Development and Evaluation of the Nurse Quality of Communication with Patient Questionnaire

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SUMMARY

Introduction Nurse/patient relationship as a complex interrelation or as an interaction of the factor patient and factor nurse has been a subject of a number of studies during the past ten years. Nurse/patient communication is a special entity, usually observed within a framework of the wider nurse/patient relationship. In that regard, we wanted to develop a standardized questionnaire that could reliably measure the quality of communication between nurse and patient, and be used by nurses.

Objectives The main goal of this study was to develop and evaluate construct validity of the Nurse Quality of Communication with Patient Questionnaire (NQCPQ), as well as to evaluate its reliability. The goal was also to establish a measure of inter-raters reliability, using two repeated measurements of results by items and scores of the NQCPQ, on the same observed units by two assessors.

Methods The starting NQCPQ that consists of 25 items, was filled in by two groups of nurses. Each nurse was questioned during morning and afternoon shifts, in order to evaluate their communication with hospitalized patients, using marks from 1 to 6. To evaluate construct validity, we used the analysis of main components, while reliability was assessed using intraclass correlation coefficient and Cronbach-alpha coefficient. To evaluate interraters reliability, we used Pearson correlation coefficient.

Results Using a group of 118 patients, we explained 86% of the unknown, regarding the investigated phenomenon (communication nurse/patient), using one component by which we separated 6 items of the questionnaire. Inter-item correlation (α) in this component was 0.96. Pearson correlation coefficient was highly significant, value 0.7 by item, and correlation coefficient for scores at repeated measurements was 0.84.

Conclusion NQCPQ is 6-item instrument with high construct validity. It can be used to measure quality of nurse/patient communication in a simple, fast and reliable way. It could contribute to more adequate research and defining of this problem, and as such could be used in studies of interaction of psychometric, clinical, biochemical, socio-cultural, demographic and other parameters as well.

Keywords: psychometric scale; nurse; patient; communication

INTRODUCTION

It has been noticed over the last several years that nurse-patient communication represents the key factor that influences the overall outcome of patient treatment both in hospital and ambulatory environment. Although nurse-patient communication in health institutions is defined as a target professional communication between nurse and patient during treatment, this communication is the subject of research of particular importance in the recognition of the phenomenon of interaction between nurse and patient in monitoring and treatment of pain, anxiety and other conditions where it could be expected that the factor of nurse, alone or in combination with the patient as a factor, can have important effect in the quality of patient treatment [1, 2]. Particularly current is research of correlation assessment of post-surgery patient pain, as measured by specific patient-related scales and specific instruments by which the nurse, at the same time, evaluates the pain looking at the patient [3, 4]. For improvement of communication between the nurse and patient or the physician and patient, it is of crucial importance to conduct the education of health professionals in order to improve the quality of both treatment and health care [5]. It has been shown that the acceptance of pharmacological measures (treatment compliance) in psychiatric patients is in direct correlation with the achieved communication of health professionals and patients [5, 6]. Expanding the field of knowledge of physicians during their specialization or subspecialization, they spend incomparable less time with the patient than nurses do. Therefore, the most of the time such communication with patient with health professionals in hospital environment remained on the communication by the nurse. Unfortunately, besides the importance of the communication factor nurse-patient, there have been no data in medical literature to date about the possible measuring instruments for its measurement. That is the reason why we developed the Nurse Quality of Communication with Patient Questionnaire (NQCPQ), by which nurses would provide their own assessment about the achieved communication with inpatients at hospital wards where they perform their professional work.

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OBJECTIVE

The primary aim of this study was to separate and evaluate the main components of the NQCPQ, and to estimate the reliability of their particular items. The secondary aim was to establish measures of repetitiousness from two repeated measurements of grades per items and scores of the NQCPQ on the same study subjects by two assessors.

METHODS

Patients

Assessment of NQCPQ by items was performed in 127 adult hospital treated patients of both gender at departments of surgery, psychiatry and physical medicine and rehabilitation of the Health Centre Valjevo over the period from October to December 2008.

Assessors

Ten nurses – assessors from Health Centre Valjevo participated in the study, two nurses from each of the following departments – psychiatry, rehabilitation and surgery semi-intensive care, and four nurses from the general surgery department.

Developing NQCPQ

The NQCPQ contains 25 items to be filled in by nurses, evaluating the quality of their communication with patients with a grade from 1 to 6. The content of the items is given in Table 1.

In the process of developing the questionnaire, out of didactic reasons, we initially classified the items by the way of achieved communication and communication objective.

By the way of achieved communication, the items are classified as those:

a. That keep the quality of verbal communication – 1, 2, 3, 7, 9, 10, 11, 13, 19, 23, 25;
b. That keep the quality of non-verbal communication – 4, 5, 14, 15, 16, 17, 18, 20, 21, 22; and
c. That keep the quality of communication in general – 6, 8, 12, 24.

By the quality of communication objective, the items are classified as those:

a. Related to communication aiming at getting insight into severity of general conditions of a patient – 1, 6, 9, 10, 11, 12, 17, 20, 21, 22, 25;

Table 1. Starting items for the Nurse Quality of Communication with Patient Questionnaire (NQCPQ)

No.	Items
1	Based on the quality of communication with the patient, I evaluate his/her current condition as:
2	During conversation with me, the patient is showing interest in hospital regimen and the lifestyle he/she should lead in hospital environment, according to his/her illness:
3	From the conversation I conclude that the patient accepts his/her pharmacotherapy:
4	The patient shows me that he/she understands hospital regimen, by respecting it:
5	Based on the patient reactions, I can say that his/her treatment is resulting in:
6	Generally speaking, the level of my communication with the patient, keeping in mind severity of his/her condition, I can describe as:
7	The information I receive through talking to patient shows that this pharmacotherapy would be acceptable for application at home settings:
8	Generally speaking, the level of my communication with the patient during care procedures, I can describe as:
9	The patient accepts conversation about his/her illness in the following way:
10	I fully understand the severity of the patient's illness, and I talk with him/her about it:
11	The patient talks to me about various themes, but avoids or is not able to answer my questions about her/his illness:
12	I believe the patient has difficulties in communication due to the severity of her/his condition, therefore I understand her/his needs in the following manner:
13	The patient talks to me about details related to his/her personal hygiene while I assist her/him in changing bedclothes or underwear:
14	The patient talks to me about details related to his/her nutrition while I help him/her with feeding or supervise food intake during meals:
15	The patient actively participates in maintaining her/his personal hygiene:
16	The patient cooperates, gets up or moves in bed in order to help me in the change of bedclothes:
17	The patient looks like he/she listens to what I am saying about his/her condition, but avoids or is not able to adequately cooperate with me while talking to him/her:
18	The patient is active during meals and asks for appropriate assistance from me:
19	The patient accepts conversation with me about her/his medication:
20	The patient accepts and understands my presence related to her/his illness:
21	Based on the observation of the patient, I believe that her/his current condition is:
22	I fully understand the severity of the patient's illness, therefore only by observing the patient's gestures I conclude that my communication with him/her is:
23	The conversation with the patient shows that prescribed pharmacotherapy works as:
24	Generally speaking, the level of my communication with the patient while I carry out or monitor his/her pharmacotherapy, I can describe as:
25	I believe that, due to the severity of the illness, the patient talks to me in such a way that I can understand him/her:

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b. Related to communication aiming at caring of a patient – 2, 4, 8, 13, 14, 15, 16, 18;
c. Related to communication aiming at carrying on prescribed pharmacotherapy by a doctor – 3, 5, 7, 19, 23, 24.

Research procedures

During the forenoon period, 1-2 nurses in each clinical ward gave the grade per items of the NQCPQ. During the afternoon shift, the nurses from the comparative group of assessors gave their grades per items on the same patients. All assessors gave their grades completely independently from each other so that measurements could be objective.

For each patient on the interview sheet, there is a full name of a nurse given, date and time of interview, patient number, gender and age.

Statistical analysis

Assessment of main components and defining of the way of scoring per items of the Questionnaire with reduction of data was done through analysis of main components. Reliability, i.e. internal consistency of items per extracted main components of the Questionnaire is expressed with Cronbach's alpha coefficient (Cronbach's α) [7] and with intraclass correlation coefficient. Repetitiousness of items and NQCPQ scores were evaluated by the Student's t-test for paired-samples and by the Pearson's correlation coefficient.

RESULTS

The analysis included 118 patients (56 men and 62 women) of average age 60±17 years. The quality of communication was measured in 43 patients in the rehabilitation ward, 44 patients in surgery ward and 40 psychiatric patients. Analysing the main components per 25 items of the NQCPQ, one factor was extracted, which explained 86% of variability of the observed phenomenon – nurse-patient communication quality. With Kaiser-Meyer-Olkin (KMO) measure of model adequacy, the value of 0.94 was gained, indicating that the analysis of main components was statistically reasonable and justified. Bartlett's test for χ^2=860.071 and df=15 shows the highly statistically significant spheroid type of the model (p<0.01).

Within one extracted component, six items were outlined, marked in Table 1 with the following numbers: 9, 10, 11, 17, 22 and 24. From the communality scheme of each item, we can see that the contributions of the mentioned 6 items in the extracted component are almost equal (Table 2), so from the practical reasons we have decided to get the score by simple adding of grades per mentioned 6 items.

The intra-class correlation coefficient for the mentioned 6 items was highly statistically significant (F=29.63; p<0.01) and was CIC=0.96 with the confidence interval (0.95-0.97) at the significance level of 95%. Cronbach's α coefficient for 6 items and 118 patients was 0.97.

Student's testing of differences between grades of two assessors in 6 items of the main component revealed significant differences in items 17 and 22 (Table 3), whereas in other items no significant difference was found. Descriptive statistics for grade pairs per items are shown in the Table 4. There was no significant difference between the Questionnaire scores between the first and second assessors (t=-1.28; df=117; p=0.2). The values of the first and second measurements for the score were 27.85±7.02 and 28.31±6.73.

Pearson's correlation coefficients per items of the extracted main component were highly statistically significant and

Table 2. Communalities per 6 items of one extracted component-factor derived through the analysis of main components of the NQCPQ in 118 patients

Item number	Extracted
11	0.826
17	0.795
22	0.836
24	0.867
9	0.901
10	0.908

Table 4. Descriptive statistics of grades for 6 items of the main NQCPQ component in two measurements derived from two different assessors (N=118)

Differences between pairs per item		$\bar{X}$	SD
Pair 1	9 I	4.55	1.38
	9 II	4.55	1.36
Pair 2	10 I	4.57	1.27
	10 II	4.57	1.32
Pair 3	11 I	4.52	1.23
	11 II	4.63	1.24
Pair 4	17 I	4.63	1.28
	17 II	4.81	1.23
Pair 5	22 I	4.67	1.26
	22 II	4.87	1.01
Pair 6	24 I	4.89	1.16
	24 II	4.88	1.05

Table 3. Statistics of the Student t-test for paired samples derived from two assessors for 6 items of the main component (N=118)

I–II		Pair difference					t	df	p
		$\bar{X}$	SD	SE	95% CI				
					Lower limit	Upper limit			
Pair 1	9-9	0.00	0.94	0.09	-0.17	0.17	0.00	117	1.000
Pair 2	10-10	0.00	0.97	0.09	-0.17	0.17	0.00	117	1.000
Pair 3	11-11	-0.10	0.85	0.08	-0.25	0.05	-1.29	117	0.197
Pair 4	17-17	-0.17	0.91	0.08	-0.3442	-0.01	-2.12	117	0.036
Pair 5	22-22	-0.20	0.86	0.08	-0.3607	-0.04	-2.56	117	0.012
Pair 6	24-24	0.02	0.74	0.07	-0.1179	0.15	0.249	117	0.804

$\bar{X}$ – arithmetic mean; SD – standard deviation; SE – standard error; CI – confidence interval

Table 5. Pearson's correlation coefficient (r) of grade per items of the main NQCPQ component by two assessors (N=118)

I–II		r
Pair 1	9-9	0.76
Pair 2	10-10	0.72
Pair 3	11-11	0.76
Pair 4	17-17	0.74
Pair 5	22-22	0.73
Pair 6	24-24	0.78

p=0.000

had the values over 0.7 (Table 5). Pearson's correlation coefficient between the scores of two assessors was highly statistically significant and had the value 0.84. Details of the NQCPQ with grading scale from 1 to 6 are given in the Table 6.

DISCUSSION

Experience and medical competence of a nurse, as well as ability of observation, empathy and professional skills are the basic elements for establishment of non-verbal communication between a nurse and a patient [8, 9], which exists even in silence, when no verbal communication is ongoing. That even silence is a sort of communication between a nurse and a patient confirms the fact that one of the measures recommended to nurses when treating the patient is to pay a special attention to the look of a nurse (neatness, high level of hygienic habits, avoiding strong scents and too much make up, discretion in behaving and dressing, etc.). Silence, or non-verbal communication that flows as information energy between patients and nurses, can be potentially disturbed by various factors that can divert nurse's attention from the target – professional communication, directed to monitor the patient's condition and dynamics of his/her recovery. During the work with hospitalized patients, a nurse carries out care, therapy, monitors the patient's condition, takes nurse history and participates actively in feeding heavier patients. A part of relevant data that should be filled out when taking history, a nurse gets from the conversation with the patient, or during verbal communication. Cooperation of a nurse with a patient during his/her hospitalized treatment mostly depends on the quality of verbal communication that nurse makes with the patient.

The results of our study show that the quality of nurse/patient communication is one unique factor that incorporates strongly correlated verbal and non-verbal communication as unity, even in relation to the communication objective itself (Table 6). We can also see that the quality of nurse/patient communication is related to the patient's degree of acceptance/rejection of disease or condition. Based upon the contents of the extracted factor items from the NQCPQ, the quality of nurse/patient communication can be defined as a measure of nurse's perception on the quality of verbal and non-verbal established personal contact with the patient, during realization of her professional activities and based upon information received on the patient's acceptance/rejection of his/her condition, disease, appropriate nurse's care and pharmacotherapy during his/her hospitalization.

Analyzing the NQCPQ construct validity, in 6 items we explained 86% of variability of the evaluated phenomenon – nurse-patient communication quality. The mutual relationship of items in the component received is extremely high (Chronbach α=0.96), which proves that these items mutually measure the quality of nurse-patient communication with high reliability. The highly significant Pearson correlation coefficients with values over 0.7, when measuring repeated with the changed assessor, point out that the

Table 6. Questionnaire of the constructed NQCPQ with appropriate increasing graduating modalities of answers from 1 to 6

No.	Item	Grades					
		1	2	3	4	5	6
1	The patient accepts conversation with me about her/his illness in the following way:	Doesn't accept	Very difficult	Hampered	Good	Very good	Excellent
2	I fully understand the severity of the patient's illness, and I talk with him/her about it:	Conversation impossible	Very difficult	Hampered	Good	Very good	Excellent
3	The patient talks to me about various themes, but avoids or is not able to answer my questions about her/his illness:	Conversation impossible, as he/she does not answer my questions	Answers my questions extremely difficult	Answers my questions hampered	Answers my questions very well	Answers my questions very well	Answers my questions excellent
4	The patient looks like he/she listens to what I am saying about his/her condition, but avoids or is not able to adequately cooperate with me while talking to him/her:	He/she resists or does opposite from what has been told	Does not resist, but doesn't do what I am telling him/her	Cooperates, but with difficulties	Cooperates well	Cooperates very well	Cooperates excellent
5	I fully understand the severity of patient's illness, therefore only by observing the patient's gestures I conclude that my communication with him/her is:	Not possible at all	Extremely difficult	Hampered	Good	Very good	Excellent
6	Generally speaking, the level of my communication with the patient while I carry out or monitor his/her pharmacotherapy, I can describe as:	No communication	Extremely difficult	Hampered	Good	Very good	Excellent

assessor can be more or less strict, but thanks to the high internal test-retest reliability in the total score the difference was not significant, although there was a significant difference in answers between two assessors in two items (Table 3). The correlation coefficient of scores in two measurements was 0.84, which is also very high grade of inter-raters reliability.

Bad communication between medical staff and the patient is related to the patient's mistrust and doubt that during the hospitalization he/she is not getting the adequate medical treatment [10, 11]. Patients who show bad communication usually express bad feelings about medical system and do not like to stay in medical institutions. Often they are aggressive and unfriendly towards medical staff. We believe that, having in mind our results, the issue here is not trust/mistrust of patients about the health system and/or medical staff, but rather the ability of a patient to accept or not his/her disease and all that disease brings as a new aspect of reality to live with. We are of the opinion that patients with bad communication with medical staff, especially with nurses, actually deny their disease expressing animosity towards those who use the professional activities to face them with the reality which they are not ready to accept as their own.

Bearing in mind that lately there have been intensive efforts made on the development and evaluation of scales for measuring of quality of treatment and care of patients [11], we believe that our instrument (Table 6) can provide additional important information on the level of quality of the nurse/patient communication, because this measure is expressed by the nurse who uses her own observations, perception, professional knowledge and who is professionally motivated to achieve good quality of communication with the patient, so that she can direct her medical knowledge and communication skills to the more adequate treatment and care [12, 13]. It is well known that the nurse's perception of an actual patient's condition in some cases correlates and in some cases does not correlate at all with the patient's perception [3, 4]. In case of extremely painful conditions, it is demonstrated that the nurse's and patient's statements measured by nurse pain scale and patient pain scale do not correlate. This is logical, as "to feel" and to "sympathize" is not the same. So, the approach to learn about the interaction between a nurse and a patient, measuring of correlations between the nurse pain scale and patient pain scale, makes sense to the extent to which it is assumed that a nurse is capable to sympathize with the patient's pain, which the patient is not willing to feel. Such approach of pain measuring, as we see it, ignores a natural need of every human being to protect and defend himself/herself from aversion stimulants that he/she perceives, and certainly does not significantly clarify nurse/patient relations and/or interaction.

Measuring the quality of nurse/patient communication by using the NQCPQ enables fast and simple insight into the quality of this communication. In further research, this scale can be used for assessment of correlation of nurse/patient communication with success of pharmacological treatment and other interventions, especially of health and educational nature, as well as alternative measures that are directed to improving the communication quality, such as music therapy, poetry, video-presentations, etc. [9] It is especially interesting to assess the relations of nurse/patient communication quality with the type of disease, group pathology in psychiatric patients, terminal patients, patients with malignancy, and relation with demographic, cultural and social characteristics of the patient. Measuring the quality of nurse/patient communication could contribute to better recognition of the patient needs phenomenology [14-19], like treatment compliance, patient satisfaction, nurse satisfaction and health-related quality of life.

CONCLUSION

NQCQP is a measuring instrument with six items, with a high constructive validity that simply, fast and reliably measures the quality of nurse/patient communication, contributing to the more adequate defining of this problem, and which can be potentially useful both in interventional health studies that evaluate improvement of nurse/patient communication, and in studies which, as a subject of research, have evaluation of relationship of psychometric with other relevant parameters.

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Конструкција и оцена Сестринског упитника квалитета комуникације с пацијентом

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КРАТАК САДРЖАЈ

Увод Однос између медицинске сестре и пацијента, као сложен узајамни однос или као интеракција фактора „пацијент" и фактора „сестра", предмет су изучавања многих студија протеклих десетак година. Комуникација између пацијента и сестре је посебан ентитет који се разматра у оквиру широке релације ова два субјекта, а о њој се говори и закључује индиректно, без одговарајуће мерне скале која може да одреди ниво и квалитет те комуникације. С тим у вези желели смо да успоставимо инструмент који би поуздано мерио квалитет ове комуникације.

Циљ рада Циљ овога рада били су конструкција и процена валидности „Сестринског упитника квалитета комуникације с пацијентом" (СУККП) и утврђивање његове поузданости. Такође су се желеле утврдити мере међупосматрачке поузданости из два поновљена мерења добијених оцена по појединим ставкама упитника и скорова СУККП на истим јединицама посматрања од стране два проценитеља.

Методе рада Почетни упитник СУККП садржи 25 ставки, на које су одговарале медицинске сестре сврстане у две групе. Сестре су оцењивале квалитет комуникације са болнички леченим пацијентима оценама од 1 до 6. За процену конструкционе валидности упитника коришћена је анализа главних компоненти, а поузданост је одређена коефицијентом интракласне корелације и Кронбаховим коефицијентом α. За проверу међупосматрачке поузданости коришћен је Пирсонов коефицијент корелације.

Резултати У групи од 118 пацијената објашњено је 86% непознатог од испитиване појаве (квалитет комуникације сестре и пацијента), и то с једном компонентом, којом је издвојено шест појединих ставки упитника. Међусобна повезаност ставки (α) у добијеној компоненти била је 0,96. Вредности Пирсоновог коефицијента корелације веће од 0,7 биле су високо значајне по појединим ставкама упитника, а коефицијент корелације скорова при поновљеним мерењима био је 0,84.

Закључак СУККП је мерни инструмент са издвојеним јединственим фактором од шест појединих ставки и високом конструкционом валидношћу, који једноставно, брзо и поуздано мери квалитет комуникације између сестре и пацијента. Он може допринети адекватнијем проучавању и дефинисању овога проблема, а у перспективи може бити користан у интервенционим здравственим студијама једнако као и у изучавању повезаности психометријских, клиничких, биохемијских, социокултуролошких, демографских и других параметара.

Кључне речи: психометријска скала; сестра; пацијент; комуникација

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