Research Article

Translation and Psychometrics of Instrument of Professional Attitude for Student Nurses (IPASN) Scale

Masoumeh Shohani [ID] [1, *], Shahla Shahbazi [2], Fatemeh Sadat Izadi-Avanji [3], Sayed Rahmatollah Mousavimoghadam [4] and Abbas Nasrollahi [5]

[1] Department of Nursing, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran
[2] Department of Medical-Surgical Nursing, Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran
[3] Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Kashan University of Medical Sciences, Kashan, Iran
[4] Department of Islamic Studies, School of Medicine, Ilam University of Medical Sciences, Ilam, Iran
[5] Reseach Center of Prevention of Psychological Injuries, Ilam University of Medical Sciences, Ilam, Iran

*Corresponding author: Department of Nursing, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran. Email: msh282000@gmail.com

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Abstract

Background: Achieving professional identity is one of the research priorities, and considering the importance of professional attitude among student nurses, it is necessary to identify a scale that is able to measure their achievement in professional attitude.

Objectives: The present study was conducted with the aim of translation and psychometrics of instrument of professional attitude for student nurses (IPASN) scale.

Methods: In this cross-sectional study, the translation and psychometrics of "instrument of professional attitude for student nurses scale" was performed based on the model of Wild et al. The third to eighth semester nursing students of Ilam University of Medical Sciences comprised the research population who were 300 students. After translation and retranslation, the editorial comments of the scale designer were applied. Then, content validity, face validity, confirmatory factor analysis, internal consistency, and test-retest reliability of the Persian version were calculated. Data were analyzed using SPSS software version 20 and EQS6.1.

Results: The confirmatory factor analysis of the 28-item scale with its 8 sub-scales was confirmed by deleting the statement 7 and moving the items 10, 15, and 18. The reliability of the internal consistency was calculated to be $\alpha = 0.89$ for the total scale, and (0.89), (0.45), (0.67), (0.69), (0.69), (0.73), (0.70), and (0.93) for the sub-scales, respectively. Pearson's correlation coefficient was r = 0.79 for test-retest reliability (P < 0.005).

Conclusions: This study shows that the modified Persian version of the instrument of professional attitude for student nurses scale with 27 statements is valid and reliable, and can be used to assess the nursing students towards their professional life.

Keywords: Iran, Student, Professional, Attitude

1. Background

Professional attitude is a process by which an occupation evolves into a professional status, and includes the use of knowledge and skills, standard activities, leadership, self-regulation, professional commitment, and social values. Furthermore, special education, accountability, independence, and ethical standards are among the characteristics of professional attitude (1).

Professional attitude is one of the fundamental and basic concepts of nursing and is the result of an individual's interaction with the work environment and interpersonal communication. Professional attitude is one of the issues that need to be focused on in the era of nursing shortage (2).

Nowadays, the society needs nurses who have accepted

their profession and develop their attitudes and the properties of their professional roles and find the ability to play these roles in different situations (3). The results of qualitative studies conducted on the professional competence of nurses (4) and professional experiences of nurses (2) have shown that, from the perspective of nurses, professional attitude means sufficient knowledge in the target field along with experience and independence in practice, and variables such as the level of official authority, self-confidence, supporting other nurses, the solidarity of the members of the profession, and the actions and behavior of individuals are effective in creating and developing professional and individual competence. Moreover, they feel that they are still not completely professional, and they see numerous complex issues on their way (5).

The results of studies have shown that the attitude of

nursing students ([6](#)) and Iranian nurses ([7](#)) toward professionalism are at a moderate level, while nurses have stated that they have a high degree of autonomy ([8](#)).

Positive achievement in professional attitude may create professional values and behaviors in nursing environments, which will increase job satisfaction and improve professional performance and ultimately lead to improved health care ([9](#)).

Professional attitude has evolved over time and in accordance with the changes that have taken place. Moreover, the perspective of members of a profession regarding the criteria of professional attitude has also changed ([6](#), [10](#)). From a professional perspective, this phenomenon is strengthened and fixed over time in interaction with others ([11](#)). Obviously, the first and most sensitive step is when a person enters a learning or apprenticeship environment as a student nurse ([1](#), [12](#)), and it continues after graduation as long as the person stays in that profession, and is influenced by the person's own environment and experiences ([13](#)). Therefore, it is important to find out their achievement in professional attitude, which is possible by measuring their knowledge, attitude and practice. Obviously, researchers need to use valid and reliable scales to measure these factors.

Since the achievement of professional identity is one of the research priorities ([14](#)) and given the importance of professional attitude among student nurses, obviously, examining the level of professionalism of nursing students can help to understand their attitude towards the profession and try to improve their attitude. Thus it is necessary to identify a scale that can measure their achievement in professional attitude.

The only available scale for measuring the professional attitude among student nurses is the questionnaire invented by Hisar et al. ([15](#)), which developed by Celik et al. ([16](#)). Given the importance of professional attitude among student nurses, investigating the psychometric properties of this scale is necessary in various cultures, including Iranian culture.

2. Objectives

The present study was conducted to assess the validity and reliability of instrument of professional attitude for student nurses (IPASN) scale.

3. Methods

This cross-sectional study ([17](#)) was conducted to translate and evaluate the psychometric properties of the "instrument of professional attitude for student nurses scale" in Iranian society, July 2017-Feb 2018. This scale was designed by Hisar et al. ([15](#)) in Turkey and included 28 items.

The scale has 8 subscales, including contribution to scientific knowledge (6 items), autonomy (3 items), cooperation (5 items), competence and continuous education (3 items), participation in professional organisations and professional development ([3](#)), implementation of nursing theories (2 items), community service (3 items), professional ethics (3 items). Scoring is based on Likert scale. Score 1 was assigned to the option "I do not agree at all", score 2 for the option "I do not agree", score 3 for the option "I am not certain", score 4 for the option "I partly agree", and score 5 for the option "I completely agree". Obviously, scoring would be reversed for negative statements. The study population included third to eighth semester nursing students from the Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Iran. The authority of these centers as a large educational center that accommodates nursing students from all regions of Iran leads to the presence of samples with different cultures and perspectives that would provide the researchers with the most varied data.

After contacting the scale designers and obtaining permission, the scale was translated from English to Persian using the model proposed by Wild et al. ([18](#)). First, the two independent translators translated the original version from English to Persian simultaneously. Then, two other translators independent of the first translators again translated the translated version into English, and eventually, after putting together the translations and after discussing the possible differences and comparing the original version with the version translated from Persian to English, the final scale was regulated. After confirmation, psychometric analysis started.

To determine the face validity, the IPASN scale was given to 20 faculty members and student nurse, and they were evaluated in terms of appearance, punctuation and writing, and necessary corrections were made. The two methods of content validity ratio (CVR) and content validity index (CVI) were used to determine the content validity. The translated questionnaire was given to 10 faculty members of the Ilam and Tabriz Nursing and Midwifery Faculties to review each item based on the 3-point Likert scale (necessary, useful but not necessary, not necessary). Then, the responses were calculated according to the formula ([19](#)). According to the Lawshe table, the items with a content validity ratio greater than 0.62 based on the assessment of the 10 experts were kept ([20](#)).

Waltz and Bausell's method was used to study the content validity index. For this purpose, the questionnaire was given to 10 faculty members of Ilam and Tabriz Nursing and Midwifery Faculties and they were asked to determine the relevance, clarity and fluency of each of the items in the questionnaire by grades of 1 to 4 ([17](#)). Then, the mean content validity index of the questionnaire was calculated

based on the mean scores of the content validity index of all items of the questionnaire.

To assess the validity of the scale structure, simple random sampling method was used for confirmatory factor analysis using student list. In terms of the number of subjects in exploratory factor analysis, Burns et al. (21) recommend the selection of 5 - 10 research units per statement. However, in the confirmatory factor analysis, the minimum sample size is determined based on the factors, not the variables. If structural equation modeling is used, about 20 samples are required for each factor (hidden variable) (22). The recommended sample size for the confirmatory factor analysis is about 200 samples for the ten factors (19, 20). Finally, 300 nursing students were selected for the study. The inclusion criteria were third to eighth semester nursing students who were present at this university from the time of arrival and were willing to participate in the study. The Cronbach's alpha coefficient was used to determine the internal consistency reliability of the items of the questionnaire, and test-retest was used to determine the reliability of the items. The questionnaire was given to 20 student nurses with an interval of two weeks and the correlation between the two tests was calculated.

Ethics approval was obtained from the Ethics Committee of Ilam University of Medical Sciences (code: ir.medilam.rec.1395.28) before data collection. The selected samples were informed about the method and aim of the study and they were assured that their information would be confidential. After obtaining informed consent from the participants, the questionnaire was given to them. If the participants were not willing to continue their participation for any reason, they would be excluded from the study. The participants' demographic information was also collected using a personal information form (age, gender, and semester).

To determine the construct validity of the IPASN scale, confirmatory factor analysis method was used using statistical software SPSS version 20 and EQS6.1. The fit indices, including chi-square for degree of freedom, normed fit index (NFI) non-normed fit index (NNFI), comparative fit index (CFI), goodness of fitness index (GFI), and root mean square error of approximation (RMSEA) were calculated (23). Confirmatory factor analysis test was used for construct validity and intraclass correlation coefficient (ICC) to examine the consistency of questionnaire. Cronbach's alpha was calculated for internal consistency of the questionnaires.

4. Results

Of the 300 distributed questionnaires, 280 questionnaires were completed. The participants of the study were in the age range of 19 - 45 years with a mean and standard deviation of 22.8 $\pm$ 3.1 years. Moreover, 61.4% of participants were female and 90.7% of them were single. Demographic information of the students is presented in Table 1.

Table 1. Some Demographic Characteristics of the Students Participating in the Study[a]

Variable	Values
Gender	
Male	38 (108)
Female	62 (172)
Marital status	
Single	90.7 (254)
Married	9.3 (26)
Semester	
3rd	15.8 (44)
4th	22.5 (63)
5th	18.2 (51)
6th	19.6 (55)
7th	12.9 (36)
8th	11 (31)
age	Max: 45; Min: 19; Mean: 22.77; SD: 3.09

[a]Values are expressed as No. (%).

In order to evaluate the content validity of the scale, content validity index (CVI) was determined. Content validity index of the scale for relevance was 0.80, clarity was 0.82, fluency was 0.81, and the content validity index of the total scale was 0.81. The CVI value as the standard for the content validity of the scale should be considered 0.9 or more (24).

In order to evaluate the construct validity of the IPASN Scale, confirmatory factor analysis was used. The results of the standard estimation model showed that the model is in inappropriate situation in terms of fit indices such as CFI = 0.720, and RMSEA = 0.103 (CFI value was less than 0.9 and RMSEA was greater than 0.08) (Table 2).

The model was corrected according to the suggestions for the correction of fit indices in the confirmatory factor analysis. Accordingly, the item 7 "I have not planned for my projects" was deleted from the second subscale (autonomy) due to low correlation coefficient. In addition, moving item 10 "I have not planned for membership in international organizations related to my field" from the third subscale (cooperation) and item 15 "I have planned for subscription to publications (such as journals and magazines) in nursing" from the fourth subscale (competence and continuous education) to the second subscale (autonomy), and moving the item 18 "I think I should receive certificates from other related organizations" from the fifth

Table 2. Fit indices of the Persian Version of "Instrument of Professional Attitude for Student Nurses"

Fit Index	Desirable Values	The Values Obtained Before Modifying The Model	The Values Obtained After Modifying the Model
Chi-squared P value (χ^2)	> 0.05	> 0.05	> 0.05
(Root mean square error of approximation) RMSEA	Good > 0.08, average > 0.8 to 0.1, poor < 0.1	0.103	0.084
(Normed Fit Index) NFI	> 0.9	0.67	0.86
(Non-Normed Fit Index) NNFI	> 0.9	0.67	0.9
(Goodness of Fit Index) GFI	> 0.9	0.75	0.84
(Comparative of Fit Index) CFI	> 0.9	0.72	0.91
Minimum discrepancy function by degrees of freedom divided	Good > 3, Acceptable > 5	4.5	2.6

subscale (participation in professional and organizational development) to the fourth subscale (competence and continuous education) improved the fit indices of the model.

The reliability of the internal consistency of the total scale was α = 0.89 and the alpha-value was 0.89 for each of the intervention subscales for contribution to scientific knowledge, the autonomy was 0.45, the cooperation was 0.67, the competence and continuous education was 0.69, the participation in professional organizations and professional development was 0.69, the community service was 0.73, the implementation of nursing theories was 0.70 and the professional ethics was 0.93. In addition, the correlation coefficient between two times of completion was r = 0.79 in the retest.

5. Discussion

Achieving professionalism requires measurement of attitudes towards it. Considering the importance of the concept of professionalism in nursing students and the lack of a valid and reliable instrument for measuring this concept among Iranian nursing students, the present study was conducted to translate and evaluate the psychometric properties of the "instrument of professional attitude for student nurses" among Iranian nursing students.

In this study, the IPASN scale was translated into Persian, and its psychometrics and factor structure were investigated. An instrument intended to be used in a culture or another society should be evaluated in terms of cultural adaptation and psychometric properties since it may not be appropriate in the new society (24, 25).

The psychometric properties were evaluated after translation and retranslation of the scale. This question is answered in the face validity assessment: Is the appearance of the scale designed properly to evaluate the intended goal? In this study, the perspectives of the target group were used to evaluate face validity, and necessary corrections were made accordingly to obtain the face validity of

the scale. The face validity of the scale was reported to be favorable according to the comments, indicating that the appearance of the scale is also appropriate for measuring the target variable.

Since the validity of the findings obtained in each research depends on the validity of the research scale, this feature is vital for the scale (26). In the present study, the overall CVI was calculated to be 0.81 based on Waltz and Bausell's (17) method. In this method, items with scores above 0.79 are considered appropriate, between 0.79 and 0.70 needs to be corrected and below 0.70 are unacceptable (27). Considering that the content validity index of the Persian version of the IPASN scale in this study was 0.81, the scale has acceptable content validity and it can be assured that the items are capable of measuring the objective.

To determine CVR, the questionnaire was given to 10 experts, and the lowest score of the items was 0.81. Therefore, there was no need to remove an item.

The factor analysis of the IPASN scale was performed using a sample size, including 280 nursing students. The calculation of fit indices of the model showed that the fit indices of the Persian version of the scale of "Instrument of Professional Attitude for Student Nurses" were not suitable for the main model (with 28 items and 8 subscales). The results of factor analysis showed that after the elimination of item 7, fit indices of the model increased significantly. In addition, moving item 10 "I have not planned for membership in international organizations related to my field" from the third subscale (cooperation) and item 15 "I have planned for subscription to publications (such as journals and magazines) in nursing" from the fourth subscale (competence and continuous education) to the second subscale (autonomy), and moving the item 18 "I think I should receive certificates from other related organizations" from the fifth subscale (participation in professional and organizational development) to the fourth subscale (competence and continuous education) improved the fit indices of the model of 27 statements and 8 subscales.

Considering that the "Instrument of Professional Attitude for Student Nurses" is translated and supported in Iran for the first time, there is no similar study to compare the results, but the results of the study of factor analysis of Celik et al. (16) in Turkey confirms the factor structure of IPASN scale with 28 items and 8 factors. However, other studies have been conducted for validation of scales, the results of which indicate that the statements of the scale can be moved from one dimension to another (25, 27), and the displacement of these statements, either theoretically or logically, does not cause any problem.

An index commonly used to examine internal consistency is the Cronbach's alpha. The Cronbach's alpha with a value of 0.7% in adequate, and the alpha greater than 0.7% indicate high internal coherence of the scale (28). The reliability of the internal consistency of the total scale was $\alpha = 0.89$ and the alpha value for each of the intervention subscales for contribution to scientific knowledge, the autonomy was, the cooperation, the competence and continuous education, the participation in professional organizations and professional development, the community service, the implementation of nursing theories and the professional ethics was from 0.45 to 0.89. In the study of Hisar et al. (15), the internal consistency of this scale was measured, and the Cronbach's alpha coefficient was reported from 0.32 to 0.64, while scale makers have stated that, given the high score of above 0.3, internal consistency is considered good. The total reliability of the scale was 0.9. In the study of Celik et al. (16), this coefficient was reported to be 0.92. In addition, the correlation coefficient between two times of completion was r = 0.79 in the retest. Hisar et al. (15) in their study reported this coefficient to be 0.7, which is similar to the results of the present study.

Overall, considering the content validity, face validity, confirmatory factor analysis, internal consistency of the translated scale, it was revealed that the Persian version of the scale and its 8 subscales for Iranian nursing students are acceptable and the structure of its dimensions is similar to the main scale. Therefore, this scale can be used to determine the nursing students' attitude towards professionalism. The Persian version of this study can be useful for students, their teachers, and managers of nursing schools in order to assess the professional attitudes of nursing students and provide solutions to improve the nursing profession in Iran. Although the scale used in the present study is highly valid and reliable, more research is required to eliminate the potential problems and facilitate its use.

Footnotes

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