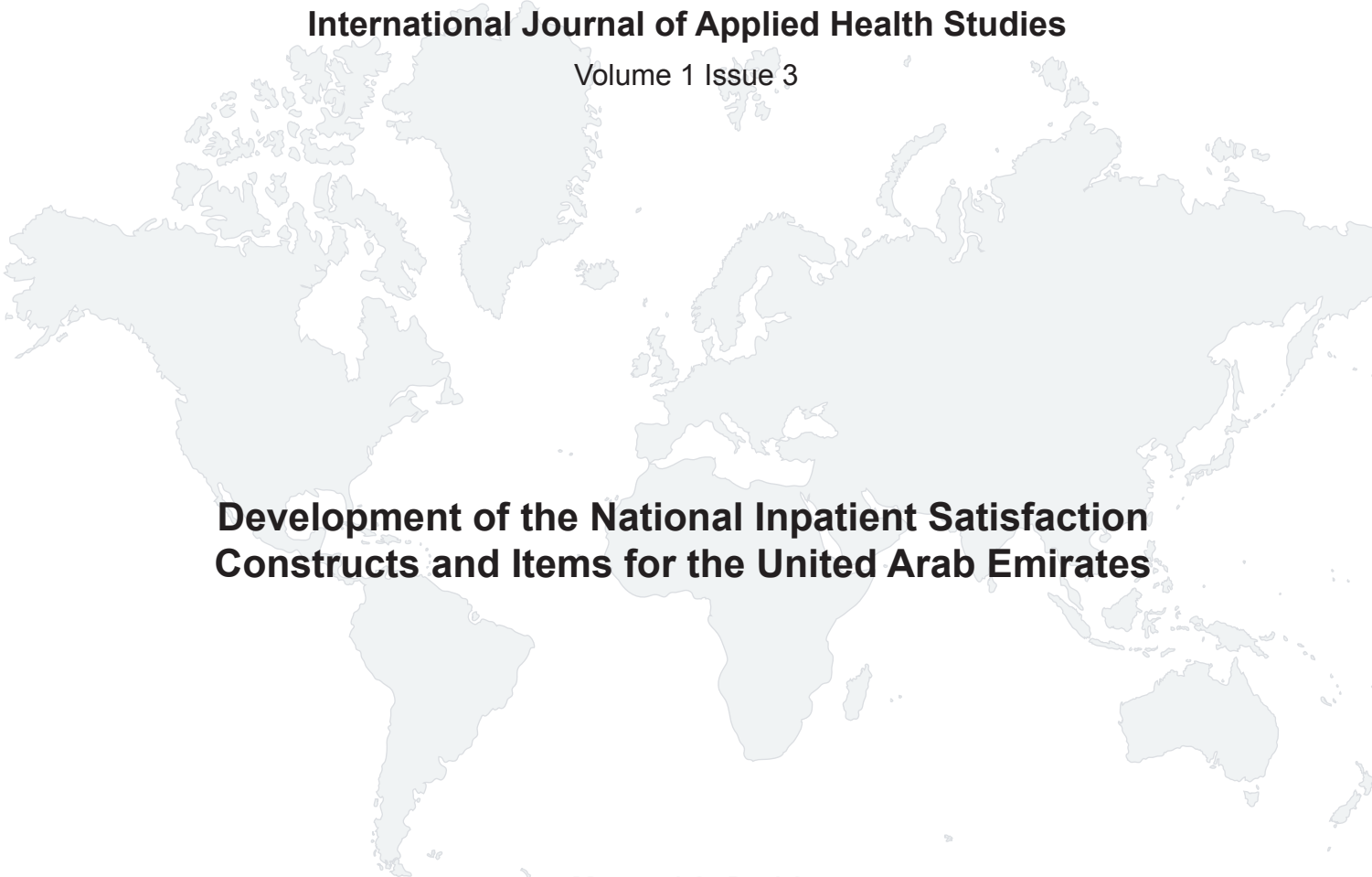


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Development of the National Inpatient Satisfaction Constructs and Items for the United Arab Emirates

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Abstract

The objective of this paper is to develop a valid, reliable and comprehensive questionnaire to measure inpatient satisfaction for healthcare institutions in a developing country such as the United Arab Emirates (UAE). Issues/items of importance to inpatients were generated by extensive literature review, non-structured interviews, panel of experts meeting and focus group seminars and discussions. Inpatients of public and private hospitals completed the 79-item instrument addressing 16 aspects of inpatient care and satisfaction. The questionnaires that used a 10-point rating scale from totally dissatisfied to totally satisfied were administered by well-trained research assistants. On average, it took 20 minutes to complete a questionnaire. A principal component analysis was performed on the items within each dimension to compute loadings and overall measure of satisfaction for each measure using the linear combination of the items. Cronbach alpha coefficients were calculated to estimate the reliability of each scale. Many statistical and traditional methods were utilized to examine the content, construct, discriminant, and face validity of the measures/ instrument. A random sample of inpatients ($n = 2729$) in hospitals in the eight major cities of UAE participated in the study. Response rate was 88%. The initial 147-item list of prescriptions of inpatient satisfaction was assigned to 16 general categories. Through several phases that included reviews by academics, panel of experts, and a focus group, the list was developed in a 79-item questionnaire. For the 16 dimensions, Cronbach alpha coefficients exceeded the minimum recommended 0.70 level. Content validity was assured by the reliance on literature to develop the instrument. Face, construct, criterion and discriminant validity were also satisfactory. It is recommended that each hospital try to modify the instrument for use in specific wards, sections, units, or functions. Although, physicians, nurses, technicians, and hospital administrators felt that the 79-item instrument contained effective indicators of inpatient satisfaction and hence care; many inpatients voiced their concern on the number of items included in the questionnaire and the time to complete it.

Key words: inpatient satisfaction, developing country, questionnaire, reliability, validity

Introduction

Patient satisfaction is an important health outcome and quality measure (Ygge and Arnetz, 2001; Jackson et al., 2001). As an indicator, it could be used effectively to compare different healthcare programs or systems (Andaleeb, 2001; Verbeek, 2004), to evaluate the quality of care (Rubin et al., 2003), to identify which aspects of a service need to be changed to improve patient satisfaction (Jackson and Kroenke, 1997), and to assist organizations in identifying consumers likely to disenroll (Weiss and Senf, 1990).

Patient satisfaction of healthcare has gained increasing attention in recent years (Labarere et al. 2001). They also point out that hospital's perspective; there are various reasons for assessing patient perception: (1) patient satisfaction is a desired outcome of care; (2) patient perception is predictive of future behavior; (3) it is related to the quality of care; (4) it is an important source of information for screening problems and developing an acceptable plan of action. .

Moller-Leimkuhler et al., (2002) contribute shortcomings in research on patient satisfaction to the theoretical conception of the construct as well as to its assessment methods. There are a great number of instruments that are not based on the perspective of all parties involved (patients, families, physicians, nurses, technical and administrative staff, etc.). In addition, most are empirically not well validated. Most measurements have been hampered by the lack of attention paid to the psychometric properties of instruments devised.

Known until 1971 as the Trucial States, the seven emirates comprising the United Arab Emirates (UAE) have enjoyed overwhelming progress in all aspects of living, especially healthcare. World Health Organization (WHO) statistics show the UAE to be in twenty-seventh place in a major analysis of national healthcare systems in 191 member countries. The parameters used in the survey included the overall health of the population, distribution of healthcare, responsiveness of the healthcare system, including patient satisfaction, opinions of people belonging to different economic strata about the system. Today, the Ministry of Health (MoH) runs 26 public hospitals (five new hospitals to be built), with a total bed capacity of 4100, of which 22 are general. Central to the government's strategy of bringing healthcare to the people are the 106 Primary Healthcare Centers (PHC) with a total staff of 2267 (ten new centers to be built). A new state-of-the-art general hospital, Al Rahba, opened in Abu Dhabi as part of the General Authority for the Health Services (GAHS) strategy to upgrade health services in the capital and its outlying areas. Currently, there are 28 private hospitals in the UAE. As part of its policy to encourage the involvement of the private sector in healthcare, the MoH has approved the construction of five new private hospitals to be built over the next two years. Scheduled for completion in 2010, but likely to be finished sooner, Dubai Healthcare City (DHCC) is a visionary enterprise which is already transforming Dubai into the healthcare hub of the region and the Middle East. A 300-bed university hospital, medical college, nursing school, a life sciences research center, 40 clinics, and specialized laboratories are to be eased into the 4.1 million square feet site of the Global Village. Key to the success of the development of DHCC is the agreement with Harvard Medical School to form a joint venture in medical education and training, quality assurance, knowledge management, research and strategic planning.

Consumer knowledge and expectations have grown proportionally with the rising wealth of the population, resulting in strong societal pressure to adopt policies that

satisfy heightened consumer expectations (Margolis et al., 2003). This study designed and developed an inpatient satisfaction questionnaire to be used in public and private hospitals in the UAE. Stringent psychometric processes will be used to establish reliability and validity.

Methods

Over the past few years, an overwhelming number of publications on the topic of patient/ inpatient satisfaction have appeared (Thi et al., 2002). Almost all studies stress the importance of patients' views as an essential tool in the processes of monitoring and improving quality of healthcare services (Branson et al., 2003). Many hospitals increasingly are adopting a patient-centered attitude (Hendriks et al., 2002). The multitudes of studies investigating patient satisfaction have used a wide range of measurement tools depending on their perspective on the definition of patient satisfaction (Qatari and Haran, 1999). As shown in Table 1, studies used a mixture of measures and with different phrases to address the process or the outcome of patient satisfaction. In this study, we believe that any design and development of an instrument for patient/ inpatient satisfaction must use most of the measures/ dimensions/ items identified in these previous studies. As a result, the initial list of items that we identified used an exhaustive list from the wealth of literature available.

Initial process of constructing measures for inpatient satisfaction

Extensive review of literature revealed some interesting dimensions and variables of patient satisfaction. One hundred and forty seven items (prescriptions) for effective assessment of inpatient satisfaction with healthcare services were generated from literature. Through a judgmental process of grouping similar items, it was found that all could be classified into sixteen separate categories. Each of these categories (or dimensions) is supported by literature and is defined as important aspects of inpatient satisfaction.

The process of identifying the sixteen dimensions utilized judgments from the authors and a group of healthcare professionals. After gathering the 147 inpatient satisfaction prescriptions from the literature, these individuals grouped them into sixteen categories which were used to guide development of individual items. This process resulted in an instrument strongly grounded in the literature.

While the proposed dimensions are literature-based, they can be validated by empirical research. We demonstrate in this paper that reliability and validity are quite high for an instrument (based on these dimensions) that is intended to measure the extent of effective inpatient satisfaction in a healthcare unit or service. While it is certainly true that other sets of dimensions could be developed or that particular factors could be defined differently, this set appears to capture most of the important aspects of effective inpatient satisfaction as proposed by today's leading practitioners and researchers. Empirical research over time will ultimately determine the validity of this set of critical dimensions.

Questionnaire design and development

The initial process, literature review and identification of dimensions of inpatient satisfaction, have been discussed above. Using the 147 inpatient satisfaction prescriptions found in the literature, we developed several representative measurement items for each dimension. These items define the scope and meaning of each dimension.

Content validity concerns the extent to which content of the instrument is “appropriate and relative to the survey’s use and uses the judgments of experts and lay groups” [Conner and Nelson, 1999]. An instrument has content validity if researchers agree that the instrument is made up of a group of items covering the issues to be measured, i.e. that it represents a specific thematic universe.

To establish content validity, the items for each dimension were critically and extensively reviewed first by professors and senior students at the United Arab Emirates University. After eliminating and/or reclassifying certain items, the remaining items were subjected to a formal pretest involving a panel of experts. The panel included 5 academics, 2 physicians, 2 medical consultant, 2 nurses, 1 administrator, 1 technical personnel, 2 current inpatients, and 2 previous inpatients. During pretest interviews, some members commented on the appropriateness of the items, critiqued their ease of comprehension, and suggested changes to improve their wording. As a result, questions which were confusing, ambiguous or gave skewed responses were removed or rewritten. Following the pretest, 97 measurement items retained.

Five patients with recent experience of being hospitalized were selected for further focus group participation. The focus group also included 5 physicians, and 4 nurses. The discussion led by a facilitator (principal author) was directed at eliciting the patients’ reactions to various variables. Feedback from the focus group modified the instrument to include 87 variables only (see the Appendix). The instrument assessed sixteen dimensions of inpatient satisfaction with healthcare in the UAE. The aspects included *transition to home, communication, involvement, courtesy and empathy, fairness and trust, competency and confidence, information, tangibles and physical attributes, other facilities and services, payment matters, management rules and regulations, timely matters, waiting times and delays, responsiveness and psychological aspects, availability and accessibility, and outcome and overall assessment*.

To enable inpatients to indicate the degree or extent of their satisfaction with healthcare units or services, a 10-point rating scale was used (1 indicating total dissatisfaction, while 10 indicating total satisfaction). An Arabic and English version of a questionnaire was also developed.

Face validity was assessed by sending copies of the questionnaire (76 items) to 42 medical consultants (in some hospitals, called advisors) asking for their views on the usefulness of the instrument. This measure of validity is the least technical and is defined by whether a “measure looks like it is measuring what it is supposed to measure” [Morely and Snaith, 1992].

Construct validity refers to the “extent to which a particular measure relates to other measures consistent with theoretically derived hypotheses concerning the concepts (or constructs) that are being measured” [Carmines and Zeller, 1979]. Independence of dimensions in this study was evaluated by correlation analysis. Correlation

analysis was also used to examine correlations of all items to all dimensions, in order to ensure that correlations of items to other dimensions were lower than correlation of items within dimensions. Construct validity is also calculated through a factor analysis of each of the already established factors. In this analysis, each factor must be one-dimensional (Claver et al., 2003).

Criterion-related validity is usually measured through the correlation coefficient with other measures, in such a way that it is useful to measure present or future behavior. The criterion-related validity will be assessed by computing the correlation of the dimensions and the dimension (and hence, items) related to overall satisfaction. We will run a multiple regression model where we let the 16th dimension, *overall satisfaction*, be the dependent variable; and all other 15 dimensions are independent variables.

Participants and data collection

The survey was carried out on a random sample of 3100 inpatients discharged from or still inpatients in the various hospitals in the UAE. A team of research assistants carried out the distribution of the questionnaire and explained the purpose of the study to participants. They were present at all times when the participants were filling out the questionnaires. They only explained any question that needed clarification. Participants completed the anonymous questionnaire and returned it to the assistants in a sealed envelope. A total of 2729 usable questionnaires were returned (total distributed was 3100). Eligible participants were medical, surgical, and obstetrics inpatients who had stayed in the hospital for more than 24 hours. On average, each questionnaire took 20 minutes to complete.

Reliability and validity

Cronbach's alpha coefficient was used to measure the internal consistency of multidimensional scales. This is the most widely used reliability estimate in empirical research (Peterson, 1994). In this respect, the minimum advisable level is 0.70 (Nunnally, 1994); although it may be reduced to 0.60 in exploratory research (Hair et al., 1995) or even to 0.55 (Van de Ven and Ferry, 1979).

Content validity methods were already discussed earlier. Construct validity refers to the "extent to which a particular measure relates to other measures consistent with theoretically derived hypotheses concerning the concepts (or constructs) that are being measured" [Carmines and Zeller, 1979]. Independence of dimensions in this study was evaluated by correlation analysis. Correlation analysis was also used to examine correlations of all items to all dimensions, in order to ensure that correlations of items to other dimensions were lower than correlation of items within dimensions. A method developed by Nunnally (1994) was used to evaluate the assignment of items to scales. Construct validity is also calculated through a factor analysis of each of the already established factors. In this analysis, each factor must be one-dimensional (Claver et al., 2003).

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Measurements and Data analysis

Principal component analysis will be used to compute loadings for items within each dimension. Because of the length of the instrument, two models will be identified. The first model will be longer and will contain items with loadings larger than 0.60; while the second model will comprise only items with loadings above 0.70. A shorter version of the questionnaire will also be justified and presented. Confirmatory factor analysis (CFA) will be used to assess the overall fit of each model.

Results

Sample characteristics

The sample consisted of 2,729 current or discharged inpatients from hospitals in the UAE. Table 2 shows the characteristics of the participants. Respondents were 62.8% male and 37.2% female, with a mean age of 26.7 years (below 20 years, 24.8%; from 20 to 25 years, 38.5%; from 25 to 30 years, 14.9%; and above 30 years, 21.8%; and median of 23 years). For those discharged respondents, they were hospitalized for an average of 8.17 days (median 4 days). Educational level varied from less than secondary school (12.7%), secondary school (33.3%), university (51.1%), to graduate school (2.8%). Public hospitals constituted 79.3% of the samples. This is normal since most residents of the UAE, regardless of nationality are advised to have some sort of a health card, government or private. It is seen that 72.1% of the respondents have a government health card, while only 23.2% possess medical insurance coverage. Citizens of the UAE constituted 66.1%, while other nationalities constituted about 33.9% of the samples.

Internal consistency reliability and Validity

The alpha coefficients for each of the dimensions are provided in the Appendix which displays all 87 items. The analysis revealed that maximization of the alpha coefficient would require elimination of up to 9 items in total. The Appendix reports the original sets of measurement items associated with the sixteen factors, the items dropped from the original sets to achieve maximization of alpha, the reliability and percent variance explained associated with the resulting scales.

The reliability estimates are between 0.710 (payment matters) and 0.904 (outcome and overall assessment). Total reliability for the 79 items remaining in the analysis is 0.971 (total reliability for all 87 items is 0.961). The Guttman Split-half reliability

coefficient for the 79 items is 0.917. Accordingly, the scales (measures) developed here were judged to be reliable.

For construct and discriminant validity purposes, Nunnally (1994) developed a method to evaluate the assignment of items to scales. The method considers the correlation of each item with each scale. Specifically, the item-score to scale-score correlations were used to determine if an item belongs to the scale as assigned, belongs to some other scale, or if it should be eliminated. If an item does not correlate highly with any of the scales, it is eliminated.

After eliminating the items indicated in the Appendix, the remaining items were evaluated using Nunnally's method. Table 3 shows the correlation matrix for the sixteen scales or measures of the inpatient satisfaction dimensions. For example, the first item (item 31) has correlations of 0.62, 0.34, 0.42, 0.40, -0.06, 0.46, 0.52, 0.34, 0.41, 0.40, 0.42, -0.06, 0.42, 0.32, 0.37, and 0.21 with the sixteen scales of inpatient satisfaction. Since scale 1 (transition to home) is a linear combination of 7 items (items 31, 46, 47, 48, 49, 56, and 64), the highest correlation between scale 1 and item 31 was expected. In addition, since item 31 showed relatively smaller correlations with the other scales, it was concluded that it had been assigned appropriately to scale 1. All other items were similarly examined. As seen from the table, all items have high correlations with the scales to which they were assigned relative to all other scales. Accordingly, it was concluded that all items had been appropriately assigned to scales. Since the detailed item analysis results were satisfactory on the first iteration, the items (without asterisk) reported in Table 3 are the final scale items.

For face validity purposes, 38 out of 42 medical consultants (90.4%) responded. Thirty-six consultants (94.7%) felt that the questionnaire was a useful measure of inpatients' satisfaction with healthcare. All 42 consultants thought that all areas covered on the questionnaire were important; however, four (10.5%) felt that some items could be omitted, and only one consultant thought that further questions should be added.

The correlation of each of the first 15 dimensions with the 7 items comprising the 16th dimension which deals with overall satisfaction is shown in Table 4. The table also reports the level of significance of these correlations. All dimensions correlate highly with all 7 items. In addition, all 7 items correlate more highly with the scale they belong to (scale number 16).

We performed a multiple regression analysis by letting factor sixteen, *overall satisfaction*, be the dependent variable. The other 15 factors were treated as independent variables. The resulting R-square was 0.750, and the Adjusted R-square was 0.748 with a standard error of the estimate of 0.84599. The coefficients of the multiple regression model show that the factors dealing with *involvement*, *communication*, and *courtesy and empathy* contribute most to overall involvement based on their t-values and significant levels. Complete results are shown in Table 5.

Content validity was established through literature searches and examination of the instrument by panel of experts in academia and healthcare; and by a focus group. A focus group of 14 members assessed the content validity of the instrument. At the end of the focus group meeting, the participating members were asked to rate the relevance of all 87 items, independently of each other, on a 10-point scale (1, not relevant at all; and 10, very relevant). Table 6 shows the percent of items in each of the dimensions that received a relevancy score of 9 or above. In total, 79 (90.8%) items were assessed as quite relevant or very relevant, by all participants.

To further assess validity of the subscales, each of the 16 factors were further factor analyzed [Andaleeb, 2001]. In each case, only one factor emerged, lending support to their validity. The percent variance explained by each single factor is given in the Appendix. We note that the factor related to *responsiveness and psychological aspects* provided the highest explained variance (87.541% of the variance explained); while the factor associated with *timely matters* provided the least explanation (51.615% of variance explained).

Total measurement model (confirmatory factor analysis)

When we apply principal component analysis and attain items with loadings above 0.60, we get an instrument with 16 dimensions and 79 items (Model I). When we further delete items with loadings below 0.70, we identify the same 16 dimensions, but with 64 items (Model II). Results of the CFA of the two sixteen-factor measurement models for the indicators are given in Table 7.

For both models, we used CFA to test the null hypothesis that inpatient satisfaction is a sixteen-factor structure (but with different number of variables or items). Table (7) shows the results of the analysis using LISREL. The computed values of Chi-square are 5274 ($p < 0.1372$) and 3610 ($p < 0.1442$) for Model I and II respectively. We also note that the resulted Chi-squares are large in both models. Joreskog (1970) proposed that the normed-chi square to be computed by adjusting the chi-square by the degrees of freedom to assess model fit for various models. The normed Chi-square values are 1.729 and 1.82 for Model I and II respectively. The values for both models fall well within the acceptable range of 1.0 and 2.0. These results suggest that the fit of the data to the hypothesized two models is adequate.

The GFI for both models is also given in Table (7). Both scores provide indexes below the cut-off of 0.80 (0.7338 and 0.7492, respectively). Values for the RMSR (0.0452 and 0.481 respectively) for both models are below the cut off of 0.05, and hence, encouraging. In summary, the various measures of overall model goodness-of-fit lend adequate support to deeming the results an acceptable representation of the hypothesized constructs for both models.

Further items reduction

Since many participants recommended shortening the questionnaire, it was necessary to use more rigorous statistical procedure to reduce the number of items depending on the structure of each of the constructs. Some authors recommended that we could provide a better assessment of the composite reliability of the status index by using confirmatory factor analysis (CFA) (Lattin et al., 2003, pp. 187-190). Hence, we used a one-factor model CFA for each of the dimensions proposed earlier. We depended on the chi-square coefficient and its level of significance to enhance each dimension (or reduce the number of items within each dimension). Results are provided in Table 8. We first note that to identify values for the chi-square and RMSEA, we need at least four items in each dimension to guarantee the minimum number of degrees of freedom. The main criteria we used depended on reducing the value of RMSEA to be at most 0.050.

For example, the first dimension is reduced from 7 items to 4 items, where RMSEA is improved from 0.121 to 0.049. The 2nd, 10th, and 14th dimensions were unchanged since the number of items in each did not reach the threshold of 4 items. Some dimensions were not changed since the value of RMSEA was already at an acceptable level. For each dimension, Table 8 shows the associated number of items, chi-squares and the RMSEA for the initial model, and the modified one. In total, the number of items is reduced from 79 to 60 items. For example, for the 7th dimension, the number of items was reduced from to 3, alpha was improved from 0.756 to 0.799. In the Appendix, the items that were recommended for removal are identified by double asterisks.

Discussion

To our knowledge, the instrument developed in this paper is the first to measure inpatient satisfaction in healthcare institution in the UAE. It has acceptable reliability and validity. The questionnaire has satisfactory internal reliability with Cronbach's alpha coefficient above the 0.70 limit for all dimensions. We used extensive statistical approaches to ensure validity of the instrument and scales developed.

Correlation analysis, a method suggested by Nunnally (1994) revealed that the sixteen dimensions represented independent measurement areas of inpatient satisfaction. However, some reported correlation coefficients of items with other dimensions exceeded 0.60, which might need further refinements in future studies (for example item 64 with the 3rd and 13th scale; item 56 with the 15th scale; item 38 with the 4th, 6th and 16th scales, etc.).

Multiple regression analysis of 15 dimensions with the dimension associated with overall satisfaction revealed that the 15 factors are important predictors of overall satisfaction. The computed adjusted r-square was 0.748 for the analysis. The regression analysis model used data that represented the linear combinations of items for each of the dimensions of inpatient satisfaction. For the overall model fit, the various measures of overall model goodness-of-fit lend adequate support to deeming the results an acceptable representation of the hypothesized constructs for both models (79-item model and 64-item model).

Conclusion

The value of measuring inpatient satisfaction is increasingly important and essential as hospitals in the UAE are required by the public and private sector to document quality improvement measures. The development of the UAE national inpatient satisfaction instrument is the first system-wide assessment study. The study was launched in late 2003 and included all public and private hospitals in the country. The national scope enabled hospital peer group comparison (to be reported as a second part of this paper). Future work should focus on various areas and units of hospital care, and to be conducted regularly for the purpose of continuous improvements.

Our study supports many previous researches that revealed that patient/inpatient satisfaction is multi-factor with many different determinants.

In summary, the study provides three instrument versions to be used by the hospitals. They have a choice between the long version (79 items), (64 items) and the shorter version (60 items).

Additional research is needed, however, to replicate and refine the model. Over time, and with further validation, with the identification of additional variables (such as quality of physician and other staffs' work environment and confidence in the country's medical systems), or with the deletion of some other variables, it should be possible to introduce inpatient-driven quality standards to enable service providers to better address patients' needs.

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Tables

Table 1: Literature reviews of dimensions/ measures/ items of patient satisfaction

Dimensions/wording	References
Quality of communication/clarity of information/ interaction/ encounter/ procedures/ interpersonal skills/ joining the decision-making process/ active involvement/ clear explanations/ health education/ patient's need to know	Leonard et al., 2001; Andaleeb, 1998; Desombre and Eccles, 1998; Carman, 2000; Winsted, 2000; Tucker, 2002; Zabada et al., 2001; Jackson et al., 2001; Leimkuhler, 2002; Barker and Orrell, 1999; Nathorst-Boos et al., 2001; Hendriks et al., 2002; Hendriks et al., 2004; Margolis et al., 2003; Labarere et al., 2001; Hiidenhovi et al., 2002; Meehan et al., 2002; Jaipaul and Rosenthal, 2003; Edwards et al., 2004; McDonald et al., 2000; O'Connell et al., 1999; Johansson et al., 2002; Wills and Rovner, 2002; Wensing et al., 2002; Steine et al., 2001; Ygge and Arnetz, 2001; Baron-Epel et al., 2001; Kersnik, 2000; Qatari and Haran, 1999; Saloman et al., 1999; Sweeney et al., 2003.
Accessibility and availability of care/flexibility/responsiveness /waiting time/ care organization	McKinnon et al., 1998; Valdivia and Crowe, 1997; Desombre and Eccles, 1998; Tucker, 2002; Zabada et al., 2001; Bredart et a., 2001; Margolis et al., 2003; Labarere et al., 2001; Gurdal et al., 2000; Hendriks et al., 2002; McDonald et al., 2000; Ygge and Arnetz, 2001; Qatari and Haran, 1999; Saloman et al., 1999; Sweeney et al., 2003; Draper et al., 2001.
Availability and convenience of physical setting/ appearance/ comfort/ cleanliness	McKinnon et al., 1998; Desombre and Eccles, 1998; Tucker, 2002; Zabada et al., 2001; Bredart et al., 2001; Olusina et al., 2002; Labarere et al., 2001; Qatari and Haran, 1999; Moen, 2001; Gurdal et al., 2000; Meehan et al., 2002; Ygge and Arnetz, 2001; Draper et al., 2001; Cheng et al., 2003; Hendriks et al., 2004.
Technical quality of care	McKinnon et al., 1998; Desombre and Eccles, 1998; Brendart et al., 2003; Tucker, 2002; Zabada et al., 2001; Bredart et al., 2001; Labarere et al., 2001; Meehan et al., 2002; Edwards et al., 2004; Johansson et al., 2002; Hendriks et al., 2002; Hendriks et al., 2004; Draper et al., 2001; Nathorst-Boos et al., 2001; Cheng et al., 2003.
Personal aspects of care/ friendliness/ courtesy/ interpersonal manner/ relationship/ attention/ sympathetic/ humaneness/ emotions	McKinnon et al., 1998; Desombre and Eccles, 1998; Zabada et al., 2001; Meehan et al., 2002; Olusina et al., 2002; Choi et al., 2004; Hendriks et al., 2004; Margolis et al., 2003; Hiidenhovi et al., 2002; Labarere et al., 2001; Edwards et al., 2004; McDonald et al., 2000; Qatari and Haran, 1999; Steine et al., 2001; O'Connell et al., 1999; Nathorst-Boos et al., 2001; Kersnik, 2000; Johansson et al., 2002; Ygge and Arnetz, 2001; Saloman et al., 1999; Westaway et al., 2003; Cheng et al., 2003.
Competence of service provider/ physician care/ Knowledge	Andaleeb, 1998; Desombre and Eccles, 1998; Zabada et al., 2001; Margolis et al., 2003; Labarere et al., 2001; Gurdal et al., 2000; Hiidenhovi et al., 2002; Jaipaul and Rosenthal, 2003; Edwards et al., 2004; Johansson et al., 2002; Nathorst-Boos et al., 2001; Brendart et al., 2003; Draper et al., 2001.
Quality of facilities (as a general phrase)	Andaleeb, 1998; Desombre and Eccles, 1998; Zabada et al., 2001; Hendriks et al., 2004.
Treatment costs/ finances and cost	Andaleeb, 1998; Zabada et al., 2001; Gurdal et al., 2000.
Nursing care	Carman, 2000; Zabada et al., 2001; Labarere et al., 2001; Jaipaul and Rosenthal, 2003; O'Connell et al., 1999; Johansson et al., 2002; Gilleard and Reed, 1998; Hendriks et al., 2004; Brendart et al., 2003; Hendriks et al., 2002; Walsh and Walsh, 1999; Merkouris et al., 2003.
Outcome of care/effectiveness	Tucker, 2002; Amyx and Bristow, 2001; Amyx et al., 2000; Zabada et al., 2001; Jackson et al., 2001; Margolis et al., 2003; Qatari and Haran, 1999; Steine et al., 2001; Tokunaga and Imanaka, 2002; Cheng et al., 2003.
Transition to home/ continuity/ discharge instruction/ recovery/ aftercare	Tucker, 2002; Zabada et al., 2001; Jaipaul and Rosenthal, 2003; Cheng et al., 2003; Hendriks et al., 2002.
General satisfaction/ billing/ discharge	Zabada et al., 2001; Tangcharoensathien et al., 1999.
Overall satisfaction/ overall quality/ recommendation to others/ intention to return and coming back/ global satisfaction	Barker and Orrell, 1999; Margolis et al., 2003; Hiidenhovi et al., 2002; Jaipaul and Rosenthal, 2003; McDonald et al., 2000; O'Connell et al., 1999; Brendart et al., 2003; Tokunaga and Imanaka, 2002; Mangelsdorff et al., 2003; Baron-Epel et al., 2001; Kersnik, 2000.

Table 2: Study sample characteristics

Type of hospital		Academic Degree	
Public	2165	Below HS Diploma	346
Private	474	HS Diploma	905
Local	90	University Diploma	1390
Gender		Graduate Degree	
Male	1714	Emirate or city	
Female	1015	Abu Dhabi	620
Nationality		Dubai	402
UAE	1805	Sharjah	261
Other	924	Ajman	107
Marital status		RAK	278
Single	1647	Al Fujairah	115
Married	1008	Umm Al Quwain	16
Other	74	A Ain	920
Monthly income		Have Gov. health card?	
<3,000 DH	1041	Yes	1970
3,000-5,000 DH	639	NO	751
5,001-10,000 DH		Have Med. Insurance?	
>10,000 DH	298	Yes	629
		No	2088

Table 3: Item to scale correlation matrix for the dimensions of inpatient satisfaction

Factor	Item	Scales (factors or dimensions)															
		F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
F1	31	.62	.34	.42	.40	-.06	.46	.52	.34	.41	.40	.42	-.06	.42	.32	.37	.21
	46	.77	.44	.58	.54	-.08	.52	.52	.50	.44	.32	.50	-.06	.52	.43	.51	.51
	47	.78	.47	.56	.53	-.06	.54	.50	.49	.43	.32	.52	-.02	.53	.47	.51	.49
	48	.76	.39	.53	.45	-.07	.46	.48	.43	.42	.29	.45	-.02	.46	.42	.50	.44
	49	.76	.48	.56	.52	-.02	.49	.49	.49	.44	.34	.55	.021	.52	.47	.50	.47
	56	.73	.55	.60	.60	-.09	.58	.57	.55	.49	.36	.56	-.04	.60	.53	.62	.53
64	.72	.53	.62	.59	-.10	.57	.55	.56	.47	.38	.56	-.03	.61	.52	.58	.52	
F2	38	.53	.70	.54	.62	-.17	.65	.55	.54	.51	.32	.57	-.10	.60	.45	.56	.62
	40	.56	.75	.58	.67	-.10	.60	.52	.60	.50	.37	.62	-.07	.63	.52	.56	.60
	41	.54	.70	.58	.63	-.13	.58	.51	.61	.49	.38	.62	-.07	.59	.51	.56	.57
F3	11	.50	.42	.68	.47	-.09	.51	.54	.46	.43	.26	.46	-.00	.51	.40	.49	.53
	45	.49	.36	.61	.39	.01	.39	.39	.35	.36	.30	.38	.04	.39	.35	.45	.40
	65	.62	.49	.76	.61	-.06	.51	.52	.53	.42	.32	.53	-.00	.54	.50	.50	.49
	76	.56	.51	.79	.62	-.09	.59	.56	.57	.48	.36	.64	-.04	.59	.56	.58	.54
	77	.57	.53	.80	.61	-.08	.57	.58	.56	.48	.35	.60	-.05	.60	.64	.57	.53
F4	23	.53	.50	.54	.72	-.17	.65	.55	.54	.51	.32	.57	-.10	.60	.45	.56	.62
	42	.56	.65	.58	.78	-.10	.60	.52	.60	.50	.37	.62	-.07	.63	.52	.56	.60
	52	.54	.50	.58	.79	-.13	.58	.51	.61	.49	.38	.66	-.07	.59	.51	.56	.57
	66	.56	.56	.63	.81	-.12	.57	.52	.60	.46	.37	.62	-.03	.60	.55	.54	.51
	67	.53	.51	.56	.78	-.08	.55	.50	.64	.46	.34	.58	-.05	.55	.51	.52	.51
	F5	14	.10	-.05	-.08	-.14	.72	-.20	-.10	-.10	-.06	-.02	-.09	.36	-.12	-.07	-.09
15		-.08	-.07	-.06	-.12	.73	-.17	-.08	-.08	-.05	-.02	-.08	.35	-.11	-.06	-.08	-.16
16		-.09	-.06	-.10	-.15	.75	-.18	-.13	-.13	-.10	-.06	-.12	.28	-.15	-.10	-.14	-.21
20		-.00	.03	.01	-.03	.69	-.06	-.00	-.00	-.01	.02	-.02	.27	-.02	.00	-.04	-.09
F6	17	.50	.44	.53	.55	-.11	.75	.49	.50	.47	.32	.51	-.03	.54	.45	.52	.61
	27	.56	.49	.57	.62	-.20	.87	.56	.55	.52	.32	.57	-.10	.61	.50	.60	.68
	28	.54	.50	.54	.61	-.18	.84	.53	.53	.51	.31	.55	-.08	.59	.50	.56	.64
	32	.59	.47	.56	.58	-.18	.76	.56	.53	.49	.31	.54	-.12	.59	.46	.58	.65
	69	.57	.49	.59	.63	-.15	.72	.56	.66	.51	.39	.59	-.06	.61	.54	.59	.60
F7	1	.46	.44	.47	.48	-.08	.48	.64	.41	.45	.28	.43	-.03	.48	.40	.44	.51
	10	.53	.47	.56	.54	-.15	.60	.71	.55	.53	.33	.52	-.08	.58	.43	.55	.62
	86	.53	.43	.56	.52	-.09	.52	.83	.48	.50	.36	.52	-.04	.55	.46	.59	.50
	87	.56	.44	.57	.51	-.04	.50	.83	.48	.47	.34	.50	-.02	.52	.45	.54	.49
F8	12	.46	.45	.50	.56	-.08	.53	.47	.71	.50	.32	.55	-.03	.57	.41	.44	.57
	53	.51	.49	.51	.65	-.08	.53	.46	.76	.50	.35	.60	-.05	.58	.47	.50	.52
	57	.51	.52	.55	.63	-.10	.57	.48	.71	.47	.36	.61	-.02	.59	.51	.49	.54
	58	.50	.40	.47	.52	-.09	.48	.45	.68	.50	.32	.52	-.04	.53	.39	.49	.49
	60	.47	.44	.50	.54	-.06	.51	.45	.76	.48	.29	.55	-.03	.53	.42	.47	.52
	61	.51	.48	.52	.58	-.07	.56	.50	.80	.50	.33	.57	-.02	.58	.46	.54	.55
	62	.51	.42	.49	.55	-.09	.51	.49	.77	.52	.34	.53	-.03	.56	.43	.53	.51
	68	.50	.45	.53	.62	-.08	.53	.50	.77	.51	.34	.59	-.04	.56	.46	.52	.55
	70	.47	.45	.49	.59	-.10	.51	.43	.75	.48	.33	.56	-.04	.54	.46	.47	.50
	F9	2	.30	.30	.34	.35	-.02	.37	.34	.40	.66	.22	.37	.01	.37	.26	.35
8		.44	.43	.45	.50	-.08	.49	.46	.53	.73	.28	.48	-.05	.50	.36	.46	.57
25		.38	.35	.40	.45	-.10	.47	.38	.46	.68	.30	.44	-.05	.44	.33	.43	.47
85		.46	.28	.41	.36	-.00	.36	.53	.35	.58	.29	.34	.01	.42	.35	.52	.36
F10	80	.38	.33	.40	.39	-.02	.38	.39	.39	.36	.76	.40	-.00	.40	.42	.39	.34
	81	.29	.26	.28	.29	.00	.27	.30	.28	.28	.80	.29	.05	.30	.31	.29	.24
	82	.36	.37	.36	.41	-.05	.34	.35	.38	.35	.81	.40	.03	.43	.35	.38	.33
F11	22	.46	.46	.47	.59	-.14	.55	.48	.52	.46	.33	.64	-.05	.56	.43	.48	.55
	50	.56	.52	.56	.64	-.09	.55	.49	.57	.44	.35	.77	-.02	.60	.52	.50	.52
	51	.57	.51	.56	.67	-.10	.57	.50	.59	.46	.35	.77	-.04	.60	.49	.53	.54
	71	.38	.35	.42	.44	-.04	.39	.39	.50	.40	.30	.60	-.01	.43	.38	.47	.38
	74	.51	.48	.54	.55	-.07	.50	.50	.56	.48	.34	.76	-.01	.55	.47	.55	.47
	75	.45	.43	.55	.51	-.06	.46	.46	.52	.43	.31	.75	-.01	.49	.46	.48	.43
F12	3	.06	.07	.08	.04	.25	.03	.05	.05	.08	.10	.07	.66	.03	.07	.04	-.00
	4	-.03	-.00	-.02	-.05	.31	-.08	-.04	-.03	-.02	.01	-.03	.79	-.07	-.03	-.03	-.12
	5	-.10	-.04	-.06	-.12	.32	-.13	-.10	-.07	-.07	-.02	-.06	.78	-.10	-.05	-.10	-.15
	33	-.03	-.01	-.04	-.11	.35	-.11	-.06	-.08	-.06	.02	-.05	.61	-.09	-.05	-.06	-.16
F13	13	.47	.45	.49	.56	-.13	.55	.47	.53	.46	.29	.53	-.12	.71	.44	.48	.55
	34	.52	.46	.52	.52	-.10	.53	.50	.49	.42	.30	.50	-.04	.71	.42	.50	.52
	39	.43	.56	.45	.52	-.08	.50	.44	.47	.40	.28	.50	-.03	.66	.39	.44	.49
	63	.58	.50	.60	.63	-.13	.59	.55	.67	.49	.39	.62	-.07	.77	.53	.57	.59
	83	.46	.38	.45	.44	-.04	.44	.49	.43	.48	.40	.43	-.01	.62	.38	.57	.42
F14	78	.58	.53	.66	.63	-.08	.60	.54	.57	.46	.41	-.02	.60	.93	.55	.54	
	79	.57	.52	.61	.61	-.07	.56	.53	.54	.45	.43	.58	-.02	.57	.93	.54	.49
F15	43	.58	.52	.57	.60	-.15	.63	.56	.55	.51	.33	.56	-.07	.60	.46	.71	.62
	54	.56	.41	.55	.54	-.10	.56	.52	.49	.48	.32	.51	-.04	.55	.43	.80	.53
	55	.46	.34	.45	.41	-.06	.45	.44	.37	.44	.29	.39	-.01	.45	.34	.74	.44
	72	.50	.41	.50	.51	-.06	.49	.48	.51	.46	.30	.53	-.01	.51	.43	.71	.47
	73	.51	.45	.56	.54	-.08	.54	.51	.52	.47	.33	.58	-.02	.56	.46	.75	.53
	84	.54	.46	.54	.55	-.09	.54	.59	.51	.54	.40	.52	-.06	.61	.48	.70	.51
F16	6	.47	.43	.48	.52	-.12	.56	.50	.55	.50	.28	.49	-.07	.52	.39	.48	.75
	7	.52	.48	.56	.59	-.19	.68	.58	.59	.57	.35	.55	-.13	.61	.47	.55	.83
	9	.46	.41	.50	.49	-.20	.61	.57	.50	.54	.26	.47	-.14	.54	.37	.51	.79
	30	.53	.47	.54	.59	-.16	.62	.54	.52	.51	.29	.52	-.12	.56	.43	.56	.70
	36	.56	.53	.56	.60	-.21	.67	.55	.58	.53	.32	.54	-.12	.62	.47	.57	.85
	37	.53	.50	.55	.59	-.20	.66	.57	.57	.54	.30	.54	-.13	.61	.43	.57	.85
	44	.60	.54	.64	.66	-.20	.67	.61	.62	.57	.35	.62	-.13	.66	.51	.66	.81

Table 4: Correlation coefficients for dimensions and items of overall satisfaction

	V6	V7	V9	V30	V36	V37	V44
F1	.475**	.527**	.468**	.538**	.560**	.533**	.606**
F2	.437**	.485**	.412**	.472**	.531**	.506**	.546**
F3	.488**	.566**	.505**	.546**	.568**	.558**	.643**
F4	.520**	.597**	.496**	.597**	.607**	.590**	.666**
F5	-.120*	-.199**	-.201**	-.161*	-.210**	-.205**	-.205**
F6	.569**	.682**	.611**	.628**	.675**	.665**	.716**
F7	.508**	.588**	.572**	.543**	.552**	.571**	.615**
F8	.555**	.594**	.508**	.520**	.589**	.573**	.628**
F9	.504**	.575**	.545**	.511**	.538**	.543**	.572**
F10	.281**	.358**	.267**	.293**	.321**	.301**	.358**
F11	.499**	.553**	.474**	.525**	.548**	.540**	.621**
F12	-.071*	-.132*	-.148*	-.121*	-.122*	-.138*	-.131*
F13	.526**	.614**	.542**	.569**	.625**	.614**	.668**
F14	.399**	.470**	.379**	.439**	.473**	.433**	.514**
F15	.480**	.552**	.519**	.563**	.573**	.570**	.664**
F16	.749**	.834**	.790**	.700**	.840**	.849**	.807**

* Significant at the 0.05 level

** Significant at the 0.01 level

Table 5: Multiple regression results (F16 is the dependent variable)

Model	B	Standard error	t-value
Constant	0.124	0.0924	1.337
F1: Transition to home	-0.0166	0.0203	-0.817
F2: Communication	0.0506	0.0148	3.425
F3: Involvement	0.0945	0.0233	4.059
F4: Courtesy and empathy	0.0275	0.0244	1.128
F5: Fairness and trust	-0.0613	0.0115	-5.347
F6: Competency and confidence	0.0199	0.0199	22.270
F7: Information	0.1530	0.0187	8.161
F8: Tangibles and physical attributes	0.1390	0.0214	6.483
F9: Other facilities and services	0.1890	0.0207	9.148
F10: Payment matters	-0.0303	0.0116	-2.607
F11: Management rules and regulations	-0.0387	0.0242	-1.600
F12: Timely matters	-0.0616	0.0135	-4.566
F13: Waiting times and delays	0.1430	0.0269	5.311
F14: Responsiveness and psychological aspects	-0.1200	0.0278	-4.317
F15: Availability and accessibility	0.0420	0.0210	1.996

Table 6: Item relevancy scores relative to dimensions

Dimension	Number of items	Number and percent of items receiving a relevancy score of 8 or above (by all)
Transition to home	7	6 (85.71%)
Communication	3	3 (100%)
Involvement	6	6 (100%)
Courtesy and empathy	7	6 (85.71%)
Fairness and trust	6	5 (83.33%)
Competency and confidence	5	5 (100%)
Information	4	4 (100%)
Tangibles and physical attributes	10	8 (80.00%)
Other facilities and services	4	4 (100%)
Payment matters	3	3 (100%)
Management rules and regulations	8	7 (87.50%)
Timely matters	4	4 (100%)
Waiting times and delays	5	5 (100%)
Responsiveness and psychological aspects	2	2 (100%)
Availability and accessibility	6	5 (83.33%)
Outcomes and overall assessment	7	6 (85.71%)
Total	87	79 (90.8%)

Table 7: Confirmatory Factor Analysis of Model I and Model II Scores

Parameter	Model I	Model II
Number of observed variables in the model	79	64
Number of unobserved variables in the model	95	80
Number of parameters to be estimated	111	96
Degree of Freedom	3049	1984
Chi Square	5274	3610
Normed Chi-Square	1.729	1.819
P	0.1372	0.1442
Goodness of fit (GFI)	0.7338	0.7492
Root mean square of residual (RMSR)	0.0452	0.0481

Appendix

Dimensions, Cronbach alpha, percent variance explained, and principal component loadings

		Loading
(1)	Transition to home (alpha: 0.857; 54.411% variance explained)	
31	I received written instructions when I was sent home	.606
46**	Someone explained the purpose of medicines I had to take at home in a way I could understand	.774
47	Someone on the hospital staff told me what danger signals to watch for after I went home	.782
48	Someone told me about the medication side effects to watch once I am at home	.758
49	Someone told me when I could resume my usual activities (i.e., go back to work or drive)	.765
56**	The doctors gave my family all the information they needed to help me recover	.739
64**	The nurses gave my family all the information they needed to help me recover	.726
(2)	Communication (alpha: 0.839; 68.292% variance explained)	
38	It was easy for me to find someone on the hospital staff to talk to about my concerns	.681
40	My family (or someone close to me) had enough opportunity to talk to my doctors	.900
41	My family (or someone close to me) had enough opportunity to talk to the nurses	.881
(3)	Involvement (alpha: 0.778; 53.881% variance explained)	
11	I feel that the hospital involved me in the decision about my care (when applicable)	.680
26*	I had enough say about the medical treatment given to me	***
45	Someone explained to me the reasons for why I had to wait to go to my room	.603
65	The nursing staff explained treatments in terms I could understand	.761
76	When I had important questions to ask the doctors, I got answers that I could understand	.794
77**	When I had important questions to ask the nurses, I got answers that I could understand	.805
(4)	Courtesy and empathy (alpha: 0.832; 59.971% variance explained)	
23	I felt that the staff (doctors, nurses, etc.) showed sincere interest in my condition	.727
24*	I felt that the treatment of patients changed with time	***
35*	I was treated with respect and dignity while I was in the hospital	***
42	My family and visitors were treated with respect and dignity	.770
52	The admissions staff was friendly and helpful	.785
66	The nursing staff maintained and respected my privacy	.807
67**	The person who cleaned my room was friendly and courteous	.781
(5)	Fairness and trust (alpha: 0.711; 79.884% variance explained)	
14**	I felt that one doctor said one thing, while another doctor said something quite different	.749
15**	I felt that one nurse said one thing, while another nurse said something quite different	.862
16	I felt that some patients enjoyed first class treatment, while many others did not	.834
18*	I felt that the doctors were talking about me as if I was not there	***
20	I felt that the hospital was discriminating in its treatment of patients	.752
21*	I felt that the nurses were talking about me as if I was not there	***
(6)	Competency and confidence (alpha: 0.844; 61.774% variance explained)	
17	I felt that the doctor(s) who treated me is highly knowledgeable	.749
27	I had full confidence and trust in the doctor treating me	.862
28	I had full confidence and trust in the nurse treating me	.834
32**	I think that the hospital did all it could to help control my pain	.752
69	The technical/administrative/support staff appeared professional and technically competent	.723
(7)	Information (alpha: 0.756; 58.131% variance explained)	
1	Adequate information about my condition or treatment was given to my family	.651
10	I feel that the hospital informed me about my medical options	.712
86	While I was in certain units, I got enough information about my medical condition	.835
87**	While I was in certain units, I got enough information about the medical treatment I needed	.835
(8)	Tangibles and Physical attributes (alpha: 0.902; 59.464% variance explained)	
12	I felt cleanliness throughout the hospital	.718
53**	The cabins/wards were clean	.759

57	The doctors, nurses, and staff were neat-appearing (dressed professionally)	.723
58**	The hospital had a comfortable rest area for patients	.681
59*	The hospital had internet facilities accessible to patients	***
60**	The hospital had modern-looking equipment	.769
61	The hospital used state-of-the-art medical equipments	.804
62**	The materials associated with the service (towels, etc.) were visually appealing	.771
68	The physical facilities at the hospital were visually appealing	.771
70**	The toilets were clean	.749
(9)	Other facilities and services (alpha: 0.782; 66.142% variance explained)	
2	Adequate parking was available	.654
8	I am satisfied with the communication facilities available for patients (i.e., telephones)	.743
25	I found the taste of my food to be very good	.687
85	For family members to confer with doctors, specially assigned rooms were available	.603
(10)	Payment matters (alpha: 0.710; 63.27% variance explained)	
80	When I had to pay for the treatment, I got as much help as I wanted from someone on the hospital staff in figuring out how to pay my hospital bills	.769
81	When I had to pay for the treatment, the procedures were simple	.801
82	When I had to pay for the treatment, the overall cost was reasonable	.816
(11)	Management rules and regulations (alpha: 0.798; 68.799% variance explained)	
19*	I felt that the hospital conducted more medical tests than necessary	***
22	I felt that the rules of the hospital were strictly maintained at all times	.643
29*	I noticed lack of coordination between units or sections in the hospital	***
50	The administrative procedures were done correctly the first time	.786
51	The admission process was quite organized	.786
71**	The working hours of the cafeteria was convenient	.602
74	Visiting rules and regulations were enforced by hospital staff at all times	.761
75	Visiting rules and regulations were enforced at all units (i.e., ICU, Emergency, etc.)	.749
(12)	Timely matters (alpha: 0.781; 51.616% variance explained)	
3	After checking in at the hospital, I had to wait before going to my room	.674
4	After I requested a pain medicine, it usually took a long time before I got it	.788
5	After I used the call button, It usually took a long time to get the help I needed	.781
33	I thought that I had to wait an unnecessary long time to go to my room	.615
(13)	Waiting times and delays (alpha: 0.733; 58.930% variance explained)	
13	I felt that my scheduled tests and procedures were performed on time	.717
34	I was kept informed about the results of tests and treatments in a timely manner	.704
39	My discharge was handled in a timely manner	.679
63	The medical procedures were done correctly the first time	.781
83	When I needed help getting to the bathroom, I got help in time	.605
(14)	Responsiveness and psychological aspects (alpha: 0.858; 87.541% variance explained)	
78	When I had some anxiety or fear, the doctor discussed it with me	.936
79	When I had some anxiety or fear, the nurse discussed it with me	.936
(15)	Availability and accessibility (alpha: 0.836; 54.989% variance explained)	
43	My physicians spent an appropriate amount of time with me	.721
54**	The doctor who treated me was available all the time	.797
55	The doctor who treated me was available even during holidays or weekends	.745
72	There was a specialist present in all shifts, regardless of shift time	.721
73	There was one particular doctor in charge of my care	.754
84	When my family needed to confer with doctors, the doctors were available	.708
(16)	Outcome and overall assessment (alpha: 0.904; 63.578% variance explained)	
6**	Compared to other hospitals, this hospital is considered to be a good place for care	.751
7	I am satisfied with the care provided by this hospital	.837
9**	I feel comfortable recommending the hospital to my friends	.788
30**	I received courteous and professional care while in this hospital	.706
36	I Would be willing to return this hospital in the future if needed	.835
37	I would recommend the hospital to my family	.844
44	Overall, I was satisfied with the care I received at this hospital	.812

* Items deleted from further analysis (first phase)

• Items deleted from further analysis (second phase/modified model)

Table 8 Fit statistics for the initial and modified models

	Dimension			Initial model		Modified model				
	Items	Chi-square	Degrees of Freedom	P-Value	RMSEA	Items	Chi-square	Degrees of Freedom	P-Value	RMSEA
1	31, 46, 47, 48, 49, 56, 64	571.44	14	0.00000	0.121	31, 47, 48, 49	18.03	2	0.00012	0.049
2	38, 40, 41	----	---	-----	-----	38, 40, 41	----	---	-----	-----
3	11, 45, 65, 76, 77	128.76	5	0.00000	0.096	11, 45, 65, 76	0.11	2	0.94862	0.001
4	23, 42, 52, 66, 67	103.17	5	0.00000	0.085	23, 42, 52, 66	1.89	2	0.38909	0.001
5	14, 15, 16, 20	723.35	4	0.00000	0.364	16, 20	----	---	-----	-----
6	17, 27, 28, 32, 69	125.31	5	0.00000	0.094	17, 27, 28, 69	33.13	2	0.01122	0.048
7	1, 10, 86, 87	285.80	2	0.00000	0.228	1, 10, 86	----	---	-----	-----
8	12, 53, 57, 58, 60, 61, 62, 68, 70	1191.72	27	0.00000	0.126	12, 57, 61, 68	4.23	2	0.12053	0.020
9	2, 8, 25, 85	4.14	2	0.12590	0.020	2, 8, 25, 85	4.14	2	0.12590	0.020
10	80, 81, 82	----	---	-----	-----	80, 81, 82	----	---	-----	-----
11	22, 50, 51, 71, 74, 75	1003.01	9	0.00000	0.201	22, 50, 51, 74, 75	8.22	5	0.99305	0.026
12	3, 4, 5, 33	12.0	2	0.06000	0.047	3, 4, 5, 33	12.0	2	0.0600	0.047
13	13, 34, 39, 63, 83	33.20	5	0.00390	0.045	13, 34, 39, 63, 83	33.20	5	0.0039	0.045
14	78, 79	----	---	-----	-----	78, 79	----	---	-----	-----
15	43, 54, 55, 72, 73, 84	508.36	9	0.00000	0.143	43, 55, 72, 73, 84	31.55	5	0.03354	0.043
16	6, 7, 9, 30, 36, 37, 44	626.19	14	0.00000	0.127	7, 36, 37, 44	4.88	2	0.4211	0.018