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Turkish adaptation of the Multidimensional Emotional Empathy Scale: A validity and reliability study

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Abstract

Purpose: This study examined the validity and reliability of the Turkish version of the Multidimensional Emotional Empathy Scale for multidimensional evaluations of empathy.

Design and Methods: The methodological study included 202 nursing students. Turkish translation was performed using a back-translation technique. In determining the time invariance, the scale was applied twice to 38 nursing students with a 2-week interval, and the test–retest method was used, and intraclass correlations were calculated. Construct validity was examined with confirmatory factor analysis (CFA).

Findings: The content validity index was 0.997, and the general internal consistency coefficient of the scale was a highly reliable 0.905. With the CFA, it was determined that the fit index values were at an acceptable level and the model was suitable with this state.

Practice Implications: The Turkish version is considered a valid and reliable tool.

KEYWORDS

empathy, nursing students, reliability, scale adaptation, validity

1 | INTRODUCTION

The widely accepted definition of empathy relates to the process of putting oneself in the position of others, looking at events from their perspective, correctly interpreting and feeling their thoughts and emotions, and explaining the situation to them.[1] Empathy is a multidimensional concept comprised of cognitive and emotional dimensions.[2] First, the cognitive dimension involves an individual's awareness of another person's emotional state and the ability to understand the person's feelings in a given event or situation that may differ from one's own. In order for an individual to empathize with another person, that individual must first be able to cognitively differentiate between one's own thoughts and the other person's and also cognitively distinguish the other person's emotional state. Second, the emotional dimension involves feeling the same as the individual actually experiencing the event, and responding accordingly.[3,4]

Empathic skills are critically important in the establishment of effective communication between individuals and the ability to understand the thoughts and emotions of others.[5] First learned during vocational training and improved through practice and experience over time, empathic skills are used during interventions to determine the problems of others, understand their inner worlds, and collect valuable information from them to the greatest extent possible.[6,7]

Empathy is one of the main characteristics that nurses should possess as members of the healthcare field and the general community.[6,8,9] Long considered a valuable characteristic reflecting the "art of nursing," empathy is defined as feeling and sharing the thoughts and feelings of other individuals while maintaining effective bilateral communication.[1,2] Nurses perform care functions, and helping people is their principal responsibility. The professional relationships they establish with both healthy and sick individuals constitute the focus of that care.[6,8]

Although empathy is a personal characteristic, it is a skill that can be effectively developed through education.[2] Therefore, it is very important to determine the readiness of nursing students by evaluating their empathy skills at the beginning of their education and to structure programs that will improve and support skills related to both the cognitive and affective areas of nursing. Studies must be conducted using scales that can determine the empathetic skills of students to maximize these educational opportunities. The difficulties in developing new scales to adequately measure any type of attitude are widely known; therefore, the current tendency is to take scales that have already been introduced elsewhere in the field with satisfactory validity/reliability and then adapt them to the context of a specific society.[10] Multidimensional Emotional Empathy Scale (MDEES) includes the multidimensional emotional evaluation of the empathic skills of individuals. The need for reliable and valid measures of empathy is growing as awareness of the importance of empathy increases. Emotional empathy plays an important role in social communication and reflects how we share basic emotions, like happiness, sadness, anger, and fear.[3] Accordingly, this study was designed to determine the validity and reliability of the Turkish version of the MDEES to evaluate multidimensional empathy.

2 | DESIGN AND METHOD

2.1 | Design

As mentioned, this methodological research was conducted to determine the validity and reliability of the Turkish version of the MDEES to specifically evaluate multidimensional empathy in the Turkish context.

2.2 | Sample and setting

The study population included 202 nursing students from the nursing department of a Turkish faculty of health sciences during the 2017–2018 academic year. The sample size was calculated as 150. In the determination of the sample size, based on the requirement that the sample size recommended for methodological research should be 5–10 times more than the number of scale items, consequently the 5 times larger of the variable number for the 30-item scale was calculated as 150.[10] After predicting potential data losses, a decision was made to include 202 voluntary students, thus yielding an initial sample size approximately 25% higher than the minimum size recommended according to power analysis to ensure compliance with the appropriate sample size criteria deemed necessary for methodological studies.

2.3 | Measures

The data were collected using a student information form and the MDEES.

2.3.1 | Student information form

This form was prepared by the researchers for this study. It included nine questions referring to the students' age, gender, class, marital status, income status, working status, place of residence, and parental educational status.

2.3.2 | MDEES

The original MDEES scale was developed by Caruso and Mayer.[11] It comprises of 30 questions, including the multidimensional emotional evaluation of empathic skills of individuals. The scale uses items with 5-point Likert type responses that are scored between 1 (*strongly disagree*) and 5 (*strongly agree*). The scale consists of six subdimensions: suffering, positive sharing, responsive crying, emotional attention, feel for others, and emotional contagion. Items 3, 5, 6, 8, 12, 18, 24, 28 included in the scale—suffering subdimension; items 14, 22, 23, 29, 30—positive sharing subdimension; items 1, 20, 25—the sensitive crying subdimensions; 4, 9, 13, 27 items—emotional attention subdimensions; items 10, 15, 16, 2—the feel subdimensions for others; and items 11 and 17—the emotional contagion subdimensions. The lowest total score obtainable from the scale is 30 and the highest is 150. The Cronbach's α coefficient reported for the original scale was 0.88.[11] In our study, the Cronbach's α was 0.905.

2.3.3 | Language equivalence of the scale

Two experts serving as professional translators translated the scale from English to Turkish as the first step of adaptation. Problematic expressions were corrected by further comparisons of the Turkish and English expressions.

The translated scale was submitted to a panel of 12 faculty members—all experts in the nursing field—for their opinions regarding content validity of the Turkish version of the scale. The content validity index (CVI) developed by Waltz and Bausell[12] was used to evaluate the expert opinions. Different methods such as Lawshe technique, Davis technique, and Kendall good coefficients are used for expert scoring.[13-16] Expert opinions were asked to examine whether the statements in the measurement tool are suitable for the purpose of measurement. The content validity of the scale was calculated using Lawshe technique. This was regulated again by evaluating the scores given by faculty members for each item. The CVI was calculated by dividing the total scores per scale item by the total number of experts.[17]

2.4 | Data collection procedure

Data were collected by the researchers who distributed and to all nursing students after explaining the purpose, content, scope, and what is expected from students who accepted to become a

participant. The data obtained in the scope of test–repeat are included in the study data. In the test–retest, the students participating in the study were asked to write their nicknames. The researchers readministered the scale for the same student group after a 2-week interval to determine the scale's time invariance and preferred to apply the same nicknames.

2.5 | Ethical considerations

Written permission was obtained from Mayer to perform the validity and reliability study of the Turkish version of the MDEES. The study was approved by the university's ethics committee and conducted according to the ethics guidelines set out in the Declaration of Helsinki (27/03/2018; Number: 4926). In accordance with the principle of volunteer participation for studies of this nature, verbal and written consent were obtained from the nursing undergraduate students who constituted the sample group after informing them about the purpose of the study and the researchers' expectations.

2.6 | Data analysis

To evaluate the data obtained in the study, IBM SPSS Statistics 22 and SPSS AMOS 22 (IBM SPSS, Turkey) were used for statistical analyses. Also, the normal distribution compatibility of the parameters was evaluated using a Kolmogorov–Smirnov test, Q–Q plots, and histograms. Descriptive statistical methods (mean, standard deviation, and frequency) were also used to assess the data. Confirmatory factor analysis (CFA) was applied. In the reliability analysis, Cronbach's α coefficients for internal consistency and Pearson correlation analysis for item-total score correlation were used. For retest reliability, intraclass correlation coefficients (ICC) were calculated. A Mann–Whitney *U* test (MWW) was used for evaluations between two groups. A Kruskal–Wallis test for the evaluations of more than two groups and another MWW test to determine the group causing the difference were used as well. To evaluate the correlation between the scale scores, Spearman's rho correlation analyses were used, and statistical significance was assessed at the level of $p < 0.05$.

3 | FINDINGS

3.1 | Characteristics of the participants

The mean age of the students in the sample group was 20.94 (*SD* = 1.93) years with a range of 18–32 years, and 55% (*n* = 111) were over 20 years old. It was also determined that 89.1% of the students (*n* = 180) were female, 26.7% (*n* = 54) were second-year students, and 26.7% (*n* = 54) were third-year students. The income of 85.6% (*n* = 173) of the students met or exceeded their expenses, and 14.9% (*n* = 30) were employed. Also, 47% (*n* = 95) of their mothers and 34.2% (*n* = 69) of their fathers held primary school degrees, while 72.8% (*n* = 147) willingly chose the nursing profession. All 202 students in the study were single.

3.2 | Validity of the scale

3.2.1 | Content validity

The Turkish scale derived from the translation was evaluated in terms of language and content validity by 12 experts who are specialists in their fields. According to the Davis technique, the comprehensibility of each MDEES item when expressed correctly and clearly was expected to be evaluated between 1 and 4 points (1 = *not suitable*, 2 = *slightly suitable*, 3 = *quite suitable*, and 4 = *very suitable*), and at least 80% of the expert evaluations were expected to be either quite suitable or very suitable.[13] By dividing the number of experts who chose either 3 or 4 when evaluating each item by the total number of experts, the CVI was obtained for each item with values ranging between 0.917 and 1.000. The CVI value obtained for the overall scale was 0.997 and considered excellent. The obtained CVI values were determined to be higher than the accepted value of 0.800; therefore, the scale items were suitable in terms of language and content validity.

3.2.2 | Construct validity

To determine the construct validity, CFA was used. Numerous fit indices were used in this study to show the adequacy of the model that was tested for compatibility in the CFA: chi-square fit tests, normed chi-square (NC), goodness of fit index (GFI), root mean square error of approximation (RMSEA), comparative fit index (CFI), normed fit index (NFI), relative fit index (RFI), and the incremental fit index (IFI). For the NC value, 2.5 and below was considered as the perfect fit value. For the GFI, CFI, NFI, RFI, and IFI indices, the acceptable fit value was 0.90 and the perfect fit value was 0.95. For RMSEA, 0.08 was deemed an acceptable fit and 0.05 was considered a perfect fit.

Table 1 shows the fit indices obtained for the CFA performed in this study in which the fit indices of the six-factor model of the Turkish version of the MDEES were investigated. The results shown in Figure 1 reveal that the fit indices of the MDEES were significant ($\chi^2 = 743.619$; $df = 284$; $p \leq 0.01$). The respective fit index values were NC = 2.618, GFI = 0.874, RMSEA = 0.090, CFI = 0.810, NFI = 0.730, RFI = 0.691, and IFI = 0.814. As modification would not be suitable between the items, this was not applied. The fit indices of the obtained model provided moderate validity (acceptable level). Figure 1 shows information of the path diagram and factor loads for the confirmed model.

TABLE 1 Fit indices obtained for confirmatory factor analysis

	Fit indices obtained as a result of CFA
NC (χ^2 = 1639.241/*df* = 634) (normed chi-square)	2.618
GFI (goodness of fit index)	0.874
RMSEA (root mean square error of approximation)	0.090
CFI (comparative fit index)	0.810
NFI (normed fit index)	0.730
RFI (relative fit index)	0.691
IFI (incremental fit index)	0.814

Abbreviations: χ^2, chi-square fit test; *df*, degree of freedom.

3.3 | Reliability of the scale

3.3.1 | Item analysis and internal consistency results of the scale

Table 2 shows the item analysis results for the MDEES. The Cronbach's α coefficient of the scale was 0.905 (at good level). The item-total correlation values of scale items 4, 9, 13, 16, 20, and 27 were determined to be quite low. However, the Cronbach's α coefficients obtained when the items in the scale were deleted separately showed a considerable deviation from 0.905. Therefore, the analyses continued without omitting any items.

3.3.2 | Retest reliability of the scale

To determine the test–retest reliability, the scale was applied twice to a sample group of 38 people and Pearson Moments Product Correlation Coefficients were calculated between the total scores of

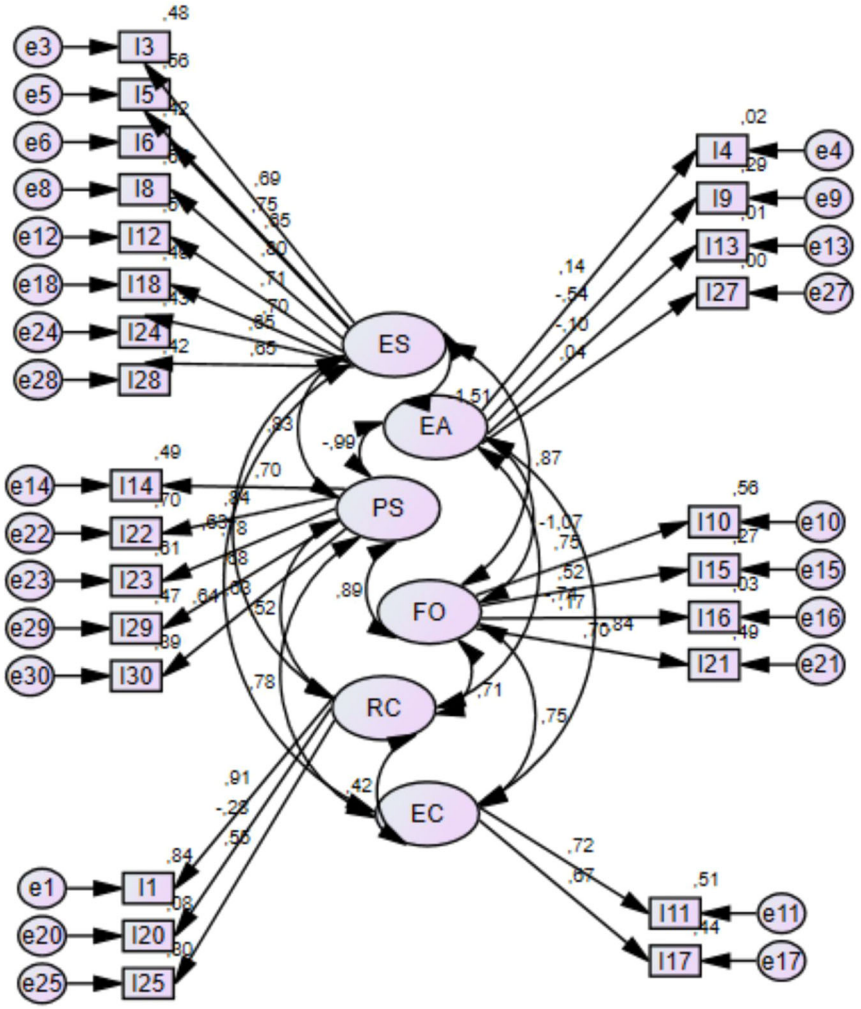

FIGURE 1 Path diagram and factor loads of the confirmed model. EA, emotional attention; EC, emotional contagion; ES, empathic suffering; FO, feeling for others; PS, positive sharing; RC, responsive crying [Color figure can be viewed at wileyonlinelibrary.com]

TABLE 2 Item analysis results of the scale

Items	Min.–max.	Mean (*SD*)	Item-total correlation	Cronbach's α when the item is deleted
Item 1	1–5	3.62 (1.10)	0.576	0.900
Item 2	1–5	3.84 (1.08)	0.523	0.901
Item 3	1–5	4.27 (0.97)	0.585	0.900
Item 4[a]	1–5	2.11 (1.08)	−0.130	0.913
Item 5	1–5	4.24 (0.92)	0.685	0.898
Item 6	1–5	3.99 (0.99)	0.647	0.899
Item 7	1–5	3.82 (0.96)	0.571	0.900
Item 8	1–5	4.51 (0.90)	0.646	0.899
Item 9[a]	1–5	4.44 (0.87)	0.649	0.899
Item 10	1–5	3.83 (0.95)	0.690	0.898
Item 11	1–5	3.88 (0.89)	0.504	0.901
Item 12	1–5	4.22 (0.96)	0.636	0.899
Item 13[a]	1–5	3.17 (1.07)	0.081	0.909
Item 14	1–5	4.08 (0.84)	0.652	0.899
Item 15	1–5	3.17 (1.01)	0.456	0.902
Item 16[a]	1–5	3.12 (1.14)	0.210	0.904
Item 17	1–5	3.34 (0.92)	0.508	0.901
Item 18	1–5	4.43 (0.90)	0.644	0.899
Item 19	1–5	3.40 (1.05)	0.514	0.901
Item 20[a]	1–5	2.60 (1.34)	-0.014	0.913
Item 21	1–5	3.69 (0.87)	0.622	0.900
Item 22	1–5	4.04 (0.78)	0.687	0.899
Item 23	1–5	4.09 (0.91)	0.672	0.899
Item 24	1–5	4.20 (0.91)	0.595	0.900
Item 25	1–5	3.32 (1.14)	0.403	0.903
Item 26	1–5	3.67 (1.09)	0.429	0.903
Item 27[a]	1–5	2.59 (1.28)	0.013	0.912
Item 28	1–5	4.00 (0.81)	0.661	0.899
Item 29	1–5	4.26 (0.78)	0.610	0.900
Item 30	1–5	3.89 (0.86)	0.590	0.900

[a]These items are reversely scored items.

both applications. As a result of power analysis using G*Power 3.1 program, at least 30 samples in total were sufficient with 80% power, 5% margin of error, and $d = 0.5379$ effect size. Possible deficiencies could not be taken into account, test was working for retest 38 students were included. This obtained data are included in the study data. To investigate the retest reliability of the scale, 38 students repeated the scale after a 2-week interval, after which ICC values were calculated. Table 3 shows the results. The ICC results obtained for all subscales of the scale and the overall scale were determined to be quite high.

As there were correlations between the students' subscales in the original version of the MDEES, the correlations between these subscales were also examined in this study. In general, statistically significant correlations were detected between all subscales (Table 4).

TABLE 3 Retest reliability of the scale

Subscales and total	ICC	95% confidence interval		F	p
		Lower limit	Upper limit		
ES	0.793	0.601	0.892	4.824	0.001**
PS	0.816	0.646	0.904	5.442	0.001**
RC	0.877	0.764	0.936	8.160	0.001**
EA	0.674	0.372	0.830	3.063	0.001**
FO	0.799	0.614	0.896	4.984	0.001**
EC	0.739	0.499	0.865	3.838	0.001**
GE	0.920	0.846	0.958	12.505	0.001**

Abbreviations: EA, emotional attention; EC, emotional contagion; ES, empathic suffering; FO, feeling for others; GE, generally empathy; ICC, intra-class correlation; PS, positive sharing; RC, responsive crying.
**$p < 0.01$.

TABLE 4 Correlation evaluation between subscales of the scale

	ES	PS	RC	EA	FO	EC	GE
	r	r	r	r	r	r	r
ES	1	–	–	–	–	–	–
PS	0.742[a]	1	–	–	–	–	–
RC	0.397[a]	0.308[a]	1	–	–	–	–
EA	−0.076	−0.048	0.094	1	–	–	–
FO	0.534[a]	0.569[a]	0.379[a]	0.071	1	–	–
EC	0.386[a]	0.504[a]	0.225[a]	−0.059	0.359[a]	1	–
GE	0.744[a]	0.768[a]	0.679[a]	0.210[a]	0.718[a]	0.627[a]	1

Note: r, Spearman's rho correlation coefficient.
**$p < 0.01$.

4 | DISCUSSION

Nursing is a profession featuring intense human relationships. Empathy is a critical component of these therapeutic nurse–patient relationships.[5,18] When the existing empathy scales used in Turkey were examined, it was determined that valid and reliable tools were needed to evaluate empathy multidimensionally. The MDEES developed by Caruso and Mayer[11] is an important tool that can satisfactorily meet this requirement. In this context, a Turkish adaptation of the MDEES followed by validity–reliability analyses were conducted in this study.

Validity is a concept that refers to a measurement tool's ability to measure something reasonably, accurately, and correctly.[19] To validate an adapted scale, substantial work must be done regarding language, content, and construct validity.

The method of translation and subsequent back translation of the scale was used to ensure language validity. To determine content validity of the Turkish-translated version, CVI was used. The CVI score was expected to be at least 0.80. After the opinions of 12 faculty members—all experts in their fields—were analyzed, the CVI score was found to be 0.99. Therefore, the results of the study indicate that the scale items were suitable in terms of language and content validity.

Factor analysis is used to examine the correlation of items with each other. In this study it was conducted to determine whether or not the scale items could be collected under different dimensions. To test the construct validity of the Turkish version of the MDEES, CFA was performed. Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were applied to evaluate the suitability of the dataset[20,21]

A KMO test is performed to evaluate the adequacy of a sample, and the value is considered either perfect (between 0.90 and 1.00), very good (0.80–0.89), good (0.70–0.79), moderate (0.60–0.69), weak (0.50–0.59), or unacceptable (below 0.50). Accordingly, KMO values must be above 0.60.[22] In this study, the KMO value was 0.897.

A Barlett's test is conducted to examine whether or not the variables in a study show correlation with each other and whether a significant *p* value is obtained, thus suggesting that the correlation is appropriate for analysis.[21] In this study, the result was statistically significant ($\chi^2 = 3140.756$; $df = 897$; $p \leq 0.01$).

To evaluate the fitness of the factors in the Turkish adaptation of the scale, CFA was conducted. To determine the appropriate scale item for each factor, factor loading indicates the level of correlation between the item and the related factor. Accordingly, the factor loads of all items were expected to be 0.30 or higher.[23] Factor loads were assigned to items in accordance with the subscales in the original version of the scale. As a result of the analysis, the scale was collected under six factors: empathic suffering, positive sharing, responsive crying, emotional attention, feeling for others, and emotional contagion.

4.1 | Reliability

The Cronbach's α technique used to analyze a scale's internal consistency is the mean value of the weighted standard deviation change found by proportioning the sum of variances of the items in the scale to the general variance. The resultant value is a coefficient revealing the similarity and closeness of the questions in the scale. When evaluating the obtained coefficient, a scale is considered unreliable if the coefficient is <0.40. It is considered to have very low reliability between 0.40 and 0.50, low (0.50–0.60), sufficient (0.60–0.70), high (0.70–0.90), and very high (>0.90). Current theoretical standards related to scale reliability suggest that this value should be ≥0.70.[24] When the original version of the scale was developed, the Cronbach's α was 0.880.[11] In the present study, Cronbach's α of the MDEES was a highly reliable 0.905.

The item-total correlation values of the items in the scale were quite low, especially those for items 4, 9, 13, 16, 20, and 27 that were particularly low. However, when the items in the scale were deleted separately, the internal consistency coefficients (Cronbach's α) could not be higher than the general internal consistency coefficient of

0.905. Therefore, the analyses continued without omitting any items. These results indicate that the items in the scale were satisfactorily consistent and homogeneous.

Reliability is defined as the repeatability of measurements or the consistency of repeated measurements. One of the most commonly used analyses to test the time-invariance of a scale is the test–retest technique.[25] In this study, this was done by repeating the administration of the scale to 38 nursing students after a 2-week interval. The data were analyzed by calculating the ICC values applied to determine the degree of correlation between the measurements of the class. ICC values range between 0 and 1. When the evaluations are close over the two applications, the coefficient value approaches 1 and is thus interpreted as high agreement.[25] When the two measurement scores conducted within a 2-week interval in this study were analyzed, ICC values were determined to be high with a confidence interval of 95%. This result confirms that the scale provided consistent measurements at different times and is therefore reliable.

4.2 | Implications for nursing practice

The Turkish version of the MDEES is a valid and reliable tool that can be used to determine the empathy levels of nursing students. Adapting the measurement tool to the Turkish language contributes to the determination of their empathy levels within the country's specific context. Therefore, this version of the MDEES can be used as a suitable multidimensional evaluation of empathy.

5 | LIMITATIONS OF THE STUDY

The study has some limitations. In this study, face validity of Turkish version of the Multidimensional Emotional Empathy Scale was not used in the methods. The data of the study collected were only university nursing students and the gender of the sample was 89% female. The instrument does not have the same validity in other samples. Therefore, the fact that the results of the study cannot be generalized to all nursing students is one of the limitations of the study.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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