

The Turkish adaptation of scale to measure patient perceptions of the quality of nursing care and related hospital services: A validity and reliability study

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ABSTRACT

OBJECTIVE: This study aimed to test the validity and reliability of a version of the tool developed in Sri Lanka in 2011 to assess patient perceptions of the quality of nursing care and related hospital services created for use with Turkish patients.

METHODS: This methodological study was conducted between November 2013 and November 2014 after obtaining ethical approval and organizational permission. Data was collected during discharge from 180 adult patients who were hospitalized for at least 3 days at a medical school hospital located in Istanbul. After language validation, validity and reliability analyses of the scale were conducted. Content validity, content validity index (CVI), construct validity, and exploratory factor analysis were assessed and examined, and reliability was tested using the Cronbach's alpha coefficient and item-total correlations.

RESULTS: Mean CVI was found to be 0.95, which is above expected value. Exploratory factor analysis revealed 4 factors with eigenvalues above 1, which explained 82.4% of total variance in the Turkish version of the tool to measure patient perceptions of nursing care and other hospital services. Factor loading for each item was $\geq .40$. Cronbach's alpha coefficient of sub-dimensions and total scale were found to be 0.84-0.98 and 0.98, respectively. Item-total correlations ranged from 0.56 to 0.83 for the entire group, which was above expected values.

CONCLUSION: The Turkish version of the scale to assess patient perceptions of the quality of nursing care and related hospital services, which comprised 4 sub-dimensions and 36 items, was found to be valid and reliable for use with the Turkish population.

Keywords: Nursing care; nursing services; reliability and validity.

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The position and importance of the service sector in national economies is rapidly increasing all over the world; therefore, in recent years, the quality of service provided has become a crucial issue. Service has been defined as “benefits purchased by the consumer unrelated to ownership” [1]. Perceived quality of service is an outcome of consumers’ expectations of the service and perceptions about performance of the service during its delivery [2]. The main objective of healthcare sector is to provide various healthcare services needed by the community with quality and at the time desired by the patient at lowest possible cost. Patients, who constitute the largest group of external consumers, do not ordinarily have the means to evaluate technical quality of services provided. Therefore, importance of functional quality, i.e., how services are delivered, has grown. One of the keys for health organizations to achieve long-term success is to measure and evaluate perceptions of the patients about service quality, in addition to examining technical quality [3].

Measurement and assessment of perceived quality of service in healthcare organizations, and decreased hospital expenditures as result of effective utilization of very limited hospital resources will provide a competitive advantage. In today’s competitive health services market, evaluation of service quality and meeting or exceeding patient expectations is a necessity [4].

Nursing care and related hospital services constitute majority of healthcare services. Courtesy, affection, sympathy, and understanding demonstrated by nurses, and their professional attitude and manner of employing their knowledge and skills play an important role in patient-nurse rapport [5]. However, nursing care has often been largely associated with supportive services, such as hospital hygiene, climate control, lighting, number and quality of beds, providing directions inside and outside the facility, and quality of meals [6]. A multicenter study performed in medical-surgical units of 146 hospitals in the USA revealed that the patients’ satisfaction with nursing care was closely related to support services because availability of support services enabled nurses to give more time to patients’ healthcare. Nurses cannot offer optimal healthcare

to their patients when services providing for such things as protection of patient privacy and comfort are restricted [7]. In a study performed in Turkey, it was reported that patient satisfaction was affected by many factors, including diet and related care, atmosphere and cleanliness of the room, admission process, and availability of facilities such as cafeteria and parking area [8].

Several valid scales have been developed to evaluate quality of hospital services and to measure degree of satisfaction with nursing services. SERVQUAL scale is 22-item questionnaire developed to evaluate consumer perceptions about commercial services [9]. Gonzales et al. used SERVQUAL scale and adapted it to determine patient perception of nursing care [10]. Patient Perception of Hospital Experience with Nursing (PPHEN) is another scale used in the field of nursing care [11]. In Canada, patient-centered Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ) scale was developed [12]. In addition, Patient’s Assessment of Quality Scale-Acute Care Version (PAQS-ACV) scale was recently created in the USA and focuses on individualized care, personal characteristics of nurses, and environment [13]. A scale to evaluate healthcare services in Turkey was created in 2001. This scale has 7 factors (nutritional care, healthcare provided by physicians, nursing care, room atmosphere, admission procedures, room cleanliness, and other facilities, such as cafeteria and parking area), and it can be used to measure patient satisfaction and quality of healthcare services [14].

Most scales have focused on nursing services and related patient satisfaction, and generally they have not considered hospital services other than nursing care. However, many studies have demonstrated that satisfaction with nursing care also affected other related services [8, 13, 14].

A specific, validated, and reliable scale directly related to nursing care and related hospital services that also measures patient perceptions about these issues has not yet been created. Therefore, with the opinion that such a scale developed in Sri Lanka would also be suitable for the Turkish population, it was adapted for that purpose and tested with respect to its validity and reliability.

MATERIALS AND METHODS

Objective: This methodological and descriptive investigation was performed to test validity and reliability of a Turkish adaptation of an instrument to measure patient perception of quality of nursing care and related hospital services developed in Sri Lanka.

Time and place of the investigation: The investigation was performed in the Department of Surgery and Department of Internal Medicine of Istanbul University Faculty of Medicine Hospital between November 2013 and November 2014.

Study population and sample: Study population consisted of all adult patients hospitalized in the Department of Internal Medicine and Department of Surgery of Istanbul University Faculty of Medicine Hospital between November 2013 and November 2014. Sample consisted of 200 literate patients without any mental or psychological problems who were hospitalized for at least 3 days in medical or surgical units who volunteered to participate. Twenty patients who did not complete questionnaire due to time constraints at discharge were excluded, and the study was completed with 180 patients. In evaluation of scale, rule stipulating that size of sample should be at least 5 times greater than the number of variables was strictly observed [15].

Data collection tools

Data of the investigation were collected using patient information form and 36-item questionnaire to evaluate patient perception of the quality of nursing care and related hospital services.

Patient information form: Form consisted of 12 questions related to the unit of hospitalization, gender, age, marital status, educational level, profession, place of residence (i.e., metropolitan city or rural area), employment status, income level, previous hospital admissions (if any), and patient description of their illness.

Patient perception of the quality of nursing care and related hospital services scale: The original scale was created at National Hospital of Sri Lanka, the country's foremost training and research hospital, with patients being discharged after hospitalization

for between 3 and 90 days in the medical and surgical units. Scale comprises 36 items and 8 factors. All items are affirmative expressions that were rated with 5-point Likert-type scale as follows: 1. I am not satisfied at all / I don't agree at all, 2. I am not satisfied / I don't agree, 3. I am satisfied / I agree, 4. I am not sure, 5. I am absolutely satisfied / I certainly agree. Factor 1 was related to "interpersonal care," and concerned the way nurses personally interacted with the patient, asking about such things as communicating respect, courtesy, and concern. Factor 2 was "efficiency," and included items regarding competence of nurses and their actions to fulfill health needs without delay. Factor 3 asked patients about "comfort," and included items about quality of privacy and sleep. Factor 4 was "hygiene," and was related to adequacy and cleanliness of restrooms. Factor 5 asked patients "individual information" about hospital facilities and illness, Factor 6 queried them about perception of "physical environment," including such items as climate control and cafeterias, and Factor 7 was related to "basic instructions," such as hospital signage. Factor 8 was titled "competency," and asked patients questions related to knowledge and skills of the nurses.

Application of data collection tools: Data were collected by charge nurses in the clinics during face-to-face interviews. After discharge procedures were completed, a suitable environment was located, the study was explained, and questionnaire was given to patients who volunteered to participate. Twenty patients who had time constraints at discharge and did not complete the forms were excluded from the study.

Evaluation of data: Statistical analysis of data was performed with SPSS software, version 15.0 (IBM Corp., Armonk, NY, USA). Validity and reliability studies were completed in 2 stages.

Stage 1. Two specialists whose native language is English translated the patient perception of the quality of nursing care and related hospital services scale into Turkish. Then, opinions of 10 Turkish language specialists were requested regarding style of expression used in Turkish to test language validity. In line with their views, some expressions used in the questionnaire were altered for better comprehension. Next, a translator and interpreter who had perfect command of both languages back-translated the scale

from Turkish into English. An independent specialist evaluated the translations, and a joint text was created. The final version was sent to Upul Senarath, the corresponding author of the original study. Since he had no additional corrections, questionnaire was used in this final form.

Stage 2. Psychometric characteristics of the questionnaire were analyzed. Validity and reliability studies were performed. During the validation process, validity of expressions used was tested using content validity index (CVI). Construct validity was performed using explanatory factor analysis. In reliability study, for internal consistency of the scale and sub-dimensions, Cronbach's alpha coefficient was used, and for item-total score analysis, Pearson correlation analysis was performed.

Ethical aspect of the investigation: Written permission was obtained from Upul Senarath via e-mail for the validity, and reliability studies of Turkish version of patient perception of the quality of nursing care and related hospital services scale. Approval for the study itself was obtained from the ethics committee of the Istanbul University Faculty of Medicine, and the principles of the Helsinki Declaration of Human Rights were observed.

RESULTS

Mean age of the patients of the research group was 49.66 ± 19 years. More than half of participants were male (61.3%) and married (77.7%). Some (22.8%) were secondary school or lycée graduates. More than half (69.4%) were not working at the time, and 54.4% of study participants lived in metropolitan city. Most (83.9%) described themselves as being in middle income group. Majority (63.3%) of the patients had been hospitalized before, and had mean hospital stay of 16.705 ± 24 days.

Results of validity and reliability studies

The final version of the scale was administered to 78 medical and 192 surgical treatment patients. Based on results retrieved, high level of positive correlation was found between Turkish version and original English-language scale ($r=.90$; $p<.001$). Once equivalency of Turkish and English versions of the scale

TABLE 1. Results of Kaiser-Meyer-Olkin and Bartlett tests

Kaiser-Meyer-Olkin		0.938
Bartlett's Test of Sphericity	Chi-square	9744.763
	SD	630
	p	0.000

SD: Standard deviation.

was established, validity and reliability studies were conducted.

Validity study

Content validity and construct validity of the scale were analyzed. CVI of 0.95 was determined, demonstrating very good content validity.

To assess construct validity, suitability of data for factor analysis was evaluated using Kaiser-Meyer-Olkin and Bartlett tests, and suitability of data for factor analysis was confirmed (Table 1).

Principal component analysis: As a result of explanatory factor analysis using Varimax rotation with Kaiser normalization, 4 factors with eigenvalue over 1 were detected, which explained 82.40% of total variance. Factor loading for each expression was ≥ 40 . Therefore, 8 factors in the original scale were consolidated into 4 factors: Factor 1 contained items related to nursing care and its applications; Factor 2 was related to efficiency, competency, personal information, and quality of general instructions; Factor 3 was concerned with number, quality, and hygiene of restrooms; and Factor 4 was related to quality and hygiene of beds and bed coverings.

Reliability study

Cronbach's alpha internal consistency coefficient and item-total score correlation were used to determine reliability level of the scale. Item-total correlation of each of 36 items was examined using Pearson correlation analysis. Correlation reliability coefficient was between $r=0.57$ and $r=0.86$, which indicated a strong, positive relationship that was statistically significant ($p<0.001$; Table 2). Further analysis of the

TABLE 2. Factor composition of the Turkish version of the scale, item-total correlation, and Cronbach's alpha values (n=180)

	Factor 1	Item-total point correlation	Factor 2	Item-total point correlation	Factor 3	Item-total point correlation	Factor 4	Item-total point correlation	Total scale item-total correlation
Item 1	.809	.87							.77
Item 2	.837	.90							.77
Item 3	.865	.91							.76
Item 4	.842	.88							.81
Item 5	.849	.89							.81
Item 6	.842	.88							.81
Item 7	.845	.88							.76
Item 8	.901	.95							.80
Item 9	.896	.94							.78
Item 10	.882	.93							.76
Item 11	.848	.89							.81
Item 12	.856	.91							.79
Item 13	.831	.88							.80
Item 14	.818	.87							.83
Item 15	.872	.93							.84
Item 16	.744	.83							.83
Item 17			.776	.86					.78
Item 18			.773	.87					.61
Item 19			.791	.88					.62
Item 20			.787	.88					.57
Item 21			.560	.75					.57
Item 22							.453	0.73	.61
Item 23							.460	0.73	.79
Item 24					.848	.82			.83
Item 25					.873	.86			.72
Item 26					.855	.86			.74
Item 27			.693	.82					.83
Item 28			.809	.89					.82
Item 29			.745	.78					.81
Item 30			.748	.80					.81
Item 31			.795	.88					.86
Item 32			.778	.87					.83
Item 33			.802	.88					.77
Item 34			.807	.87					.77
Item 35			.776	.89					.76
Item 36			.792	.88					.81
Cronbach's alfa		0.98		0.97		0.92		0.84	0.98
Eigenvalue	22.51		4.33		1.80		1.01		
Variance	64.54		12.04		5.04		2.81		
Total variance	82.40								

Extraction method: Principal component analysis; Rotation method: Varimax with Kaiser normalization. Rotation converged in 6 iterations. Pearson correlation; $p < 0.001$.

items revealed that Cronbach's alpha reliability coefficient for each factor was determined to be 0.98, 0.97, 0.92, and 0.84, respectively. While total Cronbach's alpha reliability coefficient of the current scale was calculated to be 0.98. Cronbach's alpha reliability coefficient of the scale developed by Senarath et al. (2011) was reported to be 0.91 [6].

DISCUSSION

During the process of adapting the scale, validity and reliability studies were performed to analyze psychometric characteristics [16]. Validity is defined as accurate measurement of required characteristics with the aid of measurement tools developed without interference from other characteristic features. Reliability is the capability of a test or any measurement tool to yield sensitive, compatible, consistent, and stable results [17].

Language equivalence study was extremely important for successful revision of the scale. Analysis of correlation between scores of English and Turkish versions of the relevant scale revealed high level of consistency ($r=.90$; $p<.001$). This result is significant in that it shows effective, high quality translation of the scale into Turkish [18]. The objective of content/scope validation is to request an expert group to determine if items contained in the assessment tool fully represent the domain to be measured in order to form an integrity [16]. Result of CVI test performed to evaluate content validity of the scale found no significant difference among expert opinions. It was concluded that the expressions used were compatible with Turkish culture and sufficiently represented all facets of the construct. When using Likert-type scale, reliability coefficient should be as close to 1 as possible. In the literature, item-total item correlation scores above 0.25, and Cronbach's alpha reliability values greater than 0.5 have been specified as expected limits for internal consistency of scales [19, 20].

As a result of explanatory factor analysis, 4 factors had eigenvalues above 1, which explained 82.40% of the variance, and factor loading of 36 items listed under these factors was above .40; therefore, none of the items were excluded. Detection of high inter-

nal consistency coefficient indicates adequate level of agreement between items used on the scale. If level of reliability for measurement tools to be used in investigations is .70 [21], then reliability level of all sub-dimensions of the scale can be deemed to be adequate. In the interpretation of item-total correlation, if we consider that items with correlation coefficient of $\geq .30$ identify individuals much better on the characteristic feature measured [18], then item-total correlations appear to be adequate. Results obtained from validity and reliability tests demonstrated that Turkish version of the scale developed in this study is a valid and reliable measurement tool.

In conclusion, scale with validity and reliability in terms of content pertaining to nursing and related hospital services provided in Turkey was developed. As it was designed for use with Turkish population, it may be more applicable in Turkey than other available measurement tools. In further studies to be performed, comparison of this scale with similar scales may be analyzed. Additional studies should also include patients from other types of hospitals to expand validity and reliability of the tool and add to its utility.

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