Polish Version of Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ)

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ABSTRACT

Purpose: The aim of the study was to develop a Polish version of the Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ) and its psychometric validation.
Material and methods: The Polish version of the questionnaire was completed by 85 randomly selected patients treated in 18 wards of various profiles in 6 hospitals in the Regions of Lublin, Warsaw and Łódź. Internal consistency, inter-item and item-total correlations were computed, and construct and predictive validity of the Polish version of the PSNCQQ established.
Results: The level of patient satisfaction measured by the Polish version of the PSNCQQ was 3.97, and did not significantly differ from that noted among the Canadian patients (3.81). The internal consistency of the Polish version was very high (Cronbach's $\alpha = 0.96$). The item-total correlations remained within the range from 0.57-0.84. In the exploratory factor analysis of Polish data, a single factor was extracted, consistent with the original version of PSNCQQ. The predictive validity of PSNCQQ was examined by means of multiple regression analysis. PSNCQQ explained 67% of variance in the assessments of overall quality of care and services; 57% of variance in the assessments of overall quality of nursing care in the ward, and 57% of variance in the willingness to recommend the hospital to others.
Conclusion: The Polish version of the PSNCQQ satisfies the psychometric criteria with respect to reliability and validity, and may be applied for the evaluation of patient satisfaction with nursing care among patients treated in Polish hospital wards.
Key words: Patient satisfaction, Health Care Quality Assessment, nursing

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INTRODUCTION

Patient satisfaction has gained the status of a significant contribution criterion of nursing care quality. Between January 2001 and December 2010 in Pubmed, one can find 86 articles with the words "patient satisfaction" and "nursing" or "nurse" in their title. In these publications patient satisfaction with nursing care was either the main scope of interest, or it served as one of the main outcome measures of health care quality.

Patient satisfaction is strongly positively related with the amount of care received [1- 5], and responsiveness, or nurse to patient's cues [6]. There is a positive association between patient satisfaction and the professional and cultural competence of nurses [7-10]. Satisfied patient are more compliant with the healthcare regimens [8, 11], and are more likely to have the intention to return to the care provider [2, 4, 12-14].

To-date, in Poland, there is a lack of an instrument for the measurement of patient satisfaction with nursing care, which would consider the current state of knowledge in this area, and, which would, at the same time, satisfy the criteria of psychometric validation. The adaptation of the existing international instrument has been considered as a necessary preliminary step to supplement this gap.

For Polish adaptation the Patient Satisfaction With Nursing Care Quality Questionnaire (PSNCQQ), developed by Laschinger [14], was selected. The following premises influenced the choice: (1) in line with the current approaches, the questionnaire includes two points of view on the traits and behaviours which constitute good nursing care. On the one hand – patient perceptions, and on the other — the state of knowledge represented by opinions of experts in the area of nursing care [15]. (2) The Content validity of the PSNCQQ was established carefully and by elaborate methods. (3) Validation of the PSNCQQ was conducted on the large sample of 1,041 patients from 14 randomly selected hospitals in Ontario.

MATERIALS AND METHODS

The items in PSNCQQ were selected from the Patient Judgement of Hospital Quality (PJHQ) [16]. The original PJHQ was developed by a multidisciplinary research team at the Hospital Corporation of America. Items in the questionnaire were derived from extensive literature review, focus groups, and a content analysis of patients' verbatim answers to questions about hospital quality. The PJHQ contains nine scales: nursing and daily care, ancillary staff and hospital environment, medical care, information, admissions, discharge and billing, overall quality of care and services, recommendations and intentions, and overall health outcomes. The authors of PSNCQQ have developed their method by adapting the selected items of PJHQ, in order that they reflect patient satisfaction with the components of nursing care. The authors have selected the items from all nine subscales of PJHQ. Content validity of the PSNCQQ was additionally assessed by six in person nurse focus groups. The panel participants stated that the new instrument accurately reflects the activities of nurses. The PSNCQQ contains 19 items. Each of them is scored by the patient on the 5-point Likert-type scale with the scoring: 1-poor, 2-satisfactory, 3-good, 4-very good, 5-excellent [14]. Three items were added to the questionnaire: overall quality of care and services, overall quality of nursing care in the ward, and willingness to recommend the hospital to family and friends.

Polish Translation and Cultural Adaptation of the PSNCQQ

The process of translating the PSNCQQ into Polish and its cultural adaptation was carried out according to the recommendations formulated by the TCA Group [17]. First, a written consent was obtained from the author of the instrument for its use. Subsequently, two Polish translations of the original version were performed, based on which a single version was reconciled. This version was then translated back from Polish into English by a native English speaker, fluent in Polish. Forward and back translations were compared in order to harmonize the two versions. All the discrepancies identified, their sources and possible corrections of the forward translation were carefully discussed. In the process of developing the final version, literary translation from English was impossible due to cultural specificity when using some terms and expressions. In this case, the conceptual consistency between the forward translation and the original English version was preferred. The final Polish version of the instrument was positively assessed by a group of 30 Polish patients, for whom the questionnaire items were clear and easily understood. Psychometric validation of the PSNCQQ

Validation sample

The study was approved by the ethics committee of the Institute of Rural Health in Lublin. Participation in the study was fully voluntary and anonymous. The Polish version of the PSNCQQ was used to examine a sample of 100 randomly selected patients treated in 18 wards of various profiles in 6 hospitals in the Regions of Lublin, Warsaw and Łódź. Qualified responses were provided by 85 respondents. The validation

sample covered 31 males (36.5%), and 54 females (63.5%). The mean age of the patients was 55 yrs, males were aged 57 yrs, while females - 53 yrs, with no significant difference between males and females (p=0.12). The majority of respondents (92%) were married, 3 were unmarried and 4 – widowed. The structure of the Polish sample by gender differed from the Canadian population, where the percentage of both genders was nearly equal: males (46.9%), and females (54.1%) ($p < 0.05$). Canadian patients were also older than in the Polish sample, their mean age was 63 years ($p < 0.0001$).

The calculations were performed by means of statistical package SPSS PL v12. The methods and strategies applied for the evaluation of reliability and validity of the questionnaire were the same as those used by the authors of validation studies of the original version. The assessment of reliability consisted in the calculation of Cronbach's alpha coefficient for internal consistency, inter-item and item-total correlations. Construct validity was established through exploratory factor analysis [18]. Predictive validity was evaluated by the method of multiple regression analysis [19].

RESULTS

Table 1. The means and 95% confidence intervals of PSNCQ items in Polish and Canadian samples.

Item No.	PSNCQ items	Polish sample n = 85 Mean Score (95% CI)	Canadian total sample [A] n = 970 Mean Score (95% CI)
1.	Information you were given: How clear and complete the nurses' explanations were about tests, treatments, and what to expect.	3.88 (3.7-4.0)	3.93 (3.9-4.0)
2.	Instructions: How well nurses explained how to prepare for examinations and operations.	4.00 (3.8-4.2)	3.94 (3.9-4.0)
3.	Ease of getting information: Willingness of nurses to answer your questions.	3.96 (3.7-4.2)	3.89 (3.8-4.0)
4.	Information given by nurses: How well nurses communicated with patients, families and doctors.	3.82 (3.7-4.0)	3.79 (3.7-3.9)
5.	Informing family or friends: How well the nurses kept them informed about your condition and needs.	3.60 (3.4-3.8)	3.64 (3.6-3.7)
6.	Involving family or friends in you care: How much they were allowed to help in your care.	4.00 (3.8-4.2)	3.72 (3.7-3.8)
7.	Concern and caring by nurses: Courtesy and respect you were given; friendliness and kindness.	4.36 (4.2-4.5)	4.19 (4.1-4.3)
8.	Attention of nurses to your condition: How often nurses checked on you and how well they kept track of how you were doing.	4.15 (4.0-4.3)	3.95 (3.9-4.0)
9.	Recognition of your opinions: How much nurses ask you what you think is important and give choices.	3.73 (3.5-3.9)	3.40 (3.3-3.5)
10.	Consideration of your needs: Willingness of the nurses to be flexibile in meeting your needs.	3.93 (3.8-4.1)	3.76 (3.7-3.8)
11.	The daily routine of the nurses: How well they adjusted their schedules to your needs?	3.79 (3.6-4.0)	3.61 (3.5-3.7)
12.	Helpfulness: Ability of the nurses to make you comfortable and reassure you.	4.12 (4.0-4.3)	3.96 (3.9-4.0)
13.	Nursing staff response to your calls: How quick they were to help.	4.29 (4.1-4.5) **	3.71 (3.6-3.8
14.	Skills and competence of nurses: How well things were done, like giving medicine and handling IVs.	4.41 (4.3-4.5)*	4.04 (4.0-4.1)
15.	Coordination of care: The teamwork between nurses and other hospital staff who took care of you.	3.88 (3.6-4.1)	3.86 (3.8-3.9)
16.	Restful atmosphere provided by nurses: Amount of peace and quiet.	4.24 (4.0-.4)**	3.66 (3.6-3.7)
17.	Privacy: Provisions for your privacy by nurses.	4.02 (3.9-4.2)	3.89 (3.8-4.0)
18.	Discharge instructions: How clearly and completely the nurses told y0ou what to do and what to expect when you left the hospital.	3.82 (3.6-4.0)	3.83 (3.8-3.9)
19.	Coordination of care after discharge: Nurses' efforts to provide for your needs after you left the hospital.	3.48 (3.3-3.7)	3.57 (3.5-3.6)

[A] Source: [14, p. 224, Table 1; Column "All"]. * $p < 0.05$; ** $p < 0.001$ (2-tailed significance with Bonferroni correction).

In Polish and Canadian sample all of 19 items were very similar scored. Whey remained within the narrow range of about one score point, with relatively lowest scores for coordination of care after discharge (3.48, 3.57, respectively), and the heights for concern and caring by nurses (4.41, 4.19, respectively). With respect to 3 criteria of care, the assessments by Polish patients were significantly higher than in the Canadian studies. These were: nursing staff response to patient calls, restful atmosphere provided by nurses, and skills and competence of nurses.

Table 2. Means and 95% confidence intervals of patient satisfaction indicators in Polish and Canadian samples.

Indicator [A]	Polish sample Mean (95% CI)	Canadian total sample[B] Mean (95% CI)
PSNCQQ Total Score	3.97 (3.8-4.1)	3.81 (3.8-3.9)
Overall quality of care and services	4.06 (3.9-4.2)	4.04 (4.0-4.1)
Overall quality of nursing care in the ward	4.22 (4.1-4.4)	4.06 (4.0-4.1)
Willingness to recommend the hospital to family and friends	4.52 (4.4-4.7)	4.30 (4.2-4.4)

[A] Satisfaction scores in Canadian and Polish populations did not significantly differ with respect to all four indicators.
[B]Source: [14, p. 226; Table 3; Column "All"].

Satisfaction indicators obtained in both populations were high, and did not significantly differ statistically. The level of patient satisfaction measured by the Polish version of the PSNCQQ was 3.97, whereas among Canadian patients examined by the original version of the questionnaire, this level was only slightly lower - 3.81. The evaluations concerning the overall quality of care and services in both populations were nearly the same – in the Polish population – 4.06, in the Canadian population – 4.02. Overall quality of nursing care in the ward was insignificantly higher in Polish than Canadian patients (4.22 and 4.06, respectively). In both samples, the question concerning the willingness to recommend the hospital to family and friends obtained relatively the highest scores (4.52 and 4.30, respectively).

In the Polish sample there were no significant associations between the four satisfaction indicators and gender and age of patients.

Reliability of the Polish version of the PSNCQQ

Each item was positively correlated with each other. The mean inter-item correlation was 0.57, and values of correlations lay within the range 0.23 - 0.77.

The Cronbach's α internal consistency was 0.96 evidenced a very high reliability of the questionnaire. The α-coefficient was nearly identical with the value reported in Canadian sample, which was 0.97 [14].

The item-total correlations remained within the range from moderate to high (from 0.57 - 0.84). Only the coefficients of two items: 6 (involving family or friends in your care, r=0.43) and 18 (discharge instructions, r=0.50), were relatively lower than the remainder. These two items also obtained lower percentage values of variance shared with the remaining items of the scale: 36% for items 6, and 51% for item 18. Reliability of the scale calculated without the participation of the two items discussed would also be slightly higher than that actually obtained (by about 0.002-0.003).

However, this lowered usefulness of items 6 and 18, with respect to their contribution to the total score, was not a sufficient basis for their deletion. These items, similar to the other, positively correlated with the total score, and benefit as a result of their deletion would be insignificant, while the reduction of the scale to 16 items would result in a considerable discrepancy from the original version.

Construct validity

The authors of the original version analyzed the results obtained by means of factor analysis (FA), performing both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The results of EFA among the Polish population, based only on the Kaiser's criterion, provided the possibility of extracting two factors (with eigen-values of 11.46 and 1.04).

However, simultaneously, based on the scree plot, a single-factor model should have been chosen, which was finally undertaken [18].

This factor explained 60.3% of variance in the individual items. This was less than that by the authors of the original version who reported values from 75% - 89%. For the Polish sample, the CFA was not performed due to the too small size of the sample.

Predictive validity

The predictive validity of PSNCQQ was examined by testing its effect on each of three additional patients assessments of the health service. For this, the three separate multiple regression models were performed. In each of them, the PSNCQQ, and potentially significant intervening variables: age, gender, number of hospitalizations, and self-reported state of health at admission to the hospital, were included as explanatory variables. The subsequent response variables were: overall quality of care and services, overall quality of nursing care in the ward, and willingness to recommend the hospital to family and friends. (Tab. 3)

Table 3. Final multiple regression models.

Outcome	The percent of variance explained[A]	
	Polish sample	**Canadian total sample[B]**
Overall quality of care and services		
▪ age, gender, number of hospitalizations[C]/length of stay[D], self-reported state of health at admission	3.7	1.7
▪ PSNCQQ	66.9*	64.0*
▪ Final model	68.8*	65.7*
Overall quality of nursing care in the ward		
▪ age, gender, number of hospitalizations[C]/length of stay[D], self-reported state of health at admission	2.4	1.6
▪ PSNCQQ	56.7*	73.1*
▪ Final model	56.7*	74.6*
Willingness to recommend the hospital to family and friends		
▪ age, gender, number of hospitalizations[C]/length of stay[D], self-reported state of health at admission	1.9	1.8
▪ PSNCQQ	56.9*	55.2*
▪ Final model	58.8*	57.0*

[A]Adjusted R^2 x 100.; [B]Source: [14, p. 227; Table 5, Column "All hospitals"]; [C]Variable included in Polish models. [D]Variable included in Canadian models.; * $P < 0.001$.

Analyses of models on Polish data revealed the high significantly effects of PSNCQQ on all three health service assessments. PSNCQQ explained a 67% of variance in the assessments of overall quality of care and services; 57% of variance in the assessments of overall quality of nursing care in the ward, and 57% of variance in the willingness to recommend the hospital to others. The effect of the intervening variables on the assessments appeared to be insignificant. The results of analyses were similar to those in the original Canadian studies, in which PSNCQQ explained respectively: 64%, 73%, and 55 of variance in the subsequent health service assessments.

DISCUSSION

The studies conducted among the Polish population revealed a considerable similarity between the majority of the results obtained with the results by the Canadian researchers [14]. Mean scores of the items, PSNCQQ total score, and additional assessments of health service, were very similar in both populations, despite the geographical distance, cultural differences and varied level of medical services provided. Inter-cultural similarity of patients with respect to their satisfaction with contact with the health services is evidenced by the results of another survey carried out among 4,000 respondents from 4 countries: United States, United Kingdom, France and Spain [20]. In this survey, among other things, the respondents who used health services in 2008 were asked whether their experiences from these contacts were or had been of a positive, negative or neutral character. Irrespectively of the country, the respondents almost did not differ with respect to the structure of evaluations. For example, the percentages of positive/negative evaluations in the above-mentioned countries were as follows: United Kingdom — 48%/10%, USA — 47%/11%, France 47%/13%, Spain — 56%/13% [20].

Construct validity of the PSNCQQ was established in an unconventional way. The questionnaire usually measures the abstract theoretical construct, represented by a set of measurable items. The role of FA is to prove that the operationalisation of the construct was correct. Good construct validity means that the count and structure of factors extracted is the same as that theoretically assumed. In the case of PSNCQQ,

its single-factor structure was not theoretically assumed, but appears to be the result of a thorough selection of items, where efforts were undertaken so that they represented 'good care'. The overall score of the questionnaire reflects this factor, shared by all items of the tool. The final validation of PSNCQQ should be performed on a larger sample, which would cover the whole of the Polish population. The test-retest reliability of the Polish version should be also established.

CONCLUSION

The Polish version of the PSNCQQ satisfies the psychometric criteria with respect to reliability and validity, and may be applied for the evaluation of patient satisfaction with nursing care among patients treated in Polish hospital wards.

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