Development and Validation Assessment for Persian Inpatient Satisfaction Questionnaire

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Abstract: Healthcare research recognizes that satisfaction is an important health outcome of the medical encounter. As a result, many healthcare professions have paused the development and validation of instruments for measuring patient satisfaction. The present descriptive study was carried out through cross-sectional method. A sample of 400 patients was chosen randomly from seven hospitals- affiliated to Arak University of Medical Sciences of which a total of 305 responded to the questionnaire during November and December 2011, giving a relatively high response rate (76.3 %). To confirm the reliability of inter-item correlations and construct validity, factor analysis was carried out, and items belonging to each factor and Cronbach's Alpha Coefficient were calculated. Seven dimensions were identified, including: doctor's communication, nursing care, convenience, visitors, cleanliness, costs and general satisfaction, explaining 60% of the variance. All items, except one, revealed loadings above 0.4. Cronbach's Alpha exceeded 0.8 for all dimensions, except for the area of visitors (0.66). Results must be interpreted with some caution due to the high level of satisfaction and not be considered comprehensible evidence of high performance of services or programs without substantial additional information. It is advised to use a qualitative study to complement such studies. In the light of the results, the designed hospital services satisfaction questionnaire strives to be a valid and reliable instrument for assessing inpatient satisfaction with hospital services. [Mehri Mohammadi, Magid Taheri, Siamak Mohebi, Yaser Tabaraie. **Development and Validation Assessment for Persian Inpatient Satisfaction Questionnaire**. *Life Sci J* 2013;10(6s):375-381] (ISSN:1097-8135). http://www.lifesciencesite.com. 58

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Introduction

Human medicine considers satisfaction with care as reported by patients to be an important outcome of medical encounters. Some authors go so far as to regard the patient satisfaction as one of the primary outcomes of health care [1]. 'Satisfaction' is implicitly or explicitly defined as an "evaluation based on the fulfillment of expectations" [2]. If this broad definition is taken, it is possible to examine whether the instruments being used are valid or not (i.e. are they measuring what they intended to measure and in a proper way of measuring patients' evaluations of services). Linder Pelz has presented a conceptual definition of patient satisfaction as "the individual's positive evaluation of distinct dimensions of health care" [3]. Once aiming to form an optimized orientation of both user-related attributes and outcomerelated aspects, patients' evaluation of medical services is now manifesting itself more as a scientific evaluation of health care systems [4]. Therefore, there is an increased understanding that some form of measurement can aid performance in this area. Notwithstanding the aforementioned importance, there remain some issues with respect to patient satisfaction including what to measure, how to measure and how valid the measurements are [5, 6]. Nevertheless, hospitals across the countries are increasingly implementing new programs to improve patient service satisfaction. Three fundamental realities appear to be driving this momentum. First, it could be clearly argued that patient satisfaction can significantly affect a hospital's reputation in the community. Second, patient satisfaction has been accepted as an important measure of service quality [5]. Third, physicians are paying greater attention to patient satisfaction because of its association with patient compliance [4], clinical outcomes [6] and most recently, of its association with a patient's propensity to take legal action against clinicians [4, 7]. In addition, existing research shows that satisfied patients are more likely to follow treatment instructions and medical advice, probably because they are more likely to believe that treatment will be effective [8, 9]. A large number of studies have attempted to develop well grounded instruments for measuring patients' satisfaction (see e.g. [10, 11, 12, 13]. However, those questionnaires are largely developed in other countries making their adaption challenging given the explicit differences in the culture or health systems of the countries. This is the first in-patient satisfaction questionnaire in Iran which has been developed by reviewing in-patient satisfaction questionnaires in national and international level. There were found a few locally-

developed questionnaires inside the country, nonetheless, they have not been validated systematically or many expressions of satisfaction were not evaluated at all. Therefore, the researchers decided to develop their own questionnaire. Our objective was to create a reliable and valid measure of patient satisfaction which could be adapted culturally to most Persian-speaking language countries and used by a wide variety of general hospitals.

Methods

Various sources were looked at and methods were employed to determine the questions to be included in the questionnaire. For instance, first, an electronic medical search was undertaken between January and April 2011, using Ovid Medline and other databases intending to analyze the instruments developed up to that time to evaluate in-patient satisfaction at the national and international levels. The key-words included inpatient satisfaction questionnaire, hospital care, validity and reliability. Then, an interview was carried out with a group of hospitalized patients to elicit their comments about the positive and negative aspects of care received during the hospitalization. In addition, another interview was conducted with a group of health care professionals to explore their opinions about the most positive and negative aspects of the questionnaire. The Satisfaction results of performed search and interviews were drawn upon to create an initial version of the questionnaire which was subsequently evaluated in a pilot study. As regards its face validity, the questionnaire was presented to 15 patients with different educational levels in order to evaluate the comprehensibility and clarity of the items and features of the instrument. Content validity was as such evaluated based on review of relevant sources and specialized literature and on questionnaire refinement by a panel of six experts comprised of university lecturers and health care professionals. The results of pilot study led to some changes in the questionnaire, including the removal of some items or rewording others as the response rate was low or choosing more than one option by some patients.

The final questionnaire contained two parts. First part included sociodemographic variables (e.g. age, gender, educational level, marital status) and the types of referral (i.e. referral by 1) physicians from private offices; 2) referral from other hospitals that had inadequate skills and/or fewer facilities and 3) self-referral in which people by-passed a primary care/contact and directly referred to a specialist/ specialist center. Second part contained 52 questions representing all steps followed in a chronological order from a patient's admission until his/her discharge from a hospital. These questions evaluate

satisfaction using seven dimensions including: doctor's communication (13 items), nursing care (6 items), convenience (17 items), visitors (2 items), cleanliness (5 items), hospital expenditures (3 items) and general satisfaction (6 items). The items scored with a five-point 'Likert-type scale', ranging from "Strongly agree" (1) to "Strongly disagree" (5). The study was conducted among patients admitted to any of seven hospitals- affiliated with Arak University of Medical Sciences (AUMS). Patients were included in the study if they had been in the hospitals for longer than 48 hours and aged 15 years and above - 15 is the adult legal age in Iran. Patients with serious physical or mental conditions, such as terminal disease and psychosis, who could have made the comprehension and completion of the questionnaire difficult, were excluded. The patients were informed about the purpose of the study and what would be expected of them. The patients were assured of their right of refusal to participate in or of withdrawing from the study at any stage.

Implementation

A total of 400 patients were identified and selected using proportional stratified random sampling, as follow: Initially, seven general teaching hospitals- the total number of AUMS's general hospitals- were chosen. The sampling frame of this study was the registration list of patients discharged between November and December 2011 from each hospital. For selecting patients from each hospital, table of random numbers was used. The allocation of sample number to each hospital was conducted in proportion to their bed number in order to ensure adequate precision for the estimates achieved. Patients admitted to these seven hospitals were not of a particular sex or age group. This study conducted in the surgery and medical wards of these hospitals and the questionnaires were completed by face-to-face interview at the time of discharge from the hospitals. The anonymity and confidentially of the patients' data were guaranteed. Out of 400 patients of our sample, 305 responded to the questionnaires (response rate= 76.3%). No sociodemographic difference was observed between those who answered the questionnaire and those not. However, there was a difference in the hospital services; with a higher percentage of respondents having been admitted for surgery. Findings revealed that 64.3% of nonrespondents were female with the average age of 42+11. Majority of non-respondents were married (66%). Principal component exploratory factor analysis (EFA) was carried out using varimax rotation to assess the construct validity of the questionnaire and to determine the number of dimensions and the items included within each dimension. If the revealed loadings were greater than

0.4, the factor loadings and communalities at the item level and the eigenvalues and explained variance at the scale level were calculated. Once each of the dimensions of instrument was recognized, scores were calculated by adding the values attributed to the answers to all the items in each of the dimensions. The scoring scale for each dimension was set between 0 and100, in which a score of 100 indicates the highest level of satisfaction. The reliability of the domains of questionnaire was evaluated using internal consistency.

Results

A number of 305 patients from seven hospitals completed the questionnaire. Majority of the participants (68.5%) were female, married (69%) and with a degree ranging from high school education to diploma (34.4%). Housewives constituted the highest frequency (48.5%) among the participants, in terms of job. Most participants in the study have had insurance (76%), Most of those referred through the referral by physicians (38.4%), and the fewest through referrals from other hospitals (8.2%). As regards the internal consistency of the questionnaire's domains, Cronbach's Alpha Coefficient was found to be greater than 0.8 indicating good reliability. The results of domains are exhibited in Table 1. They corroborate the acceptable reliability of different parts of the questionnaire. In view of Alpha Coefficient value (0.95), it could be argued that the questionnaire is to a large extent capable of measuring patient satisfaction in current circumstances. The findings proved that 52 items studied can measure this major component (i.e. patient satisfaction) in the AUMS' hospitals. Although the questions also measured some other components, as the chart displays they are not very important because their special values are very close to zero. Component coefficients matrix was used to evaluate the importance and weight of each item in assessing satisfaction (see Table 2). As this table shows the highest weight belongs to items 51 and 52, and the least importance and weight is related to items 37 and 13.

Patients' demographic characteristics and satisfaction with services

The researcher used t-test and one way ANOVA to study the relationship between demographic characteristics of patients and their satisfaction with services in the hospital. Table 3 contains the results of this section. As it demonstrates, a significant relationship was established between gender, type of hospital, educational level, age and job with patients' satisfaction ($p<0.01$). As such, there was no significant relationship between the variables of marital status, insurance type and referral type with satisfaction ($p> 0.05$).

Discussion

Various methods were employed to develop the questions, including electronic medical search, review of the related literature, interview with a group of hospitalized patients and health care professionals; all highlighting somehow the content validity of the questionnaire. In addition, the particular scopes extracted in this instrument were found to be also in line with other instruments [11, 14] indicating the construct validity of our questionnaire. The value obtained for Crohnbach's Alpha was acceptable and results were supported by other patient satisfaction questionnaires [12, 13, 15]. In this study, we explored patient satisfaction in AUMS' hospitals. The results showed that the Cronbach's Alpha Coefficient of all areas (except for the area of visitors) was more than 0.8. As to the visitors, the coefficient was 0.66, despite only two items, which revealed the high consistency between them (Table 2). These results are largely consistent with other studies [13] confirming the internal reliability of study. Nevertheless, the results show that some questions and domains still merit improvement and thus some other psychometric properties have to be checked. In fact, two domains (i.e. the visitors and cleanliness) had high ceiling effects and low Cronbach's Alpha, so both needed a deep review to improve these results. The coefficient was equal to 0.66 in the area of visitors and patients. Perhaps the cause of this problem in public hospitals could be related with the lack of good deal with patients and visitors surveyed. Since doctor's communication and nursing care play a central role in improving and restoring health to patients, these areas attract the most attention of patients. The findings also showed that the satisfaction from these areas was considerable. While the level of dissatisfaction with the facilities and cleanliness of the hospitals' wards was extensive. Since the satisfaction of the units like nutrition and laundry can affect on hospital accreditation, so hospitals using these findings and spending costs, can take the effective steps and lead to more satisfied customers and provide Hospital reputation. A similar study by Eytan and *et al* [16] on patient satisfaction with the various services of Geneva University Hospital showed a range of rates, including hospital outpatient clinic 53.7%, medical services 53.7%, Psychiatry and Emergency unit 28.3%, facilities and equipment 18.3% and hospital environment and facilities 56.6%, and laundry and nutrition 50%. The rates were lower as compared with those of our study. Patient satisfaction can be examined using two different approaches.

Table 1: Factor analysis loadings and internal consistency results *(n* = 305)

	Factor 1: Information and medical	Factor2: Nursing care	Factor 3: Comfort	Factor 4: Visitors	Factor 5: Cleanliness	Factor 6: Costs	Factor7: General Satisfaction
Doctors do their best	0.75						
Access to doctors	0.70						
Doctors' explanations of the disease and treatment	0.69						
Doctors' deal with patient	0.68						
Doctors' use of simple and understandable Words	0.67						
Doctors' interest in patients' questions	0.67						
Doctors' experience and skills	0.66						
Education at discharge	0.61						
Doctors' explanations of regime	0.52						
Killing time	0.46						
Patients' opinion of visiting by different doctors	0.45						
Patients' opinion visiting by medical students	0.38						
Nurses' education at discharge		0.64					
Nurses' explanations are understandable		0.62					
Nurses' interest in patients' questions		0.60					
Nurses' experience and skills		0.58					
Nurses' care of patients		0.57					
Nurses' empathy		0.52					
Patients' clothes			0.64				
Space for religious acts			0.63				
Conditions of the room			0.62				
Privacy during examination or tests			0.60				
Global assessment of the physical conditions			0.59				
Admission staff's deal with patient			0.58				
Space for property of patient			0.58				
Para clinic staff's deal with patient			0.56				
Sleep disturbance due to environmental conditions			0.53				
Diagnostic tests			0.52				
Visitors disturbed by staff			0.52				
Transfer to wards			0.48				
Quality of the food			0.48				
Global assessment of the physical			0.47				
Delay in admission			0.45				
Complaint's system			0.41				
Difficulty in hospitalization			0.36[1]				
Visitors disturbed by staff				0.37			
Visiting hours and time the visitors spent in the room and quantity of visitors				0.36			
Number of toilets and bathes					0.63		
Bathe cleanliness					0.63		
Toilet cleanliness					0.62		
Room cleanliness					0.60		
Patient clothes cleanliness					0.57		
Logical cost of services						0.61	
Cost effective services						0.60	
Not affordable services						0.36	
Global satisfaction of the hospital							0.79
Global satisfaction of the wards							0.78
Suggestion the hospital to the others							0.73
Interest to readmission in the hospital							0.70
Thinking about change the hospital							0.64
Satisfaction of treatment's result							0.63

[1] Only factor loadings >0.35 are presented in the rest of the factors.

quantitative questionnaires show greater satisfaction

Table 2 Internal consistency coefficients and intra- and inter-scale correlations

	Information and medical care	Nursing care	Comfort	Visiting	Cleanliness	Costs	General satisfaction
Information	**0.88**						
Nursing care	0.35	**0.91**					
Comfort	0.29	0.30	**0.87**				
Visiting	0.30	0.38	0.26	**0.66**			
Cleanliness	0.35	0.49	0.32	0.38	**0.92**		
Costs	0.33	0.45	0.28	0.30	0.51	**0.81**	
General satisfaction	0.42	0.49	0.32	0.42	0.53	0.52	**0.91**

Numbers in bold represent the Cronbach's alpha coefficient.

Table 3 Relationship between demographic variables and global satisfaction

Variable	Patients	P value
Gender	T=0.165	0.02
Various hospital	F=13.93	<0.001
Marriage	T=1.05	0.056
Education	F=7.73	<0.001
Insurance type	F=1.35	0.23
Referral type	F=2.42	0.06
Age	F=5.96	0.001
Job	F=4.14	0.003

Analysis of variance (ANOVA) and Tukey's test for multiple comparisons were used.

As an independent variable, within which any change in satisfaction might lead to a change in other variables, e.g. taking prescribed drugs, following medical orders and continuing contact with doctor [17, 18]. Second, as a dependent variable, that is, satisfaction changes due to a change in other variables implying the concept of being customer oriented. Nowadays, overwhelmingly majority of the studies carried out in this field are connected with this concept. But the first question is whether patient satisfaction is a valid concept? In other words, whether high patient satisfaction of services certainly signifies the high quality services [18]. When a patient refers to a health centre to receive health services, he/she has some sort of expectations and evaluation in his/her mind. While at the center they are likely to evaluate all workers and their behavior and ultimately announce either their satisfaction or dissatisfaction with them. But the study by Zastowny *et al* [19] showed that patients' expectations only justified around 10% of the variance in their satisfaction, so the satisfaction seemed not to be affected by the expectations and there are many factors, not all known, which might influence the satisfaction. They therefore point to the difficulty of interpreting the results of satisfaction questionnaires. Despite the fact that studies indicate that totally

compared to qualitative ones, Hopkins and his colleagues argue that people mostly tend to show their dissatisfaction in a qualitative form and are reluctant to describe that in a scale format such as quite satisfied, some satisfied, I have no idea, quite unsatisfied, etc. [18]. Reviewing 45 articles, Ware and his colleagues [20] have stated that patient satisfaction is a suitable indicator for estimating the quality of services confirmed by other studies. Satisfaction studies usually focus on a specific healthcare setting such as a hospital and consider both medical and non-medical aspects, and represent a complex mixture of perceived needs, expectations and experience of care [21]. When patients express their consent, it is expected to be indicated in three different status [18]:

1. I evaluated this aspect of service and it was fully in conformance with my demands.
2. I really do not think that I have the ability to evaluate the services. But I have full confidence in the medical staffs.
3. Health care delivery system did not meet my expectations. But I do not want to criticize them because I think they are doing their best.

As in Table 3, there was a significant relationship between gender, various hospital, educational level, age and overall job with patient satisfaction variable ($p < 0.01$). These findings are

seemingly consistent with similar studies conducted in this area (e.g. [22, 23]). In fact, more experienced, better informed and educated patients often expressed less satisfaction. This is not always significant, and involves some interfering variables such as expectations and entitlement, and might also interact with ethnicity as a demographic variable [17]. Similarly, a study conducted by Garroute *et al.* [24] to evaluate the rate of satisfaction among American Indian Patients found a significant relationship between satisfaction and individual patients' character. The results of current study suggest that the general level of dissatisfaction in the hospitals studied is very low, for example, the dissatisfaction with doctors and nursing areas were only 14.9% and 10.3%, respectively. Although some results somehow imply the satisfaction of patients with hospital services, given the social and cultural background of the patients under study, a huge part of the results seems to be due to their information asymmetry and lack of their knowledge of patients' rights charter. These problems apparently led to lower expectations and some social considerations among the patients. Therefore, it could be argued that some form of educational intervention to notify patients of their rights charter and raise their expectations and remove some social and cultural barriers might lead to different results in the field of user dissatisfaction with hospital services.

As to the high level of satisfaction, at least two reasons could be given; The first would be the social desirability response bias, which is normally explained by tendency of the individuals to respond in a way which they think is socially acceptable. This bias makes individuals to overreport their satisfaction level [25]. The second bias, which is also related, is known as courtesy, according which patients, as well as other social groups have a tendency to give answers that they believe the interviewer wants to hear, rather than what they really feel [26].

In a relevant effort, Griffin Hospital attempted to perform an educational intervention to raise the expectations of patients and make them familiar with the Charter of Rights and studied patient satisfaction level before and after the intervention [27]. The results revealed that the level of dissatisfaction before educational intervention was much higher. Accordingly, the senior officials and managers of the hospital considered the level of dissatisfaction and satisfaction after the intervention as a real indicator of patient satisfaction [27]. After all, high-quality service is needed to have a greater presence in the practices of hospitals, which could improve clinical outcomes and patient satisfaction while reducing the cost, and ultimately create competitive advantage for the organizations [5]. Current study has also suffered

from some limitations. One of the main limitations was related to the time period of data collection. Seasonal factors or vacation periods could determine the type of pathologies in the hospitals and consequently the resultant workload for hospital workers. This was found to affect the patients' assessments of hospital stay. To avoid this, it might be advisable to carry out the satisfaction surveys at different times of year, as possible. Further study and development may lead to the identification of variables that would improve the questionnaire of patient satisfaction. A recommendation could be that this scale should be further evaluated. A better version could be prepared using a large enough sample size, comprising people from different regions in Iran. Once a valid and reliable scale is ready for use, it can be applied to measure the outcomes in a satisfaction study.

Conflict of interest
The authors have no conflicts of interest.

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