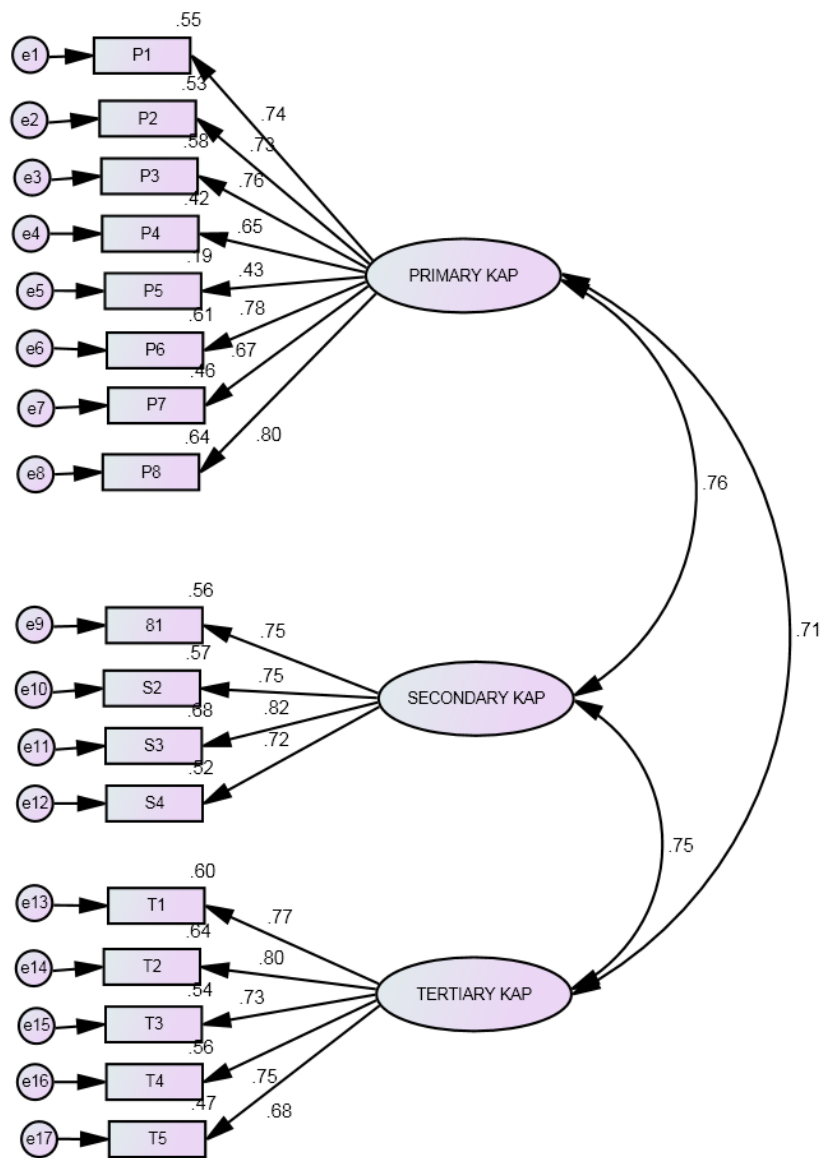
Figure 1: Confirmatory Factor Model

Table 1: Correlation Matrix for the Theoretical Constructs (Three Factors)

Constructs		(1)	(2)	(3)	(4)
Primary KAP	(1)	—			
Secondary KAP	(2)	0.766	—		
Tertiary KAP	(3)	0.709	0.745	—	
Satisfaction	(4)	0.809	0.798	0.840	—
Loyalty	(5)	0.751	0.704	0.750	0.889

All correlations are significant at $p < 0.001$ level.

Table 2: The Results of Confirmatory Factor Analysis

Constructs/ Indicators	Standardized Coefficients	t-value	Squared Multiple Correlations
Primary KAP			
P1	0.742	15.111	0.550
P2	0.727	14.777	0.529
P3	0.761	—	0.579
P4	0.650	13.039	0.422
P5	0.431	8.397	0.186
P6	0.780	15.992	0.608
P7	0.675	13.588	0.455
P8	0.803	16.531	0.644
Secondary KAP			
S1	0.750	24.555	0.562
S2	0.753	24.175	0.568
S3	0.822	—	0.676
S4	0.721	—	0.520
Tertiary KAP			
T1	0.774	14.481	0.599
T2	0.802	15.347	0.643
T3	0.734	—	0.539
T4	0.749	14.350	0.561
T5	0.684	13.080	0.468

$\chi^2 = 222.71$ with df=116, p=0.001, RMSEA=0.048

timates are above 0.5 (with one exception), AVE estimates are 0.5 or above and all CR values are very close or above 0.70 indicating adequate convergence or internal consistency. Taken together, the evidence provides initial support for the convergent validity of the three construct KAPM measurement model. Although some loading estimates are below 0.7, they do not appear to affect model fit or internal consistency. In addition, the model fits relatively well based on the goodness of fit measures. Being a pioneering study of hospital service quality in the context of Bangladesh, the indicator items were retained while adequate evidence of convergent validity has been provided.

Discriminant validity is the extent to which a construct is truly distinct from other constructs. To estimate discriminant validity, we examine if the average variance extracted (AVE) estimates are greater than the corresponding squared inter-construct correlation estimates (SIC). Table 3 indicates the values needed to support discriminant validity. AVE for the Primary KAP is 49.7%. We would have preferred this value to be larger; however it is still considered acceptable. On the other hand, AVE estimates for the secondary and tertiary KAPs are above the corresponding SIC estimates. This means the indicators have more in common with the construct they are associated with than they have in common with other constructs. Therefore, the three- construct CFA model demonstrates

discriminant validity.

We then performed a second-order CFA for perceived service quality (PSQ). We found that three dimensions displayed in Figure 1 loaded significantly on the latent construct PSQ; the construct also indicated a good fit to the data ($\chi^2 = 222, 116, p < 0.001$, CFI=0.97, GFI=0.94, NFI=0.94, RMSEA=0.048). The variance of the second-order factor was fixed at 1, as suggested by Bentler (1992). The results of the second order model are shown in Table 4.

According to Loehlin (1998) a useful first step is to compare the χ^2 coefficient from the measurement model with the χ^2 value derived from the second-order model. If they do not differ significantly, it is an indication that the structural part of the original model is not contributing to substantial misfit relative to that produced by the measurement model. If the difference in the χ^2 value between the measurement model and the structural model is significant, it indicates that the structural part of the model contributes to substantial misfit and needs to be re-specified. The CFA of the measurement model resulted in a χ^2 (d.f.= 116) value of 222, while the model including the measurement and the structural part achieves a χ^2 (d.f.=116) value of 222. The findings indicate that the addition of the structural part did not introduce noise or was not contributing to model misfit. The scales reflected reasonable reliabil-

Table 3: Three Factor Completely Standardized Factor Loadings, Variance Extracted, and Reliability Estimates

Items	Primary KAP	Secondary KAP	Tertiary KAP	Item Reliabilities	Eigen values	Delta	IC	SIC
P1	0.742	—	—	0.55	—	0.45	—	—
P2	0.727	—	—	0.53	—	0.47	—	—
P3	0.761	—	—	0.58	—	0.42	—	—
P4	0.650	—	—	0.42	—	0.58	—	—
P5	0.431	—	—	0.19	—	0.81	—	—
P6	0.780	—	—	0.61	—	0.39	—	—
P7	0.675	—	—	0.46	—	0.54	—	—
PS	0.803	—	—	0.64	3.975	0.36	0.76	0.57
S1	—	0.750	—	0.56	—	0.44	—	—
S2	—	0.753	—	0.57	—	0.43	—	—
S3	—	0.822	—	0.68	—	0.32	—	—
S4	—	0.721	—	0.52	2.325	0.48	0.74	0.54
T1	—	—	0.774	0.60	—	0.40	—	—
T2	—	—	0.802	0.64	—	0.36	—	—
T3	—	—	0.734	0.54	—	0.46	—	—
T4	—	—	0.749	0.56	—	0.44	—	—
T5	—	—	0.684	0.47	2.810	0.53	0.71	0.50
AVE	49.69%	58.13%	56.20%	—	—	—	—	—
CR	0.66	0.77	0.75	—	—	—	—	—
SIC Estimates	0.57–0.50	0.57–0.54	0.54–0.50	—	—	—	—	—

IC=Interconstruct correlations; SIC=Squared Interconstruct Correlations; Delta=Standardized Error Variance;
AVE=Average Variance Extracted; CR=Construct Reliabilities.

Table 4: The Results of Second-Order CFA

Structural Paths	Standardized coefficients	t-value	Squared multiple correlations
PSQ → Primary KAP	0.854	14.321	0.792
PSQ → Secondary KAP	0.895	15.922	0.802
PSQ → Tertiary KAP	0.834	13.434	0.696

$\chi^2 = 222.71$ with df=116, p=0.001, RMSEA=0.048

ity based on Cronbach's alpha coefficients (see Table 5, which also lists the items retained in the model). These results indicate that the scales had adequate measurement properties and were appropriate for further analyses.

Figure 2 represents the structural model used to test the hypothesized relationships and Table 6 indicates the hypothesis test (path coefficients) results. These results show a clearer picture of the three KAPMs reflecting discerning cognitive processes when evaluating service quality. All ratios are significant as they are much above the minimum (1.96) and with the expected signs. The standardized total effects of each latent variable on patient loyalty support the hypothesized relationships. When we analyze the squared multiple correlations (r-square) in Table 6, we find that PSQ explains 91% of satisfaction and,

through the intermediation of satisfaction, explains 80% of patient loyalty.

6   Discussion and Conclusions

The service quality debate has led to differing views on the measures and dimensions of service quality (Ladhari 2008). These disagreements often originate from the different types of measures used, services studied, cultural contexts, and the extent of customer interface they involve. Interestingly, the literature does not seem to parse specifically the issue of complex, multifaceted, and multiple-encounter services (Smith 2000). Rather, researchers have generally applied a given set of scales to both simple and complex service environments. Our anal-

Table 5: Items Retained in the Final Model

Dimension/ Statements	Cronbach Alpha
Primary KAP	0.838
Doctors were consistently caring (P1)	
Doctors correctly referred to your previous problems (P2)	
Doctors followed up treatments regularly (P3)	
Doctors had professional appearance (P4)	
Doctors did not suggest any unnecessary lab tests (P5)	
Doctors gave knowledgeable answers to questions (P6)	
Doctors explained treatments and provided advice clearly (P7)	
Doctors' advice was administered properly (P8)	
Secondary KAP	0.861
Nurses gave correct answers to your questions (S1)	
Nurses communicated patient's needs to doctors (S2)	
Nurses were consistently caring (S3)	
Nurses gave moral encouragement to patients (S4)	
Tertiary KAP	0.805
Hospital was visually appealing (T1)	
Hospital premises were neat and clean (T2)	
Hospital had modern equipment (T3)	
Cabin/ward's waste bins were regularly cleaned (T4)	
Toilets and bathrooms were clean (T5)	
Satisfaction	0.894
The service quality I experienced was excellent (SAT1)	
My expectations were met by the hospital (SAT2)	
Overall, I was satisfied with the hospital visit (SAT3)	
Loyalty	0.923
I would not return to this hospital (LTY1)	
I would recommend this hospital to others (LTY2)	

Table 6: Structural Model Results (Path Coefficients /Standardized Regression Weights)

Structural Paths	Standardized Coefficients	t-value[*]	Squared Multiple Correlations
Components of PSQ			
PSQ $\rightarrow$ Primary KAP	0.856	15.058	0.733
PSQ $\rightarrow$ Secondary KAP	0.852	15.756	0.727
PSQ $\rightarrow$ Tertiary KAP	0.870	14.166	0.756
PSQ $\rightarrow$ Satisfaction	0.953	21.246	0.908
Satisfaction $\rightarrow$ Loyalty	0.892	24.323	0.796

χ^2=437.33 with df=204, p=0.001, RMSEA=0.054, GFI=0.91, CFI=0.96.
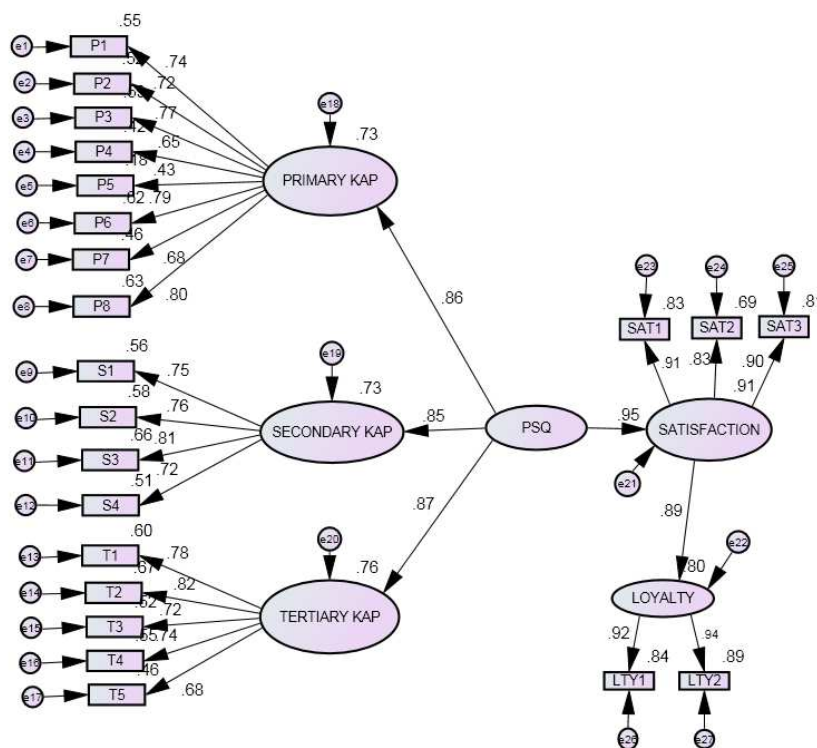[*]All values are significant at $p < 0.001$. Check the χ^2 value.

Figure 2: Structural Model of PSQ, Satisfaction and Loyalty

ysis suggests that the set of measures such as SERVQUAL to evaluate complex and multiple encounter services (such as in hospitals) may need to be re-assessed, especially because of the multiple sets of key actors (i.e., doctors, nurses, and support staff) one encounters and evaluates in a complex setting. Thus, service quality measures ought to be tied to *key actors' performance metrics or KAPMs*.

In fact, emerging research in health care has led to the CAHPS®survey that identifies a number of dimensions important to patient satisfaction (Goldstein, Farquhar, Crofton, Darby and Garfinkel 2005): communication with doctors, communication with nurses, responsiveness of hospital staff, cleanliness and noise level of the physical environment, pain control, communication about medicines, and discharge information. This stream of research seems to be consistent with the KAPM approach for measuring service quality in multiple-encounter settings, whereas SERVPERF may be more appropriate for single encounter services (banks, retail, haircuts, etc.) where the interface is usually with a single dominant and key actor.

Based on our findings, we feel that three categories of actors in the hospital environment—primary, secondary and tertiary—would better enable patients to assess service quality in the multiple-encounter setting. The primary actor is the doctor whose service is the main rea-

son a patient goes to a hospital. From the doctor, the patient expects a professional demeanor, knowledgeable answers regarding tests, diagnoses, and treatments (i.e., assurance) and a human or personal touch, reflecting how comfortable they were made to feel, compassion, etc. The next level of the key actors involves the nurses who are expected to provide caring services, communicating patients' needs to the doctor, and providing psychological support. Nurses also play a vital role as patient advocates by providing explanations and helping deal with pain, fear, anxiety, etc. The tertiary actors, also important in their own rights as value creators, enable patients to function better in the hospital environment. However, their role may or may not involve direct interaction with service recipients (registration, food services, décor, cleanliness), hence their tertiary status. Also, because of the diverse set of such service providers, they are likely to be lumped together not so much as key actors by name but in terms of the outcomes they produce (efficient paperwork, cleanliness, appearance, etc.). There may also be some overlap in the KAPMs (doctors' appearance as a tertiary factor), given that the notion of clearly specified boundaries of a category with a specific set of defining characteristics may not exist (Nisbett and Ross 1980).

Interestingly, we found a discernible link between the KAPM and SERVQUAL measures: in multiple encounters, specific dimensions of SERVQUAL such as assur-

ance, reliability and empathy seem to be attributed to certain key actors, e.g., *primary KAPMS*, while responsiveness and empathy are attributed to *secondary KAPMs*. Similarly, the tangibles dimension was reflected for the *tertiary KAPMs*.

SERVQUAL occupies an important place in service quality evaluations. However, for multiple encounter situations our study shows that specific aspects of SERVQUAL are best reflected in different key actors. In that, our study does not refute SERVQUAL but reframes it, showing how specific dimensions of SERVQUAL are tied to different key actors. Such reframing, however, may vary for different industries, suggesting the need for additional studies along this line of inquiry. For example, in the air travel industry, there may be several key actors; customers expect different aspects of service from each key actor. Lumping ticketing agents, security workers, customs officials, air crew, and baggage handlers to assess overall service experiences may not be very meaningful.

7 Future Research

The KAPM approach ought to be applied to other types of multiple-encounter services to see if there is general support for the *"key actor"* perspective. The measures/dimensions of SERVPERF representing key actors may, however, vary from one industry to another. The number of categories of key actors may also differ from one industry to another. This conjecture provides strong justification for conducting similar studies in other multiple-encounter service environments and in countries that are culturally different.

Second, hospitals are complex environments and explaining patient satisfaction in these circumstances is very complicated. Thus, while we mainly focus on the encounter, it must be acknowledged that other non-encounter or indirect interaction factors may also drive satisfaction. For example, keeping the premises clean involves behind-the-scene actors who may or may not be overtly recognized or named by the service recipient. But that does not diminish their contribution; it merely establishes their relative importance to the service seeker.

Importantly, what our study establishes is that if patients perceive hospital service encounter experiences in terms of key actors, this can provide meaningful and useful managerial information in shaping human resource and internal marketing strategies. For example the doctors are the *primary actors* whose offerings are the core product that patients purchase. In this encounter, the patient expects a professional demeanor, knowledgeable answers regarding tests, diagnoses, and treatments (i.e., assurance), and a compassionate human or personal touch to make them feel comfortable. Thus, doctors need

to combine their training in medicine with that of customer service to effectively handle the provider-patient encounter. Primary actors need knowledge and skills about patient psychology, negotiation, handling difficult patients, and, importantly, *"putting the customer first."* Sensitivity training on such matters could be provided through in-house or external organizations such as universities or professional organizations. The *secondary actors* are the nurses who have more frequent contact with the patients. In their close relationships with patients they need to be perceived as *"patient advocates."* Effective advocacy begins with honesty and trust. All marketing promotions, in fact, should actively emphasize this objective. They are the helping hand and they need to be well-trained in dealing with patients' fears, concerns, and anxieties and help patients set the right expectations; i.e., reduce unrealistic expectations. The *tertiary actors* in their support role also ought to be integrated into becoming vital part of the service provided. Marketing campaigns should emphasize improvements in these factors could be used to differentiate the hospital's services from the competitors.

This study examined the structure and measures of perceived service quality in a multiple-encounter context, namely hospital care, in a developed country. Our results represent an incremental contribution to the service quality literature, particularly from a structural and measurement perspective, suggesting the need to consider the key actor approach when measuring service quality for multiple-encounter services.

References

Andaleeb, S. S. and Basu, A. K. (1994), 'Technical Complexity and Consumer Knowledge as Moderators of Service Quality Evaluation in the Automobile Industry', *Journal of Retailing* **70**, 367–381.

Anderson, J. C. and Gerbing, D. W. (1988), 'Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach', *Psychological Bulletin* **103**(3), 411–423.

Asubonteng, P., McCleary, K. J. and Swan, J. E. (1996), 'SERVQUAL Revisited: Critical Review of Service Quality', *Journal of Services Marketing* **10**(6), 62–72.

Babakus, E. and Boller, G. W. (1992), 'An Empirical Assessment of the Servqual Scale', *Journal of Business Research* **24**, 253–268.

Bentler, P. M. (1992), 'On the Fit of Models to Covariance and Methodology to the Bulletin', *Psychological Bulletin* **112**, 400–404.

Bitner, M. J. (1990), 'Evaluating Service Encounters: The Effects of Physical Surroundings and Employee Responses', *Journal of Marketing* **54**, 69–82.

Bitner, M. J., Booms, B. H. and Mohr, L. A. (1994), 'Critical Service Encounters: The Employee's Viewpoint', *Journal of Marketing* **58**(4), 95–106.

Blendon, R. J., Kim, M. and Benson, J. M. (2001), 'The Public Versus the World Health Organization on Health System Performance', *Health Affairs* **20**(3), 10–20.

Bolton, R. N. and Lemon, K. N. (1999), 'A Dynamic Model of Customers' Usage of Services: Usage as an Antecedent and Consequence of Satisfaction', *Journal of Marketing Research* **36**, 171–186.

Caruana, A. (2002), 'Service Loyalty: The Effects of Service Quality and the Mediating Role of Customer Satisfaction', *European Journal of Marketing* **36**((7/8)), 811–828.

Chou, C.-P. and Bentler, P. M. (1996), Estimates and Tests in Structural Equation Modeling, *in* R. H. Hoyle, ed., 'Structural Equation Modeling', Sage Publications, Thousand Oaks, CA, pp. 37–55.

Cronin, J. J. and Taylor, S. A. (1992), 'Measuring Service Quality: A Reexamination and Extension', *Journal of Marketing* **56**(3), 55–68.

Dagger, T. S. and Sweeney, J. C. (2006), 'The Effect of Service Evaluations on Behavioral Intentions and Quality of Life', *Journal of Service Research* **9**(1), 3–18.

Di Paula, A., Long, R. and Weiner, D. E. (2002), 'Are Your Patients Satisfied?', *Marketing Health Services* pp. 29–32.

Donabedian, A. (1988), 'The Quality of Healthcare: How Can It Be Assessed?', *Journal of the American Medical Association* **260**(12), 1743–1748.

Dotchin, J. A. and Oakland, J. S. (1994), 'Total quality Management in Services Part 2: Service Quality', *International Journal of Quality and Reliability Management* **11**(3), 9–26.

Furrer, O., Liu, B. S. and Sudharshan, D. (2002), 'The Relationships Between Culture and Service Quality Perceptions', *Journal of Service Research* **2**(4), 355–371.

Goldstein, E., Farquhar, M., Crofton, C., Darby, C. and Garfinkel, S. (2005), 'Measuring Hospital Care from the Patients' Perspective: An Overview of the Cahps® Hospital Survey Development Process', *Health Services Research* **40**(6), 1977–1995.

Jacoby, J. and Chestnut, R. W. (1978), *Brand Loyalty: Measurement And Management*, John Wiley & Sons, Inc., New York.

Joreskog, K. G. and Sorbom, D. (1988), *LISREL VII: A guide to the Programming And Applications*, Scientific Software, Mooresville, IN.

Kettinger, W. J. and Lee, C. C. (1999), 'Replication of Measures In Information Systems Research: The Case of IS SERVQUAL', *Decision Sciences* **30**(3), 893–899.

Ladhari, R. (2008), 'Alternative Measures of Service Quality: A Review', *Managing Service Quality* **18**(1), 65–86.

Lake, T., Kvam, C. and Gold, M. (2005), *Literature Review: Using Quality Information for Health Care Decisions And Quality Improvement*, Mathematica Policy Research Inc. 1–43.

Loehlin, J. C. (1998), *Latent Variable Models*, Lawrence Erlbaum Associates, Englewood Cliffs, New Jersey.

Maglio, P. P. and Spohrer, J. (2008), 'Fundamentals of Service Science', *Journal of the Academy of Marketing Science* **36**, 18–20.

Marley, K. A., Collier, D. A. and Goldstein, S. M. (2004), 'The Role of Clinical and Process Quality in Achieving Patient Satisfaction in Hospitals', *Decision Sciences* **35**(3), 349–369.

Marshall, M., Klazinga, N., Leatherman, S., Hardy, C., Bergmann, E., Pisco, L., Mattke, S. and Mainz, J. (2006), 'OECD Health Care Quality Indicator Project: The Expert Panel on Primary Care Prevention and Health Promotion', *International Journal for Quality in Health Care* pp. 21–25.

Nisbett, R. E. and Ross, L. (1980), *Human Inference: Strategies and Shortcomings of Social Judgment*, Prentice Hall, New Jersey.

Oja, P., Kouri, T. and Pakarinen, A. J. (2006), 'From Customer Satisfaction Survey to Corrective Actions in Laboratory Services in a University Hospital', *International Journal of Quality in Health Care* **18**(6), 422–428.

Oliver, R. L. (1997), *Satisfaction: A Behavioral Perspective on the Consumer*, Irwin/McGraw-Hill, New York.

Oliver, R. L. (1999), 'Whence Customer Loyalty?', *Journal of Marketing* **63**, 33–44.

O'Reilly, P. (2007), 'Involving Service Users in Defining and Evaluating the Service Quality of a Disability Service', *International Journal of Health Care Quality Assurance* **20**(2), 116–129.

Pai, Y. P. and Chary, S. T. (2013), 'Dimensions of Hospital Service Quality: A Critical Review Perspective of Patients from Global Studie', *International Journal of Health Care Quality Assurance* **26**(4).

Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1985), 'A Conceptual Model of Service Quality and Its Implications for Future Research', *Journal of Marketing* **49**(4), 41–50.

Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1988), 'SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality', *Journal of Retailing* **64**(1), 12–40.

Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1994), 'Reassessment of Expectations as a Comparison Standard on Measuring Service Quality: Implications for Further Research', *Journal of Marketing* **58**(1), 111–124.

Philip, G. and Hazlett, S. (2001), 'The Measurement of Service Quality: A New P-C-P Attributes Model', *The International Journal of Quality and Reliability Management* **14**(3), 260–286.

Shankar, V., Smith, A. K. and Rangaswamy, A. (2003), 'Customer Satisfaction and Loyalty in Online and Offline Environments', *International Journal of Research in Marketing* **20**, 153–175.

Smith, A. E. (2000), 'The Impact of Scale Characteristics on the Dimensionality of the Service Quality Construct', *The Service Industries Journal* **20**(3), 167–190.

Spreng, R., MacKenzie, S. and Olshavsky, R. W. (1996), 'A Reexamination of the Determinants of Consumer Satisfaction', *Journal of Marketing* **60**(3), 15–32.

Szymansk, D. M. and Henard, D. G. (2001), 'Customer Satisfaction: A Meta-Analysis of the Empirical Evidence', *Journal of the Academy of Marketing Science* **29**, 16–35.

Teas, R. K. (1993), 'Expectations, Performance Evaluation, and Consumers' Perceptions of Quality', *Journal of Marketing* **57**(4), 18–34.

Veillard, J., Champagne, F., Klazinga, N., Kazandjian, V., Arah, O. A. and Guisset, A. L. (2005), 'A Performance Assessment Framework for Hospitals: The Who Regional Office for Europe Path Project', *International Journal for Quality in Health Care* **17**(6), 487–496.

Zeithaml, V. A., Berry, L. L. and Parasuraman, A. (1996), 'The Behavioral Consequences of Service Quality', *Journal of Marketing* **60**, 31–46.