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Quality and price – impact on patient satisfaction

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Abstract

Purpose – The purpose of this paper is to synthesize existing quality-measurement models and applies them to healthcare by combining a Nordic service-quality with an American service performance model.

Design/methodology/approach – Results are based on a questionnaire survey of 1,298 respondents. Service quality dimensions were derived and related to satisfaction by employing a multinomial logistic model, which allows prediction and service improvement.

Findings – Qualitative and empirical evidence indicates that customer satisfaction and service quality are multi-dimensional constructs, whose quality components, together with convenience and cost, influence the customer's overall satisfaction.

Originality/value – The proposed model identifies important quality and satisfaction issues. It also enables transitions between different responses in different studies to be compared.

Keywords Healthcare, Customer satisfaction, Service quality

Paper type Research paper

Introduction

Healthcare quality is coming under increasing scrutiny as professional standards are sometimes below minimum acceptable quality levels (Azam *et al.*, 2012) owing mainly to financial limitations. Healthcare service users today are better educated and more aware (Lim and Tang, 2000) and demand superior services. They carefully search the Internet and monitor the options available to them; they are therefore more discerning buyers. Patients can be characterized as unique customers because they do not usually voluntarily seek medical services. When these services are required, it is reasonable that the customer will seek the best available service above and beyond treatment outcome. Patient evaluation may be considerably different from provider clinically based objective quality measures – primarily caused by information asymmetry between healthcare provider and service recipient (Wisniewski and Wisniewski, 2005). Thus, healthcare staff should find a balance between the patients' service desires and expectations in relation to provider efficiency (Brailsford and Vissers, 2011).

Dramatic changes in the EU legislative, political and economic environment, heightened competition among different healthcare providers, who in turn realize that providing customer satisfaction is a key to success and long-term viability. This is particularly true in public hospitals, where users prefer that scarce resources are used more efficiently. Hence, the need for healthcare staff to understand patient perceptions. Our purpose, therefore, is to: introduce an integrated service-quality conceptualization using the Nordic School dimensions measured by a perceptions-only measurement instrument; illustrate service quality dimensions perceived by the customer to measure overall satisfaction; introduce a multinomial logistic model that expresses satisfaction as a function of different quality dimensions. Such modelling allows prediction and comparisons, which can be used to construct benchmarks for further research.

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Background

Researchers argue that user satisfaction is a more general concept than service quality. They suggest that the latter is a cognitive construct, while satisfaction is an affective reaction, following an evaluation process, to a specific service experience (Choi *et al.*, 2005). This distinction between service quality and satisfaction suggests a causal order, positing satisfaction as a result or consequence and acts as a higher-order construct than service quality (Ting, 2004; Gupta and Zeithaml, 2006). This perception has also been adopted by hospital sector researchers (Lee *et al.*, 2012; Gallan *et al.*, 2012). It is generally accepted that service quality is a multi-item construct (Parasuraman *et al.*, 1988) and many theoretical or mathematical models have been developed to measure and interpret it. There are two main schools: the American perspective (Parasuraman *et al.*, 1988), which characterizes service encounters; and the Nordic perspective (Grönroos, 1988), which considers functional and technical service quality.

Some researchers have empirically evaluated SERVQUAL's dimensions and concluded that it is a reliable and valid healthcare measure (Babakus and Mangold, 1992). In contrast, others propose that SERVQUAL needs to be customized by adding items or adapting its wording to specific sectors. Thus, they proposed modifications; e.g. adding dimensions such as accessibility; including items like convenient location or hours; access to care; waiting time (Lim and Tang, 2000); communication, including time spent; tests and procedures (Cooper-Patrick *et al.*, 1999); outcomes and caring (Wolf *et al.*, 2003; Al-Mailam, 2005; Tucker and Adams, 2001). Hasin *et al.* (2001) identified five predictive service-quality variables: communication, responsiveness, courtesy, cost and cleanliness. Duggirala *et al.* (2008) highlighted seven distinct patient-perceived service quality dimensions: infrastructure, staff, administration, safety, clinical care, overall medical-care experience and social responsibility. Another study examined how dimensions like communication, provider demeanor, support/care, hospital environment and waiting time predict hospital service quality (Atinga *et al.*, 2011). Findings revealed that hospital cleanliness plays a significant role in patient-satisfaction.

Based on the Nordic model, Rashid and Jusoff (2009) defined service quality technically and functionally. Technical quality in the healthcare environment, is also referred to as quality – defined primarily by diagnostic and procedural precision (Sohail, 2003; Pansiri and Mmereki, 2010). Similarly, Bakar *et al.* (2008) presented a two-way approach, distinguishing healthcare quality (surgical skill and appropriate medication) and service quality (hospital comfort, support from providers, waiting time, appointments and visits, and physical environment). Service elusiveness makes it difficult for customers to understand the health service's essence (Rashid and Jusoff, 2009). Various techniques for measuring technical quality are used by healthcare staff. Because this information is not generally available to the public, technical quality is limited to healthcare professionals and administrators. Functional quality refers to the manner in which services are delivered, and remains at the forefront of customer assessment. Service diversity, highly customized and subjectivity create variability in the customer-employee relationship (Rashid and Jusoff, 2009). After an extensive healthcare sector quality literature review, Azam *et al.* (2012, p. 391) concluded that:

> […] the parameters, criteria and awards in the quality assurance literature seem to have not been developed specifically for healthcare, therefore they remain ambiguous. Piecemeal attempts have been made to adopt hospital quality criteria. However, they remain general attributes, which may not fully meet an integrated model's specific requirements.

Motivated by this conclusion, we aim to integrate the antitheses observed in the models and to develop a customer-assessment approach that is predictive. However, operationalizing customer satisfaction is somewhat hazy (Sureshchandar *et al.*, 2002). Cronin and Taylor (1992) measured customer satisfaction as a one-item scale, asking only for the customer's overall opinion. Other research emphasizes the concept's multi-faceted nature and uses multiple item scales to measure it (Shemwell *et al.*, 1998).

Research questions

In all theories, one can identify common research statements, namely: first, the dominant view that quality predicts patient satisfaction; second, the standpoint that there is a core (functional or physical or outcome) and a peripheral (interactive or technical) service provision element from the relevant provider (image) within a specific service environment; and third, the common position that both quality and satisfaction are characterized by their multidimensional structures. These three issues are addressed in the integrated model's construction. Researchers pay attention to the close relationship between service quality and customer satisfaction and we adopt Oliver's (1993) view that service quality is a more specific judgment, which can lead to a broad customer-satisfaction evaluation. Consequently, our analysis generally follows Cronin and Taylor's (1994) contention that service quality may be identified as a factor leading to satisfaction and not as the customer's overall service-evaluation, and that customer satisfaction exerts a stronger influence on purchase intentions than service quality. Moreover, homogeneity forms the foundation for a positive relationship between customer satisfaction and market share. Thus, we agree that health-marketing strategies should focus on customer satisfaction programs, rather than only on service quality centred ones. Like Dabholkar *et al.* (1996), we adopt the position that service quality is a multidimensional construct. The questions are now: how exactly will particular service quality dimensions influence customer satisfaction? And can we identify the different dimensions and/or measure them in a consistent way and compare different service providers (hospitals in our case) or between different surveys in a follow-up case? Both questions are particularly interesting, since identifying important dimensions can help administrative decisions aimed at improving processes.

Since hospitals are large and complex organizations, different factors like physical conditions, employees, cost, convenience and accessibility all play a role in user satisfaction. This can also lead to ideas for possible interventions. There is a perception in many EU countries that public services generally and hospitals particularly, do not operate efficiently and effectively merely because they are publicly owned. The key quality element in the public sector is the attention that staff pay to users, based on human relationships more than the core service itself (Bigne *et al.*, 2003).

The customer satisfaction literature devotes attention to pricing, price perceptions and customer satisfaction. Høst and Knie-Andersen (2004) found a significant relationship between perceived competitiveness and customer satisfaction. Dabholkar *et al.* (1996) report that respondents regularly list price as a satisfier. Varki and Colgate (2001) also show a significant relationship between price perceptions and satisfaction, which applies when price perception was measured relatively, but not absolutely. Furthermore, market researchers support the notion that customer satisfaction should be dependent on value and hence price, whereas service quality is not generally considered price dependent (Anderson *et al.*, 1994). Satisfied customers are more likely to tolerate price increases (reduced price elasticity), which may raise profit

(Beerli *et al.*, 2004). Even in public hospitals, as in our case, where price is treated rather as a symbolic consumer-cost, we can argue that quality expectations or satisfaction cannot generally be moderated by an absent direct connection between price and performance because people tend to accept such an absence. Consequently, research on the relationship between prices and satisfaction suggests that price perceptions positively affect customer satisfaction. Thus, price should be treated as an independent variable and not combined with service quality – in opposition to Dabholkar *et al.* (1996). This price variable used both jointly with and independently from convenience (Lim and Tang, 2000) and service quality may be used to describe customer satisfaction.

Our second argument, in line with Nordic School contentions (Lehtinen and Lehtinen, 1991), suggests that physical, interactive and corporate quality seem to be flexible enough to accommodate different perceptions (Pantouvakis, 1996). We adopt this horizontal approach rather than a more rigid multi-dimensional construct, such as that suggested in the gap model identified earlier. Furthermore, owing to specific elements, we believe that it is reasonable to argue that all elements are orthogonal and unrelated. Our final contribution to developing a quality instrument is our argument that quality perceived by customers follows a simultaneous comparison between what was expected and what was experienced, taking into account organizational image. This concerns both psychological and behavioural aspects; including access to the provider, how service employees perform the task, what they say and how the service is implemented. The model also takes into account that customers have a specific image of the firm, which itself has an impact on quality perceptions and functions as a filter (Caruana, 2002).

Such reasoning's key element is to use performance-only items to confirm the common service quality elements and then to use them as drivers for modelling customer satisfaction. This implies an assumption that customer satisfaction is a function of several factors that can be measured consistently by our instrument, enabling us to examine their relative importance. Health service user satisfaction is reported on a five-point scale as a customer satisfaction driver and we model this driver as a categorical variable through a multinomial logistic regression model. As we show in the method section, this approach provides robust results, compared to simpler analyses, but at the same time offers the advantage that it can be used for prediction and benchmarking purposes, which is not as easy for the other models. Service quality is related to customer satisfaction and is a multidimensional construct with different components. We aim to reveal service quality components and relate them to customer satisfaction. Specifically, our research questions (RQ) are:

RQ1. Customer (patient) satisfaction is a multidimensional construct that can be decomposed into its service quality features: physical (PQ), interactive (IQ) and corporate quality (CQ); price (P) and convenience (Con), or: customer satisfaction $= g(PQ, IQ, CQ, P, Con)$. This modelling procedure may create a strong tool for influencing results (increased customer satisfaction), which helps us to monitor actions and assess proposed measures to improve services. Thus, beyond our study's exploratory and descriptive nature, we also present a tool that measures service level changes, including infrastructure and medical or administrative policies and their impact on patients' overall service evaluation.

RQ2. How exactly and to what extent do PQ, IQ, CQ, P and Con dimensions influence overall customer (patient) satisfaction?

Methodology

Sample

Data were gathered in five public and four university hospitals in five Greek cities, in early 2009, just before the country's fiscal crisis. Specially recruited and trained interviewers talked to patients who were selected randomly (one in every five) from a patient list given by the hospital administrators. Patients had hospitalized in the relevant hospital in the last six months prior to the survey. Completed questionnaires were checked to exclude ones with gaps or extreme answers (65 were rejected). The final sample included 1,298 randomly selected health service users, each one equally likely to be selected; i.e. our random probability sampling method produces results that represent the general population.

Measures

Healthcare perceptions were obtained using a specially developed 21-item inventory drawn from the relevant literature (Appendix). The items were organized into five themes, one covering each theoretical component. All 21 items were measured on five-point Likert scales with the end-points 1 = very bad to 5 = very good. Respondents were asked to indicate their perceived satisfaction using three items: hospital services; hospital infrastructure; and personnel; e.g. politeness, kindness, etc.), also measured on Likert scales with the end-points 1 = very low to 5 = very high. The questionnaire incorporated questions related to respondents' socio-demographic characteristics: age, sex, education and residence.

Results

Assessing the instrument's dimensionality

To test instrument reliability, Cronbach α's were calculated for the main quality dimensions. Reliability was high, ranging from 0.68 to at 0.92, verifying the instrument's scaling. Face validity was ensured through the literature survey, analysis and subsequently selecting relevant items. The instrument therefore presents both face and content validity. Satisfaction components are closely and positively related to overall satisfaction, as expressed by a single measure. Furthermore, in our factor analysis, almost all items load as expected, thereby demonstrating strong convergent validity.

Satisfaction as a multi-dimensional construct

To determine the interrelationships between items and to verify different satisfaction dimensions, exploratory factor analysis was performed using all 21 items, employing principal components analysis to extract the factors and a Varimax rotation to improve interpretation. Table I shows the results from which we extracted five factors. The Kaiser-Meyer-Olkin statistic was high (0.92), indicating strong relationships among items. The eigenvalue corresponding to the 5th factor (price) is lower than 1, but we kept this factor as it helps to interrelate results. As most Greek hospitals are state owned, the price aspect yields contradictory remarks from respondents. The decision to include price was based on a results comparison in all other sectors where the instrument can be used. Finally, five factors are obtained, explaining 65.7 per cent of the total variance, confirming the five dimensions under consideration.

Overall satisfaction as a factor function

As a dependent variable, consistent with other components, satisfaction perceptions were obtained from the patients (overall satisfaction with the hospital from 1 = very

Item description	Factor: Physical	Interactive	Corporate	Convenience	Price
General cleanliness	0.788				
Quality and appearance of the hospital equipment	0.802				
Personnel competence and quality	0.838				
Quality, quantity, and variety of food served	0.594				
Supplementary services offered to patients and their guests	0.679				
Feeling of security and peace	0.569				
Information and explanation offered by the personnel		0.586			
Thorough treatment from the medical staff		0.817			
Politeness and attention of the contact personnel		0.854			
Discretion, understanding, and personal interest offered by the contact personnel		0.841			
Personnel's availability and willingness to assist		0.714			
Quality and sufficiency of the medical equipment			0.621		
Performance of the administrative services and assistance offered			0.693		
Speed of response in answering requests			0.663		
Proximity of the hospital to a main road				0.809	
Accessibility by public transportation				0.807	
Location of the hospital with respect to one's home/office				0.735	
Ability to adhere to promised time schedules			0.419		
Wait time spent			0.635		
Prices charged directly					0.844
Total cost of any other indirect charges					0.848
Eigenvalues	7.909	1.951	1.711	1.285	0.939
Variance explained (%)	37.66	9.29	8.15	6.12	4.4

Table I. Factors extracted

low to 5 = very high), whereas its multidimensional nature is modelled as a factor function. Taking into account the responses' categorical nature, multinomial logistic regression was applied, using five dimension factor scores extracted in the previous subsection as covariates for the overall satisfaction score responses (dependent variable). Multinomial logistic regression generalizes the simple, binary logistic regression model. In arithmetic terms, it expresses the probability ($p_i, i = 1, \ldots, k$) of a categorical variable's appearance (in this case patient satisfaction) that takes exactly k different values. Multinomial logistic regression models the log-odds ratio to a baseline category (in this case, the reference category is very satisfied patients). The multinomial logistic regression model takes the form:

$$\log \frac{p_2}{p_1} = \beta_{02} + \beta_{12} x_1 + \ldots + \beta_{m2} x_m,$$
$$\ldots$$
$$\ldots$$
$$\log \frac{p_k}{p_1} = \beta_{0k} + \beta_{1k} x_1 + \ldots + \beta_{mk} x_m,$$

where $x_1, \ldots, x_m$ are the covariates of interest and β_{ij} are the corresponding coefficients. Positive coefficient- values imply that this covariate increases the probability of selecting the category they refer to with respect to the baseline category; e.g. a positive value for β_{12} implies that covariate x_1 increases the probability of selecting another category rather than category 1. As covariates, we use the extracted factors, so $m = 5$; since our response has five possible values, we have $k = 5$. Table II presents the response variable frequencies.

Table III presents the multinomial logistic regression model's estimated parameters, underlining the healthcare quality dimensions for predicting response (customer satisfaction). It is evident that all factors are statistically significant for satisfaction, which implies that those factors are important for describing and explaining satisfaction. However, dimension importance, as described by the relevant b values, varies for every dimension, revealing a rather less important (however significant) convenience effect and cost elements regarding quality when describing overall satisfaction.

Table IV presents the multinomial logistic regression model's estimated parameters, using the factors extracted as covariates. Since the baseline is the "very satisfied" category, the negative signs imply that satisfaction is lower if factor scores are lower. To assess the model's practical value vs its statistical significance, predictive ability has to be assessed. A high predictive ability (correct prediction) denotes that the dependent and independent variables' relationship is statistically correct and meaningful to hospital managers when planning their actions. In our case, the five factors employed to describe satisfaction (PQ, IQ, CQ, Con and P) predict the probability that a customer/patient will fall into a predefined group; i.e. groups that correspond to five categorical responses: not satisfied at all to very satisfied. In our data set, a Pseudo R^2 of 0.584 and a 72 per cent correct prediction were supported, while the misclassified units were shifted just one category to the left or right, implying that the model was not contradictory. Keeping in mind the "good" category's subjective nature, compared to "very good", such misclassifications, are explainable. The model's

Table II.
Satisfaction scores

Total satisfaction	Frequency	%
Very bad	9	2.2
Bad	28	6.7
Not bad-not good	153	36.7
Good	182	43.6
Very good	45	10.8

Table III.
Results from fitting the multinomial logistic regression model

Effect	Likelihood ratio test	df	*p*-value
Intercept	1,064.635	4	0.000
Physical quality	767.045	4	0.000
Interactive quality	797.099	4	0.000
Corporate quality	755.310	4	0.000
Convenience	626.531	4	0.026
Cost	681.932	4	0.000

	Coefficient	*p*-value
Very bad		
Intercept	−2.784	0.037
Physical quality	−4.627	0.000
Interactive quality	−5.489	0.000
Corporate quality	−4.365	0.000
Convenience	−1.071	0.030
Cost	−2.735	0.000
Bad		
Intercept	0.092	0.915
Physical quality	−4.286	0.000
Interactive quality	−5.083	0.000
Corporate quality	−3.535	0.000
Convenience	−1.040	0.006
Cost	−2.625	0.000
Not bad – Not good		
Intercept	3.921	0.000
Physical quality	−3.140	0.000
Interactive quality	−4.068	0.000
Corporate quality	−2.657	0.000
Convenience	−0.793	0.012
Cost	−2.121	0.000
Good		
Intercept	4.634	0.000
Physical quality	−1.921	0.000
Interactive quality	−2.902	0.000
Corporate quality	−1.432	0.000
Convenience	−0.424	0.136
Cost	−1.322	0.000

Table IV.
Multinomial logistic regression model – estimated parameters

goodness of fit, therefore, is acceptable and satisfaction can be attributed to five factors; i.e. our first main question's assumption. As a sensitivity analysis, we run statistical models to verify the hypothesized relationship between satisfaction and the five factors. In particular, we run simple logistic models by rescaling the response variable to a binary scale, 1 for good and very good and 0 for the remaining categories. Additionally, we run a multinomial logistic regression by combining the good and very good and the bad and very bad categories, resulting in a three-point scale. The results are similar to those reported for the entire scale. Finally, as predictors, we did not use the factors scores, but the raw ones constructed by adding the scores for the variables loading on each factor. In all cases, results were verified.

Conclusions

Almost 20 years' conceptual work has been devoted to addressing service quality's divergent issues, customer satisfaction and the determinants that may better describe the phenomena. The Nordic and American perspectives are at the centre. Each introduced unique models and measurement instruments and the resulting impasse led to a call for research that reconsiders the means, ends and methods for assessing overall satisfaction. Consequently, we studied satisfaction's multi-dimensionality, service quality and integrated the antitheses observed in several models to develop a predictive model. We provide qualitative and empirical evidence that customer

satisfaction and service quality are multi-dimensional constructs. We also confirm the three-dimensional service quality view presented by Lehtinen and Lehtinen (1982), comprising: interaction, physical and corporate quality. Our study identified that these quality components, together with convenience and cost, compose the customer's overall satisfaction. Cost was not a strong factor; however, it is useful for interpretation, especially taking into account the state-owned hospital's nature, where cost has a rather symbolic meaning and does not represent the actual service cost.

Overall satisfaction is measured and determined using convenience and price. We employed a multinomial logistic regression model, which allows us to measure and benchmark customer satisfaction. It is a simple calculation that shows improvement in satisfaction when responses to some specific items change. In our dataset, the model provided 72 percent of the correct predictions, while the misclassified units were shifted just one category left or right, implying that the model did not provide contradictory results. This identifies quality and satisfaction aspects. It also allows us to measure transitions between different responses in different studies and hence to compare the situation in different hospitals, which is not easy when we model satisfaction factors compared to treating satisfaction as continuous. We conclude, especially from factor structure, that service quality's influence far exceeds convenience and price in determining overall satisfaction. Consequently, service quality priority rather than price or convenience should be given. Finally, satisfaction is an ordinal variable and hence ordinal logistic regression can be used. However, we noticed no significant differences, when an ordinal rather than a simple multinomial logistic regression were applied. Constructing other satisfaction drivers also tests our approach's robustness.

Limitations

Our study has three limitations. First, only Greece's public hospitals were measured, so the study should be extended to private enterprises and other service sectors where certain modifications may be introduced. A second limitation is that this study does not differentiate customers/patients according to their socio-demographic characteristics or personal values and beliefs. Differently aged people belonging with dissimilar socio-economic status and lifestyles may assess hospital services differently and a future study may focus on these market segments. Finally, our conceptualization is grounded on the perceptions only approach to service quality, so replicating this or a similar study and thoroughly examining perceived minus expected satisfaction may be interesting.

Managerial implications

Our model assists managers to understand how customers perceive services. Overall satisfaction should be pursued rather than service quality alone. Evidently, overall satisfaction is a construct including physical, interactive and corporate elements together with convenience or access to the service and the price that customers pay. These factors require managerial attention to improve consumer satisfaction. Service quality elements appear to have fundamental influences on overall satisfaction, which is particularly important for managers who see pricing policies more important than their quality programmes. The finding's potential implications are numerous. From a managerial standpoint, our customer satisfaction model can be used to quickly assess hospital service perceptions. Using only five scores in each factor, administrators can predict their customers' overall satisfaction, so they can allocate their scarce resources,

prioritising their policies to better and efficiently meet customer needs. Multinomial logistic modelling measures and benchmarks customer satisfaction, using a simple calculation, which shows that satisfaction, improves when responses to some specific items change, which identifies important quality and satisfaction issues. It helps us to measure the transitions between different responses in different studies and hence to compare the situation in different hospitals; not so easy when satisfaction isn't treated as a continuous variable.

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(The appendix follows overleaf.)

Appendix

Table AI.
21 item healthcare service quality inventory

Item	Source
Cleanliness	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988), Seth *et al.* (2006)
Hospital equipment – quality and appearance	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988), Seth *et al.* (2006)
Staff competence and quality	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988), Seth *et al.* (2006)
Food – quality, quantity and variety	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988), Seth *et al.* (2006)
Supplementary services	Hallowell (1996)
Security and safety	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988), Seth *et al.* (2006); Grönroos (1988), Ghobadian *et al.* (1994), Johnston (1995), Philip and Hazlett (1997)
Medical equipment – quality and sufficiency	Olorunniwo *et al.* (2006), Seth *et al.* (2006)
Information quality	Seth *et al.* (2006), Philip and Hazlett (1997), Hallowell (1996)
Thorough treatment	Seth *et al.* (2006), Philip and Hazlett (1997)
Politeness and attention	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988), Seth *et al.* (2006), Haywood-Farmer (1988)
Understanding and interest	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988)
Staff availability and willingness to assist	Olorunniwo *et al.* (2006), Parasuraman *et al.* (1988), Mersha and Adlakha (1992), Hallowell (1996)
Administrative services quality	Schvaneveldt *et al.* (1991), Grönroos (1988), Olorunniwo and Hsu (2006)
Speedy response	Olorunniwo *et al.* (2006), Seth *et al.* (2006), Mersha and Adlakha (1992), de Carvalho and Leite (1999)
Hospital location – proximity to a major route	Olorunniwo *et al.* (2006), de Carvalho and Leite (1999), Olorunniwo and Hsu (2006), Hallowell (1996)
Accessibility using public transportation	Parasuraman *et al.* (1988), de Carvalho and Leite (1999), Grönroos (1988), Ghobadian *et al.* (1994), Johnston (1995), Hallowell (1996)
Hospital location – un relation to home/office	Olorunniwo *et al.* (2006), de Carvalho and Leite (1999), Olorunniwo and Hsu (2006), Hallowell (1996)
Ability to meet scheduled times	Olorunniwo *et al.* (2006), Mersha and Adlakha (1992), de Carvalho and Leite (1999)
Waiting	Olorunniwo *et al.* (2006), Mersha and Adlakha (1992), de Carvalho and Leite (1999)
Direct charges	Olorunniwo and Hsu (2006), Kandampully and Suhartanto (2000)
Indirect charges	Olorunniwo and Hsu (2006), Kandampully and Suhartanto (2000)

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