ABSTRACT

Introduction: Nursing care is one of the most important areas of health services, taking place in direct contact with the patient, constituting a subsystem deciding about the general level of services. Aim: The aim of the study was to construct the Trust in Nurse Scale on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick. Methods: The study included a group of 1,200 people selected at random, 600 each from surgical and medical treatment wards. Patients did not report any problems with understanding the statements on the scale. Results: The internal accuracy scores were excellent, all Cronbach’s a values were well above 0.70. The Spearman’s rank correlation coefficient values were highly statistically significant (p <0.001), and correlation strength was very high (for most items r > 0.90). Conclusion: We suggest that The Trust in Nurse Scale developed on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick, can be used in studies on patient satisfaction with nursing care. Keywords: trust, nurse, patient, scale.

1. INTRODUCTION

Nursing care is one of the most important areas of health services, taking place in direct contact with the patient, constituting a subsystem deciding about the general level of services (1, 2). During a patient’s stay in a hospital, nursing care takes the most time and is characterized by the greatest intensity of direct contact with the patient. Therefore, it is mostly up to the nurse how the hospitalized patient will cope with the disease, how he/she will overcome problems associated with the diagnosis and treatment process, and how he/she will be prepared to return to the home environment. In the opinion of Mahon (3), the results of scientific research indicate that patient satisfaction with nursing care is the most important indicator of patient satisfaction with the overall care provided in the hospital. The quality of nursing care, as perceived and felt by the patient (i.e. his/her satisfaction), is one of the assessment measures of nursing care and overall care provided in a given health care facility. The study by Lemke (4) showed that from patients who assessed their stay in the hospital as very satisfactory, 95% rated nursing care as very satisfactory. From patients who assessed the overall stay as less satisfactory, only 34% rated nursing care as very good.

According to Otani and Kurz, (5), of the attributes affecting the assessment of overall satisfaction with a hospital stay, nursing care was of the greatest importance (0.55), followed by: the hospital admission procedure (0.15), pleasant surroundings (0.11), approach to family and relatives (0.10), medical care (0.05), and the discharge process from the hospital (0.05). Statistical analysis showed that the impact of nursing care on overall satisfaction with hospitalization was 3.5 times greater than the second most important attribute – the hospital admission procedure. According to the authors, in order to improve satisfaction with the overall hospital stay, it is necessary to first improve satisfaction with nursing care. In 2001, Larrabee and Bolden (6) conducted a study to identify components of nursing care that are important for the quality of care from the perspective of hospitalized patients, and then compared the results with similar studies by other authors. The study included 597 patients who had to answer
the question: "What is good nursing care?". The obtained data allowed to describe five thematic groups pertaining to characteristics of "good nursing" (6):
- **Providing for my needs** (79.1%), including caring for patients, checking that everything is all right, reacting to requests, pain management, providing information, care for the surroundings;
- **Treating me pleasantly** (54.6%), including pleasant treatment, respect for patient rights, positive attitude, patience;
- **Caring about me** (54.2%), including being present for me, showing concern and interest;
- **Being competent** (52.1%), including the proper substantive execution of skills, striving for excellence;
- **Prompt care** (29.1%), including being on time, performing procedures on time, avoiding any unnecessary delay.

Trust is widely acknowledged as an essential ingredient in patient-physician relationships. In 1990 Anderson and Dedrick (7) developed the Trust in Physician scale to assess interpersonal trust in patient-physician relationships. The reliability of scale is high (Cronbach alpha = .90). Trust was significantly related to patients’ desires for control in their clinical interactions and subsequent satisfaction with care. The authors of the scale define interpersonal trust as "a person’s belief that the physician’s words and actions are credible and can be relied upon". This scale was used in various disorders including rheumatic diseases, malaria, and gynecological disorders (8-10). Currently, the Trust in Nurses Scale is usable tool to identify patients’ trust to nurses. The Trust in Nurses Scale was derived from a middle-range theory of patient-centred cancer nursing care (11), and psychometric properties were initially assessed in a pilot sample (12). This instrument was subsequently used in a larger study examining the relationships among patient-centred nursing care and desired patient outcomes in the context of the healthcare system. The limitation of this scale is that the sample comprised patients with cancer in a single acute care setting. In the present study, we present validation of a new The Trust in Nurse Scale developed on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick (7).

### 2. AIM

The aim of the study was to construct the Trust in Nurse Scale on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick.

### 3. METHODS

Approval of the Bioethics Committee of the Medical University of Bialystok was obtained for conducting the study. The study included a group of 1,200 people selected at random, 600 each from surgical and medical treatment wards. There were 599 men (49.9%) and 601 women (50.1%) in the studied group. There were 204 (17%) patients up to the age of 20 years old, 332 (27.6%) aged 21 to 40, 337 (28.1%) aged 41 to 60, and 327 (27.3%) aged 61 and over. We found that the majority of respondents defined their marital status as a married (612 people, 51%). The remaining people were single for various reasons (588, 49%). A small majority of respondents lived in urban areas (605 people, 50.4%), while the rest lived in rural areas (595, 49.6%). Respondents mainly lived with other people (with husband or wife and/or with children or friends) (788, 65.7%), and alone (412, 34.3%). A total of 469 people (39.1%) had a vocational education, 394 people (32.8%) had a secondary education, and 337 people (28.1%) had a higher education. The social and living conditions were described by 413 people (34.4%) as poor, by 473 people (39.4%) as average, and by 314 people (26.2%) as good. In the last year, 284 people (23.7%) had one contact with a nurse, 289 people (24.1%) 2-5 contacts, 420 people (35%) 4 or more, and 207 people (17.2%) none at all.

The scale was developed on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick, encompassing 11 items. Scale reliability and reproducibility was confirmed by an independent study, where Cronbach’s alpha was 0.85–0.90. The Polish validation of the scale was also done with the agreement of Robert F. Dedrick and published in software Health Sci. 2018; 8(1): 27-35.

The validation process consisted of the following stages:
- Obtaining an agreement to use the scale (contact with the scale authors);
- Constructing the Trust in Nurse Scale;
- Applying the new version of the scale with the patients in the study;
- Assessing the psychometric properties of the new scale.

In the first stage, the authors obtained an agreement from Robert F. Dedrick, Department of Educational and Psychological Studies, EDU 105, University of South Florida, Tampa, FL 33620, to use the Trust in Physician Scale (TIPS) by Anderson and Dedrick to construct the Trust in Nurse Scale.

| Trust Scale | in physician | in nurse |
|-------------|--------------|---------|
| I doubt that my doctor really cares about me as a person. | I doubt that my nurse really cares about me as a person. |
| My doctor is usually considerate of my needs and puts them first. | My nurse is usually considerate of my needs and puts them first. |
| I trust my doctor so much I always try to follow his/her advice. | I trust my nurse so much I always try to follow his/her advice. |
| If my doctor tells me something is so, then it must be true. | If my nurse tells me something is so, then it must be true. |
| I trust my doctor’s judgments and opinions. | I trust my nurse’s judgments and opinions. |
| I feel my doctor does not do everything he/she should for my medical care. | I feel my nurse does not do everything he/she should for my medical care. |
| I trust my doctor as to the method of treating my medical problems. | I trust my nurse as to the method of nursing. |
| My doctor is a real expert in treating medical problems. | My nurse is a real expert in nursing. |
| I can tell my doctor if he/she made a mistake. | I can tell my nurse if he/she made a mistake. |
| I sometimes worry that my doctor may not keep the information we discuss totally private. | I sometimes worry that my nurse may not keep the information we discuss totally private. |

Table 1. Changes in item wording on the scale
Scale on its basis. In the second stage, the Trust in Nurse Scale was constructed. For this aim, on the new scale, the word doctor on the original scale was replaced with the word nurse, for example, and the word treating with the word nursing. These changes are presented in Table 1. In the next stage, after the initial version of the Trust in Nurse Scale, the scale was distributed to 130 patients of medical treatment wards. Patients did not report any problems with understanding the statements on the scale, thus the scale was distributed to 130 patients of medical treatment wards. Each patient responded using a five-point scale: 1- I definitely agree, 2- I disagree, 3- neither yes nor no, 4- I agree and 5- I definitely disagree.

Data analysis

All statistical analysis was performed with Statistica 13.0. In the result analysis, we calculated the percentage and average values of points obtained from the responses to individual scale questions. The internal compliance of the total measure was estimated using Cronbach’s α. It is assumed that the scale is internally consistent when the measure is not less than 0.70. Cronbach’s α values after removing individual scale components were also determined (I-XI). If the value of Cronbach’s α after removing a given item is significantly lower than the total value, this means that this item should be removed from the score. In our analysis, internal accuracy scores were excellent, all Cronbach’s α values were well above 0.70. Removing any item from the scale does not change its psychometric properties. Correlations between individual detailed assessments and the total measure were also very high. The Spearman’s rank correlation coefficient values were highly statistically significant (p <0.001), and correlation strength was very high (for most items $r_s > 0.90$).

4. RESULTS

The conducted validation of the Trust in Nurse Scale revealed. In a group of 600 patients of medical treatment wards showed that all correlations were statistically signi-

Table 2. Scale validation for a group of patients on medical treatment wards ($N = 600$). $r_s$ – Spearman rank correlation coefficient between items and summary measure (all correlations were statistically significant: $p < 0.001$) $^a$Cronbach’s alpha value if the respective items were deleted from questionnaire

| Item | Categories | 1 pts | 2 pts | 3 pts | 4 pts | 5 pts | Mean/ std. dev. | α Cronbach $^a$ | $r_s$ |
|------|------------|-------|-------|-------|-------|-------|-----------------|---------------|-------|
| I    |            | 28.3% | 36.8% | 20.7% | 11.5% | 2.7% | 2.23±1.07 | 0.980 $^a$ | 0.96 |
| II   |            | 1.7%  | 8.3%  | 62.7% | 20.3% | 7.0% | 3.23±0.76 | 0.982 $^a$ | 0.86 |
| III  |            | 2.0%  | 8.7%  | 27.3% | 57.0% | 5.0% | 3.54±0.80 | 0.981 $^a$ | 0.89 |
| IV   |            | 4.0%  | 12.7% | 34.7% | 36.0% | 12.7% | 3.41±0.99 | 0.979 $^a$ | 0.95 |
| V    |            | 18.0% | 40.0% | 23.0% | 14.0% | 5.0% | 2.48±1.09 | 0.980 $^a$ | 0.96 |
| VI   |            | 2.3%  | 14.3% | 22.8% | 52.0% | 8.5% | 3.50±0.92 | 0.980 $^a$ | 0.92 |
| VII  |            | 19.7% | 35.0% | 22.5% | 16.7% | 6.2% | 2.55±1.16 | 0.980 $^a$ | 0.97 |
| VIII |            | 0.8%  | 7.3%  | 25.5% | 54.3% | 12.0% | 3.69±0.81 | 0.981 $^a$ | 0.91 |
| IX   |            | 4.0%  | 6.7%  | 24.2% | 51.7% | 13.5% | 3.64±0.94 | 0.980 $^a$ | 0.92 |
| X    |            | 6.2%  | 8.2%  | 43.7% | 36.0% | 6.0% | 3.28±0.92 | 0.980 $^a$ | 0.93 |
| XI   |            | 27.5% | 17.2% | 27.8% | 15.3% | 12.2% | 2.68±1.35 | 0.981 $^a$ | 0.97 |

Summary measure

|               | 10.4% | 17.7% | 30.4% | 33.2% | 8.3% | 34.2±10.1 | 0.982 |

Table 2. Scale validation for a group of patients on medical treatment wards ($N = 600$). $r_s$ – Spearman rank correlation coefficient between items and summary measure (all correlations were statistically significant: $p < 0.001$) $^a$Cronbach’s alpha value if the respective items were deleted from questionnaire

5. DISCUSSION

The quality of nursing care can be assessed from the point of view of the nurse (care provider) and the patient and his family (recipients) (1-3). This evaluation is not only an opinion, but also an emotional state expressed in the form of satisfaction or lack of satisfaction. Systematic analysis of care provides an opportunity to improve the entire health care system and its individual elements. A nurse, providing care in an interdisciplinary team, must be aware of her/his competencies, skills, rights and responsibilities as well as know that the first impression depends on his/her attitude and behavior, affecting a patient’s well-being during his/her hospital stay (1-3). According to Johansson et al. (15), the quality of nursing care as perceived by the patient depends on many factors, which the nurse must keep in mind when striving to improve the quality of nursing from the patient’s perspective. Based on a review of the literature, the authors identified eight categories of factors that affect patient satisfaction with nursing care, such as:

* Sociodemographic factors: patient’s age (older patients were more satisfied with care than younger patients), sex (men had a higher level of satisfaction than women), education (patients with a higher level of education achieved a lower level of satisfaction);

* Patients’ expectations about care and previous hospital stay experiences, pertaining to not only high professional competencies and knowledge, but also individualized approach, friendly treatment, advising, proper communication, informing, physical and emotional support, and good cooperation between doctors and nurses;

* External environment–cleanliness, meals, noise, room aesthetics and comfort;
Communication and transfer of information—ease in establishing communication, and adequate (simple, understandable) information had a significant impact on the level of patient satisfaction;

* Patient participation and involvement in making decisions about care;

* Interpersonal relations between the nurse and the patient—good relations are: understanding, respect, trust, honesty, cooperation and humor, as well as subjective, individualized treatment, empathy and patience from the nurse;

* Technical and manual competencies, including giving the patient adequate advice, competent treatment and effective pain management;

* Organization of healthcare—continuity of care, availability of nurses, nurses’ professional satisfaction affected the level of patient satisfaction. A nurse that is overworked, tired, showing job dissatisfaction had a negative effect on patients’ perception of quality of care.

It was found that the more attention a nurse devoted to a patient, the higher the level of patient satisfaction, and emotional involvement in the care of a patient additionally increased his/her level of satisfaction (13). Patients expressed the opinion that a nurse’s emotional commitment to care was even more important to them than the manual and technical competencies. According to Pałyska et al. (14), understanding care from a patient’s point of view is aimed at his/her satisfaction and therefore concerns the extent to which the quality of care meets the patient’s requirements and provides him/her with the expected benefits and satisfaction. In the subjective assessment of the quality of medical services, the patient takes into account not only the quality of services provided, but the whole of their surroundings, treatment by medical personnel, and often also interpersonal relations between hospital staff.

Based on the results of his own research conducted in a group of patients of the Department of Neurosurgery and Pediatric...
Neurosurgery, Department of General Surgery and Transplantology at the Independent Public Clinical Hospital No. 4 in Lublin and the Department of Vascular Surgery at the Independent Public Clinical Hospital No. 4 in Lublin, Wasilewski (1) stated that the assessment of satisfaction with nursing care was at a high and medium level in terms of the hospital conditions in which the care was provided, and the assistance that patients received from nurses and related to: cleanliness and room aesthetics, necessary assistance during washing or bathing, rest and sleep conditions, and help in getting up, sitting down and walking. Assessment of satisfaction with the nursing care offered was low in terms of the hospital conditions in which the care was provided and the help the patients received from nurses and related to: air the rooms, assisting in physiological activities, managing free time, and helping with exercising and rehabilitation (1). In another paper, the same author (15) conducted a subjective assessment of selected aspects of satisfaction with the hospital stay of patients with damage to the right and left hemispheres of the brain compared to the control group. The study was conducted among 175 patients hospitalized in the Departments of Neurosurgery and Pediatric Neurosurgery and Neurology of the Independent Public Clinical Hospital No. 4 in Lublin and showed that nearly half of the patients in each of the examined groups knew the ward nurse, and a smaller percentage of patients identified the appropriate nurse with taking care of a specific group of patients. About 70% of the patients in each group were informed about their rights. Statistical analysis of the obtained results indicated a high assessment of the aspect regarding ensuring religious needs and contact with family. Over 90% of patients in the experimental and control groups were satisfied with care in this area. The assessment of patient satisfaction with the offered nursing care indicated an average level of patient satisfaction with the analyzed aspects of care.

A study by Grabska and Stefanińska (16), conducted in 90 adult patients of 4 different departments of the Regional Hospital in Włocławek, showed that patients most valued nurses’ diligence and accuracy in performing procedures as well as warmth and kindness in their approach to the patient. The patients rated the nurse’s education level and specialization highly. The vast majority of respondents expected a nurse to provide loving care and support. Respondents had a high level of trust for nurses and assessed their professionalism highly. Ozga and Binkowska-Bury (17) assessed the satisfaction of 100 patients with nursing care on a surgical ward: traumatic surgery and orthopedics. The study showed that the surveyed patients assessed nursing care ranging from 39.1 to 94.8 out of 100 maximum points. The level of satisfaction with nursing care in the examined group of patients ranged from 32.8 to 100 points. Men assessed the experience and satisfaction with nursing care higher than the studied women. Overall patient satisfaction with nursing care was good (75.3%). Therefore, it seems important to have a standardized tool for assessing patient’s trust in a nurse, and until now there has not been one.

The obtained results of the developed and validated Trust in Nurse Scale, developed with the consent of the authors on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick, seems to confirm that it can meet expectations in this regard.

6. CONCLUSIONS
The conducted validation of the Trust in Nurse Scale, when divided into groups of patients from medical treatment and surgical wards as well as in the total studied population, showed that all correlations were statistically significant. The Trust in Nurse Scale, developed on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick, can be used in studies on patient satisfaction with nursing care.

- Author’s contribution: EKK, WK, MC, KK, AG, CL, and JL contributed equally to this work. Study conception, data analysis, data collection, paper writing, and critical revision were performed by EKK, WK, and JL. The draft and revision were performed by EKK, WK, CL, and KL.

- Financial support and sponsorship: None.

- Conflicts of interest: There are no conflicts of interest.

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