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ZONE OF TOLERANCE FOR HEALTHCARE SERVICES: A DIAGNOSTIC MODEL OF PUBLIC AND PRIVATE HOSPITAL SERVICE QUALITY

This study compares the quality of services provided by public and private hospitals in North Cyprus. The paper describes the zone of tolerance for patients' service expectations and determines patient satisfaction level for public and private hospitals. The 'zone of tolerance' is recognized in the service-quality literature as representing a range of expectations (desired and adequate) and an area of acceptable outcomes in service interactions. The patient satisfaction level of public and private hospitals is identified and compared. The conceptual model, HEALTHZOT, is presented in this study and the results demonstrate that the evaluation of services can be scaled according to different types of expectations – 'desired' and 'adequate' – and that patients use these two types of expectations as a comparison standard in evaluating healthcare services. The results obtained for public and private hospital services represent a narrow zone of tolerance. Patients' 'perceived service received' in public hospitals was lower when compared to private hospital services. The results of an exploratory factor analysis reveal that the SERVQUAL model is found to be unidimensional for both the public and private hospitals in this study. The results, managerial implications and future research implications are discussed below in detail.

Keywords: service quality, customer satisfaction, zone of tolerance, healthcare services, public and private hospitals

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1. INTRODUCTION

The growing demand for healthcare services has increased interest in measuring and improving the quality of hospitals in many countries of the world (Amin and Nasharuddin, 2013; Campbell, Roland and Buetow, 2000). The quality of service from a hospital is an important factor that will either turn a customer/patient away or make one for life. More and more hospitals are competing for a greater share in the market, and customer-driven quality management is becoming the preferred method for improving their performance. According to Guldner and Rifkin (1993), the poor quality of service in public hospitals has led patients to approach private healthcare

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service providers; however, private hospitals are usually costly for the majority of people in developing countries. Despite this reality, the hospitals in developing countries seem to be ignoring the importance of patients' perceptions regarding healthcare services (Gaur, Xu, Quazi and Nandi, 2011; Locker and Dunt, 1978).

The emerging healthcare research suggests that patient satisfaction is a dominant concern that is intertwined with strategic decisions in the healthcare services. Patient satisfaction should be as indispensable to assessments of quality as to the design and management of healthcare systems (Andaleeb, 2001). Satisfaction is the psychological state that results from confirmation or disconfirmation of expectations with reality (Jackson, Chamberlin and Kroenke, 2001; Gil and White, 2009; Weingarten *et al*., 1995). Understanding customer expectations in any industry is significant because customers compare their perceptions with reference points when evaluating a product or a service. Thorough knowledge about customer expectations is critical to businesses and should function as standards or reference points against which performance is judged (Amin and Nasharuddin, 2013). Knowing what the customer expects is the first and possibly most critical step in delivering quality products or services (Zeithaml and Bitner, 2003, p. 20).

The healthcare literature, like the services marketing literature, offers numerous quality models (e.g. Amin and Nasharuddin, 2013; Choi, Cho, Lee, Lee and Kim, 2004; Donabedian, 2005; Zineldin, 2006), many of which contain overlapping and or similar dimensions (Bandura, 1998; Gaur et al., 2011). According to O'Connor, Trinh, and Skewchuk (2000, p. 8), several measurement tools have been aimed at assessing consumer ratings of their healthcare services such as:

(a) Consumer Assessment of Health Plans Survey;
(b) Hulka Patient Satisfaction with Medical Care Survey;
(c) National Centre for Quality Assurance – Member Satisfaction Survey;
(d) Picker Institute's Adult Medical Surgical Inpatient;
(e) Patient Judgments of Hospital Quality;
(f) Outpatient Satisfaction Questionnaire (OSQ-37).

Due to the unique characteristics of services, namely intangibility, heterogeneity, inseparability and perishability (Parasuraman, 1986), service quality cannot be measured objectively (Patterson and Johnson, 1993). In the services literature, the focus is on perceived quality which results from the comparison of customer service expectations with their perceptions of actual performance (Zeithaml, Parasuraman and Berry, 1990, p. 23). In order to

attract and retain patients, healthcare service providers need to be actively involved in understanding patients' expectations and perceptions of service quality. Hospitals have to adapt techniques of measuring quality and managing their services in efforts comparable to those of other service business sectors. Most of the commonly used conceptual frameworks for measuring service quality are based on marketing concepts (Agaja and Garg, 2010; Gummesson, 1991). These frameworks measure quality through customer perceptions (Gronroos, 1984), with customer expectations having a substantial influence on these perceptions. It is argued that only criteria that are defined by customers count in measuring quality (Zeithaml *et al*., 1990). Therefore the current study employs this information as a base and adapts the proposed SERVQUAL model by Parasuraman, Zeithaml and Berry (1988) for the assessment of healthcare services quality in North Cyprus. However in the last three decades, several studies have attempted to access service quality in various organizations, discussed in the literature, but only a few deal with the area of healthcare services.

Traditionally, the North Cyprus healthcare sector was ailing due to several factors like the lack of medical awareness, low penetration of medical insurance, few doctors to population ratio etc. However, healthcare efforts have progressed considerably and have witnessed a robust growth in the past few years due to the increase in healthcare campaigns, medical insurance coverage and rising income levels. North Cyprus still lags behind in health related infrastructure in the primary healthcare sector when compared to other developing countries. Currently, the healthcare industry is witnessing changes in patients' demographic profiles accompanied with several lifestyle diseases hitherto unknown.

According to the State Planning Office (2009), there are a total of six public hospitals and eleven private hospitals in North Cyprus, which are shown below with their locations:

- ***Public hospitals***
  1. Dr. Burhan Nalbantoglu State Hospital, Nicosia
  2. Gazimagusa State Hospital, Famagusta
  3. Dr. Akcicek Hospital, Kyrenia
  4. Cengiz Topel Hospital, Lefke
  5. Baris, Ruh ve Sinir Hospital, Nicosia (Lunatic Asylum)
  6. Bulent Ecevit Rehabilitation Hospital, Gonyeli
- ***Private hospitals***
  1. Health Complex Near East University Hospital, Nicosia
  2. Cyprus Life Hospital, Nicosia

3. Etik Hospital, Nicosia
4. Baskent Hospital, Nicosia
5. Dogus Kadin Hastaliklari ve Dogum Hospital, Nicosia (Obstetrics and Gynaecology)
6. Ozel Girne Hospital, Kyrenia
7. Tunccevik Kadin ve Dogum Hospital, Kyrenia (Obstetrics and Gynaecology)
8. Kamiloglu Kyrenia Medical Center, Kyrenia
9. Kunter Guven Hospital, Famagusta
10. Magusa Tip Merkezi, Famagusta
11. Magusa Yasam Hospital, Famagusta.

These hospitals render their services with a total of 473 doctors specialized in different fields of medicine. The population of North Cyprus is 264,172 (de facto) according to the 2006 census. In 2009, these doctors gave 45,966 patients, general / surgery cure / treatment (17.4% of population) and 22,912 patients, dental cure / treatment (8.6% of population). These hospitals are equipped with modern technological medical devices with a 1,582 patient bed capacity and 1,732 employees (administrative staff, nurses and other workers).

The aim of this study is to diagnose the delivery of healthcare services quality in public and private hospitals in North Cyprus. Understanding, measuring and improving quality is a formidable challenge for all service organizations since they compete to some degree on the basis of service. The bottom line for strategic competitive advantage in healthcare is quality.

2. CONCEPTUAL BACKGROUND OF THE STUDY

If service quality is to be improved, it must be reliably assessed and measured. According to the SERVQUAL model (Parasuraman, Zeithaml and Berry, 1988), service quality can be measured by identifying the gaps between customers' expectations of the service to be rendered and the customers' perceptions of the actual service delivered. Parasuraman *et al.* (1988) define service quality as 'a global judgment or attitude relating to the overall excellence or superiority of the service'. They conceptualize a customer's evaluation of the overall service quality by applying Oliver's (1980) disconfirmation model: the gap between *expectations* and *perception* (gap model) of service performance levels. Furthermore, Parasuraman *et al.* (1988) propose that overall service quality performance may be determined

by a measurement scale called "SERVQUAL", which is based on five generic dimensions:

1. Tangibles: the physical surroundings represented by objects (for example, interior design) and subjects (for example, the appearance of employees);
2. Reliability: the service provider's ability to provide accurate and dependable services;
3. Responsiveness: a firm's willingness to assist its customers by providing fast and efficient service;
4. Assurance: diverse features that instil confidence in customers (such as the firm's specific service knowledge, or polite and trustworthy behaviour of employees);
5. Empathy: the service firm's readiness to provide each customer with personal service.

The original SERVQUAL scale was composed of two sections. The first section contained 22 items for customers' expectations of excellent firms in the specific service industry. The second contained 22 items that measured consumers' perceptions of service performance of the company being evaluated (Ali, Khan and Rehman, 2012). The results from the two sections are compared and used to determine the level of service quality. The SERVQUAL instrument has been widely used to measure service quality in various service industries. According to Parasuraman, Berry and Zeithaml (1991), the concept of expectation has been emphasized as a key variable in the evaluation of service quality.

Research on service quality has been conducted in many service industries such as appliance repair, banks, insurance, long distance telephone services, education and even hotels (Ali and Zhou, 2013; Amin, Yahya, Ismayatim, Nasharuddin and Kassim 2013; Parasuraman *et al*., 1985; Sultan and Wong, 2013; Zeithaml, Parasuraman and Berry, 1990; Ali, Hussain and Omar, 2015; Ali, Zhou, Hussain, Nair and Ari Ragavan, 2016). How service quality should be measured is a discussion that continues today (Ali, Khan and Rehman, 2012; Cronin and Taylor, 1992, 1994; Parasuraman *et al*., 1991). The literature identifies that several studies have significantly extended the SERVQUAL framework in the healthcare industry (Agaja and Garg, 2010; Reidenbach and Sandifer-Smallwood, 1990; Babakus and Mangold, 1992; Bowers, Swan and Koehler, 1994; Sewell, 1997; O'Connor, *et al.,* 2000; Curry and Sinclair, 2002). A few have adopted an entirely different approach (Amin and Nasharuddin, 2013; Carman, 2000; Jun, Petersen and Zsidin, 1998; Licta, Mowen and Chakaborty, 1995; Lytle and Mowka, 1992; Zifko-Baliga and Krampf, 1997). The results of these studies

are variable and none have been an exact replica of the other. One of the most controversial issues is the reliability of the SERVQUAL scale. A major criticism of the SERVQUAL scale reported in the literature concerns dimensionality. Some investigators have failed to reproduce the five factors of the original model and concluded that SERVQUAL is unidimensional (Babakus and Mangold, 1992; McAlexander, Kaldenburg and Koenig, 1994; Lam, 1997; Angur, Nataraajan and Jahera, 1999). Sometimes it is found to be two-dimensional (Karatepe and Avci, 2002; Ekinci, Prokopaki and Cobanoglu, 2003; Nadiri and Hussain, 2005) or ten-dimensional (Carman, 1990), and others have concluded that the generic nature of the scale is unsuitable for hospital settings (Bowers, Swan and Taylor, 1994; Chahal and Kumari, 2010; Lam, 1997). However, a few researchers (Carman, 1990; Cronin and Taylor, 1992; Parasuraman *et al*., 1985; 1988; Teas, 1994) argue that the number of dimensions and the nature of the SERVQUAL construct may be industry-specific. Other investigators have suggested that perceived service quality varies with the type of service (Carman 2000; Kilbourne, Duffy, Duffy and Giarchi, 2004) and outcome (Lytle and Mowka, 1992; Silvestro, 2005). Research conducted by Cronin and Taylor (1992), casts doubt on the validity of the disconfirmation paradigm (expectations-perceptions approach) advocated by Parasuraman *et al*. (1985, 1988). Cronin and Taylor question whether or not customers routinely assess service quality in terms of expectations and perceptions. They advance the notion that service quality is directly influenced only by perceptions of service performance. Accordingly, they developed an instrument to measure service performance (SERVPERF) that seems to produce better results than SERVQUAL (Asubonteng, McCleary and Swan, 1996). It has also been argued that a performance-only (SERVPERF) measure explains more of the variance in an overall measure of service quality than the SERVQUAL instrument does (Cronin and Taylor, 1994). Work that has adopted a SERVQUAL/SERVPERF comparative approach has noted that healthcare service recipients have uniformly high expectations across all SERVQUAL dimensions and concluded that measuring quality as performance only is superior (Dean, 1999; McAlexander *et al*., 1994).

However, Lim and Tang (2000) emphasized that in the healthcare industry, hospitals provide the same types of service but they do not provide the same quality of service. Furthermore, consumers today are more aware of the service alternatives and the rise in standards that have consequently increased their expectations. They are also becoming increasingly critical of the quality of service experience. Service quality can therefore be used as a

strategic differentiation weapon to build a distinctive advantage which competitors would find difficult to copy. Rose, Uli, Abdul and Ng (2004) identified that the service providers in healthcare increasingly have to deal with a wide range of social, financial, political, regulatory and cultural challenges, the impact of which, among other factors, is the demand for greater efficiency, better quality and lower costs. Hence, quality management has emerged not only as the most significant and enduring strategy in ensuring the very survival of organizations, but also a fundamental route to business excellence (Amin and Nasharuddin, 2013). Knowing what the customer expects when they use healthcare services is ultimately the way to create a good service quality. Conducting market research amongst the healthcare users to determine their expectations and perceptions of services would give managers the strategic leap necessary to meet those customer expectations in their own organization. The strategic advantage is to understand the customers' needs and then make the changes to deliver that exceptional service.

2.1. The concept of zone of tolerance

Despite numerous criticisms of SERVQUAL, Zeithaml *et al*. (1993) contend that the instrument provides a useful method for quantifying *desired service levels*, *minimum service levels*, and *customer perceptions of actual service*. Furthermore, Parasuraman (2004) discussed the concept of the 'zone of tolerance' of service as the difference between *desired service* (what the customer hopes to receive) and *adequate service* (what the customer will accept as sufficient). This concept has direct relevance to various service sectors in terms of assisting the firm to manage service more efficiently (Stodnick and Marley, 2013). The service level that a customer believes the firm will actually deliver is referred to as the *predicted service*, "the level of service the customers believe that they are likely to get" (Miles and Huberman, 1994, p.8). However, customers do not have a single 'ideal' level of expectation, but rather a range of expectations. Parasuraman (2004) refers to this range of expectations as the 'zone of tolerance', with 'desired service' at the top and 'adequate service' at the bottom of the scale. According to Parasuraman (2004), if the service delivered falls within the zone, customers will be satisfied whereas if the service is better than their desired service level, customers will perceive the service as exceptionally good, and be delighted with the service. However, if the service falls below the zone of

tolerance, customers will not only be dissatisfied but will also feel cheated and take their business elsewhere.

The zone of tolerance provides a range within which customers are willing to accept variations in service delivery. There are relatively few studies that have focused on prescribing norms for measuring the zone of tolerance for service quality (Wu and Wang, 2012). However, a number of studies reveal that the zone of tolerance framework allows one to assess customer expectations in a manner not afforded by the traditional SERVQUAL framework (Stodnick and Marley, 2013; Walker and Baker, 2000). By incorporating two service expectation levels, the desired and adequate level, practitioners should be able to assess their level of delivered service quality and determine more precisely where resources may be allocated (Roshnee and Fowdar, 2013; Wu and Wang, 2012).

This method thus provides practitioners with a tool that is more useful than the traditional SERVQUAL (desired expectations only) format for developing an affective management strategy. Incorporating the zone of tolerance framework will help practitioners better identify key service components and deliver them to customers more consistently (Walker and Baker, 2000; Wu and Wang, 2012). The concept of the zone of tolerance is useful as a way of exploring the dynamic aspects of the relationship between service process and service output (Johnston, 1994). Kennedy and Thirkell (1988) see it as a middle condition in the outcome of the disconfirmation model. Poor quality service will cause dissatisfaction among customers, while good quality service leads to delight. An acceptable quality of service (confirmation rather than disconfirmation) results in satisfaction. DeCarvalho and Leite (1999) and Caruana, Ewing and Ramaseshan (2000) support the use of zone of tolerance for the measurement and improvement of service quality. Cavana, Corbett and Lo (2007) report that the zone of tolerance idea provides information about the areas and attributes that are in need of improvement. Yap and Sweeney (2007) found that the zone of tolerance moderates the service quality-outcome relationship. According to Teas and DeCarlo (2004), the zone of tolerance provides diagnostic value by capturing the range of service within which a firm meets its customer expectations.

Therefore the zone of tolerance can also provide an insight into the relative importance of each dimension of the SERVQUAL. Moreover, the gap model (between perceptions and expectations) proposed by Parasuraman *et al*. (1991), provides a means of analysing the situation so that practical steps can be taken to improve service quality.

The present study explores the zone of tolerance and patient satisfaction level for healthcare services provided by public and private hospitals. Given

the wide recognition and validation of the SERVQUAL instrument, it is selected for this study. The study findings contribute to the present literature and have implications for practitioners. However, within the healthcare literature, patient satisfaction has been less researched within the service quality context, which elevates the relevance of this study. We were unable to identify previous studies of patient satisfaction that focused on the zone of tolerance in the healthcare sector; hence this study is important to the present body of knowledge regarding the zone of tolerance in healthcare services. Zone of tolerance management is important for hospitals because it provides practitioners with a means of identifying and improving patient relationship management strategies.

The first section of this paper examines the literature that assisted the authors to develop the conceptual framework for this research. The paper then presents the methodology for the study, including a conceptual model and an appropriate method for measuring the zone of tolerance in the healthcare sector. The findings of the study are then presented, followed by discussion, implications, and conclusions.

2.2. The nature of the zone of tolerance

Barry and Parasuraman (1991) found that customers' service expectations exist at two levels: the *desired* level and the *adequate* level. The desired service level describes the service that the customer hopes to receive. This level constitutes a mix of what the customer believes "can be" and "should be" provided by the service provider. The adequate level denotes the level that customers find acceptable. This level reflects customers' evaluation of what the service "will be," or, in other words, the customers' *prediction of the level of* service. The difference between these two levels is termed the *zone of tolerance*, which is the range of service performances that the customer finds satisfactory. A level below the zone of tolerance will lead to customer frustration, a decrease in customer loyalty and, hence, dissatisfaction (Roshnee and Fowdar, 2013; Wu and Wang, 2012). A level above the tolerance zone will lead to delighted customers, strengthened loyalty and, hence, satisfied customers. To illustrate this, Berry and Parasuraman (1991) describe a customer at a bank. The customer wishes to have a check cashed in three minutes, which is the desired service level. However, due to past experience, the customer is aware that factors such as the number of customers in line and the time of day might increase the amount of time it takes to be served. This results in the customer being

willing to tolerate a total transaction time of ten minutes, which is the adequate service level. This means that the customer will be satisfied with the speed of the service if the total transaction time is between three and ten minutes (the zone of tolerance). It is therefore considered a sound strategy if service companies aim to please customers by promising what they can deliver, and then delivering more than what was promised.

Parasuraman *et al*. (1994) modified their SERVQUAL model to measure two aspects of service quality:

- The gap between *perceived service* and *desired service* – referred to as the 'measure of service superiority' (MSS);
- The discrepancy between *perceived service* and *adequate service* (or minimum service) – referred to as 'measure of service adequacy' (MSA).

Parasuraman *et al*. (1994), suggest three alternative service-quality measurement formats. They are as follows:

- The first is a *three-column format* that generates separate ratings of desired, adequate, and perceived service using three identical, side-by-side scales. This requires the computation of the 'perceived–desired difference' (for MSS) and the 'perceived–adequate difference' (for MSA). Its operational treatment of service quality is thus similar to that of SERVQUAL, although it does not repeat the battery of items.
- The second is a *two-column format*. In contrast to SERVQUAL, this format generates direct ratings of the service-superiority gap (MSS) and the service-adequacy gap (MSA) using two identical scales.
- The third is a *one-column format*. This format also generates direct ratings of the service-superiority gap and the service-adequacy gap. However, the questionnaire is split into two parts: Part I containing one set of scales (for MSS) and Part II containing the same set of scales (for MSA). Thus, this format involves repeating the battery of items (as in SERVQUAL).

The three-column format of SERVQUAL is the most significant development by Parasuraman *et al*. (1994). Cavana *et al*. (2007) claimed that this can be used by managers for diagnostic purposes and affords the opportunity for using the perception items separately for prediction purposes. Despite the potential diagnostic value, there have been very few reported empirical studies that use this instrument.

Zeithaml *et al*. (1993) propose that customer expectations (as a comparison standard) can be considered from two perspectives: *narrow* and *broad*. According to the *narrow* perspective, customer expectations are beliefs in the future performance of a product. According to the *broad*

perspective, expectation is multidimensional and associated with different levels of performance. The authors then classify expectations into *desired* and *adequate* expectations. They define a *desired service* expectation as the level of service that customers hope to receive. This is a mixture of what customers believe the level of performance *can be* and *should be* (Zeithaml *et al*., 1993). They claim that this corresponds to customers' evaluations of service quality. The *adequate service* expectation is defined as the lowest level of performance that consumers will accept. The authors note that this level of expectation is comparable to the minimum tolerable expectation. This is termed 'predictive expectation,' and is associated with customer satisfaction. The area between desired service and adequate service is referred to as the *zone of tolerance*, and represents the range of service performances that customers will tolerate.

Zeithaml *et al*. (1993) also reported that, "as conceptualized in the customer satisfaction/dissatisfaction literature, assessments of customer satisfaction results from a comparison of predicted service with perceived service. Predictive service, however, is not the comparison standard that customers use in service quality assessments. Instead, service quality assessments are a function of two other comparisons. Consistent with the services marketing literature, service quality assessments, called gap 5 in the gaps model of service quality (Parasuraman *et al*. 1985), involve comparisons with desired and adequate, rather than predicted service" (p. 18).

The inherent nature of services renders it difficult to ensure consistent service delivery across employees in the same firm, and even by the same service employee from day to day. The extent to which customers are willing to accept this variation is the zone of tolerance (Lovelock and Wright, 1999). Therefore, service performance that is above the minimum tolerable level will ensure customer satisfaction (Stodnick and Marley, 2013). More importantly, consumers will tolerate services that are equivalent to their minimum tolerable expectation. According to Zeithaml *et al*. (1993), consumers will tolerate service performance if it is equal to the 'adequate' service level. A zone of tolerance thus occurs when the service performance is between the desired expectation and the adequate expectation. Further, the "bottom line" for satisfaction occurs when the perceived service performance is equal to the adequate service expectation.

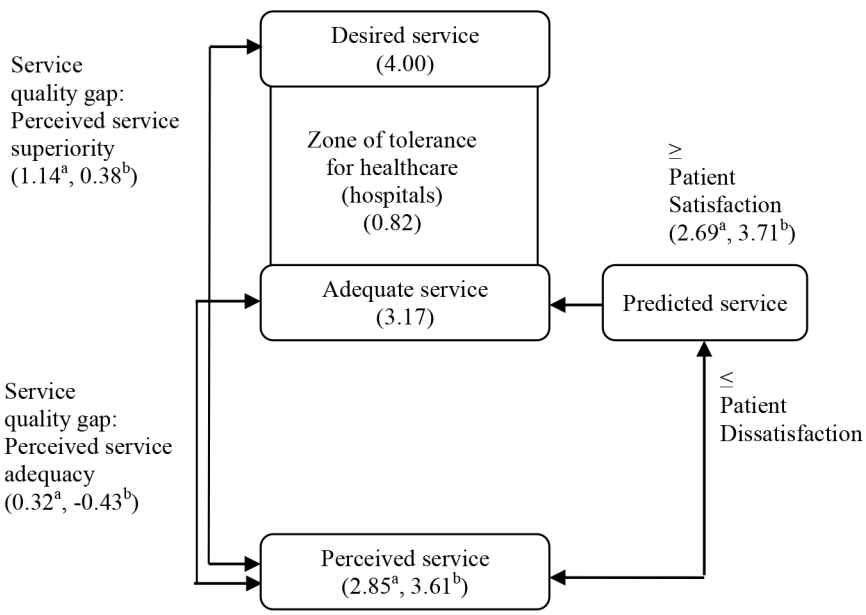
In summary, the assessment of *desired* and *adequate* expectations might be valuable in determining and monitoring service performance and patient satisfaction. In addition, this information can be used as an internal

benchmark to enhance the existing level of service quality. This study therefore draws on Zeithaml *et al.*'s (1993) model in developing its methodology.

3. METHODOLOGY

3.1. A conceptual model for measuring the zone of tolerance in healthcare services

The present study proposes a conceptual model called "HEALTHZOT (The zone of tolerance in healthcare services)" for measuring the zone of tolerance in the healthcare sector (see Figure 1). This model expands upon the previous work (described above) by incorporating two levels of expectations – desired and adequate. *Desired* expectations represent the level of service that a patient hopes to receive from a hospital –a blend of what a patient believes 'can be' and 'should be' offered. This differs from



Note: Adapted from Zeithaml et al. (1993, p. 5); Mean values are presented in parentheses; [a] Public services; [b] Private services.

Figure 1. Zone of tolerance for healthcare services (HEALTHZOT)

Source: own work

Parasuraman *et al*.'s (1988) conceptualization, which refers only to what the service 'should be'. *Adequate* expectations represent a lower level of expectation. They relate to what a hospital patient considers to be an 'acceptable' level of performance. Desired expectations are deemed to remain relatively stable over time, whereas adequate performance expectations may vary with time. The difference between these two levels of service-quality expectation is deemed the *zone of tolerance* for healthcare service providers (hospitals). The zone of tolerance may be defined as "the extent to which patients recognize and are willing to accept heterogeneity" in services (Zeithaml *et al*., 1993, p. 6). In this model, predicted service describes the actual adequate service to be received / perceived by patients. It describes the patient satisfaction level which should be $\geq$ to adequate service to predict patient satisfaction. If it is found to be $\leq$ to adequate service, then patients are likely to be dissatisfied. The *zone of tolerance* in the model is tested using the dimensions of SERVQUAL. Thus patients' expectations, rather than having only one level, are bounded by the upper and lower limits in healthcare services.

3.2. Sampling

The sample used for the study consists of patients visiting North Cyprus public and private hospitals. The data was collected in July-November 2011. The sample was selected on the basis of a non-probability convenience sampling technique (Aaker, Kumar and Day, 1995). A total of 700 questionnaires were distributed to hospital patients. Of these, 495 questionnaires were returned. In all, 456 questionnaires were found to be useful, which represents a 65% response rate from the original sample.

3.3. Data collection

The questionnaire was based on service expectations ('adequate' and 'desired') and service perceptions (public and private) and it followed a four-column format. The meaning of service expectations was briefly explained to all of the respondents prior to their completing the questionnaire. There are 24 items in all – 22 items for measuring service quality based on the SERVQUAL scale (adapted from Parasuraman *et al*., 1991, p. 446-449), and the remaining 2 items for measuring patient satisfaction (see Table 3 for survey items). Each respondent was requested to fill in their perceptions for both public and private health services. A pilot test was conducted using 50 respondents' responses. As a result of the pilot study, the instrument was re-worded for measuring service quality and for the zone of tolerance within

the healthcare sector. This modified instrument is referred to as 'HEALTHZOT' in this study. A five-point Likert type scale (Likert, 1934) was used for data collection, with '1' being 'strongly disagree' and '5' being 'strongly agree'. The survey instrument was back-translated (Aulakh and Kotabe, 1993), for Turkish Cypriot national patients. The survey instrument was applied in English to nationalities other than Turkish.

3.4. Data analysis

Descriptive measures such as means, standard deviations, and frequencies were calculated. Hospital patients' service expectations (adequate and desired) and service perceptions were measured using the HEALTHZOT instrument described above. Particular measures relevant to this study were defined as follows:

- The zone of tolerance for healthcare services was calculated as the difference between the desired service and the adequate service.
- The measure of service superiority (MSS) was calculated as the difference between the desired service and the perceived service.
- The measure of service adequacy (MSA) was defined as the difference between adequate service and perceived service.

HEALTHZOT dimensions were also calculated with a 'gap analysis' as the difference between perceptions and expectations using paired *t*-tests. The psychometric properties of the scale (such as reliability) were tested, and the dimensionality of the scale was confirmed through an exploratory factor analysis.

4. FINDINGS

4.1. Dimensions of the model

The results of the exploratory factor analysis demonstrated that since the HEALTHZOT instrument failed to form its particular assumed dimensions of service quality – tangibles, reliability, responsiveness, assurance, and empathy – it is found to be unidimensional. This study maintains the framework of HEALTHZOT as its five dimensions: first, the primary purpose of this study was to demonstrate attitude differences in the zones of tolerance rather than to examine the factor structure of the dimensions, and second, because the Cronbach alphas were comparable to those found by other researchers, it was exceeding 0.70, a suggested level by Nunnally (1978) and Churchill (1979); thus the five dimensional framework of service quality was employed.

4.2. Demographics

Table 1 shows that most of the respondents were males (55.3%). The majority of the respondents were between the ages of 21 and 35 (53.1%).

Table 1

Demographic (n = 456)

	Frequency (F)	Percentage (%)
Gender		
Female	204	44.7
Male	252	55.3
Total	456	100.0
Age		
20 and below	35	7.6
21-30	242	53.1
31-40	127	27.8
41-50	24	5.3
51-60	25	5.5
60 and over	3	0.7
Total	456	100.0
Educational level		
Primary school	9	2.0
Secondary school	88	19.3
High school	97	21.3
Vocational school	99	21.7
Undergraduate	125	27.4
Masters	30	6.6
Doctorate	8	1.7
Total	456	100.0
Occupation		
Self-employed	42	9.2
Professionals (e.g. lawyers, doctors, engineers)	55	12.1
Students	89	19.5
Executives of a corporation	17	3.7
Governmental employees (e.g. clerks, officers etc.)	159	34.9
Personnel of educational organization	12	2.6
Others (e.g. retired, housewives, labourers etc.)	82	18.0
Total	456	100.0
Income level (in Turkish Lira)		
Parental support	89	19.5
1,000 or less	21	4.6
1001-2000	202	44.3
2001-3000	59	12.9
3001-4000	31	6.8
5001-5000	35	7.7
6001 or above	19	4.2
Total	456	100.0
Nationality		
Turkish Cypriots	314	68.9
Foreigners (from European and Asian countries)	142	31.1
Total	456	100.0

Source: own work

With respect to education, 27.4% of the respondents had undergraduate degrees. In terms of occupation, 34.9% of respondents were officers and government employees. With regard to income level of the respondents, 44.3% had a middle income level (1001-2000 TL), exceeding the minimum wage remuneration, which is 930 TL. In terms of respondents' nationality, 68.9% were Turkish Cypriots, and the remaining were categorized as foreigners from various other countries (including Far East Asia, the Middle East, Europe and Africa).

4.3. Zone of tolerance for healthcare services (HEALTHZOT)

4.3.1. Zone of tolerance for public hospital services

The results in Table 2a demonstrate that the mean desired service level was higher than the mean adequate service level, and that the mean perceived service level was lower than the mean adequate service level. The respondents' perceived service (as received) was therefore fall-short (lower) from the zone of tolerance for healthcare services. When the zone of tolerance was examined with MSS and MSA, the results demonstrated no tolerance against the zone of tolerance, as the perceived service level was lower than the adequate service level. The same relationship was found in terms of HEALTHZOT dimensions: tangibles, reliability, responsiveness, assurance and empathy. It can therefore be concluded that the respondents were not willing to tolerate poor services on each dimension of HEALTHZOT for public hospital services. The mean of predicted service level was also lower than the mean of adequate service level, which explains overall patient satisfaction in the model. The reliability (internal consistency) of each service level (expected and perceived) exceeded the suggested level of 0.70 (Nunnally, 1978; Churchill, 1979) in public hospital services, which suggests that the measures [were] free from random error and thus reliability coefficients (Cronbach alpha) estimate the amount of systematic variance (Peter, 1979). The high alpha values indicated good internal consistency among the items, and the high alpha value for the overall scale indicated that convergent validity was met (Parasuraman *et al*., 1991). The results obtained in this study are therefore reliable.

Table 2a

Zone of tolerance for public hospital services

	Mean	Standard deviation	Cronbach alpha
Adequate service expectations	**3.17**	**0.85**	**0.93**
Tangibles	3.26	0.83	0.73
Reliability	3.14	0.95	0.86
Responsiveness	3.09	0.99	0.86
Assurance	3.23	1.02	0.84
Empathy	3.13	1.01	0.88
Desired service expectations	**4.00**	**0.78**	**0.92**
Tangibles	4.09	0.72	0.70
Reliability	4.01	0.87	0.87
Responsiveness	3.97	0.91	0.84
Assurance	3.96	0.97	0.87
Empathy	3.94	0.95	0.88
Perceived service received	**2.85**	**0.77**	**0.90**
Tangibles	2.95	0.88	0.75
Reliability	2.84	0.86	0.81
Responsiveness	2.79	0.92	0.82
Assurance	2.82	0.95	0.83
Empathy	2.84	0.93	0.85
MSA [a]	**0.32**	**0.83**	**0.89**
Tangibles	0.30	0.91	0.68
Reliability	0.30	0.96	0.78
Responsiveness	0.29	1.03	0.77
Assurance	0.41	1.02	0.79
Empathy	0.29	0.99	0.82
MSS [b]	**1.14**	**0.92**	**0.90**
Tangibles	1.13	1.02	0.75
Reliability	1.16	1.03	0.82
Responsiveness	1.17	1.11	0.81
Assurance	1.13	1.14	0.84
Empathy	1.09	1.12	0.85
Zone of tolerance [c]	**0.82**	**0.73**	**0.89**
Tangibles	0.82	0.78	0.70
Reliability	0.86	0.79	0.77
Responsiveness	0.87	0.86	0.87
Assurance	0.72	0.99	0.84
Empathy	0.80	0.92	0.83
Patient satisfaction	**2.69**	**1.09**	**0.58**

Notes: [a] Measure of service adequacy = adequate service level – perceived service level); [b] Measure of service superiority = desired service level – perceived service level); [c] Desired service level – adequate service level.

Source: own work

Table 2b

Zone of tolerance for private hospital services

	Mean	Standard deviation	Cronbach alpha
Adequate service expectations	**3.17**	**0.85**	**0.93**
Tangibles	3.26	0.83	0.73
Reliability	3.14	0.95	0.86
Responsiveness	3.09	0.99	0.86
Assurance	3.23	1.02	0.84
Empathy	3.13	1.01	0.88
Desired service expectations	**4.00**	**0.78**	**0.92**
Tangibles	4.09	0.72	0.70
Reliability	4.01	0.87	0.87
Responsiveness	3.97	0.91	0.84
Assurance	3.96	0.97	0.87
Empathy	3.94	0.95	0.88
Perceived service received	**3.61**	**0.77**	**0.90**
Tangibles	3.75	0.80	0.77
Reliability	3.58	0.81	0.80
Responsiveness	3.57	0.85	0.78
Assurance	3.61	0.89	0.84
Empathy	3.54	0.90	0.84
MSA [a]	**-0.43**	**0.80**	**0.86**
Tangibles	-0.48	0.86	0.63
Reliability	-0.43	0.96	0.77
Responsiveness	-0.47	1.06	0.75
Assurance	-0.38	1.03	0.80
Empathy	0.40	1.01	0.82
MSS [b]	**0.38**	**0.76**	**0.86**
Tangibles	0.33	0.81	0.64
Reliability	0.43	0.88	0.76
Responsiveness	0.40	0.95	0.73
Assurance	0.34	1.03	0.81
Empathy	0.39	1.01	0.81
Zone of tolerance [c]	**0.82**	**0.73**	**0.89**
Tangibles	0.82	0.78	0.70
Reliability	0.86	0.79	0.77
Responsiveness	0.87	0.86	0.87
Assurance	0.72	0.99	0.84
Empathy	0.80	0.92	0.83
Patient satisfaction	**3.71**	**0.85**	**0.67**

Notes: [a] Measure of service adequacy = adequate service level – perceived service level); [b] Measure of service superiority = desired service level – perceived service level); [c] Desired service level – adequate service level.

Source: own work

4.3.2. Zone of tolerance for private hospital services

The results in Table 2b also show that the mean desired service level was higher than the mean adequate service level, and that the mean perceived service level was higher than the mean adequate service level. The respondents' perceived service was therefore within the zone of tolerance for healthcare services. When the zone of tolerance was examined with MSS and MSA, the results demonstrated a narrow zone of tolerance, as the perceived service level of private hospital services was close to the adequate service level. The same relationship was found in terms of HEALTHZOT dimensions. It can therefore be concluded that the respondents had also a narrow zone of tolerance on each dimension of HEALTHZOT for private hospital services. The mean of the predicted service level was also higher than the mean of the adequate service level, which explains the patient satisfaction in the model. The reliability of each service level (expected and perceived) exceeded the suggested level of 0.70 (Nunnally, 1978; Churchill, 1979) in private hospital services as well. Therefore, the results obtained are reliable.

It is also clear that the results obtained for public and private hospital services are reliable; the respondents show no tolerance towards public healthcare services and a narrow zone of tolerance towards private healthcare services.

4.4. Distribution of respondents' values between patient expectations and perceptions

Table 3 demonstrates that the respondents had relatively high expectation scores (mean ≥ 4.00) regarding the service quality dimensions. The following items were rated as high: 'modern looking equipment', 'physical facilities are visually appealing', 'employees are neat in appearance', 'provides its services at the time it promises to do so', 'error-free records', 'employees give prompt service' and 'individual attention'. However, relatively low expectation scores (mean ≤ 3.95) were found for 'materials associated with service are visually appealing', 'performs the service right the first time', 'employees willing to help you', 'employees are never too busy to respond to requests', 'behaviour of employees instils confidence', 'employees give you personal attention', 'best interest at heart', and 'employees understand specific needs'. This indicates that the respondents were sensitive about all the dimensions of service quality.

In regard to public hospital services, as shown in Table 3, a relatively high perception score (mean => 3.00) was found for 'physical facilities are visually appealing', and 'employees have a neat appearance'. However, there was a relatively low perception score (mean ≤ 2.80) for 'materials associated with service are visually appealing', 'sincere interest in solving problems', 'prompt service', 'employees are always willing to help', 'employees are never too busy to respond to requests', 'safe transactions', 'employees are consistently courteous', 'individual attention' and 'employees give you personal attention'.

Regarding public hospital services, a relatively high perception score (mean ≥ 3.70) was found for 'modern looking equipment', 'physical facilities are visually appealing', 'employees have a neat appearance' and 'employees are consistently courteous'. However, there was a relatively low perception score (mean ≤ 3.60) for 'materials associated with service are visually appealing', 'sincere interest in solving problems', 'performs the service right the first time', 'provides its services at the time it promises to do so', 'prompt service', 'employees are always willing to help', 'employees are never too busy to respond to requests', 'behaviour of employees instils confidence', 'employees have the knowledge to answer questions', 'individual attention', 'operating hours convenient', 'personal attention', 'best interest at heart', and 'employees understand specific needs'.

It should be noted that all the perception scores for all service items for public and private hospital services were lower than the expectation scores, implying that all the service items suffered from a service-quality shortfall. With respect to public hospital services, the largest gap scores (mean = -1.20) were found with respect to tangibles, reliability, responsiveness and empathy dimensions of service quality such as 'modern looking equipment', 'materials associated with the service are visually appealing', 'hospital shows a sincere interest in solving the problem', 'prompt service' and 'individual attention'. In regard to private hospital services, the largest gap scores (mean ≤ -0.45) were found with respect to reliability, responsiveness and empathy dimensions of service quality such as 'sincere interest in solving problems', 'provides its services at the time it promises to do so', 'prompt service' and 'employees understand specific needs'.

The paired-sample *t*-tests (between the respective expectation and public and private perception means of all the items) showed that they were significantly different. The overall negative means differences indicate that the expected service quality was not experienced by the respondents, and that the quality of service provided by the hospitals did not meet

Table 3. Distribution of respondents' values between patient expectations and perceptions

Dimensions and items	Expectations (SD)	Public			Private		
		Perceptions (SD)	Gap Mean	t-value	Perceptions (SD)	Gap Mean	t-value
Tangibles							
The hospital has modern looking equipment.	4.03(1.02)	2.82(1.12)	-1.21	19.19*	3.78(1.03)	-0.25	4.61*
This hospital's physical facilities are visually appealing.	4.16(0.95)	3.10(1.19)	-1.06	17.09*	3.75(1.02)	-0.42	8.00*
The hospital's employees have a neat appearance.	4.24(0.93)	3.17(1.19)	-1.07	16.90*	3.90(1.03)	-0.34	6.48*
Materials associated with the service are visually appealing at the hospital.	3.95(1.05)	2.74(1.15)	-1.21	18.77*	3.60(1.06)	-0.35	5.82*
Reliability							
When the hospital promises to do something by a certain time, it does so.	4.10(1.03)	2.91(1.11)	-1.19	19.91*	3.69(1.070	-0.41	7.73*
When you have a problem, the hospital shows a sincere interest in solving it.	3.99(1.11)	2.69(1.13)	-1.30	20.71*	3.54(1.15)	-0.45	7.18*
The hospital performs the service right the first time.	3.95(1.15)	2.81(1.12)	-1.14	17.71*	3.51(1.09)	-0.44	7.22*
The hospital provides its services at the time it promises to do so.	3.96(1.09)	2.85(1.14)	-1.11	17.89*	3.51(1.03)	-0.45	8.24*
The hospital insists on error-free records.	4.10(1.01)	2.99(1.15)	-1.11	17.07*	3.69(1.04)	-0.41	7.00*
Responsiveness							
Employees of the hospital tell you exactly when services will be performed.	3.99(1.06)	2.81(1.14)	-1.18	18.62*	3.63(1.09)	-0.36	6.26*
Employees of the hospital give you prompt service.	4.07(1.07)	2.80(1.16)	-1.27	18.99*	3.57(1.09)	-0.49	8.26*
Employees of the hospital are always willing to help you.	3.91(1.21)	2.79(1.17)	-1.12	16.71*	3.57(1.12)	-0.34	5.33*
Employees of the hospital are never too busy to respond to your requests.	3.95(1.10)	2.80(1.12)	-1.15	18.72*	3.53(1.11)	-0.43	7.19*
Assurance							
The behaviour of employees of the hospital instils confidence in patients.	3.94(1.16)	2.81(1.13)	-1.13	17.15*	3.57(1.09)	-0.37	5.93*
You feel safe in your transactions with the hospital.	3.97(1.17)	2.80(1.18)	-1.16	18.27*	3.61(1.11)	-0.35	6.03*
Employees of the hospital are consistently courteous with you.	3.96(1.15)	2.80(1.22)	-1.16	17.57*	3.70(1.07)	-0.25	4.27*
Employees of the hospital have the knowledge to answer your questions.	3.98(1.12)	2.89(1.13)	-1.09	17.03*	3.59(1.08)	-0.39	6.31*
Empathy							
The hospital gives you individual attention.	4.00(1.13)	2.79(1.18)	-1.20	18.29*	3.60(1.11)	-0.40	6.05*
The hospital has operating hours convenient to all its patients.	3.96(1.15)	2.91(1.25)	-1.04	15.28*	3.60(1.17)	-0.36	5.39*
The hospital has employees who give you personal attention.	3.93(1.11)	2.83(1.13)	-1.10	17.49*	3.55(1.14)	-0.37	6.41*
The hospital has your best interest at heart.	3.91(1.16)	2.90(1.19)	-1.01	14.88*	3.53(1.19)	-0.38	6.19*
Employees of the hospital understand your specific needs.	3.95(1.16)	2.80(1.180	-1.14	17.53*	3.45(1.10)	-0.49	8.01*
Patient satisfaction							
I am happy from the service quality of the hospital.		2.68(1.06)			3.78(0.95)		
Overall, I am a satisfied patient.		2.70(1.11)			3.64(1.03)		

Note: SD: Standard deviation, all the standard deviations are in parentheses; [a] Gap mean is defined as perception mean – expectation mean; t-test (two-tailed) with probability < 0.05

Source: own work

expectations. Nevertheless, the shortfall did not seem to undermine the overall service quality and patient satisfaction. The results in Table 3 show just a reasonable score for patient satisfaction (mean = 2.68 and 2.7 for public hospital services; mean = 3.78 and 3.64 for private hospital services). It is therefore concluded that the dimensions of HEALTHZOT are a good predictor of patient satisfaction for North Cyprus hospitals.

4.5. Results of exploratory factor analysis

The results in Tables 4a and 4b demonstrate that the exploratory factor analysis using varimax rotation was employed to explore the dimensionality in the data set. For both public and private hospital services the results failed to demonstrate their distinct dimensions of service quality.

The factor loadings of public hospital service quality dimensions were found to be unidimensional – had eigenvalue greater than 1, explained 45.94% of variance, and all the factor loadings were found to be greater than 0.50 (Hair, Anderson, Tatham and Grablowsky, 1979) – indicating public hospital service quality to be unidimensional in this study. The Kaiser Meyer–Olkin statistic was found to be 0.95 and Bartlett's test of sphericity was 5301.14 ($p < 0.000$), which is an acceptable level as described by Norusis (1985). On the other hand, the factor loadings of private hospital service quality dimensions were also found to be unidimensional – had eigenvalue greater than 1, explained 45.06% of variance, and all the factor loadings were found to be greater than 0.50 (Hair *et al*., 1979) – indicating private hospital service quality also to be unidimensional in this study. The Kaiser–Meyer–Olkin statistic was found to be 0.95 and Bartlett's test of sphericity was 5163.81 ($p < 0.000$). The overall Cronbach alphas for public and private service quality were found to be 0.95 respectively at the aggregate level – which exceeds the minimum standard 0.70 (Nunnally, 1978; Churchill, 1979).

Considering the criticism in the literature mentioned above, it has been argued that the nature of the service-quality construct (especially with respect to the number of dimensions) might be industry-specific. In particular, the suitability of the five dimensions of SERVQUAL in different service activities has been questioned by several researchers, for example many times the SERVQUAL scale was found to be unidimensional (Babakus and Mangold, 1992; McAlexander, Kaldenburg and Koenig, 1994; Lam, 1997; Angur *et al*., 1999) while sometimes it was found to be two-dimensional (Karatepe and Avci, 2002; Ekinci, *et al*., 2003; Nadiri and Hussain, 2005) or ten-dimensional (Carman, 1990).

Table 4a

Results of exploratory factor analysis for public hospital services

Items	Eigenvalue Variance	% of variance	Cumulative variance %	Factor loadings
Service quality	**10.11**	**45.94**	**45.94**	
You feel safe in your transactions with the hospital.				0.75
The behaviour of employees of the hospital instils confidence in patients.				0.74
The hospital gives you individual attention.				0.74
Employees of the hospital are consistently courteous with you.				0.74
Employees of the hospital understand your specific needs.				0.73
Employees of the hospital are never too busy to respond to your requests.				0.73
Employees of the hospital are always willing to help you.				0.73
The hospital has your best interest at heart.				0.72
Employees of the hospital tell you exactly when services will be performed.				0.72
The hospital provides its services at the time it promises to do so.				0.70
Employees of the hospital have the knowledge to answer your questions.				0.70
Employees of the hospital give you prompt service.				0.69
The hospital performs the service right the first time.				0.68
When you have a problem, the hospital shows a sincere interest in solving it.				0.66
The hospital has employees who give you personal attention.				0.65
When the hospital promises to do something by a certain time, it does so.				0.62
The hospital has operating hours convenient to all its patients.				0.62
The hospital insists on error-free records.				0.62
Materials associated with the service are visually appealing at the hospital.				0.57
The hospital's employees have a neat appearance.				0.54
This hospital's physical facilities are visually appealing.				0.53
The hospital has modern looking equipment.				0.52

Notes: Kaiser-Meyer-Olkin measures of sampling adequacy: 0.95; Bartlett's test of sphericity: 5301.14 $p < 0.000$; principal component analyses with a varimax rotation; overall reliability score: 0.94

Source: own work

Table 4b

Results of exploratory factor analysis for private hospital services

Items	Eigenvalue Variance	% of variance	Cumulative variance %	Factor loadings
Service quality	**9.91**	**45.06**	**45.06**	
You feel safe in your transactions with the hospital.				0.76
The behaviour of employees of the hospital instils confidence in patients.				0.74
The hospital gives you individual attention.				0.72
Employees of the hospital are consistently courteous with you.				0.71
Employees of the hospital understand your specific needs.				0.71
Employees of the hospital are never too busy to respond to your requests.				0.70
Employees of the hospital are always willing to help you.				0.70
The hospital has your best interest at heart.				0.70
Employees of the hospital tell you exactly when services will be performed.				0.69
The hospital provides its services at the time it promises to do so.				0.69
Employees of the hospital have the knowledge to answer your questions.				0.68
Employees of the hospital give you prompt service.				0.68
The hospital performs the service right the first time.				0.68
When you have a problem, the hospital shows a sincere interest in solving it.				0.66
The hospital has employees who give you personal attention.				0.65
When the hospital promises to do something by a certain time, it does so.				0.63
The hospital has operating hours convenient to all its patients.				0.63
The hospital insists on error-free records.				0.62
Materials associated with the service are visually appealing at the hospital.				0.61
The hospital's employees have a neat appearance.				0.60
This hospital's physical facilities are visually appealing.				0.54
The hospital has modern looking equipment.				0.53

Notes: Kaiser-Meyer-Olkin measures of sampling adequacy: 0.95; Bartlett's test of sphericity: 5163.81 $p < 0.000$; principal component analyses with a varimax rotation; overall reliability score: 0.94.

Source: own work

5. DISCUSSION AND IMPLICATIONS

Today's dynamic market conditions result in significant changes in the health care sector and make it shift from a social good to an economic good, as well as from a production orientation to a marketing orientation (Kumar, Subramanian and Yauger, 1998). According to Murti et al. (2013), health care that was thought to be 'caveat emptor' is being transformed into 'caveat vendor', it is due to governments to provide more funding and increase competition in the private health care sector to better satisfy the expectations of patients (customers) (Ashill, Carruthers and Krisjanous, 2005). The customers retention, which heavily relies on customer satisfaction, turns out to be a main indicator for the success and survival of health care organizations (Ramsaran-Fowdar, 2008). Naturally, in today's highly competitive market conditions it is so vital to clearly understand customers' expectations and be aware of their zone of tolerance.

Thus, the importance of this study can be viewed from two dimensions, theoretical and practical. This study fills an important gap in service quality literature by proposing the HEALTHZOT model. The proposed model can be effectively used as a diagnostic tool in the healthcare sector. The objective of this study was to describe the range of zone of tolerance for patients' service expectations and to determine the level of patients' satisfaction with public and private hospitals. The findings demonstrate that the HEALTHZOT model proposed in the study is reliable. The concept of zone of tolerance helps practitioners to analyze the effectiveness of service quality and to identify problem areas that need improvement (Lo, Cavana and Corbett, 2002; Stodnick and Marley, 2013).

The measurement of a zone of tolerance is a reliable new method for determining service variations in the healthcare industry (Roshnee and Fowdar, 2013). The findings reveal that patients had no tolerance towards public healthcare services and a narrow zone of tolerance towards private healthcare services – which also indicates that these patients are not likely to accept heterogeneity in the quality of the services provided by both public and private hospitals. Public hospitals need to improve their facilities and provide training to their staff. However, private hospitals are better in maintaining their service quality, but this interpretation does not underestimate the patient satisfaction with services provided by public hospitals.

The results also confirm that services can be evaluated according to two different types of expectations – desired and adequate. In other words,

patients use two different types of expectations (desired and adequate) as a standard of comparison in the evaluation of services. This finding confirms that expectations can be the antecedents of patient satisfaction. The proposition of Zeithaml *et al*. (1993), with respect to the use of 'desired expectation' and 'adequate expectation' as a comparison standard was supported by the results.

In terms of gap analysis, the findings reveal that the patients perceived a shortfall in both public and private healthcare service quality provided by the hospitals, implying that these patients' expectations of service quality were not met with respect to tangibles, responsiveness and empathy in public hospitals and reliability, responsiveness and empathy in private hospitals. Similar shortfall findings were drawn by Agaja and Garg (2010), Lam and Zhang (1998), Ekinci *et al*. (2003), and Kozak, Karatepe and Avci (2003), Nadiri and Hussain (2005), Nadiri at al. (2009), in their studies. The overall evaluation of service quality in healthcare was determined by the public and private hospitals' service quality dimensions of the HEALTHZOT model in this study. The results clearly indicate that respondents' perceived service quality and satisfaction views on private hospitals were better than towards the public hospitals. Public hospitals are cheap and usually healthcare is insurance covered but improvements in the quality of service and healthcare services are insufficient. Private hospitals are rather expensive because their income is usually derived from clients/patients and/or fund raising activities, so they keep their competitive advantages and increase quality.

In this study, a gap-analysis measurement scale is used as an indicator for measuring patient satisfaction. As previously noted, some scholars have argued that the measurement of expectations does not provide the information necessary for estimating service quality; they argue that a performance-only measure (such as SERVPERF) is a better predictor of service quality (Ali and Zhou, 2013; Cronin and Taylor, 1992; Babakus and Boller, 1992; Boulding, Kalra, Staelin and Zeithaml, 1993). In general, previous studies do suggest that a SERVPERF measurement is sufficient. However, it has been acknowledged that such an approach limits the explanatory power of service-quality measurement (Parasuraman *et al*., 1994), because the assessment of the desired and adequate expectations might be valuable in determining and monitoring service performance and patient satisfaction. In addition, this information may be used as an internal benchmark to enhance the level of service quality. This study was an attempt to diagnose the public and private healthcare service quality. The findings of this study are therefore important for practitioners in the healthcare sector.

5.1. Management implications

Since service quality and satisfaction are important factors in retention, it is important that hospitals measure service quality and use the tools of continuous improvement. Coate (1990) reports that "quality is what our customers tell us it is, not what we say it is. Progress can only be determined and improved by measurement". For healthcare institutions, the HEALTHZOT (adapted SERVQUAL instruments) model is an initial attempt to measure service quality. The results of this study have a number of practical implications for authorities (hospital management) seeking to identify the range of tolerance and level of patient satisfaction in their respective hospitals. Given that patients are likely to become increasingly more demanding in terms of the level of service they consider to be adequate, hospitals will find it challenging to fulfil all of the patients' service quality requirements. Furthermore, authorities should also pay attention to the tangibles, responsiveness and empathy (for public hospitals) and reliability, responsiveness and empathy (for private hospitals) components if they are to improve the quality of their services. Finally, the gap raises some issues about how authorities should monitor quality and prioritize resources to anticipate patients' needs more effectively. Questions might also be asked about the extent to which authorities are really aware of the needs of their patients and the methods they employ to assess the ongoing changing needs of patients. For public hospital services, authorities should improve their tangible facilities and for public hospital services, authorities must improve their reliability factor to improve service quality. Both public and private hospitals should ensure that employees are well trained and understand the level of service that the hospital expects to provide for their patients. Ensuring that employees are well trained, and paying attention to other factors like responsiveness and empathy that are required to offer a high level of service, quality might incur increased costs but will result in improved patient satisfaction.

The results of this study may also be evaluated in terms of the health care sector's possible effects on North Cyprus's social and economic policies. As mentioned before, North Cyprus is on a small island whose economy is heavily dependent on service sectors. Both tourism and higher education are leading sectors that the economy relies on. Besides the direct effect of these sectors to income generation, both tourism and higher education sectors are the driving force for developments in the health care sector (Katircioğlu, 2014; Yavas et al., 2014).

Medical tourism or health tourism, which is people travelling to another country for the purpose of obtaining medical treatment (Horowitz et al., 2007), has become very popular. Today, there is an increasing global trend to travel from developed countries to less developed countries due to cost considerations, as well as the fact that some medical treatments (e.g. some fertility procedures) are not legal in some countries. North Cyprus, with its suitable weather conditions, less costly treatment opportunities with respect to developed countries and with specialized centres and legal environment on fertility treatment, is a favourable alternative for people who are demanding medical/health tourism. For small island economies like North Cyprus, the tourism sector has emerged as an engine of growth due to its ability to create employment, increase foreign exchange earnings and attract capital investment. Hence destinations which managed to differentiate themselves with this kind of special tourism activities will achieve a competitive edge in attracting tourists/customers. This competitive advantage continues as far as customers'/patients' expectations are matched. Therefore, understanding customers' expectations and providing health care services within their zone of tolerance is important for sustainable success. This kind of tourism activity with its effect on the health care sector not only induces the potential to trigger economic development, but also investments in the health care sector enable North Cyprus officials to provide better health care services as an important social responsibility.

Besides tourism, higher education is accepted as a type of student tourism that improves national income, employment, and the wealth of local people (Katircioglu, 2010). North Cyprus, with its 60,000 students from more than 95 countries, turns out to be a higher education island with 11 universities. The number of university students stands almost at a quarter of the total population. A study carried out by Katircioğlu et al. (2014) finds that higher education contributes to various sectors of the economy. The study by Katircioğlu (2014) proves that the higher education sector of North Cyprus does benefit its health care sector and there is a long-term equilibrium relationship existing between health care growth and higher education growth in North Cyprus. The increasing number of students from various countries causes an increase in demand for health care services as well. Together with the rise in demand, there is an increase in the supply of health care services. This does not only raise investment and demands for health care staff but it also fosters competition to better match the customers' expectations.

Thus, both tourism and the higher education sectors of North Cyprus influence the demand for the health care sector, and to be competitive it is important to match customer expectations. By attaining customers' expectations through high quality services, it encourages repurchases, cross selling and positive word of mouth communication. This study which identifies customers' zone of tolerance in health care services not only contributes to improving health care service quality, but also enables public hospitals to improve their services as an important social responsibility to the public, as well as for private hospitals to become much more competitive to generate economic returns.

5.2. Limitations and avenues for future research

This research has certain limitations: first, this study examined the influence of five factors on patients' zones of tolerance for healthcare services. As proposed by Zeithaml *et al*. (1993), there might be other factors that determine the width of the zone of tolerance – such as situational factors, advertising, price, retention, and word-of-mouth recommendation. Subsequent empirical research should address the impact of these factors on patient expectations. Second, many issues raised by Zeithaml *et al*. (1993), remain to be explored – for example, how marketing strategies can be designed to manage adequate service-level expectations, the role of predicted service in influencing how patients evaluate service quality, and how the healthcare sector can use the zone of tolerance concept to formulate marketing strategies effectively.

CONCLUSION

This study provides healthcare service quality researchers with useful guidelines for future research that may result in more rigorous theoretical and methodological processes. The terms 'patient satisfaction' and 'quality' have been central to the philosophy of the hospital authorities, and their importance continues with the promise of a renewed, foreseeable prosperity for the healthcare of the future. Nevertheless, healthcare research has been instrumental in assisting hospital authorities with valuable knowledge to assist them with their constant pursuit to gain competitive advantage. If a healthcare institution is providing improved service quality, it results in an increase in patient satisfaction. In general, service quality promotes customer satisfaction and encourages word-of-mouth recommendations (Ali et al.,

2012; Nadiri, 2011; Nadiri and Hussain, 2005). Customer satisfaction increases profitability, market share, and return on investment (Hackl and Westlund, 2000; Barsky and Labagh, 1992; LeBlanc, 1992; Stevens, Knutson and Patton, 1995; Legoherel, 1998; Fornell, 1992; Halstead and Page, 1992). The healthcare sector should, therefore, recognize the importance of service improvements in establishing a competitive advantage (Amin and Nasharuddin, 2013). One of the important suggestions to practitioners based on this present study using the HEALTHZOT scale is that healthcare authorities should maintain service levels according to the patients' desired expectations if they are to please them. In addition, the use of an expectation scale (incorporating the 'gap theory') provides diagnostic information about the level of service performance from the patients' perspective. The use of a zone-of-tolerance method provides useful information to healthcare authorities for developing quality-improvement strategies. The concept is apparent in the assessment of service quality and maintaining standards against predictive service within organizations to be highly distinguished and competitive. Although this study was conducted in North Cyprus, we believe that hospitals in other countries will benefit from these research findings.

REFERENCES

Aagja, J. A., Garg, R., *Measuring Perceived Service Quality for Public Hospitals (PubHosQual) in the Indian Context*, "International Journal of Pharmaceutical and Healthcare Marketing", 4(1), pp. 60–83, 2010.

Aaker, D. A., Kumar, V., Day, G. S., *Marketing Research* (5th Ed). John Wiley, New York 1995.

Ali, F., Zhou, Y., *An Assessment of the Perceived Service Quality: Comparison of Islamic and Conventional Banks at Pakistan*, "International Journal of Innovation and Business Strategy", 2 [Online, Accessed 07 July 2014] Avaliable at: <http://www.ibs.utm.my/ijibs/index.php/ijibs/pages/view/current>, 2013.

Ali, F. Hussain, K., Omar, R., *Diagnosing Customers Experience, Emotions and Satisfaction in Malaysian Resort Hotels*, "European Journal of Tourism Research", 12, pp. 25–40, 2015.

Ali, F., Khan, A., Rehman, F., *An Assessment of the Service Quality Using Gap Analysis: A Study Conducted at Chitral, Pakistan*, "Interdisciplinary Journal of Contemporary Research in Business", 4(3), pp. 259–266, 2012.

Ali, F., Zhou, Y., Hussain, K., Nair, P. K. Ari Ragavan, N., *Does Higher Education Service Quality Effect Student Satisfaction, Image and Loyalty?*, "Quality Assurance in Education", 24(1), pp. 70–94, 2016.

Amin, M., Nasharuddin, S. Z., *Hospital Service Quality and Its Effects on Patient Satisfaction and Behavioural Intention*, "Clinical Governance: An International Journal", 18(3), pp. 238–254, 2013.

Amin, M., Yahya, Z., Ismayatim, W. F. A., Nasharuddin, S. Z., Kassim, E., *Service Quality Dimension and Customer Satisfaction: An Empirical Study in the Malaysian Hotel Industry*, "Services Marketing Quarterly", 34(2), pp. 115–125, 2013.

Andaleeb, S., *Service Quality Perceptions and Patient Satisfaction: A Study of Hospitals in a Developing Country*, "Social Science and Medicine", 52(9), pp. 1359–1370, 2001.

Angur, M. G., Nataraajan, R. Jahera, Jr. J. S., *Service Quality in the Banking Industry: An Assessment in a Developing Economy*, "The Journal of Services Marketing", 13(2), pp. 132–150, 1999.

Ashill, N. J., Carruthers, J., Krisjanous, J., *Antecedents and Outcomes of Service Recovery Performance in a Public Health-care Environment*, "Journal of Services Marketing", 19(5), pp. 293–308, 2005.

Asubonteng, P., McCleary, K. J., Swan, J. E., *SERVQUAL Revisited: A Critical Review of Service Quality*, "The Journal of Services Marketing", 10(6), pp. 62–81, 1996.

Aulakh, P. S., Kotabe, M., *An Assessment of Theoretical and Methodological Developments in International Marketing*, "Journal of International Marketing", 1(2), pp. 5–28, 1993.

Babakus, E., Mangold, G. W., *Adapting the SERVQUAL Scale to Hospital Services: An Empirical Investigation*, "Health Services Research", 26(6), pp. 767–86, 1992.

Babukus, E., Boller, G. W., *An Empirical Assessment of SERVQUAL Scale*, "Journal of Business Research", 24(3), pp. 253–268, 1992.

Bandura, A., *Health Promotion from the Perspective of Social Learning Theory*, "Psychology and Health", 13(4), pp. 623–649, 1988.

Barsky, J. D., Labagh, R., *A Strategy for Customer Satisfaction*, "The Cornell Hotel and Restaurant Administration Quarterly", 35(3), pp. 32–40, 1992.

Berry, L. L., Parasuraman, A., *Marketing Services*. The Free Press, New York 1991.

Boulding, W., Kalra, A., Staelin, R., Zeithaml, V. A., *A Dynamic Process Model of Service Quality: From Expectations to Behavioural Intentions*, "Journal of Marketing Research", 30(1), pp. 7–27, 1993.

Bowers, M. R., Swan, J. E., Koehler, W. F., *What Attributes Determine Quality and Satisfaction with Health Care Delivery*, "Health Care Management Review", 19(4), pp. 49–55, 1994.

Bowers, M. R., Swan, J. E., Taylor, J. A., *Influencing Physician Referrals*, "Journal of Health Care Marketing", 14(3), pp. 42–50, 1994.

Campbell, S. M., Roland, M. O., Buetow, S. A., *Defining Quality of Care*, "Social Science and Medicine", 51(11), pp. 1611–1625, 2000.

Carman, J. M., *Consumer Perceptions of Service Quality: An Assessment of the SERVQUAL Dimensions*, "Journal of Retailing", 66(Spring), pp. 33–55, 1990.

Caruana, A., Ewing, M. T., Ramaseshan, B., *Assessment of the Three-column Format SERVQUAL: An Experimental Approach*, "Journal of Business Research", 49, pp. 57–65, 2000.

Cavana, R. Y., Corbett, L. M., Lo, (Glenda) Y. L., *Developing Zones of Tolerance for Managing Passenger Rail Service Quality*, "International Journal of Quality and Reliability Management", 24(1), pp. 7–31, 2007.

Chahal, H., Kumari, N., *Development of Multidimensional Scale for Health Care service quality (HCSQ) in Indian Context*, "Journal of Indian Business Research", 2(4), pp. 230–255, 2010.

Choi, K. S., Cho, W. H., Lee, S., Lee, H., Kim, C., *The Relationship among Quality, Value, Satisfaction and Behavioral Intention in Health Care Provider Choice: A South Korean Study*, "Journal of Business Research", 57(8), pp. 913–921, 2004.

Churchill, A. G., *A Paradigm for Developing Better Measures of Marketing Constructs*, "Journal of Marketing Research", 16(1), pp. 64–73, 1979.

Coate, L. E., *Implementing Total Quality Management in a University Setting: TQM at Oregon State University*, "Journal for Quality and Participation", 13(6), pp. 90–95, 1990.

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

Cronin, J. J., Taylor, S. A., *SERVPERF versus SERVQUAL: Reconciling Performance-based and Perceptions-minus-expectations Measurement of Service Quality*, "Journal of Marketing", 58(1), pp. 125–131, 1994.

Curry, A. Sinclair, E., *Assessing the Quality of Physiotherapy Services Using SERVQUAL*, "International Journal of Health Care Quality Assurance", 15(4/5), pp. 197–207, 2002.

Dean, A. M., *The Applicability of SERVQUAL in Different Health Care Environments*, "Health Marketing Quarterly", 16(3), pp. 1–21, 1999.

DeCarvalho, F. A., Leite, V. F., *Attribute Importance in Service Quality: An Empirical Test of the PBZ Conjecture in Brazil*, "International Journal of Service Industry Management", 10(5), pp. 487–504, 1999.

Donabedian, A., *Evaluating the Quality of Medical Care*, "The Milbank Quarterly", 83(4), pp. 691–729, 2005.

Ekinci, Y., Prokopaki, P., Cobanoglu, C., *Service Quality in Cretan Accommodations: Marketing Strategies for the UK Holiday Market*, "International Journal of Hospitality Management", 22(1), pp. 47–66, 2003.

Fornell, C., *A National Customer Satisfaction Barometer: The Swedish Experience*, "Journal of Marketing", 56(1), pp. 6–21, 1992.

Gaur, S. S., Xu, Y., Quazi, A., Nandi, S., *Relational Impact of Service Providers' Interaction Behavior in Health Care*, "Managing Service Quality", 21(1), pp. 67–87, 2011.

Gill, L., White, L., *A Critical Review of Patient Satisfaction*, "Leadership in Health Services", 22(1), pp. 8–19, 2009.

Gronroos, C., *A Service Quality Model and Its Marketing Implications*, "European Journal of Marketing", 18(4), pp. 36–44, 1984.

Guldner, M., Rifkin, S., *Sustainability in the Health Sector, Part I: Vietnam Case Study*. Save the Children Fund, London 1993.

Gummesson, E., *Truths and Myths in Service Quality*, "Journal for Quality and Participation", 14(4), pp. 28–33, 1991.

Hackl, P., Westlund, A. H., *On Structural Equation Modelling for Customer Satisfaction Measurement*, "Total Quality Management", 11(4/5/6), pp. 820–825, 2000.

Hair, J. F., Anderson, R. E., Tatham, R. L., Grablowsky, B. J., *Multivariate Data Analysis with Readings*. Petroleum Publishing Company, Oklahoma 1979.

Halstead, D., Page, T. J. Jr., *The Effects of Satisfaction and Complaining Behaviour on Consumers Repurchase Behaviour*, "Journal of Satisfaction, Dissatisfaction and Complaining Behaviour", 5, pp. 1–11, 1992.

Horowitz, M. D., Rosensweig, J. A., Jones C. A., *Medical Tourism: Globalization of the Healthcare Marketplace*, "Medscape General Medicine", 9(4), pp. 33–44, 2007.

Jackson, J., Chamberlin, J., Kroenke, K., *Predictors of Patients' Satisfaction*, "Social Science and Medicine", 52(4), pp. 609–620, 2001.

Johnston, R., *The Zone of Tolerance – Exploring the Relationship between Service Transactions and Satisfaction with the Overall Service*, "International Journal of Service Industry Management", 6(2), pp. 46–61, 1994.

Jun, M., Peterson, R. T., Zsidisin, G. A., *The Identification and Measurement of Quality Dimensions in Health Care: Focus Group Interview Results*, "Health Care Management Review", 23(4), pp. 81–96, 1998.

Karatepe, O. M., Avci, T., *Measuring Service Quality in the Hotel Industry: Evidence from Northern Cyprus*, "Anatolia: An International Journal of Tourism and Hospitality Research", 13(1), pp. 19–32, 2002.

Katircioglu, S. T., *International Tourism, Higher Education, and Economic Growth: The Case of North Cyprus*, "The World Economy", 33, pp. 1955–1972, 2010.

Katircioğlu, S., *Higher Education and Health Care Development: The Case of Northern Cyprus*, "Applied Research in Quality of Life", 9, pp. 605–616, 2014.

Katircioğlu, S., Fethi, S., Caner, H., *Testing the Higher Education-led Growth Hypothesis in a Small Island: An Empirical Investigation from a New Version of the Solow Growth Model*, "Quality & Quantity, 48(2)", pp. 729–744, 2014.

Kennedy, J. R., Thirkell, P. C., *An Extended Perspective on the Antecedents of Satisfaction*, "Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behaviour", 1, pp. 2–9, 1988.

Kilbourne, W., Duffy, J. A., Duffy, M., Giarchi, G., *The Applicability of SERVQUAL in Cross-national Measurements of Health-care Quality*, "Journal of Services Marketing", 18(7), pp. 524–533, 2004.

Kozak, M., Karatepe, O. M., Avci, T., *Measuring the Quality of Airline Services: Evidence from Northern Cyprus*, "Tourism Analysis", 8, pp. 75–87, 2003.

Kumar, K., Subramanian, R., Yauger, C., *Examining the Market Orientation-performance Relationship: A Context-specific Study*, "Journal of Management", 24(2), pp. 201–233, 1998.

Lam, S. S. K., *SERVQUAL: A Tool for Measuring Patients' Opinions of Hospital Service Quality in Hong Kong*, "Total Quality Management", 8(4), pp. 145–152, 1997.

Lam, T., Zang, H. Q., *Service Quality of Travel Agents: The Case of Travel Agents in Hong Kong*, "Journal of Tourism Management", 20, pp. 341–349, 1998.

LeBlanc, G., *Factors Affecting Customer Evaluation of Service Quality in Travel Agencies: An Investigation of Customer Perceptions*, "Journal of Travel Research", 30(4), pp. 10–16, 1992.

Legoherel, P., *Quality of Tourist Services: The Influence of Each Participating Component on the Consumer's Overall Satisfaction Regarding Tourist Services During a Holiday*.

Proceedings of the Third International Conference on Tourism and Hotel Industry in Indo-China and Southeast Asia: Development, Marketing and Sustainability, Thailand, pp. 47–54, 1998.

Licata, J. W., Mowen, J. C., Chakraborty, G., *Diagnosing Perceived Quality in the Medical Service Channel: Marketing Lens Model Brings Complex Exchanges into Sharper Focus*, "Journal of Health Care Marketing", 15(4), pp. 42–49, 1995.

Likert, R., *A Simple and Reliable Method of Scoring the Turnstone Attitude Scales*, "Journal of Social Psychology", 5, pp. 228–238, 1934.

Lim, P. C., Tang, N. K. H., *A Study of Patients' Expectations and Satisfaction in Singapore Hospitals*, "International Journal of Health Care Quality Assurance", 13(7), pp. 290–299, 2000.

Lo, Y. L., Cavana, R. Y., Corbett, L. M., *Quality and Customer Satisfaction in Passenger Rail Services: Developing Zones of Tolerance for Managing Quality*. IFSAM Conference, Gold Coast, Queensland, Australia 2002.

Locker, D., Dunt, D., *Theoretical and Methodological Issues in Sociological Studies of Consumer Satisfaction with Medical Care*, "Social Science and Medicine", 12(4), pp. 283–292, 1978.

Lovelock, C., Wright, L., *Principals of Services Marketing and Management*. New Jersey: Prentice Hall, New Jersey 1999.

Lytle, R. S., Mokwa, M. P., *Evaluating Health Care Quality: The Moderating Role of Outcomes*, "Journal of Health Care Marketing", 12(1), pp. 4–14, 1992.

Markovic, S., Raspor, S., *Measuring Perceived Service Quality Using SERVQUAL: A Case Study of the Croatian Hotel Industry*, "Management", 5(3), pp. 195–209, 2010.

McAlexander, J. H., Kaldenberg, D. O., Koenig, H. F., *Service Quality Measurement*, "Journal of Health Care Marketing", 14(3), pp. 34–39, 1994.

Murti, A., Deshpande, A., Srivasta, N., *Service Quality, Customer (Patient) Satisfaction and Behavioural Intention in Health Care Services: Exploring the Indian Perspective*, "Journal of Health Management", 15(1), pp. 29–44, 2013.

Nadiri, H., *Customers' Zone of Tolerance for Retail Stores*, "Service Business", 5(2), pp. 113–137, 2011.

Nadiri, H., Kandampully, J., Hussain, K., *Zone of Tolerance for Banks: A Diagnostic Model of Service Quality*, "The Service Industries Journal", 29(11), pp. 1547–1564, 2009.

Nadiri, H., Hussain, K., *Perceptions of Service Quality in North Cyprus Hotels*, "International Journal of Contemporary Hospitality Management", 17(6), pp. 469–480, 2005.

Norusis, M. J., *Advance Statistics Guide: SPSS X*. McGraw Hill, New York 1985.

Nunnally, J C., *Psychometric Theory*. McGraw-Hill Book Company, New York 1978.

O'Connor, S. J., Trinh, H. Q., Skewchuk, R. M., *Perceptual Gaps in Understanding Patient Expectations for Health Care Service Quality*, "Health Care Management Review", 25(2), pp. 7–23, 2000.

Oliver, R. L., *A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions*, "Journal of Marketing Research", 17(4), pp. 460–469, 1980.

Parasuraman, A., *Customer-orientated Organizational Culture: A Key to Successful Services Marketing* [in:] M. Venkatesan, M., Schmalensee, M. D., Marshall, C. (eds.) *Creativity in*

Services Marketing: What's New, What Works, What's Developing. American Marketing Association, Chicago 1986.

Parasuraman, A., *Assessing and Improving Service Performance for Maximum Impact: Insights from a Two-decade-long Research Journey,* "Performance Measurement and Metrics", 5(2), pp. 45–52, 2004.

Parasuraman, A., Berry, L. L., Zeithaml, V. A., *Refinement and Reassessment of the SERVQUAL Scale*, "Journal of Retailing", 67(4), pp. 420–450, 1991.

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

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

Parasuraman, A., Zeithaml, V. A., Berry, L. L., *Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria*, "Journal of Retailing", 70(41), pp. 201–203, 1994.

Patterson, P. G., Johnson, L. W., *Disconfirmation of Expectations and the Gap Model of Service Quality: An Integrated Paradigm*, "Journal of Satisfaction, Dissatisfaction and Complaining Behavior", 6, pp. 90–99, 1993.

Peter, J. P., *Reliability: A Review of Psychometric Basics and Recent Marketing Practices*, "Journal of Marketing Research", 16(1), pp. 6–17, 1979.

Ramsaran-Fowdar, R. R., *The Relative Importance of Service Dimensions in a Health Care Setting*, "International Journal of Health Care Quality Assurance", 21(1), pp. 104–124, 2008.

Reidenbach, R. E., Sandifer-Smallwood, B., *Exploring Perceptions of Hospital Operations by a Modified SERVQUAL Approach*, "Journal of Health Care Marketing", 10(4), pp. 47–55, 1990.

Rose, R. C, Uli, F., Abdul, M., Ng, K. L., *Hospital Service Quality: A Managerial Challenge*, "International Journal of Health Care Quality Assurance", 17(3), pp. 146–159, 2004.

Roshnee, R., Fowdar, R., *Assessing the Influence of Switching Barriers on Patients' Expectations and Tolerance Zone*, "International Journal of Health Care Quality Assurance", 26(3), pp. 236–249, 2013.

Sewell, N., *Continuous Quality Improvement in Acute Health Care: Creating a Holistic and Integrated Approach*, "International Journal of Health Care Quality Assurance", 10(1), pp. 20–26, 1997.

Silvestro, R., *Applying Gap Analysis in the Health Service to Inform the Service Improvement Agenda*, "International Journal of Quality and Reliability Management", 22(3), pp. 215–233, 2005.

State Planning Office, Statistical Yearbook: Turkish Republic of Northern Cyprus. Nicosia: State Printing Press, 2011.

Stevens, P., Knutson, B., Patton, M., *DINESERV: A Tool for Measuring Service Quality in Restaurants*, "The Cornell Hotel and Restaurant Administration Quarterly", 36(2), pp. 56–60, 1995.

Stodnick, M., Marley, K. A., *A Longitudinal Study of the Zone of Tolerance*, "Managing Service Quality", 23(1), pp. 25–42, 2013.

Sultan, P., Wong, H. Y., *Antecedents and Consequences of Service Quality in a Higher Education Context: A Qualitative Research Approach*, "Quality Assurance in Education", 21(1), pp. 70–95, 2013.

Teas, K. R., *Expectations as a Comparison Standard in Measuring Service Quality: An Assessment of a Reassessment*, "Journal of Marketing", 58(1), pp. 32–139, 1994.

Teas, R. K., DeCarlo, T. E., *An Examination and Extension of the Zone of Tolerance Model: A Comparison to Performance-based Models of Perceived Quality*, "Journal of Services Research", 6(3), pp. 272–286, 2004.

Walker, J., Baker, J., *An Exploratory Study of a Multi-expectation Framework for Services*, "Journal of Services Marketing", 14(5), pp. 411–431, 2000.

Weingarten, S., Stone, E., Green, A., Pelter, M., Nessim, S., Huang, H., Kristopaitis, R., *A Study of Patient Satisfaction and Adherence to Preventive Care Practice Guidelines*, "The American Journal of Medicine", 99(6), pp. 590–596, 1995.

Wu, L. W., Wang, C. Y., *Satisfaction and Zone of Tolerance: The Moderating Roles of Elaboration and Loyalty Programs*, "Managing Service Quality", 22(1), pp. 38–57, 2012.

Yap, K. B., Sweeney, J. C., *Zone-of-tolerance Moderates the Service Quality-outcome Relationship*, "Journal of Services Marketing", 21(2), pp. 137–148, 2007.

Yavas, U., Karatepe, O. M., Babakus, E., *Exploring the Role of Organizational and Personal Resources in Explaining Nurse Performance in Public Hospitals in the Turkish Republic of Northern Cyprus*, "Journal of Health Management", 16(1), pp. 1–12, 2014.

Zeithaml, V., Parasuraman, A., Berry, L. L., *Delivering Quality Service: Balancing Customer Perceptions and Expectations*. The Free Press, New York 1990.

Zeithaml, V. A., Bitner, M. J., *Services Marketing* (3rd ed.). McGraw Hill, New York 2003.

Zeithaml, V.A., Berry, L. L., Parasuraman, A., *The Nature and Determinants of Customer Expectations of Service*, "Journal of the Academy of Marketing Science", 21(1), pp. 1–12, 1993.

Zifko-Baliga, G. M., Krampf, R. F., *Managing Perceptions of Hospital Quality*, "Marketing Health Services", 17(1), pp. 28–35, 1997.

Zineldin, M., *The Quality of Health Care and Patient Satisfaction: An Exploratory Investigation of the 5Qs Model at Some Egyptian and Jordanian Medical Clinics*, "International Journal of Health Care Quality Assurance", 19(1), pp. 60–92, 2006.

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