

Original Article

Nurses professional values scale-revised: Psychometric properties of the Turkish version

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ABSTRACT

Background & Aim: Nurses professional values are standards for action and provide a framework for evaluating behaviors. This paper is the report of a study designed to assess the psychometric properties of the Turkish version of the Nurses Professional Values Scale - Revised (NPVS-R).

Methods & Materials: This methodological study was carried out at a university hospital in İzmir, the third most populous city in Turkey. The sample consisted of 228 nurses, who were recruited from January to August 2008. Data were collected with a socio-demographic form (11 questions) and the Turkish version of the NPVS-R (26 items). Many researchers in various countries have used NPVS-R to identify the professional values of nurses or nursing students. Content validity, construct validity, internal consistency, and reliability were assessed. A $P < 0.050$ was considered as statistically significant.

Results: Responses to the NPVS-R were subjected to exploratory and confirmatory factor analysis. Principal components analysis with varimax rotation and Kaiser normalization resulted in four-factor solution explaining 52.41% of the common variance, and four factors named professionalism, caring, activism, and trust. Findings supported internal consistency reliability of four factors with alpha coefficients from 0.72 to 0.86 and a total scale alpha coefficient of 0.92. Total-item correlation coefficients ranged from 0.38 to 0.71.

Conclusion: The study findings showed that the Turkish version of the NPVS-R has a good structural characteristic and is a valid and reliable instrument that can be used for measuring professional values.

Introduction

The nursing profession is based on caring for people and accompanying them through their health-related experiences: Promoting health, preventing diseases and health problems, helping to overcome the problems when they occur, working to rehabilitate and, when none of this is possible, to accompany a person throughout the process of sickness and dying (1, 2). Nurses

have to make many decisions when carrying out their professional responsibilities. Values form the basis of decisions and significantly affect the decisions and behavior of an individual. A well-formed value system helps reduce conflict in the decision-making process (3, 4). The values form is multidimensional with regard to individual, professional, economic, social, spiritual, and esthetic values. However, it is necessary for decisions in nursing practice because professional nursing values are considered to be essential to the practice of professional nursing. Professional values are standards for action that are preferred by practitioners and the professional group,

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which provide a framework for evaluating behavior (3-6).

It is important to evaluate the values in nursing. Whereas values were seen that both professional and personal values of nurses and nursing students were examined in the world (3, 7-12), it was found that personal values were mostly examined in Turkey by Rokeach Values Scale (4, 13-16). Even if personal values are known to be of importance for the development of professional values, professional values should be measured directly. The professional values have been evaluated by different scales such as The Nursing Students Professional Behaviors Scale, Inventory of Professional Nursing Values, American Nurses Association (ANA) Professional Values (seven items), Organizational values and Nurses Professional Values Scale (NPVS) in the world (3, 4, 17-19). If they have used in many studies in various countries, it is considered as a lack of studies investigating professional values in Turkey. It is remarkable that there is not any appropriate instrument. There is a need for a quantitative tool to measure the professional values of nurses in our country.

The NPVS are the only known instruments that measure professional nursing values based on the code of ethics for nurses (6). The ethical code of the profession embodied a series of ideals, their interpretation and their application in practice (4). In Turkey, there is no code of ethics for nurses. ANA statements are used for professional values in the curriculum of nursing faculties in this country, because NPVS is thought to be a useful instrument to determine Turkish nursing professional values. Specially, the validity and reliability of the NPVS were conducted in different countries (3, 6, 7, 11, 12, 20, 21) (Table 1). Validity and reliability study of the professional value scale will help to increase knowledge about the values held and the degrees of importance that nursing professionals in the Turkish culture give to values.

NPVS/NPVS-Revised (NPVS-R) are the only known instruments that measure professional nursing values based on the Code of Ethics for Nurses (11). NPVS scale, which included totally 44 items and eight sub-dimensions was developed by Weis and Schank in 2000. They revised

the scale in 2004 and constituted NPVS-R with 26 items and seven sub-dimensions. Development of NPVS/NPVS-R is indicated in table 1. Many researchers in various countries have used this scale to identify professional nursing values. NPVS/NPVS-R was used by Martin et al. (12), Weis and Schank (6, 11), Lin and Wang (20), and Basurto Hoyuelos et al. (22). NPVS/NPVS-R scale gave similar validity and reliability results in various societies (Table 1).

The aim of the study was to assess the psychometric properties of the Turkish version of the NPVS-R.

Methods

This a methodological studies to test the psychometric properties of the Turkish version of NPVS-R. The research was carried out at a university hospital in Izmir, the third most populous city in Turkey. The sample size was considered to be sufficient since it was 5-10 times the 26 items of the scale (23). A total sample of 228 registered nurses (participate rate: 87.7%) were invited to participate in this study from January to August 2008.

The research data were collected with two tools, a "socio-demographic data form" about the nurses, and the NPVS-R. The questionnaire form contained eleven questions about the nurses' socio-demographic data, personal, and professional development activities (6, 12, 24). The questionnaire included a cover letter. In a cover letter, nurses were informed about the nature of the study by the researchers, that completion of the instrument was voluntary.

The NPVS-R is a Likert-scale format ranging from 1 (not important) to 5 (most important). Each item in the NPVS-R is a short descriptive phrase reflecting a specific code provision and its interpretive commentary. All items are phrased in the positive direction; none is reversed scored. The possible range of scores is 26-130. The higher the score, the stronger the nurse's professional value orientation. Total scores are obtained by summing numeric responses to each item. It is a self-administered scale that takes approximately 15 min to complete.

The back translation method was used to

ensure that the scale was accurately translated into Turkish. The scale was first translated from English to Turkish separately by four whose native language is Turkish. Subsequently, it was translated back from Turkish to English by three native languages is English. All translators worked independently and were not associated with the research in any other way. Once these forward and backward translations were completed, the original and back translations of both English and Turkish versions were then evaluated by ten teaching staff and finally adapted according to the suggestions made. In accordance with their suggestions, necessary changes were made to the scale items. For example, the Turkish equivalent of "Peer" has the meaning of "Colleague" (in Turkish, "çalışma arkadaşı"). The expression "Review" was translated as "Evaluation" (in Turkish, "değerlendirme"). The expression "Establish" was translated as "Provide" (in Turkish, "kurma"). The expression "Initiate" was translated as "Originate" (in Turkish, başlatma). The expression "Seek" was translated as "Look for" (in Turkish, "arama"). The expression "Assume" was translated as "Take on" (in Turkish, "üstlenmek"). The expression "Oppose" was translated as "Confront" (in Turkish, "karşı çıkma") so that it could be more easily comprehended by respondents.

Permission for use of the NPVS-R was obtained by E-mail Professor Darlene Weis and Mary Jane Schank and who together hold the copyright for. Permission to conduct the research was then obtained from author's School Institutional Review Board and nurses' Hospital Institutional Review Board.

The Statistical Package for the Social Sciences 16.0 (SPSS Inc., Chicago, IL, USA) was used to compute frequency and descriptive statistics related to demographic data. Means and standards deviations were calculated for interval level data. Confirmatory factor analysis (CFA) has frequently been used in recently as an indicator of the structural validity of scales (25-29). In CFA, certain variables are selected in accordance with the premises of the theory, and the loadings of these variables for the chosen factors are investigated. The LISREL program (Scientific Software International, Inc., Lincolnwood,

IL, USA) was used to complete the factor analysis of the 26 professional values items. LISREL software includes fit indices in three groups: Chi-square test, goodness of fit index (GFI), adjusted GFI (AGFI), root mean square error of approximation (RMSEA), comparative fit indices (CFI), normal fit index (NFI), standardized root mean residual (SRMR) (25-29). A $P < 0.050$ was considered as statistically significant.

CFA was carried out for structural equation modeling (26-29). Exploratory factor analysis (EFA) results were tested by varimax rotation. The Kaiser-Meyer-Olkin (KMO) test used to measure sample adequacy and the Barlett test of sphericity (BS) was used to examine the correlation matrix. Means, standards deviations, and the range of the adopted scale were calculated and presented as descriptive characteristics. Reliability was assessed using the internal consistency approach; Croanbach's alpha coefficient was calculated to assess the degree of internal consistency and homogeneity between the items. Pearson's correlation coefficient was used to measure item-scale correlations (23, 25, 26, 28).

Results

A total of 228 nurses were included in the study. Nurses' demographic findings were showed in table 2. The average year of graduating from a nursing program was 4.62 ± 5.09 while the average year of working as a nurse was 5.46 ± 6.47 . The nurses' 53.5% worked in internal medicine department, and 46.5% worked in surgical medicine department at a university hospital.

Validity assessment of the NPVS-R was examined using factor analysis. The sample adequacy was assessed prior to conducting a factor analysis. The KMO measure of sampling adequacy was 0.903 with a statistically significant BS ($\chi^2 = 2503.103$, $P < 0.001$) indicating sample adequacy (25, 26, 28). Several a prior rules were used to determine the number of factors in the principal component analysis: Only those factors with an eigenvalue of 1 or greater were retained, and the result makes theoretical sense. A minimum factor loading of 0.40 was used as criterion for each retained item (26, 28). Using these cri-

teria, four factors were identified on the 26 items. These factors accounted for 52.41% of the variance. Factor 1 had an eigenvalue of 8.90 and accounted for 34.25% of the variance. Totally, 11 items loaded on this factor, labeled professionalism. This factor reflects practices and standards of the nursing. Factor 2, with an eigenvalue of 1.96, accounted for 7.55% of the variance. Seven items loaded on this factor, named caring. In these items, the focus is on concern for the patient. Factor 3 had an eigenvalue of 1.31 accounted for 5.04% of the variance. This factor, called activism, had a four-item loading. The items are making up this factor focus on the dynamic component of the profession through which the nurse can impact professional change and in turn patient care. Factor 4 had an eigenvalue of 1.44, accounting for

5.56% of the variance.

Four items loaded on this factor labeled trust. This factor reflects the nurses' liability to patients (Table 3).

In terms of structure validity, for CFA, we tested the model was procured by EFA. CFA supported the a priori hypothesis that the NPVS-R consisted of four factors: Professionalism, caring, activism, and trust. The model generated the following GFI: RMSEA = 0.070 (< 0.08 indicates an "acceptable fit"), CFI = 0.963 (> 0.90 is desirable), NFI = 0.93 (> 0.90 is desirable), SRMR = 0.04 (< 0.005 is desirable), GFI = 0.91 (> 0.90 indicates an "acceptable fit"), and AGFI = 0.89 (> 0.90 indicates an "acceptable fit"). This model resulted in a χ^2/df values of 2.361 (df = 256, P < 0.001). GFI was sufficiently for the model.

Table 1. The development of the NPVS/NPVS-R

Scale	The scale was developed in country/year	Researcher (s)	Sample	Item number of the scale	α	Factor number
NPVS	USA/2000	Weis and Schank (6)	599	44 items	0.94	Eight factors 1. Caregiving 2. Activism 3. Accountability 4. Integrity 5. Trust 6. Freedom 7. Safety 8. Knowledge
NPVS	USA/2003	Martin et al. (12)	1366	44 items	0.95	11 sub-dimension by ANA code of ethics
NPVS	Turkey/2005	Orak (30)	1047	44 items	0.96	11 sub-dimension by ANA code of ethics
NPVS-R (2006)	USA/2006	Weis and Schank (10)	632	26 items	0.91	Seven factors 1. Caring 2. Activism 3. Professionalism 4. Trust 5. Respect 6. Integrity 7. Security
NPVS-R	USA/2009	Weis and Schank (11)	782	26 items	0.92	Five factors 1. Caring 2. Activism 3. Trust 4. Professionalism 5. Justice
NPVS-R	China/2009	Lin and Wang (20)	333	26 items	0.90	Three factors 1. Professionalism 2. Caring 3. Activism
NPVS-R	Spanish/2010	Basurto Hoyuelos et al. (22)	960	26 items	-	It just made of the validity

NPVS: Nurses Professional Values Scale, NPVS-R: Nurses Professional Values Scale-Revised, ANA: American Nurses Association

Table 2. The distribution of socio-demographic characteristics of nurses

Socio-demographic characteristics	N (%)
Ages groups	
20-26	131 (57.5)
27-33	61 (26.8)
34-40	21 (9.2)
41 and over	15 (6.5)
Marital status	
Married	63 (27.6)
Single	155 (68.0)
Widowed/divorced	10 (4.4)
Income status	
Income > expense	16 (7.0)
Income = expense	141 (62.3)
Income < expense	70 (30.7)
Education level	
High school	43 (18.8)
Undergraduate	175 (76.8)
Graduate	10 (4.4)
Total	228 (100.0)

Table 3. Exploratory principal components analysis factor loadings for the NPVS-R

Factors	Eigenvalue	Explained variance	Cronbach alpha	Item number	Factor load
Factor-1 (Professionalism)	8.905	34.250	0.857	4	0.568
				6	0.503
				7	0.607
				8	0.645
				9	0.610
				10	0.504
				12	0.473
				13	0.539
				14	0.589
				15	0.638
				17	0.602
				16	0.539
				20	0.561
Factor-2 (Caring)	1.965	7.558	0.851	21	0.737
				22	0.652
				23	0.601
				24	0.701
				25	0.782
Factor-3 (Activist)	1.311	5.042	0.730	11	0.753
				18	0.519
				19	0.494
Factor-4 (Trust)	1.446	5.562	0.719	26	0.698
				1	0.556
				2	0.629
				3	0.557
				5	0.455

N: 228, Alpha: 0.92, Item: 26, NPVS-R: Nurses Professional Values Scale - Revised

Table 4. Item-total correlation of the NPVS-R

Item number	Item	Mean \pm SD	If item deleted alpha	Item total correlation	P
1.	Engage in on-going self-evaluation	3.83 \pm 0.79	0.917	0.478	0.000
2.	Request consultation/collaboration when unable to meet patient needs	3.97 \pm 0.72	0.916	0.514	0.000
3.	Protect health and safety of the public	4.07 \pm 0.77	0.917	0.444	0.000
4.	Participate in public policy decisions affecting distribution of resources	3.40 \pm 0.94	0.917	0.482	0.000
5.	Participate in peer review	3.51 \pm 0.81	0.917	0.483	0.000
6.	Establish standards as a guide for practice	3.81 \pm 0.82	0.916	0.499	0.000
7.	Promote and maintain standards where planned learning activities for students take place	3.91 \pm 0.88	0.915	0.581	0.000
8.	Initiate actions to improve environments of practice	3.70 \pm 0.92	0.917	0.488	0.000
9.	Seek additional educational education to update knowledge and skills	3.85 \pm 0.84	0.914	0.645	0.000
10.	Advance the profession through active involvement in health care policy	3.88 \pm 0.83	0.916	0.537	0.000
11.	Recognize role of professional nursing associations in shaping health care policy	3.50 \pm 0.98	0.916	0.511	0.000
12.	Promote equitable access to nursing and health care	4.06 \pm 0.77	0.916	0.504	0.000
13.	Assume responsibility for meeting health needs of the culturally diverse population	3.59 \pm 0.86	0.915	0.559	0.000
14.	Accept responsibility and accountability for own practice	4.25 \pm 0.78	0.915	0.599	0.000
15.	Maintain competency in area of practice	4.13 \pm 0.76	0.915	0.615	0.000
16.	Protect moral and legal rights of patients	4.00 \pm 0.91	0.915	0.561	0.000
17.	Refuse to participate in care if in ethical opposition to own professional values	3.58 \pm 1.07	0.919	0.382	0.000
18.	Act as a patient advocate	3.28 \pm 0.98	0.918	0.416	0.000
19.	Participate in nursing research and/or implement research findings appropriate to practice	3.72 \pm 0.90	0.913	0.711	0.000
20.	Provide care without prejudice to patients of varying lifestyles	4.14 \pm 0.79	0.915	0.567	0.000
21.	Safeguard patient's right to privacy	4.18 \pm 0.84	0.917	0.493	0.000
22.	Comfort practitioners with questionable or inappropriate	4.16 \pm 0.77	0.915	0.606	0.000
23.	Protect rights of participants in research	3.85 \pm 0.82	0.915	0.587	0.000
24.	Practice guided by principles of fidelity and respect for person	4.19 \pm 0.76	0.915	0.619	0.000
25.	Maintain confidentiality of patient	4.23 \pm 0.72	0.917	0.485	0.000
26.	Participate in activities of professional nursing associations	3.28 \pm 1.07	0.917	0.510	0.000

NPVS-R: Nurses Professional Values Scale - Revised

For reliability analysis: The total mean item score was 3.85 ± 0.50 , with item 26 having the lowest mean score (3.28 ± 1.07) and item 14 having the highest (4.25 ± 0.78). The skewness value was 0.09 ± 0.16 , and kurtosis value was 0.33 ± 0.32 for the total scale. The total item correlation ranged between 0.38 and 0.71. Item 17 had the lowest total-item correlation (0.38) while item 19 had the highest (0.71). Total-item correlation coefficients were statistically significant ($P < 0.001$). Cronbach's alpha coefficient for the general scale (26 items) was 0.92, while

for the factors it ranged between 0.72 and 0.86 (professionalism: 0.86, caring: 0.85, activism: 0.73, and trust: 0.72) (Table 4).

Discussion

When the factor analysis is conducted, sample adequacy is an important issue. The KMO measure of sampling adequacy was found to be 0.903 with a statistically significant Barlett Test of sphericity ($\chi^2 = 2503.103$, $P < 0.001$). Thus, the data obtained were suitable for factor analysis.

sis (26, 28). NPVS-R was resulted in four factors by EFA. CFA supported the priori four-factor structure developed from the conceptual model. The four factors were professionalism, caring, activism, and trust. The GFI indices approached an acceptable value level. This four-factor structure different from the original NPVS-R, which was a five-factor model. The degree of freedom is a crucial criterion for the chi-square test. When df is high, chi-square has a tendency to yield statistically significant results. Therefore, the ratio of df to chi-square can also be used as a criterion of adequacy in certain cases. Harrington states then when the χ^2/df ratio is < 5 , it can be interpreted as an indicator of a good fit. In our model, the χ^2/df ratio was found be < 5 (2.361), and this value was considered to indicate a high goodness of fit (31). The RMSEA is an absolute fit index of the difference between the covariance among the variables observed in the sample, and the parameters suggested in the model. RMSEA values equal to or smaller than 0.05 are considered perfect while values equal to 0.08 and below and considered reasonable, taking into consideration the complexity of the model (26, 27). The RMSEA value (0.07) was considered to be a reasonable value.

Consequently, in our study, it was determined that model, when subjected to CFA, provided valid evidence that the four groups (professionalism, caring, activism, and trust) and GFI were sufficiently for the model. The NPVS has been tested for validity and reliability in some countries with EFA (7, 11, 20). However, Weis and Schank (2009) only conducted CFA for NPVS-R, and they determined five-factor groups of NPVS-R in USA (11). They indicated that their model generated GFI. On the other hand, in Taiwan, Lin and Wang (2010) were obtained three factors with EFA, a labeled professionalism, caring, and activism (20). All results obtained these researches was different (7, 11, 20). Cultural differences may be responsible for these results in the factorial structure of the NPVS-R in USA, Taiwan, and Turkey.

In our study, the mean item score for NPVS-R was 3.85 ± 0.50 , while the possible range for the items is from 1 to 5. Based on this result, the nurses have strong professional values. It was

determined that the correlation coefficients of the items had positive, moderate values that ranged from 0.38 to 0.71 (23, 26, 28). When the correlations between the items and total scores for the scale were analyzed, they were found to be statistically significant ($P < 0.001$). All items demonstrated a moderate or strong correlation with the total score.

The croanbach's alpha coefficient of the scale was determined to be 0.92, which indicated that the scale was homogeneous, and test measurement was reliable (24, 28). In the study, conducted by Weis and Schank (2009). Croanbach's alpha was 0.92 (11). In a similar study, by Lin and Wang (2009) in China, Croanbach's alpha was 0.90 (20). It was thus determined that the scale reliability coefficient in our study demonstrates similarities with the results of studies conducted in other countries.

Conclusion

At the conclusion of psychometric measurements "NPVS-R" was found to be valid and reliable for use in Turkey. We could not mention the stability Turkish version of the NPVS-R, and should be test this dimension of the scale. This scale be further evaluated with a large enough sample size, and in different regions in Turkey and diverse populations of the world.

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