

# Feature Article

## Reliability and Validity of the Turkish Version of the Moral Competence Scale for Public Health Nurses

### *A Methodological Study*

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#### **Background:**

Moral competencies must be improved in nursing area practice. To evaluate the moral competence seems necessary for nurses.

#### **Aim:**

The aims of this study are to adapt and evaluate the psychometric properties of the moral competence questionnaire for public health nurses in Turkey.

#### **Method:**

The moral competence scale was translated into Turkish by a skilled translator, after which it was back-translated into English by another translator. We then administered the Turkish version of the moral competence scale to 138 public health nurses working in family and public health centers in Erzurum, a city in eastern Turkey. We analyzed the data using factor analysis and Cronbach's  $\alpha$ .

#### **Results:**

Three factors were extracted, which together explained a total of 67.50% of the variance. The Cronbach's  $\alpha$  values were .83, .91, .87, and .88 for factors 1, 2, and 3 and for the whole scale, respectively.

#### **Conclusion:**

The Turkish version of the moral competence scale for public health nurses is a valid and reliable assessment tool.

#### **KEY WORDS:**

**competence, morals, nursing, reliability, validity**

Definition of and methods of assessing the information, skills, and attitudes required by nurses for effective care would be necessary for evaluating the nurses' applications and performance.<sup>1</sup> Moral competence is the ability of an individual to live in a consistent manner with a personal moral rule and role responsibilities. The reason for this is that nursing practice depends not only on technical knowledge and skills but also on values, beliefs, and ethical issues that play an important role in shaping decision-making patterns. The adequacy of nurses in ethical care has become a part of the quality of healthcare.<sup>2</sup>

Moral competence is based on all-round or whole-person development. It means that the better the moral development was, the better the moral competence.<sup>3</sup> Moral development is a process of creating a system of values that a person can effectively use in society.<sup>4</sup> Moral development is very important for nursing, one of the sacred professions serving humanity. Nursing care is formed by moral development, and it is essential that professional nurses have a well-developed ability for moral behavior.<sup>5</sup> As part of their professional practice, nurses must make decisions about patient care management and corporate policies,<sup>6</sup> which are frequently influenced by the values that they hold.<sup>7</sup> As with all people, nurses' values are largely a product of their sociocultural environment.<sup>6,8</sup> Cultural values entitle resistant to ideals or belief systems to which a person or a society is committed.<sup>9</sup> In many societies health decisions are made by society.<sup>10</sup> In addition, nurses must deal directly with both consequence- and obligation-based ethical issues. In particular, they must deal with the ethical components of advocacy, justice, health policy, and care, as well as various moral experiences and

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the moral character of other healthcare practitioners.<sup>11</sup> Ethics has many definitions, but typically, ethics is seen as a systematic way of looking into the moral life to recognize right and wrong; it also requires a decision or action based on moral reasoning.<sup>10</sup> The precise moral competencies that nurses require have been changing pro rata along with their changing community. Enhancing nurses' moral competence might help them be more proactive in their care. At the same time, nurses might be able to explain the professional applications to public healthcare workers and other members of the care team.<sup>12</sup>

Furthermore, nurses must understand their institutions' values, both expressed and unexpressed. The harmony, or lack thereof, between the values of the nurses and their institutions can influence patients' satisfaction, particularly in terms of the quality and costs of the services that they receive.<sup>6</sup> For that reason, tools to evaluate the moral competence of nurses are important.

Several tools have been developed to measure the professional and moral competences of nurses. Asahara et al<sup>1</sup> acknowledged the importance of ethical practices in producing high-quality care and described moral competence as a professional component of nursing, particularly of public health nursing. In 2015, they developed the moral competence questionnaire for public health nurses (MCQ-PHN), with the objective of evaluating the moral competences of public health nurses in Japan. Theirs was the first study to develop a measure of moral competence specifically for public health nurses.<sup>1</sup>

The adaptation of these scales to different languages and cultures will ensure that both differences and similarities are revealed and that the factors that influence the competencies of nurses are examined. At present, there is no standard tool for evaluating the moral competence of public health nurses in Turkey. Thus, we aimed to create a Turkish adaptation of the scale.

## MATERIALS AND METHODS

This methodological study was conducted with public health nurses working in family health and community health centers in Erzurum, a city located in eastern Turkey, for a Turkish adaptation of the MCQ-PHN. A group of 153 nurses working in these centers were designated as the target population. The sample size was determined using the standard of 5 to 10 participants per item in the scale, which has been deemed necessary for conducting an exploratory factor analysis.<sup>13</sup> Because there were 15 items in the Turkish version of the MCQ-PHN (MCQ-PHN-T), 75 to 150 nurses were required for the study. Fifteen of the nurses who were given the questionnaires were excluded from the study because they either declined to participate or did not fully complete the questionnaire. Ultimately, data from 138 nurses were analyzed.

## CHARACTERISTICS, TRANSLATION, AND ADAPTATION OF THE MORAL COMPETENCE QUESTIONNAIRE FOR PUBLIC HEALTH NURSES

The MCQ-PHN is a self-report scale that aims to measure public health nurses' moral competences in terms of their attitudes and behavior. It was developed by Asahara et al<sup>1</sup> in 2015 and comprises 15 items in 3 subscales: "judgment based on the values of community members," "strong will to face difficult situations," and "cooperating with relevant people/organizations." All items are rated on a 5-point Likert scale with responses ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate a higher level of moral competence. The lowest possible total score on the scale is 15, whereas the highest is 75. The scale contains no reverse-scored items. The scale was developed for use by public health nurses, researchers, and students seeking master's degrees in public health nursing. The Cronbach's  $\alpha$ s of the original MCQ-PHN range from .85 to .91.<sup>1</sup>

Before it was administered to all participants, the MCQ-PHN was translated from English into Turkish and then back-translated into English; the back-translated and original versions were then compared. We consulted the nurse specialists who had done the scale adaptation beforehand and who knows English and Turkish well. Seven Turkish nursing experts were consulted, 3 professors, 2 associate professors, and 2 assistant professors in the fields of public health nursing, pediatric nursing, and nursing principles, to ensure that we obtained the most accurate translation for each item. Experts rated each item from 1 to 4 (1, not suitable; 2, item must be made suitable; 3, suitable but requires change; 4, very suitable), which we used to calculate a content validity index (CVI). The CVI was used here as a measure of the language and cultural equivalence of the items. Items were considered appropriate if all experts rated it as 3 or higher. Items with scores lower than 3 or 4, for scale items to reach 80%, were revised.<sup>13,14</sup>

## DATA COLLECTION

The MCQ-PHN-T was given to each participant by the first author at the participating family and community health centers between March and September 2015. It took between 5 and 10 minutes to complete. Face-to-face interviews were used to collect the data.

## ETHICAL ISSUES

After receiving permission from Asahara et al<sup>1</sup> via e-mail, the study was approved by ethical review boards at the authors' institution. Nurses who participated in the research gave verbal consent.

## DATA ASSESSMENT

Data were assessed using IBM SPSS Statistics for Windows, (Version 20.0; Armonk, New York) and AMOS (Version 23; Chicago, Illinois). Sociodemographic features were analyzed

using definitive statistical analysis. Exploratory and confirmatory factor analyses were used to determine the construct validity of the MCQ-PHN-T. To determine whether the sample was suitable for factor analysis, we used the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and tested the correlation matrix using Bartlett's test of sphericity. The exploratory factor analysis was conducted using the principal component analysis with a varimax rotation; the factor loadings were examined to determine the number of factors to be extracted. After this, we conducted a confirmatory factor analysis, using the following goodness-of-fit indexes (GFIs) to test the fit of the model derived from the exploratory analysis to the data:  $\chi^2$  test, root mean square error of approximation (RMSEA), standardized root mean square residual, comparative fit index (CFI), nonnormed fit index (NNFI), and GFI. For all statistical analyses, a 2-sided  $P < .05$  was considered significant.

## RESULTS

### Participants

The age average of the nurses participating in the study was  $31.44 \pm 6.61$  years. Just more than half (51.4%) of these nurses had bachelor's degrees, and the majority (63.8%) were married. All of the participants were women. The average professional experience of the nurses was  $8.39 \pm 6.50$  years.

### Validity

#### Content Validity Index

The overall CVI was .98. Throughout the scale, we replaced the word "members" with "individuals."

#### Exploratory Factor Analysis

The exploratory factor analysis was conducted using SPSS program, with the objective of examining the factor structure of the 15-item MCQ-PHN-T. The KMO value and Bartlett's test of sphericity results are shown in Table 1. As the KMO value was greater than 0.70, and the test of sphericity was significant ( $P < .05$ ); we can conclude that the data are suitable for factor analysis. Table 1 depicts the number of factors in the data set, and Table 2 shows the total variance explained by these factors. According to the

total variance table, the 15 items loaded onto 3 factors, each of which had an eigenvalue larger than 1. Which factor is weighted under which factor and level of weight can be seen as to the factors on which varimax rotation has been applied. According to the component table, items 6 to 10 load onto factor 1, items 11 to 15 items load onto factor 2, and items 1 to 5 load onto factor 3. The factor analyze referred that Turkish version factors were same as factors in original scale (Table 3).

#### Confirmatory Factor Analysis

To test the fit of the 3-factor model, a confirmatory factor analysis was conducted with SPSS AMOS. The Figure depicts the model, and Table 4 depicts the fit indexes for the model. Note that the values regarding the models in Table 2 are the raw values without making any modifications to the model. More specifically, the fit indexes were as follows:  $\chi^2/df = 1.38$  ( $\chi^2 = 121.4$   $df = 87$ ), RMSEA = 0.037, NNFI = 0.936, and CFI = 0.981. If a model is 0.90 or higher for the CFI and NNFI, then the model is considered to have a good fit to the data.

#### Reliability Analysis

Cronbach's  $\alpha$  was used to specify the internal consistency of the whole scale and its subscales. The Cronbach's  $\alpha$ s of factors 1, 2, and 3 and the whole scale were .827, .909, .868, and .876, respectively.

## DISCUSSION

The objective of this study was to confirm the validity and reliability of the MCQ-PHN-T, which was developed to assess the moral competence of public health nurses. Turkey is located geographically between Asia and Europe, and the moral values of Turkish society have been influenced by this fact. At the same time, the increase in the use of sophisticated communication tools, rapidity of transportation and ease with which individuals can enter the country, has been leading to a shift in overall values. Public health nurses should therefore develop their moral competence in this changing, rapidly globalizing society and their employers must be able to evaluate employees' moral competence. For that reason, we thought that it is important to adapt the MCQ-PHN<sup>1</sup> into a Turkish setting.

The KMO value represents the common variance shared by the variables<sup>15</sup>; if this value is close to 1.00, then the data are considered suitable for factor analysis, whereas the data are not suitable for factor analysis if the value drops below 0.60. This finding indicated that the sample was adequate for the exploratory and confirmatory factor analyses.<sup>14-18</sup>

The factor analysis results indicated that the MCQ-PHN-T items loaded onto 3 factors, which corresponds to the original version. Furthermore, all factor loadings were higher than the cutoff for acceptability (0.30). This finding indicates that the MCQ-PHN-T is comparable with the original

**Table 1. Bartlett' Test and KMO Measure of Sampling Adequacy**

KMO sample competence coefficient		0.884
Bartlett's test of sphericity	$\chi^2$	1147.597
	df	105
	P	.000
Abbreviation: KMO, Kaiser-Meyer-Olkin.		

**Table 2. Turkish Version of MCS-PHN Factor Number and Explained Variance Percentage**

Factor	Eigenvalues			Total of Squares		
	Total	% Variance	Cumulative Variance	Total	% Variance	Cumulative Variance
1	6.06	40.38	40.38	6.06	40.38	40.38
2	2.56	17.06	57.44	2.56	17.06	57.44
3	1.51	10.06	67.50	1.51	10.06	67.50
4	0.68	4.53	72.04			
5	0.61	4.07	76.11			
6	0.56	3.73	79.84			
7	0.52	3.49	83.32			
8	0.47	3.10	86.43			
9	0.43	2.89	89.32			
10	0.38	2.53	91.85			
11	0.35	2.33	94.18			
12	0.25	1.69	95.87			
13	0.24	1.59	97.46			
14	0.23	1.55	99.01			
15	0.15	0.99	100.00			

MCQ-PHN. The factor loadings of all 3 factors were similarly high. The 3 factors correspond clearly with those in Asahara et al's<sup>1</sup> original scale, with factor 1 containing items related to judgment based on the values of community members' judgment, factor 2 containing items for strong will to face difficult situations, and factor 3 containing items for cooperating with relevant people/organizations. Furthermore, the factor loadings of the items in this subscale, which we deemed "strong will to face difficult situations," were high for Turkish nurses. Note that the factor loadings of the items on factor 2 are close to those of factor 1. This is because factor 2 deals with the participants' own moral characters.<sup>1</sup> This is perhaps because of the somewhat combative nature of Turkish nurses. The factor loadings of the "cooperating with relevant people/organizations" (factor 3), which contains items 11 to 15, were similar to those of factor 2. Factor 3 comprises 5 items containing theoretic component called as "implementing the moral decision" of the moral competence.<sup>1</sup> The 5 items in factor 1 correspond to the "judgment based on the values of community members" factor in Asahara et al's<sup>1</sup> study, albeit with different factor loadings (between 0.665 and 0.797). Overall, it can be concluded that moral judgments between the two societies are similar. The MCQ-PHN-T and MCQ-PHN are similar in structure. Overall, this indicates that the MCQ-PHN is applicable to a Turkish population, and the similarity between the subscales suggests that Turkish and Japanese societies have similar characteristics in terms of moral competence. This is possibly because most of the public health nurses partic-

**Table 3. Items' Factor Loadings, Mean Scores, and Cronbach's  $\alpha$  for the Turkish Version of Moral Competence Questionnaire for Public Health Nurses**

Items	Component		
	1	2	3
Item 7	<b>0.884</b>		
Item 8	<b>0.879</b>		
Item 6	<b>0.797</b>		
Item 10	<b>0.795</b>		
Item 9	<b>0.746</b>		
Item 12		<b>0.819</b>	
Item 13		<b>0.809</b>	
Item 11		<b>0.737</b>	
Item 14		<b>0.708</b>	
Item 15		<b>0.708</b>	
Item 1			<b>0.797</b>
Item 3			<b>0.790</b>
Item 4			<b>0.768</b>
Item 2			<b>0.752</b>
Item 5			<b>0.665</b>

*Factor loadings higher than 0.6 are boldface.*

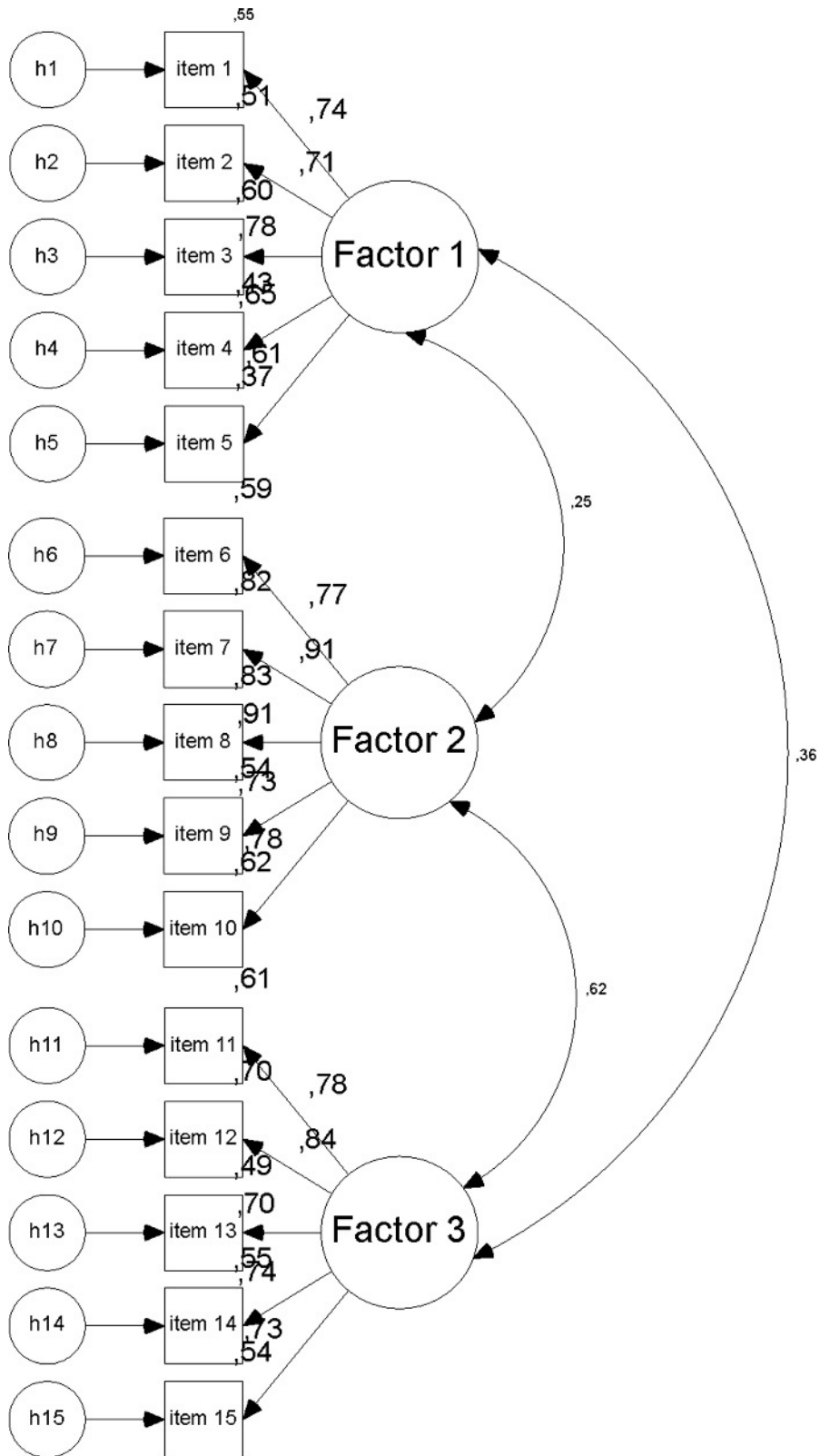


FIGURE. Model diagram of scale.



icipating in this study were government officials, which accords with the population in Asahara et al's<sup>1</sup> study.<sup>1</sup> Thus, the results may reflect the similarities in government policies and nurses' identity as government officials related to ethical matters between these 2 countries.

Another possible reason for the similarities has to do with factors influencing moral competence: past research has identified a relationship between moral rules and moral judgments<sup>2,19</sup> and factors such as ethical sensitivity, ethical climate, and value conflict all influence moral competence. These factors may lead to similarities in public health nurses' approach to resolving ethical dilemmas in care activities.<sup>7</sup> For that reason, there are similar and high results in the dimension of moral judgment and judgment based on the values of community members in our research results.

The  $\chi^2$  statistics shown in Table 2 are used to test the degree of harmony of variables in a covariance matrix; in other words, it tests the hypothesis of "there is no difference between the covariance matrix and the factor covariance matrix."<sup>18,20,21</sup> The  $\chi^2$  test measures the degree of lack of fit, with a small test statistic showing that the model fits the data and a large statistic indicating that the model does not fit the data (ie, the model does not sufficiently explain the observed structure). However, because the  $\chi^2$  statistic is a summary statistics, it is greatly affected by sample size; this is why the  $\chi^2/df$  ratio is used. If this value is lower than 5, the model has a good fit, and if lower than 3, it has very good fit.<sup>18,21</sup>

The GFI is a measurement of the amount of variance and covariance explained by the model. The coefficient of determination, which is calculated in a multiple regression analysis, is referred to as the  $R^2$ . For most GFIs, as the values near 1, the fit of the model to the data increases. Values of 0.90 to 0.95 are indicative of acceptable fit, with values of higher than 0.95 meaning high fit.<sup>14,18,21</sup>

In this study, the  $\chi^2/df$  ratio was 1.39, which is consistent with the original model. Furthermore, because the ratio was lower than 5, we can say that the model was a good fit to the observed structure. For the RMSEA value, 0 indicates perfect consistency between data and model, whereas 1 indicates perfect inconsistency. The RMSEA in this study was 0.037, indicating that the scale is a good fit to the data. The NNFI and CFI were 0.936 and 0.981, respectively, and thus, both exceeded the 0.90 cutoff, indicating good fit.<sup>14,18,21,22</sup>

## CONCLUSION

In conclusion, the MCQ-PHN-T is a valid and reliable measurement tool. This scale is an easy and useful tool for evaluating the moral competence of the public health

nurses and may further serve as a model for developing assessments of moral competences for other nursing fields.

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