Original Article

Validity and Reliability of the Presence of Nursing Scale in Patients with Cancer in the Turkish Language

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Abstract

Background: Nursing presence has been investigated in the nursing literature. However, no instrument has been developed to measure it in Turkey.
Aim: The aim of this research is to assess the validity and reliability of the Presence of Nursing Scale for cancer patients.
Methods: This is a methodological study. Data were collected by using the descriptive information form and the Presence of Nursing Scale. For the statistical analysis of the data t-test, Pearson correlation and factor analyses were used.
Results: The internal consistency of the Presence of Nursing Scale was calculated with Cronbach alpha coefficient and it was found as 0.96. According to the explanatory factor analysis, the factor obtained explains 57.7% of the total variance. As a result of the confirmatory factor analysis, the scale's model coherence indices were found to be within the acceptable limit intervals.
Conclusions - Implications: From the results obtained the Presence of Nursing Scale is valid and reliable instrument for assessing the presence of nurses as part of the treatment of cancer patients in Turkey. Its use is recommended for evaluating nursing presence by the site of cancer patients.

Keywords: Cancer, Nursing, Patients, Presence, Reliability and Validity

Introduction

Presence is derived from the Latin word praesentia, which is a form of the word praeesse meaning “existing before everything” (Geddes and Grosset 2002). The first definitions within the field of nursing include the presence of nursing as a profession (Vaillot 1996), as a way of "acting for" the patient and "being with" the patient within the interaction that is based on the subject-subject relationship established with the patient (Paterson and Zderad 1976). Afterwards, it was also defined as making yourself physically suitable and accessible (Gardner 1985), individuals' willingness to commit themselves knowing their uniqueness (Doona et al. 1999), an application of the art of nursing (Potter and Frisch 2007), whose objective is to intervene in order to change the course of the patient's health and disease (Parse 1992).

Presence is also explained with different dimensions and classifications. Within these classifications, physical/behavioral, emotional/ affective, cognitive (Gardner 1992; McKivergen and Day 1998; McMahon and Christopher; 2011) and spiritual dimensions (Easter, 2000; McKivergen and Day; 1998, McMahon and Christopher; 2011) were identified.

Kostovich (2012) developed a model using the existing descriptions and classifications through a literature survey. The conceptual framework guiding Kostovich’s study was developed through the use of ideas set forth by Paterson and Zderad (1976) and supported by Gardner (1992), McKivergin and Daubenmire (1994), and

McKivergin and Day (1998). According to this model, the patient establishes a relationship with a vulnerable presence and when the trustworthy relationship with the nurses is developed, the patients invite the nurses to their own world. The nurses, on the other hand, are involved in the relationship as trained observers focused on patient care. Along with this, the nurse establishes a relationship by committing himself/herself and bears the risks of their vulnerability. The nurse and the patient share a bond where they are open to each other and the presence of the nurse is revealed within this experience. According to Kostovich (2012), the presence in nursing is the bond established between the nurse and the patient. The author considers the phenomenon of the presence of nurses in four dimensions. These dimensions are identified as behavioral, cognitive, affective and spiritual. The author also indicated that these dimensions exist simultaneously and the transition between the dimensions results from a priority of the individual prevailing over the other person priorities. But the scale has just one dimension.

Cancer is a life threatening disease; cancer patients experience an existential crisis. The needs of these patients are increased, and the volume and duration of experienced troubles have changed. Therefore, the relationship that cancer patients establish with nurses at times that they receive services from nurses is vital. The presence style of the nurse in the relationship that the nurse establishes with the patient increases the individual's feeling of well-being. Therefore, how the patient evaluates the presence of nurse in the relationship that he or she has established is essential. When the definitions of the concept are examined, its place within the relationship between the nurse and the patient and the consequences are questioned. There aren't any Turkish instruments that can be used in Turkey, in order for this highly abstract concept to be understood accurately and to be used for increasing the quality of patient care. It is, however, important to know this subjective concept for the assessment and planning of nursing care. Within this context, as there aren't any other instruments that can be used to make an objective measurement, this study was planned considering the requirement of a validity and reliability study in Turkish for the Presence of Nursing Scale (PONS).

The aim of the present research is to adapt a scale into Turkish so that it may be beneficial in terms of improving the provided nursing services.

Instrument and Method

Form of Research

Methodological research design was used for validity and reliability study of the Presence of Nursing Scale in Turkish

Place of Research and Its Features

The research was carried out at Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital, and Hacettepe University's Oncology Hospital. Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital is a research and training hospital affiliated with the Ministry of Health and located in Ankara. The hospital has a capacity of 600 beds and provides services with 432 nurses. Hacettepe University Oncology Hospital on the other hand is a hospital that operates under the auspices of Hacettepe University with a capacity of 162 beds in total employing 150 nurses.

Population and Sampling of the Research

The population of the research is comprised of patients receiving treatment in both hospitals. According to the patient registration report for 2012 obtained from the patient registration system, Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital treats 1400 in-patients on average annually, while 4200 patients are hospitalized at Hacettepe University Oncology Hospital.

The patients that will be included in the scope of the sampling were selected in accordance with certain criteria.

These criteria include: Being older than 18 years old, fully oriented (time, person, place) and conscious, who can see, hear and use their hands, able to read, write, speak and understand Turkish, at least eighth-grade education, hospitalized for at least 5 days so that they could interact with the nurse and received care and possessing the skill to differentiate the nurse and other care-givers as well as being a cancer patient.

The researcher reviewed the daily clinic patient record list to reach the patients who met the sample criteria. Their state of consciousness and

Turkish literacy habits were examined in accordance with the research criteria and the researcher negotiated with the proper patients through obtaining the approval of clinical nurses. The entire research was explained by the researcher, and it was stated that the participation in the research is completely voluntary. The patient was also informed that information whether the patient participates in the research or not would not affect the nursing care under any circumstances. The verbal consents of patients who volunteered were recorded: they stated that they were completely informed about their participation in the research. A pencil, a questionnaire form, and the necessary explanation were given to the patients, who then filled out the forms.

The culture where the scale was developed is suggested to individuals who are graduates of eighth grade and this is equivalent to secondary school graduate in Turkey. For the validity reliability studies, the number of ideal samples was specified as 5-10 individuals for each item considering every item included in the scale (Akgül 2005). Within this context, it is required to reach maximum 280 people for this scale. However, according to the Structural Equality Model that is used for the statistical assessment (Şimşek 2007), as the ideal suggested number is 300. Therefore, 300 patients were determined as the sampling group and the number of patients as specified was reached.

For the time invariance analysis, the reapplication of the same scale to 15-20% of the first sample, in other words 45-60 patients was planned (Akgül 2005) and it was applied to 57 patients. Test-retest on the other hand was carried out 10-14 days after the first application.

Ethical Dimension of the Research

In order to apply the study, Turkish Public Hospitals Institution Ankara 2nd Region Public Hospitals Union General Secretariat, Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital and Hacettepe University's Oncology Hospital's institutional permits were obtained. Ethics board permit was obtained from Hacettepe University Medical Faculty Non-Invasive Research Ethics Board with decision no. GO 13/171-15 dated 27.03.2013. Meetings were held with the nursing managements in both institutions and they were informed about the study.

The patients, who participated in the research, provided verbal and written consent about their willingness to participate in the research. Additionally, a permit was obtained from Kostovich, who developed the inventory, in order to translate the "Presence of Nursing Sale" into Turkish and use them in the research on 4.12.2012 through electronic mail.

Data Collection Tools

The data of the study were collected by using the descriptive information form that is comprised of the patients' age, sex, marital status, hospitalization period, diagnosis of the disease and information related to the disease as well as the Presence of Nursing Scale (PONS).

Presence of Nursing Scale

PONS is a likert scale developed by Kostovich comprised of 28 items (Kostovich 2012). The scale measures the presence of nursing through 26 items and the last 2 items measure the patient's satisfaction levels. The scoring of each item is determined as never (1 point), rarely (2 points), sometimes (3 points), frequently (4 points) and always (5 points). Minimum and maximum scores are 42 and 125 respectively and the score of an individual determines his/her satisfaction level. Cronbach Alpha number of the scale is 0.95.

The scale has no sub-dimensions: it measures the presence of nurse by means of one dimension. Only one statement about the patient satisfaction and its relationship with the presence of nurse were examined because there is no other scale for the construct validity. The correlation was found to be 0.801. The test-retest was used for the invariance; the correlation coefficient was 0.729.

Application of the Research

The research was applied between the dates, April 1-September 1, 2013.

Linguistic Validity of the Presence of Nursing Scale

For the linguistic equivalence study, the scale was translated into Turkish by three experts, all specialized in the original language of the scale, independently. A faculty member, who is also

specialized in the relevant field and a Turkish Language and Literature expert also examined the translated text and researchers decided on the most appropriate translation for each item. The next stage involved the translation of the scale that was translated into Turkish by another expert who knows English and Turkish well to its original language, which is English. This translation into English was evaluated by Kostovich for the purposes of making a comparison and the Turkish version of one of the items, which did not completely conform with the original item was reviewed and rectified and the scale was finalized.

Content Validity of the Presence of Nursing Scale

Content validity study was conducted in order to determine the form of expression of the items included in the PONS that was translated into Turkish, the clarity and comprehensibleness of the expressions, whether they result in different meanings and conform with the objective of the measurement. The researcher provided the "scale" and the "rating point scale developed for the measured values of each of the scale items" in Turkish (1 =Not suitable; 2=Suitable, but requires small changes; 3=Very suitable), which was finalized as a result of the linguistic equivalence study conducted by 11 field experts. Each item evaluated by the experts was reviewed and the items that were scored with 1 and 2 points were reorganized in line with the views of the experts. The conformity between the experts was evaluated through the Kendall W analysis.

Assessment of the Data

The data were assessed by using SPSS (Statistical Package for Social Sciences) 20.0 and LISREL 8.5 programs. For the statistical significance level of the statistical tests, $p<0.05$ value was accepted.

For the content validity, the coherence of expert opinions were evaluated with the Kendall W analysis and in relation to structural validity, Goodness of Fit Indices were used. Among the most frequently used goodness of fit indices, Chi square, Root Mean Square Error Analysis (RMSEA), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Relative Fit Index (RFI) and Standardized Root Mean Square (SRMR) were used.

Item total score analysis for the scale and sub-dimensions, Pearson correlation analysis, coherence analysis, t-test for dependent groups, internal consistency of scale and sub-dimensions were evaluated based on Cronbach's alpha coefficient. Cronbach's alpha coefficient that would be sufficient for a likert-type scale is evaluated as close to 1. For the time invariance, the invariance reliability analysis for the two measurements was carried out.

Limitations of the Research

Given that this research was only applied to the cancer patients admitted to the aforementioned hospitals, the research is limited in terms of the generalization of the findings.

Results

Considering the sociodemographic features of the patients that participated in the study, the average age was 44.27±14.05. 54.7% of the participants were women, while 74% were married, 69% were unemployed, 39.3% were university graduates and 74% lived in the city center. The patients were hospitalized for 9.34±7.38 days on average.

Content Validity Findings

For content validity, the scores of the experts were assessed with Kendall W analysis, it was determined that their difference was not statistically significant (Kendall W=0.132, p=0.062), in other words expert scores were consistent.

Structural Validity Findings

The original scale has 28 items. However, two of these 28 items are about nursing care satisfaction, and these items are not included in the scale rating and factor structure. In order to understand whether the single factor structure present in the original scale fits well with the sampling data, Confirmatory Factor Analysis (CFA) was carried out. According to the results of the CFA, the single factor scale comprised of 25 items had its chi square/degree of freedoms above 5 and since some of the consistency indices calculated were not within acceptable intervals, a different model was tried. Item 20, which correlated highly with item 19 in the scale and was considered as an error, was removed from the scale. Therefore, CFA for the single factor structure was restructured for the presence

of nursing perception. Within this analysis, χ^2 =1228.40 (sd=252, p<0.01) was obtained. According to the results obtained, Chi square value is expected to be insignificant, however this value is highly sensitive towards the sample size and in larger sample groups, they are mostly statistically significant. In this context, Chi square ratio obtained as an alternative is suggested with a calculation from the degree of freedoms (Byne 1989; Kline 1994; Şimşek 2007). Within this study conducted, this ratio is found as (χ^2 /*sd*=4.47). In addition to this, Consistency index values were determined as (RMSEA= 0.114), (NNFI= 0.96), (CFI= 0.97), (IFI= 0.97), (RFI= 0.95) and (SRMR= 0.050). Factor loads related to the model are presented in Figure 1.

Explanatory Factor Analysis

In order to examine the structural validity of PONS, as part of the Explanatory Factor Analysis (EFA) firstly the correlation matrix between all of the items were examined to see whether there is a significant correlation and it was acknowledged that these items had an adequate relationship for conducting factor analysis. Following this, sampling adequacy and Barlett Sphericity tests were conducted. For the consistency of the data with the factor analysis, Kaiser-Meyer-Olkin (KMO) has to be higher than 0.60 and Barlett test has to be statistically significant. Within this study, KMO sample consistency coefficient was found as 0.96, whereas Barlett Sphericity test χ^2 value was determined as 6040.916 (p<0.001), which is statistically significant.

Within the explanatory factor analysis, the single factor structure that was deemed appropriate within the confirmatory factor analysis was tested and again for this purpose, the items were combined in a single factor using main components factor removal and Varimax transformation method. The factors loaded to the items and factor loads are shown in Table 1. According to this, the factor obtained explains 57.7% of the total variance. It is seen that the factor loads that belong to the items vary between 0.523-0.844. A confirmatory factor analysis applied and the scale's model coherence indices were found to be within the acceptable limit intervals (figure1)

Reliability Findings

The internal consistency of the Presence of Nursing Scale was calculated with Cronbach alpha coefficient and it was found as 0.96. The last application carried out to determine the reliability of PONS is the retesting method. In order to determine the consistency of the scale over time, the scale was applied twice to a group of 57 people with an interval of three weeks. The average score within the first application was found as 89.051±22.50, while for the second application, it was found as 91.8±24.50 and the differences between the average scores were determined to be statistically insignificant (t=1.541, p= 0.129). The Pearson Product Moment Correlation coefficient was calculated as 0.83.

Due to the fact that the difference is not statically significant after the repeated measurements, the scale is reliable. As a result of the statistical analyses conducted related to validity and reliability, it was determined that PONS, which measures the patients' assessment regarding the presence of nursing, is a reliable and valid scale in Turkish.

Discussion

The adaptation of the Presence of Nursing Scale to Turkish and this research conducted for the purposes of a validity and reliability study, it was determined that PONS was a valid and reliable instrument that could be used as part of nursing applications.

Discussion Related to the Validity of PONS

Validity is a concept that is related to "what" a measurement tool measures and how "accurately/truly" it measures these concepts (Büyüköztürk 2002). Structural validity on the other hand is related to how much correlation the tool shows with the theoretical, psycho-social structure that is tried to be measured (Aktürk ve Acemoğlu 2011) and it is conducted with an explanatory and confirmatory factor analysis. Factor analysis is a procedure carried out in order to collect several variables under a couple of headings and evaluate the variance explained by the scale items. Explanatory factor analysis is one of the most frequently used methods for evaluating structural validity (Gözüm ve Aksayan 2003).

Table 1. Factor Structures and Loads of the Presence of Nursing Scale

Items	Factor 1
These NURSES were sensitive towards my concerns.	0.687
These NURSES taught me what I needed to know.	0.612
These NURSES came to my room to make sure that I do not have a problem.	0.627
These NURSES fulfilled my spiritual needs.	0.787
These NURSES talked to me like a friend.	0.771
These NURSES comforted me physically.	0.761
These NURSES comforted me emotionally.	0.824
These NURSES understood my feelings.	0.800
These NURSES acquired my trust.	0.814
These NURSES were highly skilled while taking care of me.	0.630
These NURSES were beside me when I needed them.	0.769
These NURSES helped my day run smoothly.	0.768
These NURSES provided a healing atmosphere in my surrounding.	0.839
These NURSES listened to my requirements and they addressed these requirements.	0.824
These NURSES suppressed my fears.	0.759
These NURSES were concerned about me.	0.523
These NURSES were committed to providing me the care I needed.	0.645
These NURSES made me feel safe.	0.832
These NURSES provided me with the care I needed not as a sick person but as an individual.	0.844
These NURSES enabled me to control my healthcare as much as possible.	0.783
These NURSES improved my life quality.	0.772
I trusted in these NURSES.	0.831
I felt a connection with these NURSES.	0.817
The presence of these NURSES made a difference for me.	0.810

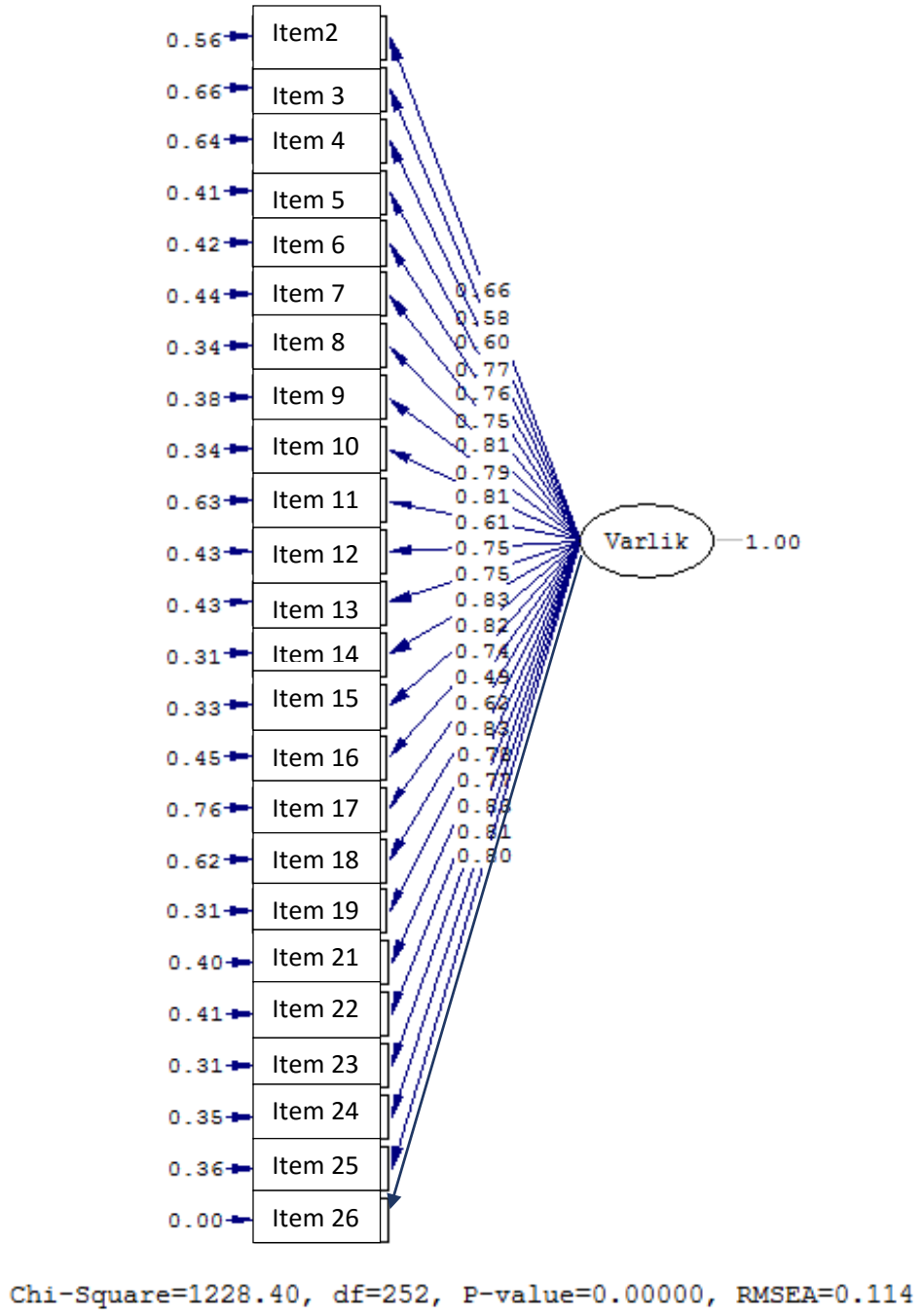

Figure 1. The Factor Loads of the Presence of Nursing Scale According to Its Confirmatory Factor Analysis

Confirmatory factor analysis on the other hand is used in order to assess whether the items that make up a factor have an adequate relationship with the factor (Gözüm and Aksayan 2003). For the adaptation of the scale into Turkish, in order to confirm the consistency of the factors for the structural validity, confirmatory factor analysis was used.

When the consistency indices used in order to evaluate the results of this analysis were considered, ($\chi 2/df \leq 5$ (acceptable consistency) (Şimşek 2007), RMSEA= 0.8-0.1; (NNFI $\geq$ 0.95), (CFI $\geq$ 0.95), (IFI$\geq$ 0.95), (RFI$\geq$ 0.95) and (SRMR$\leq$ 0.08), it is possible to argue that Model 2 developed as part of this research has an acceptable goodness of fit (Hu and Bentler 1999; Hooper at al. 2008; Dursun and Kocagöz 2010). Following this, sampling adequacy and Barlett Sphericity tests were conducted. For the consistency of the data with the factor analysis, Kaiser-Meyer-Olkin (KMO) has to be higher than 0.60 and Barlett test has to be statistically significant (Büyüköztürk 2002; Norusis 1990). Within this study, KMO sample consistency coefficient was found as 0.96, whereas Barlett Sphericity test χ^2 value was determined as 6040.916 ($p<0.001$), which is statistically significant.

Within the explanatory factor analysis, the single factor structure that was deemed appropriate within the confirmatory factor analysis was tested and again for this purpose, the items were combined in a single factor using main components factor removal and Varimax transformation method. According to this, the factor obtained explains 57.7% of the total variance. Kline (1994) highlights that if this value is above 40%, it becomes an important indicator for structural validity (Kline 1998). It is seen that the factor loads that belong to the items in this study vary between 0.523-0.844.

Discussion Related to the Reliability of the Presence of Nursing Scale

The internal consistency reliability of the Presence of Nursing Scale was calculated with Cronbach alpha coefficient and it was found as 0.96. When the total correlation values of the items are examined, it can be seen that these values vary between 0.506 and 0.813. For the interpretation of the item-total correlation obtained, considering that the items that are 0.30 and above differentiate the individuals in terms of the features measured (Büyüköztürk 2002), it was seen that the item-total correlations were adequate. The last application carried out to determine the reliability of PONS is the retesting method. The Pearson Product Moments Correlation coefficient calculated between the two applications as 0.830 ($p<0.01$) is above the minimum envisaged value 0.70 (Tezbasaran 1997), given that the difference between the two measurements is not statistically significant, the scale is reliable. As a result of the statistical analyses conducted related to validity and reliability, it was determined that Presence of Nursing Scale, which measures the patients' assessment regarding the presence of nursing, is a reliable and valid scale in Turkish.

Conclusion

As a result of the statistical analyses conducted, it was determined that the Turkish version of PONS is valid and reliable and it is recommended to be used in those studies to be conducted with the purpose of evaluating the presence of nursing.

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