

Assessing service quality and customer behavioral responses in hospital outpatient services: a formative measurement approach

1. Introduction

Primary healthcare services are a major element of any healthcare system (Raposo et al., 2009), since it brings healthcare closer to citizens' place of residence and work, operating as their first level of contact with healthcare system (Cueto, 2004). Public primary healthcare services in Greece are delivered through a dual system of primary healthcare centres, and hospital outpatient services, which are part of the National Healthcare System and Social Insurance Organization (Papanikolaou and Zygiaris, 2014; Fotiadis and Vassiliadis, 2013).

Despite the efforts that have been undertaken over the last decade to modernize and improve the national healthcare services (Papanikolaou and Ntani, 2008), its structural and functional efficiency needs to be further improved by upgrading the quality of the relevant services offered (Oikonomou et al., 2015). The ongoing recession puts even more in order to find ways to balance out the deteriorating government spending on public health system via an effective mechanism that will improve these services. This becomes even more important as the vast majority of individuals, due to tight economic conditions, report to the public system first, leaving the private as the last resort.

In order for the state and healthcare organizations to plan and deliver better primary healthcare services, it is fundamental to identify and assess which service factors should be improved in order to meet some high standards and gain positive behavioral responses (e.g. Raposo et al., 2009; Meesala and Paul, 2016). Our intention is to go beyond the study of individual factors and their effect on the healthcare system by measuring the quality of the delivered primary healthcare services from hospital outpatient departments and especially the customer-oriented quality assessment measures where several behavioral responses are rooted. (Dagger et al., 2007; Oikonomou et al., 2015).

Despite the fact that primary healthcare services are a vital substance for a well-functioning society, there are only a few reliable and valid instruments to effectively measure service quality and tackle the complexities of the primary healthcare service setting. Previous service quality conceptualization efforts usually use multidimensional models in order to assess service quality in the healthcare context (e.g. Otani and Kurtz, 2003; Dagger et al., 2007; Raposo et al., 2009; Sumaedi et al., 2016; Miranda et al., 2012; Shabbir et al., 2016). Based on the fact that customers tend to judge their experience as a whole rather than evaluating each single sub-process separately (Sousa and Voss, 2012), many studies consider service quality as a multidimensional reflectively measured higher-order construct (e.g. Sumaedi et al., 2016; Hossain et al., 2015). However, existing literature argues that the formative measurement approach with composite indicators might be more appropriate to uncover the formation of service quality perception (Collier and Bienstock, 2006; Carlson and O' Cass, 2011; Sousa and Voss, 2012). **Since inappropriate use of the reflective or formative measurement perspective causes**

1
2
3 significant specification errors which affect the legitimacy of the higher-order construct and the
4 accuracy of its relationships with other constructs, the justification of the appropriate measurement
5 perspective in service quality for primary healthcare services is of paramount importance
6 (Diamantopoulos and Winklhofer, 2001). Miranda et al. (2012) are the first who proposed a formative
7 perspective to measure the service quality of primary healthcare services. They relied on partial least
8 squares (PLS) approach to specify and estimate the structural model. However, the appropriateness of
9 PLS in validating models containing formative variables is questionable, since it does not provide an
10 overall goodness-of-fit measure and is more suitable for exploratory studies (e.g. Rönkkö et al., 2016).
11 Diamantopoulos (2011) provided justification about the restrictions of PLS methodology and
12 highlighted the benefits of employing covariance structure analysis (CSA) when investigating structural
13 equation models with formative constructs.
14
15

16
17
18
19 This paper contributes to the existing literature by 1) providing an overview regarding the
20 conceptualization of service quality in the primary healthcare service context and discussing the
21 available measurement approaches; 2) proposing and validating a parsimonious multidimensional
22 second-order formatively measured service quality model of primary healthcare services provided by
23 hospital outpatient departments. The index's empirical validity is examined by investigating the
24 strength of its relationship with certain behavioral responses, such as patient satisfaction and behavioral
25 intentions; and 3) discussing theoretical and managerial implications of the service quality index. The
26 results of this paper are expected to help managers of hospital outpatient departments to improve
27 perceived service quality and increase favorable patients' responses.
28
29
30
31
32

33
34 The paper is structured as follows. Firstly we review the literature on service quality and its
35 relationships with various behavioral responses. Second, the study methodology is explained. Third, we
36 present empirical results, and we conclude with managerial implications, limitations and suggestions for
37 future research.
38
39
40

41 **2. Perspectives of primary healthcare service quality conceptualization - literature review**

42
43 Researchers agree that perceived service quality is an attitude towards or a global judgment about the
44 superiority or inferiority of a service. In healthcare, high quality service delivery is critical towards
45 sustaining a high level of performance (e.g. Kashif et al., 2014; Kashif et al., 2016). Donabedian (1980)
46 argues that healthcare services quality assessments should include an analysis of the structure that is
47 necessary to achieve a given level of quality (the characteristics of doctors, hospitals and staff); the
48 process (interaction with the structure); and the result (what happens to the patient after the medical
49 act). Although, the result/outcome dimension of healthcare services is considered the most important
50 element for patients, it is not very well studied. This happens mainly because this dimension of service
51 quality is difficult to measure, since service provision happens long before the service results become
52 apparent (Choi et al., 2005). Moreover, Boller et al. (2003) consider the results of healthcare services as
53 a consequence of service quality, and not one of its components, stressing the need to focus on structure
54
55
56
57
58
59
60

1
2
3 and process when analyzing service quality in healthcare services. Finally, Peyrot et al. (1993) argue
4 that it is possible to improve satisfaction through the improvement of aspects that are not related to
5 service outcome quality, but aspects related to process quality.
6

7
8 In the general service context, SERVQUAL instrument, proposed by Berry et al. (1988) is used
9 to measure process-related aspects of service quality including tangibles, reliability, responsiveness,
10 assurance and empathy (Kang and James, 2004). Based on that, previous research used SERVQUAL to
11 measure the quality of service in the healthcare services context (e.g. Kara et al., 2005; Wicks and Chin,
12 2008; Ladhari and Rigaux-Bricmont, 2013; Papanikolaou and Zygiaris, 2014; Yousapronpaiboon and
13 Johnson, 2013; Lee, 2016; Turan and Bozaykut-Buk, 2016; Meesala and Paul, 2016). Wicks and Chin
14 (2008) investigated the importance of SERVQUAL's original eleven healthcare service attributes in
15 three different stages of the service process: pre-process stage (outpatients' preadmission experience),
16 process stage (outpatients' stay experience) and post-process experience (outpatients' after-discharge
17 experience). The authors conclude that the process stage is the most influential determinant of overall
18 patient satisfaction, while the impact of service quality dimensions differs among stages.
19

20
21 Despite the fact that SERVQUAL is a well-known instrument to measure service quality,
22 several studies raised criticism concerning the stability of its dimensions and the problems resulting
23 from the items' measurement using the differences between expectations and perceptions scores (e.g.
24 Brady and Cronin, 2001; Miranda et al. 2012). As a result, other studies propose specific instruments to
25 measure healthcare service quality. Carr-Hill (1992) finds that patients' evaluations mainly concerned
26 six structural and process dimensions including medical care and information, food and physical
27 facilities, non-tangible environment, nursing care, quantity of food and appointment bookings. Chahal
28 (2000) proposed that there are three key-drivers of patients' loyalty in India: physicians care services,
29 nursing care services, and operational quality/facilities. Shabbir et al. (2016) used five factors to
30 measure healthcare service quality, including physician care, nurses care, support staff, operational
31 activities, and physical maintenance, in order to investigate their direct and indirect (through patient
32 satisfaction) effects on patient loyalty in Pakistan. Finally, Dagger et al. (2007) and Sumaedi et al.
33 (2016) developed multidimensional hierarchical scales for measuring health service quality that have
34 interpersonal quality, technical/outcome quality, environmental quality and administrative quality as
35 primary dimensions.
36

37
38 In primary healthcare services, Bryant et al. (1998) refer to a number of key parameters
39 regarding the quality of service. Specifically, they include socio-emotional variables, referring to the
40 perceptions that patients have about the communication and interpersonal capacities of healthcare
41 services (affection, empathy, politeness); system variables, referring to the physical or technical aspects
42 of the local organization in which the service is provided, (e.g. waiting time for the appointment, access
43 to services, technical quality of services, costs, comfort of equipment and the appointment's duration);
44 influential variables, such as, list of contacts (family and friends); and moderating variables, referring to
45 socio-demographic variables and state of health. Haddad et al. (1998) argue that healthcare delivery,
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 personnel and facility should be the main dimensions of patient perceptions regarding the quality of
4 primary health care services in developing countries. Similarly, Otani and Kurtz (2003), in their study
5 of hospital services in the US, identify six key service quality dimensions: admission process, physician
6 care, nursing care, compassion to family/friends, pleasantness of the surroundings and discharge
7 process. Also, Miranda et al. (2012), in their research of primary healthcare service quality in Spain,
8 proposed a tailor-made SERVQUAL scale to healthcare context which includes four dimensions:
9 facilities conditions, health staff quality, no health staff quality and operations efficiency. In the same
10 context, Raposo et al. (2009) identified medical care, nursing care, administrative services & staff and
11 facilities conditions as key determinants of primary healthcare service quality. Moreover, Giovanis and
12 Pierrakos (2015) used the four service quality attributes, which were proposed by Raposo et al. (2009),
13 to investigate the asymmetric effects of primary healthcare service quality on patient satisfaction
14 including the role of patients' characteristics on the nature of these relationships. Finally, Zarei (2014)
15 identified eight dimensions of primary healthcare service quality including physician consultation,
16 information to patient, physical environment, service cost, and efficiency of administration services (i.e.
17 appointment, accessibility, perceived waiting time and admission process). Therefore, researchers agree
18 that primary healthcare service quality is a multi-dimensional concept.
19
20
21
22
23
24
25
26
27
28

29 **3. A new service quality index for primary healthcare services - conceptualization,** 30 **measurement and validation**

31
32 The majority of the aforementioned studies of primary healthcare service quality assessment try to
33 validate the proposed service quality conceptualization by investigating the individual effects of service
34 quality dimensions on certain measures expressing patient behavioral responses. However, many
35 researchers in the field of services in general (e.g. Caceres and Paparoidamis, 2007; Collier and
36 Bienstock, 2006; Carlson and O'Cass, 2011; Sousa and Voss, 2012) and in that of healthcare services in
37 particular (e.g. Dagger et al., 2007; Miranda et al., 2012; Sumaedi et al., 2016), consider the service
38 quality as a more abstract concept by using a higher-order construct for its measurement. This is based
39 on the fact that perceived service quality is the result of a customer's view of a bundle of service
40 dimensions/components, some of which are technical and some of which are functional in nature
41 (Sousa and Voss, 2012).
42
43
44
45
46

47 Based on the discussion above, this study proposes a second-order construct to model overall
48 service quality of primary healthcare services, which in turn is related to the four first-order service
49 quality constructs that were proposed by Raposo et al. (2009): medical care, nursing care,
50 administrative services & staff, and facilities conditions. This scale was selected because it is the most
51 integrative one to measure primary healthcare service quality, as its dimensions can be found in several
52 other studies concerning service quality in the healthcare context (e.g. Chahal, 2000; Dagger et al.,
53 2007).
54
55
56
57
58
59
60

1
2
3 The definition of the causality between the first-order constructs of service quality and the
4 overall perceived service quality determines the construct's measurement perspective (Diamantopoulos
5 and Winklhofer, 2001). The selection of the appropriate measurement method is a very important task
6 given that an inappropriate selection results in construct specification errors and jeopardizes the
7 constructs' validity. There are two different measurement perspectives for higher-order constructs such
8 as service quality. In a reflective relationship, the high-order construct exists independently of the
9 lower-order constructs used, and the direction of causality is from the higher-order construct to its
10 lower-order dimensions. In this case, the dimensions of the higher-order construct are themselves
11 constructs that function as specific manifestations of the latter (Edwards, 2001). In a formative
12 relationship, the higher-order construct is formed as a combination of its lower-order components, and
13 the direction of causality is from the lower-order components to the higher-order construct (Jarvis et al.,
14 2003). Coltman et al. (2008) propose a two-step justification process (i.e. theoretical and empirical) to
15 decide whether a construct should be measured as formative or reflective.
16
17
18
19
20
21
22
23

24 *3.1 Theoretical justification of the service quality index*

25 Given that a model's theoretical specification is guided by five conditions that should prevail for a
26 construct to be measured as formative (Jarvis et al., 2003), the current study proposes a second-order
27 formatively measured construct for service quality of primary healthcare services which are provided
28 by hospital outpatient departments, comprised of four service quality components of primary healthcare
29 services, proposed by Raposo et al. (2009), for the following reasons: 1) the four constructs proposed
30 by Raposo et al. (2009): medical care, nursing care, administrative services & staff, and facilities
31 conditions are defining characteristics of overall service quality, as they can be found in several
32 aforementioned proposals aiming to conceptualize healthcare service quality (e.g. Chahal, 2000;
33 Dagger et al. 2007, Miranda et al., 2012); 2) changes in any of these four components are expected to
34 cause changes in overall service quality – according to Brady and Cronin (2001), overall service quality
35 relates to an overall summative assessment by users based on their perception for the above four
36 components, and thus, the direction of causality flows from the four first-order constructs to the second-
37 order construct; 3) the four components of overall perceived service quality do not share a common
38 theme as they express totally different aspects of service quality (i.e. interactions, processes, tangibles)
39 and, hence, need not to be interchangeable and correlated - for example, facilities conditions have
40 nothing to do with the quality of medical or nursing care; 4) eliminating one service quality component
41 will alter the conceptual domain of perceived service quality – the literature suggests that the four
42 components comprise important aspects of perceived service quality, and thereby elimination of any
43 one would alter the meaning of perceived service quality; 5) the four service quality components do not
44 have the same antecedents and consequences. The four components are determined by different
45 processes (i.e. medical and nursing care may be affected by education, training procedures, and
46 organizational cultural, whereas facilities conditions may be affected by disposable funding). Moreover,
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 some components (i.e. medical care) are expected to be more related to transaction-specific constructs
4 (i.e. satisfaction), while others (i.e. nursing care) with relational-specific constructs (i.e. commitment)
5 (Giovanis and Pierrakos, 2015). Based on the above discussion, the use of a formative measurement
6 approach for perceived service quality of primary healthcare services provided by hospital outpatient
7 departments is more appropriate.
8
9

10 11 12 *3.2 Empirical justification of the service quality index*

13 Apart from the theoretical justification of service quality measurement provided in the previous section,
14 the empirical justification of the validity of the proposed index is necessary (Coltman et al., 2008).
15 Since the assessment of the proposed index appropriateness is problematic as it is not possible to
16 empirically assess the reliability of the service quality index (Coltman et al. 2008), Bagozzi (1994)
17 proposes a process that requires the investigation of the relationship between the proposed service
18 quality index and at least two feasible, theory-based out-of-index variables (Diamantopoulos and
19 Winklhofer, 2001). In this study, customers' behavioral responses expressing patient satisfaction and
20 behavioral intentions are used to test the empirical validity of the proposed service quality index. The
21 statistical significance of the four proposed components in determining the second-order construct, as
22 well as the examination of their intercorrelations and collinearity, are required at this stage
23 (Diamantopoulos and Winklhofer, 2001; Baumann et al., 2012). The next step concerns the
24 external/nomological validity of the proposed index by investigating the significance of its relationships
25 with patient satisfaction and behavioral intentions and as well as its predictive ability to explain the two
26 external variables' variability.
27
28
29
30
31
32
33
34

35 There are several approaches to defining satisfaction in the healthcare services context. For
36 some researchers, satisfaction is defined as the gap between the expected and perceived features of a
37 service (Fitzpatrick and Hopkins 1983), while for others, satisfaction is a special form of attitude,
38 reflecting the extent to which a patient liked or disliked the experienced service (Woodside et al., 1989).
39 In general, satisfaction can be viewed either as an attitude resulting from the confirmation or
40 disconfirmation of expectations (result perspective), or as a process which represents customer
41 perception of the interaction that takes place during service delivery (process perspective). According to
42 MacStravic (1991), satisfaction tracking is a significant input for planning processes assessments, since
43 a satisfied patient is more inclined to follow a doctor's prescription, which, in turn, will affect the
44 customer's satisfaction relative to the service outcome (e.g. symptoms relief). This will probably
45 demotivate possible conflicts like complains and lawsuits (Ahorony and Strasser, 1993), providing
46 positive referrals about the service provider (Chang et al., 2013). On the other hand, there is a
47 connection between customer satisfaction and staff satisfaction (Welch, 2010). Thus, it is not only
48 important to know the result from the service experience, but also, what are the causes and dimensions
49 that will raise the satisfaction.
50
51
52
53
54
55
56
57
58
59
60

Services research has put considerable effort into deciding the causality direction between service quality and customer satisfaction. A review of the literature suggests two alternative perspectives regarding the relationship between service quality and satisfaction. The first is the transaction-specific, whereby satisfaction antecedes service quality. In healthcare services, most empirical work corroborates the dominant quality-affects-satisfaction view (e.g. Dagger et al., 2007; Raposo et al., 2009; Chahal and Kumari, 2012; Ladhari and Rigaux-Bricmont, 2013; Chen and Fu, 2015; Giovanis and Pierrakos, 2015; Shabbir et al. 2016; Meesala and Paul, 2016). The theoretical support is based on Bagozzi's (1992) appraisal-emotional response-coping attitudinal framework, since service quality is conceptualized as a cognitively oriented construct, while satisfaction is mainly conceptualized as an affective construct (Brady et al., 2005). Bagozzi's attitudinal framework suggests that consumers, after evaluating a service cognitively, develop emotional reactions to this appraisal, which finally drive behavioral intentions. Based on the above the following hypothesis is posed:

H1: Perceived service quality of primary healthcare services has a significant positive effect on satisfaction.

Behavioral intentions "... *signal whether customers will remain with or defect from the company*" (Zeithaml et al., 1996, p. 33), and they are closely associated with customer loyalty. More specifically, behavioral intentions, alternatively labelled as conative loyalty in the cognition-affect-connection-action link of the loyalty chain (Oliver, 1999), is closer to real action (action loyalty). Zeithaml et al. (1996) have proposed repurchase intentions and word of mouth as the more frequently determinants of behavioral intentions adopted in studies of service evaluation processes in different service settings. Chahal (2000) proposed a tri-component model to measure patient's intentional loyalty including: (a) using the providers again for the same treatment (UPAS), (b) using the providers again for different treatments (UPAD), and (c) referring the providers to others (RPO). Today, behavioral intentions are considered as a better predictor of service providers' performance than satisfaction. Oliver (1999) suggests that not all satisfied customers remain loyal, and that satisfaction represents only the first step in loyalty formation, which is ultimately affected by other mechanisms such as personal fortitude, social bonding and their synergistic effects. In recent studies, behavioral intentions are usually explored within the cognitive-affective-conative framework (e.g. Brady et al., 2005; Dagger et al., 2007; Meesala and Paul, 2016), which is theoretically justified by Bagozzi's self-regulatory mechanisms model. In summary, the cognitive component (attribute appraisal) normally precedes emotional responses, which ultimately lead to behavioral intentions (Bagozzi, 1992).

Empirical research offers strong support for such causality in different service settings. For instance, the study of Brady et al. (2005), conducted in a multi-industry and multi-country setting, found that satisfaction (affective component) mediates the effect of service quality (cognitive component) on behavioral intentions (conative component). In the healthcare service setting in particular, Dagger et al. (2007); Chahal and Kumari (2012) and Shabbir et al (2016) find that

1
2
3 satisfaction is largely affected by perceived service quality, and that satisfaction enhances the impact of
4 service quality on behavioral intentions, while Ng and Russell-Bennett (2015) and Meesala and Paul
5 (2016) revealed that patients' positive and negative emotions fully mediates the service quality-loyalty
6 link. Given that primary healthcare services are a critical concern for service customers, service quality
7 is expected to be directly and indirectly (through satisfaction) related to patients' behavioral intentions.
8 Based on these findings, we propose the following testable hypotheses:
9
10

11
12 H2: Perceived service quality of primary healthcare services has a significant positive effect on
13 behavioral intentions.
14

15 H3: Customer satisfaction has a significant positive impact on behavioral intentions.
16

17
18 Figure 1 depicts the proposed model reflecting the proposed relationships among the six
19 constructs.
20

21
22 --- Figure 1 about here ---
23

24 25 **4. Research methodology**

26 27 *4.1 Measures and survey instrument design*

28 Data was collected through a questionnaire which was developed in order to understand patients'
29 perception about service quality of hospital outpatient departments as well as their patients' satisfaction
30 and behavioral intentions. The questionnaire was divided into five sections: the first addresses general
31 information about respondents' demographics and primary health care usage pattern (frequency and
32 motives). The next four sections address specific questions about patients' perception regarding
33 hospitals' facilities, administrative processes, medical, and nursing care.
34
35

36
37 The scales used to measure the four primary healthcare service components were adapted from
38 the studies of Dagger et al. (2007) and Raposo et al. (2009). The scales proposed by Dagger et al.
39 (2007) were adopted to measure patient satisfaction, reflecting general satisfaction, pleasure, and
40 delight from service experiences, and behavioral intentions, reflecting patients' revisit intentions and
41 likelihood to recommend the service provider to their surroundings. An English version questionnaire
42 was translated into Greek by a bilingual research assistant and then back-translated by another research
43 assistant who was not related to the study. No major discrepancies were observed between the original
44 and the back-translated version. All items were measured on 5-point Likert scales anchored at 1
45 (strongly disagree) and 5 (strongly agree).
46
47
48
49
50

51 52 53 *4.2 Sample and data collection*

54 The target population of this study was users of primary healthcare services in the district of Athens. As
55 the capital of Greece is highly populated (half of the total population), the demand for primary
56 healthcare services is representative for the whole country. Eight main public hospitals providing
57
58
59
60

1
2
3 outpatient services were selected for data collection. Four of them were specific disease hospitals, and
4 the others were general hospitals. A stratified random sampling was utilized with a sampling ratio of
5 1:5, meaning that for every five patients that left the clinics, one was interviewed. Seven hundred (700)
6 questionnaires were distributed. The fieldwork was conducted in October 2015. Contacts were made at
7 different times of the day and days of the week in order for day and time related bias to be eliminated.
8 The fieldwork resulted in 420 filled questionnaires of which 407 usable questionnaires were coded for
9 data analysis, yielding a net response rate of about 58%.

10
11
12
13
14 Using the Armstrong's and Overton's (1977) procedure, nonresponse bias was evaluated by
15 comparing early respondents with late respondents for all constructs considered in this study. No
16 significant differences were recorded at the 0.05 level of significance.
17
18

19 20 *4.3 Data analysis method*

21 SPSS 19.0 and AMOS 18.0 statistical and structural equation modeling software packages were
22 employed for data analysis purposes. Miranda et al. (2012) proposed a similar index for primary
23 healthcare services quality in Spain, and used PLS to test it. While the PLS approach has several
24 features that make it attractive (Hair et al., 2011), several recent studies have questioned its
25 appropriateness in validating formative models, as it does not provide an overall goodness-of-fit
26 measure. Rönkkö et al. (2016) provides an overview of PLS approach related problematic areas, and for
27 this reason, CSA was preferred over PLS to validate the service quality index. Constructs measured
28 with composite indicators, in contrast to those measured with causal indicators (the other measurement
29 option for formative constructs) do not have an error term (Diamantopoulos and Winklhofer, 2001), and
30 as such, the indicators act as contributors to a construct rather than causing it (Bollen, 2011). Data
31 analysis involves a two-phase approach. The first phase aims to assess the reliability and validity of the
32 first-order constructs before using them in the research model, and the second phase tests the empirical
33 validity of the service quality index by investigating the significance of its structural effects on patients'
34 satisfaction and behavioral intentions as well, as its predictive ability to explain the variability of the
35 two external variables (Diamantopoulos and Winklhofer, 2001).
36
37
38
39
40
41
42
43
44

45 46 **5. Empirical results**

47 48 *5.1 Sample profile*

49 The key sample's characteristics are given in Table I. Participants of the study were composed of 57%
50 female and 43% male. In relation to age, 14% of respondents were in the 18-24 age-group; 19% in the
51 25-34 age-group; 19% in the 35-44 age-group; 21% in the 45-54 age-group; 13% in the 55-64 age-
52 group; and 14% were above 65 years old. Fifty-five percent (55%) of the respondents were married,
53 35% were single and 10% were widow/widower or divorced. In terms of monthly income, 50% of the
54 respondents' monthly salary is less than €1,000; 36% earns between €1,000 and €2,000; and 14% gets
55
56
57
58
59
60

more than €2,000. In terms of educational background, 34% of respondents have at least a university degree. Finally, 62% of the respondents have visited primary health care services less than three times during the last twelve months; 27% between four and ten times and 11% more than twenty times.

--- Table I about here ---

5.2 Measurement model assessment – first-order constructs

Confirmatory factor analysis (CFA) via AMOS 18.0 was employed to examine the first-order research measures and their internal reliability and validity. Firstly, the measurement model's fitting performance was assessed using a series of goodness-of-fit indices. As it is shown in Table II, all indices' (χ^2/df , RMSEA, SRMR, NFI, TLI, CFI) values satisfy the recommended cut-off criteria (Hu and Bentler, 1999), indicating that the hypothesized model fits the sample data well. Secondly, the convergent and discriminant validity of the constructs were examined. All standardized factor loadings, provided in Table II, were greater than 0.70 and statistically significant at 1% level. Moreover, the Average Variance Extracted (AVE) values for all constructs range from 0.61 to 0.85, well above the 0.50 cut-off. The results of the above two tests provide evidence of convergent validity (Fornell and Larcker, 1981). Internal reliability of each construct was assessed with the Composite Reliability (CR) index and the Cronbach's alpha (CA). The CR and CA values for all constructs, ranging from 0.85 to 0.96 and 0.86 to 0.96 respectively, exceeded the cut-off value of 0.7, indicating good internal reliability (Fornell and Larcker, 1981).

--- Table II about here ---

Finally, discriminant validity was assessed by comparing the square root of AVE extracted from each construct with the correlations among constructs. As indicated in Table III, the square roots of AVE for all constructs are higher than their shared variances, providing evidence of discriminant validity (Fornell and Larcker, 1981).

--- Table III about here ---

5.3 Service quality index empirical validation

Amos 18.0 was again used to assess the empirical validity of the service quality index. Given that the assessment of convergent validity and construct reliability is irrelevant for formatively measured constructs (Coltman, 2008), the examination of how well the service quality index is related to other variables is proposed to test its validity. Incremental and stand-alone fit indices, included in Fig. 2, show that the model fits the data well. The values of CFI, NFI, and TLI are 0.94, 0.90, and 0.93 respectively (> 0.9). Root Mean Square Error of Approximation (RMSEA) is satisfactory (0.06).

--- Figure 2 about here ---

1
2
3 The empirical justification to define service quality as a second-order formative construct
4 begins with testing the first-order constructs intercorrelations, significance and collinearity
5 (Diamantopoulos and Winklhofer, 2001; Baumann et al., 2012). Firstly, the correlations among the four
6 first-order components were examined. As shown in Table III, the correlations among the four first-
7 order service quality-related components range from 0.43 to 0.69 with an average of 0.59. This
8 indicates that service quality is better represented as a formative, rather than a reflective, second-order
9 construct, as the latter usually exhibits extremely high correlations (> 0.80) among first-order factors
10 (Pavlou and El Sawy, 2006). Furthermore, as it is shown in Fig. 2, the first-order service quality-related
11 components were all found to have significant path coefficients in forming customers' perception about
12 the quality of the delivered services. The examination of the proposed formative measure of service
13 quality indicates that medical care ($\beta = 0.53$; $p < 0.001$); nursing care ($\beta = 0.16$; $p < 0.05$);
14 administrative services & staff ($\beta = 0.25$; $p < 0.05$) and facility conditions ($\beta = 0.24$; $p < 0.001$) return
15 significant coefficients. Multicollinearity assessment requires the computation of variance inflation
16 factors (VIF) for the four first-order components of service quality. VIF values above 10 would suggest
17 the existence of excessive multicollinearity and raise doubts about the validity of the formative
18 measurement (Diamantopoulos and Winklhofer, 2001). The VIF values for the first-order service
19 quality components range from 1.75 to 2.22. Therefore, multicollinearity is not a matter of concern for
20 the service quality construct. These results confirm the validity of the proposed formative index for
21 service quality of primary healthcare services.

22
23
24
25
26
27
28
29
30
31
32 Next, investigating the results of the structural part (paths between the formative index and two
33 reflective concepts) provides nomological validation of the proposed service quality index.
34 Diamantopoulos and Winklhofer (2001) suggest linking the index to reflective constructs with which
35 they normally would be linked with. Patient satisfaction and behavioral intentions, two closely related,
36 albeit different, constructs to service quality were selected for this purpose. The results show positive
37 effects of service quality on customer satisfaction ($\beta=0.71$; $p < 0.001$) and behavioral intentions
38 ($\beta=0.46$; $p < 0.001$). These results confirm H1 and H2. In line with H3, satisfaction has a direct,
39 positive effect on behavioral intentions ($\beta= 0.36$; $p < 0.001$). The model also demonstrates a high level
40 of explanatory power (R^2) because the model's constructs explain 50% of variance in satisfaction and
41 57% of variance in behavioral intentions. The relatively high values of R^2 indicate that sizeable portions
42 of the variances in the dependent variables are explained by the chosen independent variables. These
43 results confirm the proposed formative index for service quality of primary healthcare services provided
44 by hospital outpatient departments.

53 *5.4 Mediation effects*

54
55 The study also investigates the mediating role of satisfaction in the service quality-behavioral intentions
56 link to understand how the cognitive (service quality) and the affective (satisfaction) aspects of the
57 service evaluation process affect behavioral intentions (Brady et al., 2005). For this purpose, a
58
59
60

1
2
3 procedure proposed by Baron and Kenny (1986) was adopted. In the first stage, the relationships of
4 service quality-satisfaction and service quality-behavioral intentions are examined. Service quality
5 significantly affects satisfaction ($\beta = 0.71$; $p < 0.001$) and behavioral intentions ($\beta = 0.71$; $p < 0.001$)
6 explaining 51% in variance of both external variables. Also, if service quality and satisfaction are put
7 together, the latter significantly affects behavioral intentions ($\beta = 0.36$; $p < 0.001$), but there is also a
8 large reduction in the coefficient of service quality on behavioral intentions ($\beta = 0.46$; $p < 0.001$), with
9 respect to that of the non-mediated relationship ($0.46 \ll 0.71$). There is also a significant improvement
10 in variance explanation of behavioral intentions ($R^2 = 0.57$ vs. 0.51) when satisfaction is included in the
11 model. The large coefficient reduction and the model explanatory power improvement provide evidence
12 that satisfaction partially mediates the relationship between service quality and behavioral intentions
13 (Baron and Kenny, 1986). To calculate the value and the statistical significance of the indirect effect of
14 service quality on behavioral intentions, the maximum likelihood bootstrapping procedure with a
15 bootstrap sample of 1,000 and a bias correction confidence interval of 95 per cent was used (Kashif et
16 al., 2016). The result indicated that service quality indirectly affects behavioral intentions ($\beta = 0.25$; $t =$
17 3.17), which in combination with the significant effect of satisfaction on behavioral intentions ($\beta =$
18 0.36 ; $t = 3.66$), confirms the partial mediation effect of satisfaction in the service quality – behavioral
19 intentions link.
20
21
22
23
24
25
26
27
28
29

30 **6. Conclusions and implications**

31
32 The objective of the current study is the development of a service quality instrument in order to monitor
33 and improve the functional service quality aspects of primary healthcare services provided by hospital
34 outpatient departments in Greece. The findings, in accordance with those of Miranda et al. (2012),
35 suggest that customers evaluate hospital outpatient service quality at an overall level, which is
36 composed by four primary components: medical care, nursing care, administrative services & staff and
37 facilities conditions. In particular, the results indicate that patients' perception of service quality
38 delivered by medical staff mostly contributes to the overall service quality perception. The perceptions
39 about facilities and administrative services & staff effectiveness appear to be the second and third
40 contributors to overall service quality assessment. Nursing care is the least significant contributor to
41 perceived service quality formulation. This is in accordance with the findings of Otani et al. (2003) and
42 Raposo et al. (2009), and can be attributed to the fact that, in hospital outpatient services, patients
43 interact much more with physicians and administrative staff than with nursing staff. The proposed index
44 can be used by managers as a tool to measure the performance of services provided by hospital
45 outpatient departments to determine their contribution on overall service quality perception and make
46 the appropriate interventions towards improving overall services efficiency.
47
48
49
50
51
52
53
54

55 The findings of the current study also suggest that hospital outpatient service quality is an
56 important driver of patients' satisfaction and behavioral intentions, underscoring its importance as a
57 patients' decision-making variable (e.g. Ng and Russell-Bennett, 2015; Shabbir et al., 201; Meesala and
58
59
60

Paul, 2016). The stronger effect of service quality on behavioural intentions, compared to that of satisfaction, indicates that the cognitively assessed aspects of primary healthcare service quality are more important than that of the affective ones in determining future behavior. This result is in line with the findings of Chang et al. (2013) who suggested that “high satisfaction” by itself is not a good predictor of future intentions. Satisfaction is also enhancing the effect of service quality acting as mediator, as they both affect behavioral intentions (Dagger et al., 2007). These findings suggest that decision makers should consider both service quality and satisfaction as important strategic objectives, as these two concepts provide a way of attaining favorable patients’ behavioral intentions.

7. Limitations and future research

This study has some limitations that should be considered when interpreting its findings. First, the findings and the implications of this research were obtained using a cross-sectional study. This reduces the ability of the study to reflect the temporal changes in the research constructs. As a result, longitudinal studies are needed to clarify the effects of temporal changes on service quality index formation. Second, the model was developed and validated with data from a country which is under tight economic conditions and has a healthcare system that is state driven and funded. Replicating the study across different countries would provide evidence about the generalizability of the service quality index and the robustness of its relationships with the constructs determining customers’ behavioral responses.

References

- Ahorony, I. and Strasser, S. (1993), “Patient satisfaction: what we know about and what we still need to explore”, *Medical Care Review*, Vol. 50, No. 1, pp. 49–79.
- Armstrong, J.S. and Overton, T. S. (1977), “Estimating nonresponse bias in mail surveys”, *Journal of Marketing Research*, Vol. 14, No. 3, pp. 396-402.
- Bagozzi, R.P. (1992), “The self-regulation of attitudes, intentions, and behavior”, *Social Psychology Quarterly*, Vol. 55, No. 2, pp. 178-204.
- Bagozzi, R.P. (1994), “Structural equation models in marketing research: basic principles”, in Bagozzi, R. (Ed.), *Principles of Marketing Research*, Blackwell Publishers, Cambridge, MA, pp. 317-385.
- Baron, R.M. and Kenny, D.A. (1986), “The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations”, *Journal of Personality and Social Psychology*, Vol. 51, No. 6, pp. 1173–1182.
- Baumann, C., Elliott, G. and Burton, S. (2012), “Modeling customer satisfaction and loyalty: survey data versus data mining”, *Journal of Services Marketing*, Vol. 26, No. 3, pp. 148-157.

- 1
2
3 Berry, L.L., Parasuraman, A. and Zeithaml, V.A. (1988), "The service quality puzzle", *Business*
4 *Horizon*, Vol. 31, No. 5, pp. 35-43.
- 5
6 Bollen, K.A. (2011), "Evaluating effect, composite, and causal indicators in structural equation
7 models." *MIS Quarterly*, pp. 359-372.
- 8
9 Boller, C., Wyss, K., Mtasiwa, D. and Tanner, M. (2003), "Quality and comparison of antenatal care
10 in public and private providers in the United Republic of Tanzania", *Bull World Health Organ*, Vol.
11 81, No. 2, pp. 116–122.
- 12
13 Brady, M.K. and Cronin Jr, J.J. (2001), "Some new thoughts on conceptualizing perceived service
14 quality: a hierarchical approach", *Journal of Marketing*, Vol. 65, No. 3, pp. 34-49.
- 15
16 Brady, M.K., Knight, G.A., Cronin, J.J., Hult, G.T.M. and Keillor, B.D. (2005), "Removing the
17 contextual lens: a multinational multi-setting comparison of service evaluation models", *Journal of*
18 *Retailing*, Vol. 81, No. 3, pp. 215-230.
- 19
20 Bryant, C., Kent, E.B., Lindenberger, J., Schreiher, J.M., Canright, M.W., Cole, S. and Bustillo-
21 Hernandez, M.M. (1998), "Increasing consumer satisfaction". *Marketing Health Services*, Vol. 18 No.
22 4, pp. 5-18.
- 23
24 Caceres, C.R. and Paparoidamis, N.G. (2007), "Service quality, relationship satisfaction, trust,
25 commitment and business-to-business loyalty", *European Journal of Marketing*, Vol. 41, No. 7/8, pp.
26 836-867.
- 27
28 Carlson, J. and O’Cass, A. (2011), "Developing a framework for understanding e-service quality, its
29 antecedents, consequences, and mediators", *Managing Service Quality*, Vol. 21, No. 3, 264-286.
- 30
31 Carr-Hill, R. A. (1992), "The measurement of patient satisfaction", *Journal of Public Health*, Vol. 14,
32 No. 3, pp. 236-249.
- 33
34 Chahal, H., (2000), "Predicting patient loyalty and service quality relationship: a case study of Civil
35 Hospital, Ahmedabad, India", *Vision: The Journal of Business Perspective*, Vol. 12 No.4, pp. 25–46.
- 36
37 Chahal, H., and Kumari, N. (2012), "Service quality and performance in the public health-care sector",
38 *Health Marketing Quarterly*, Vol. 29 No. 3, pp.181-205.
- 39
40 Chang, C.W., Tseng, T.H. and Woodside, A.G. (2013), "Configural algorithms of patient satisfaction,
41 participation in diagnostics, and treatment decisions' influences on hospital loyalty", *Journal of*
42 *Services Marketing*, Vol. 27, No. 2, pp. 91–103.
- 43
44 **Coltman, T., Devinney, T. M., Midgley, D. F. and Venaik, S. (2008), "Formative versus reflective**
45 **measurement models: two applications of formative measurement", *Journal of Business***
46 ***Research*, Vol. 61 No. 12, pp. 1250-1262.**
- 47
48
49
50
51
52
53
54
55
56
57
58
59
60

- 1
2
3 Choi, K-S., Lee, H., Kim, C. and Lee, S. (2005), "The service quality dimensions and patient
4 satisfaction relationships in South Korea: comparisons across gender, age and types of service",
5 *Journal of Services Marketing*, Vol. 19, No. 3, pp. 140 – 149.
6
7 Collier, J.E. and Bienstock, C.C. (2006), "Measuring service quality in e-retailing", *Journal of Service*
8 *Research*, Vol. 8, No. 3, pp. 260-275.
9
10 Cueto, M. (2004), "Origins of primary health care and selective primary health care", *American*
11 *Journal of Public Health*, Vol. 94, No. 11, pp. 1864-1874.
12
13 Dagger, T.S., Sweeney, J.C. and Johnson, L.W. (2007), "A hierarchical model of health service quality
14 scale development and investigation of an integrated model", *Journal of Service Research*, Vol. 10,
15 No. 2, pp. 123-142.
16
17 Diamantopoulos, A. and Winklhofer, H. (2001), "Index construction with formative indicators: An
18 alternative to scale development", *Journal of Marketing Research*, Vol. 38, No. 2, pp. 269–277.
19
20 Diamantopoulos, A. (2011), "Incorporating formative measures into covariance-based structural
21 equation models", *MIS Quarterly*, Vol. 35, No. 2, pp. 335-358.
22
23 Donabedian, A. K. (1980), *Explorations in Quality Assessment and Monitoring: The Definition of*
24 *Quality and Approaches to its Assessment*, Health Administration Press, Ann Arbor, MI, USA.
25
26 Edwards, J.R. (2001), "Multidimensional constructs in organizational behavior research: an integrative
27 analytical framework", *Organizational Research Methods*, Vol. 4 No. 2, pp. 144-192.
28
29 Fitzpatrick, R. and Hopkins, A. (1983), "Problems in the conceptual framework of patient satisfaction
30 research: an empirical exploration", *Sociology of Health & Illness*, Vol. 5, No. 3, pp. 297-311.
31
32 Fornell, C. and Larcker, D. F. (1981), "Structural equation models with unobservable variables and
33 measurement error: algebra and statistics", *Journal of Marketing Research*, Vol. 18 No. 3, pp. 382-
34 388.
35
36 Fotiadis, A.K. and Vassiliadis, C.A. (2013), "The effects of a transfer to new premises on patients'
37 perceptions of service quality in a general hospital in Greece", *Total Quality Management & Business*
38 *Excellence*, Vol. 24, No. 9-10, pp.1022-1034.
39
40 Haddad, S., Fournier, P. and Potvin, L. (1998), "Measuring lay people's perceptions of the quality of
41 primary health care services in developing countries. Validation of a 20-item scale", *International*
42 *Journal for Quality in Health Care*, Vol. 10 No. 2, pp. 93-104.
43
44 Hossain, M. A., Dwivedi, Y. K., and Naseem, S. B. (2015), "Developing and validating a hierarchical
45 model of service quality of retail banks", *Total Quality Management & Business Excellence*, Vol. 26
46 No. 5-6, pp. 534-549.
47
48 Giovanis, A. N., and Pierrakos, G. (2015), "Symmetric and asymmetric effects of primary healthcare
49 attributes on patient satisfaction: Do they vary across patients? ", *The Marketing Review*, Vol. 15 No.
50 4, pp. 439-463.
51
52 Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011), "PLS-SEM: Indeed a silver bullet", *The Journal of*
53 *Marketing Theory and Practice*, Vol. 19, No. 2, pp. 139-152.
54
55
56
57
58
59
60

- 1
2
3 Hu, L.T., and Bentler, P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis:
4 conventional criteria versus new alternatives", *Structural Equation Modeling: A Multidisciplinary*
5 *Journal*, Vol. 6, No. 1, pp. 1-55.
- 6
7 Jarvis, C.B., MacKenzie, S.B. and Podsakoff, P.M. (2003), "A critical review of construct indicators
8 and measurement model misspecification in marketing and consumer research", *Journal of Consumer*
9 *Research*, Vol. 30, No.2, pp. 199-218.
- 10
11 Kang, G. D. and James, J. (2004), "Service quality dimensions: an examination of Grönroos's service
12 quality model", *Managing Service Quality*, Vol. 14 No. 4, pp. 266-277.
- 13
14 Kara, A., Lonial, S., Tarim, M. and Zaim, S. (2005), "A paradox of service quality in Turkey: The
15 seemingly contradictory relative importance of tangible and intangible determinants of service
16 quality", *European Business Review*, Vol. 17 No. 1, pp. 5-20.
- 17
18 Kashif, M., Altaf, U., Ayub, H.M., Asif, U. and Walsh, J.C. (2014), "Customer satisfaction at public
19 hospitals in Pakistan: PAKSERV application", *Global Business Review*, Vol. 15, No. 4, pp. 677-693.
- 20
21 Kashif, M., Samsi, S. Z. M., Awang, Z. and Mohamad, M. (2016), "EXQ: measurement of healthcare
22 experience quality in Malaysian settings: A contextualist perspective", *International Journal of*
23 *Pharmaceutical and Healthcare Marketing*, Vol. 10, No. 1, pp. 27-47.
- 24
25 Ladhari, R. and Rigaux-Bricmont, B. (2013), "Determinants of patient satisfaction with public hospital
26 services", *Health Marketing Quarterly*, Vol. 30, No. 4, pp. 299-318.
- 27
28 Lee, D. (2016). "HEALTHQUAL: a multi-item scale for assessing healthcare service quality", *Service*
29 *Business*, available at: <http://dx.doi.org/10.1007/s11628-016-0317-2> (accessed 2 February 2017).
- 30
31 MacStravic, R. (1991), *Beyond Patient Satisfaction: Building Patient Loyalty*, Health Administration
32 Press, Ann Arbor, MI.
- 33
34 Meesala, A., and Paul, J. (2016), "Service quality, consumer satisfaction and loyalty in hospitals:
35 Thinking for the future", *Journal of Retailing and Consumer Services*, available at:
36 <http://dx.doi.org/10.1016/j.jretconser.2016.10.011> (accessed 2 February 2017).
- 37
38 Miranda, F. J., Chamorro, A., Murillo, L. R. and Vega, J. (2012), "Primary health care services quality
39 in Spain: a formative measurement approach using PLS path modeling", *International Journal of*
40 *Quality and Service Sciences*, Vol. 4, No. 4, pp. 387-398.
- 41
42 Ng, S. and Russell-Bennett, R. (2015), "The role of affect in consumer evaluation of health care
43 services", *Health Marketing Quarterly*, Vol. 32, No. 1, pp. 31-47.
- 44
45 Oikonomou, N., Tountas, Y., Mariolis, A., Souliotis, K., Athanasakis, K. and Kyriopoulos, J. (2015),
46 "Measuring the efficiency of the Greek rural primary health care using a restricted DEA model; the
47 case of southern and western Greece", *Health Care Management Science*, Vol. 19 No. 4, pp. 313-325.
- 48
49 Oliver, R.L. (1999), "Whence consumer loyalty?", *Journal of Marketing*, Vol. 63, pp. 33-44.
- 50
51 Otani, K. and Kurz, R.S. (2003), "The impact of nursing care and other healthcare attributes on
52 hospitalized patient satisfaction and behavioral intentions", *Journal of Healthcare Management/*
53 *American College of Healthcare Executives*, Vol. 49, No. 3, pp. 181-96.
- 54
55
56
57
58
59
60

- 1
2
3 Papanikolaou, V. and Ntani, S. (2008), "Addressing the paradoxes of satisfaction with hospital
4 care", *International Journal Of Health Care Quality Assurance*, Vol. 21, No. 6, pp. 548-561.
- 5
6 Papanikolaou, V. and Zygiaris, S. (2014), "Service quality perceptions in primary health care centres
7 in Greece", *Health Expectations*, Vol. 17, No. 2, pp. 197-207.
- 8
9 Pavlou, P.A. and El Sawy, O.A. (2006), "From IT leveraging competence to competitive advantage in
10 turbulent environments: the case of new product development", *Information Systems Research*, Vol.
11 17, No. 3, pp. 198-227.
- 12
13 Peyrot, M., Cooper, P. D. and Schnapf, D. (1992), "Consumer satisfaction and perceived quality of
14 outpatient health services", *Journal of Health Care Marketing*, Vol. 13, No. 1, pp. 24-33.
- 15
16 Raposo, M.L., Alves, H.M., and Duarte, P.A. (2009), "Dimensions of service quality and satisfaction
17 in healthcare: a patient's satisfaction index", *Service Business*, Vol. 3, No. 1, pp. 85-100.
- 18
19 Rönkkö, M., McIntosh, C. N., Antonakis, J., and Edwards, J. R. (2016), "Partial least squares path
20 modeling: Time for some serious second thoughts", *Journal of Operations Management*, Vol. 47, pp.
21 9-27.
- 22
23 Shabbir, A., Malik, S. A., & Malik, S. A. (2016). "Measuring patients' healthcare service quality perceptions,
24 satisfaction, and loyalty in public and private sector hospitals in Pakistan", *International Journal of Quality &
25 Reliability Management*, Vol. 33 No. 5, pp. 538-557.
- 26
27 Sousa, R. and Voss, C. (2012), "The impacts of e-service quality on customer behaviour in multi-
28 channel e-services", *Total Quality Management & Business Excellence*, Vol. 23 No. 7-8, pp. 789-806.
- 29
30 Sumaedi, S., Sumaedi, S., Yarmen, M., Yarmen, M., Yuda Bakti, I.G.M. and Yuda Bakti, I.G.M.
31 (2016), "Healthcare service quality model: A multi-level approach with empirical evidence from a
32 developing country", *International Journal of Productivity and Performance Management*, Vol 65,
33 No. 8, pp. 1007-1024.
- 34
35 Turan, A., and Bozaykut Buk, T. (2016). "Analyzing perceived healthcare service quality on patient
36 related outcomes", *International Journal of Quality and Service Sciences*, Vol. 8 No. 4, pp. 478-497.
- 37
38 Welch. S.J. (2010), "Twenty years of patient satisfaction research applies to the emergency
39 department: a qualitative review", *American Journal of Medical Quality*, Vol. 25, No. 1, pp. 64-72.
- 40
41 Wicks, A. M. and Chin, W. W. (2008), "Measuring the three process segments of a customer's service
42 experience for an out-patient surgery center", *International Journal of Health Care Quality Assurance*,
43 Vol. 21 No. 1, pp. 24-38.
- 44
45 Woodside, A.G., Frey, L.L. and Daly, R.T. (1989), "Linking service quality, customer satisfaction,
46 and behavioral intention", *Journal of Health Care Marketing*, Vol. 9, No. 4, pp. 5-17.
- 47
48 Yousapronpaiboon, K. and C. Johnson, W. (2013), "Measuring hospital out-patient service quality in
49 Thailand", *Leadership in Health Services*, Vol. 26 No. 4, pp. 338-355.
- 50
51 Zarei, E. (2015), "Service quality of hospital outpatient departments: patients' perspective",
52 *International Journal of Health Care Quality Assurance*, Vol. 28 No. 8, pp. 778-790.
- 53
54
55
56
57
58
59
60

1
2
3 Zeithaml, V., Berry, L., and Parasuraman, A. (1996), "The behavioral consequences of service
4 quality", *Journal of Marketing*, Vol. 60, No. 2, pp. 31-47.
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For Review Only

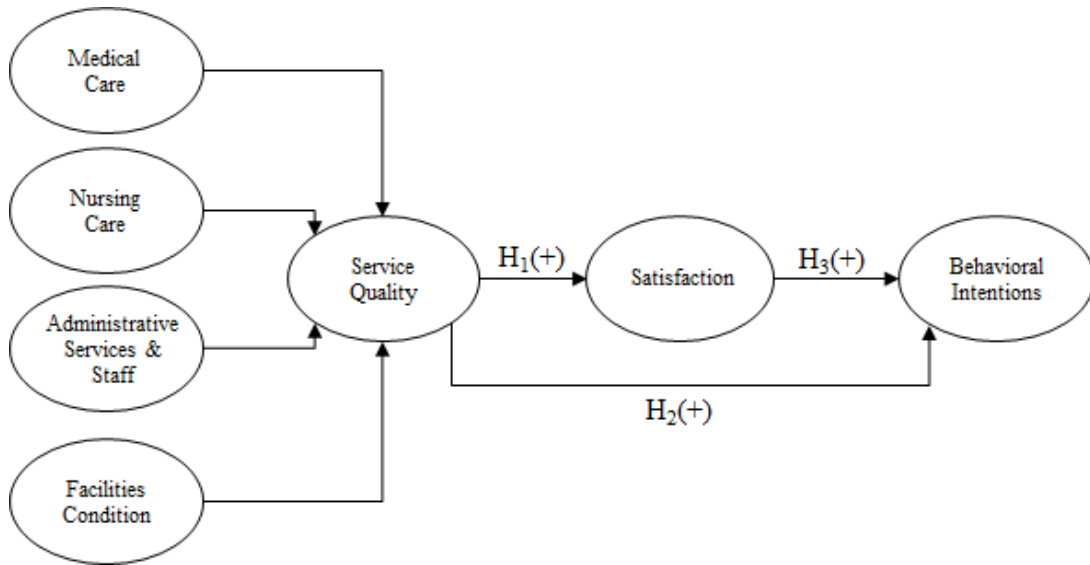
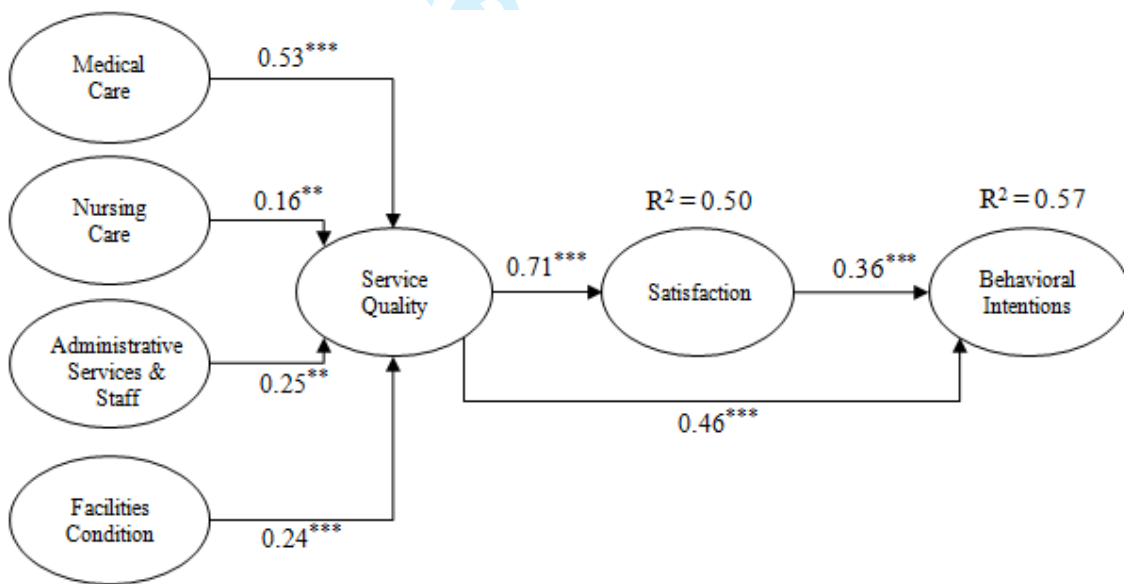


Figure 1: Proposed Model



Fit indices for structural model

χ^2	df	p-value	χ^2/df	RMSEA	SRMR	NFI	TLI	CFI
1,277.89	543	0.00	2.35	0.06	0.05	0.90	0.93	0.94

Notes: *** $p < 0.001$, ** $p < 0.05$

Figure 2: Structural Equation Model's Results

Characteristics	Responses (N = 407)	Sample distribution (%)
Gender		
Male	172	43%
Female	231	57%
Age		
18-24	56	14%
25-34	79	19%
35-44	78	19%
45-54	85	21%
55-64	55	13%
65+	54	14%
Education		
Primary	135	33%
Secondary	133	33%
University degree	111	27%
Postgraduate degree	28	7%
Marital status		
Single	144	35%
Married	222	55%
Other	41	10%
Monthly income (€)		
0-999	202	50%
1,000-1,999	147	36%
2,000+	58	14%
Last year visit frequency		
1-3	253	62%
4-10	109	27%
10+	45	11%

Table I: Sample profile

Items per construct	MV	SD	Loadings	CR	CA	AVE
Medical care				0.92	0.93	0.61
Time spend with the patient	3.69	0.88	0.77			
Accurate info about illness	3.80	0.90	0.81			
Medication instructions given	3.87	0.91	0.73			
Lifestyle instructions given	3.77	1.01	0.70			
Kindness	3.89	0.93	0.81			
Communication	3.85	0.97	0.80			
Interest	3.86	1.00	0.81			
Nursing care				0.96	0.96	0.76
Willingness to serve	3.49	0.98	0.84			
Kindness	3.48	1.03	0.84			
Communication	3.41	1.08	0.87			
Family support given	3.52	1.00	0.91			
Personal support given	3.35	1.06	0.92			
Service speed	3.34	1.04	0.81			
Interest	3.37	1.04	0.90			
Administrative services & staff				0.93	0.93	0.61
Admittance procedures	3.28	1.02	0.73			
Discharge procedures	3.42	0.95	0.75			
Staff's service speed	3.25	1.01	0.82			
Staff's behavior	3.41	0.98	0.84			
Waiting time	2.98	1.10	0.71			
Time consistency	3.17	1.09	0.82			
Staff interest	3.21	0.99	0.80			
Staff communication	3.30	0.98	0.78			
Facilities conditions				0.93	0.94	0.64
Premises cleanliness	3.46	1.10	0.81			
Toilet cleanliness	3.17	1.20	0.76			
Waiting areas' comfort	3.28	1.14	0.89			
Premises adequacy	3.31	1.12	0.89			
Room temperature	3.55	1.00	0.82			
Access for disable people	3.41	1.08	0.76			
Signing	3.67	1.08	0.77			
Operation time comfort	3.36	1.05	0.69			

Satisfaction				0.85	0.86	0.66
General satisfaction	3.59	0.84	0.79			
Happiness	3.58	0.91	0.88			
Delight	3.48	0.92	0.77			
Behavioral intentions				0.92	0.92	0.85
Revisit intentions	3.37	1.10	0.94			
Positive referrals	3.35	1.16	0.90			
Model fit measures	Value	Cut-off				
χ^2	1,264.65					
<i>df</i>	540					
<i>p</i> -value	0.00					
χ^2/df	2.34	< 3.0 or < 5.0				
RMSEA	0.06	< 0.08				
SRMR	0.05	< 0.08				
NFI	0.90	> 0.90				
TLI	0.93	> 0.90				
CFI	0.94	> 0.90				

Notes: Mean value (MV); Std. deviation (SD); Composite reliability (CR), Cronbach's alpha (CA), Average variance extracted (AVE)

Table II. Descriptive statistics of items and psychographic properties of first-order constructs

Construct	MC	NC	ASS	FC	PS	BI
Medical care (MC)	0.78					
Nursing care (NC)	0.65	0.87				
Administrative services & staff (ASS)	0.69	0.55	0.78			
Facilities conditions (FC)	0.56	0.43	0.68	0.79		
Satisfaction (PS)	0.68	0.47	0.62	0.52	0.81	
Behavioral intentions (BI)	0.64	0.56	0.60	0.57	0.68	0.92

Notes: Diagonal values in bold represent square root of AVE, and off-diagonal values are inter-construct correlations

Table III. Correlations among first-order constructs (Discriminant validity assessment)