Psychometric properties of the Turkish version of the moral distress-appraisal scale for nurses

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A R T I C L E   I N F O

A B S T R A C T

Moral distress causes frustration, guilt, anger, stress, sadness, anxiety, fear, burnout, insecurity, and depression in nurses, and this is reflected in their work performances. Therefore, internationally validated tools and methodological studies are needed to measure moral distress among nurses. This study aims to evaluate the psychometric properties of the Turkish version of the Moral Distress-Appraisal Scale (MD-APPS) among nurses in Turkey. Psychometric properties of the Turkish version of the Moral Distress-Appraisal Scale (MD-APPS), which included internal consistency reliability and construct validity with factor analysis, were examined in a sample of 420 nurses working in different hospitals in Turkey completed the study between February and July 2022. The content validity index of the Turkish version of the MD-APPS based on expert opinions was 0.90. Through exploratory factor analysis for construct validity, a two-factor structure was obtained as in the original scale. The variance explained by these two factors was 56.67 %. Confirmatory factor analysis showed that the scale was valid, while internal consistency coefficient and test–retest results demonstrated that the scale was reliable. The Turkish version of the MD-APPS is a valid and reliable tool for evaluating moral distress among nurses.

Introduction

Moral distress is defined as the phenomenon in which individuals are aware of the ethically appropriate action but find it difficult to act upon it (Baele & Fontaine, 2021) according to their own basic values and perceived obligations owing to inner and outer restrictions (Fumis et al., 2017). Moral distress can impact individuals' physical, and spiritual health, mental, and social relationships (Shoorideh et al., 2015). Although moral distress is perceived as a natural reaction to morally challenging events, its importance has become recently noticeable among nurses as it causes problems, including quitting jobs and patient estrangement (Morley, 2018). Nurses experience moral distress owing to lack of communication within their healthcare team, inability to provide effective nursing care, and time constraints (Gutierrez, 2005; Karagozoglu et al., 2017). This condition can cause the physical disorders such as loss of appetite, nausea, diarrhea, migraine, heart flutter (Austin et al., 2009; Silverman et al., 2021) and emotional problems such as frustration, guilt, anger, stress, sadness, anxiety, fear, burnout, insecurity, depression (Prompahakul & Epstein, 2020). The performance of nurses is affected due to these negatives (Shoorideh et al., 2015; Wenwen et al., 2018).

The effect of moral distress on nurses' behavior has been previously investigated (Silverman et al., 2021). Accordingly, patients are affected owing to inadequate care provided, which may lengthen their hospital stay (Epstein & Hamric, 2009; Soleimani et al., 2019). Considering the consequences not only among healthcare professionals but also to the healthcare system, the importance of moral distress is emphasized (Karagozoglu et al., 2017; Yildirim et al., 2013). The moral distress experienced by nurses stems from causes specific to their institution (hospital staff shortage, inflexible policies, ineffective personnel changes, and poor communication), and the structure of the healthcare system (complex documentation and overly complex technology) (Jameton, 2017). These factors must be addressed as an entirety, and the resulting distress must not be considered a failure or personal weakness of nurses (Burston & Tuckett, 2013). The work environment, including the specific unit, has also been reported to cause moral distress among these healthcare professionals. Although this condition was initially described among nurses working in intensive care units (ICU), it was also reported among those working in surgery, oncology, and mental health units (Prompahakul et al., 2021).

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Some tools have been developed to measure the moral distress experienced by nurses, and their psychometric properties have been evaluated (Burston et al., 2017; Eizenberg et al., 2009; Sharif Nia et al., 2019. The psychometric properties of the MD-APPS in different languages, which are short, up-to-date, and easy to apply, have not been evaluated. However, we aim for the psychometric characteristics' evaluation of a Turkish translation of the MD-APPS (Baele & Fontaine, 2021) in regard to its suitability for use with nurses.

Method

Study type

The validity and reliability of MD-APPS in Turkish were investigated in this study using a methodological approach.

Study population and sampling

The research was conducted among nurses between February and July 2022 with data collected online. The inclusion criteria were as follows: a) actively working in Turkey and b) voluntary participation. In the literature, a sample size of 200–500 is considered "good" for psychometric studies; 500–1000, "very good"; and $\geq$ 1000, "excellent" (Ayar, Unalp, Bektas, et al., 2022; Karagöz, 2017). The sample of this study consisted of 420 nurses who comply with the inclusion criteria. Of these, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) each contained 220 and 200 randomly chosen participants, respectively.

Data collection tools

The MD-APPS and a descriptive information form were used to collect data in the study.

Descriptive information form

We prepared this form according to the literature (Fujii et al., 2021; Prompahakul & Epstein, 2020). It consisted of 13 items.

Moral Distress-Appraisal Scale

The MD-APPS was developed by Baele and Fontaine to evaluate moral distress (Baele & Fontaine, 2021). It consists of two factors and a six-point Likert scale of eight items. The factor load value for the 1st item of the scale was 0.79, 0.76 for the second item, 0.67 for the third item, 0.63 for the fourth item, −0.48 for the fifth item, −0.58 for the sixth item, −0.68 for the seventh item, and −0.74 for the last item. Items 2, 4, 5, and 6 are reverse scored. The total score ranges from 6 to 48, with higher scores indicating increased moral distress. The Cronbach's alpha coefficient of the original scale is 0.87.

Data collection

Data were collected online via Google Forms. The introduction section of the form contained detailed information about the research, including its purpose. Subsequently, the information section contained a box that the participants could check to declare that they agree to voluntarily. They could not skip to the next field without reading all fields and checking the box. It took them 3–5 min to complete the scale. Since a marking requirement was added to each question, the participants could not skip to the next question without answering the current question. This ensured no incomplete and lost data were acquired.

Turkish Moral Distress-Appraisal Scale adaptation

Cultural and language adaptation

The language adaptation process should include the culture of the target language rather than the word translation of the sentence.

Expressions that do not appropriate the culture of the target language may also include frequently used expressions with the same meaning in the target language. Accordingly, a language including the original meaning that the participants could understand was used.

Translation–back translation

Translation–back translation was used for the language validity of the MD-APPS. The scale was translated from English to Turkish by five experts (Psychiatric nursing (1), Pediatric Nursing (2), Surgical Nursing (2) teaching staff) fluent in both languages. In line with these translations, we combined the scale items and created the Turkish version. The Turkish version was sent to teacher specialized in Turkish language and literature, and approval was obtained because of the necessary controls. The scale's draft was translated back into English by an expert (Lecturer in English language and literature).

Expert opinion

Expert opinions were obtained from 10 nursing faculty members (Psychiatric nursing (6), Surgical Nursing (2), Pediatric Nursing (1), Emergency Medicine Nursing (1) teaching staff) working in various nursing departments to ensure clarity and intelligibility of the scale. The original and draft forms of the MD-APPS were sent to the experts. They evaluated each item in terms of relevance with a scoring ranging from 1 (inappropriate) to 3 (appropriate) independently. And the content validity index (CVI) was calculated using the Lawshe technique to determine inter-expert agreement. For the 10 experts, the value was expected to be $\geq$0.80 (Yeşilyurt & Çapraz, 2018). Thereafter, the Turkish version was prepared for psychometric evaluation.

Pilot study

According to the literature, the scale must be used in 20–30 individuals who have similar characteristics in terms of language and intelligibility (Ayar, Unalp, Yilmaz, et al., 2022; Karagöz, 2017; Polit et al., 2007). After the content validity analysis, the Turkish version of the MD-APPS was a pilot study in 20 participants who comply with the inclusion criteria. Participants did not indicate a problem. Participants who conducted a pilot study were not included in the study.

Statistical analysis

Data were evaluated with LISREL 8.7, and IBM SPSS 23.0. Sociodemographic data were presented as numbers, percentages, and means. EFA and CFA were performed to test the construct validity while the CVI was calculated to evaluate the content validity. Internal consistency was calculated using item total correlation and Cronbach's alpha coefficients. The stability of the scale items was determined using the test–retest method. Two weeks after completing the scale, 20 randomly selected participants were contacted and asked to fill in the scale again. Test–retest analysis was also performed in this sample.

Ethical considerations

Permission was obtained for the Turkish adaptation of the MD-APPS from the scale owner, Céline A. Baele, via e-mail (Baele & Fontaine, 2021). The university's clinical research ethics committee granted approval (Document no: KAEK-74). The participants gave written assent agreeing to participate in the study.

Results

The mean total MD-APPS score of the participants was 22.87 $\pm$ 7.39 (minimum: 8, maximum: 48) (Table 1).

Content validity

The draft version of the scale was submitted for evaluation among 10

Table 1
Demographic and clinical characteristics of the study population (N = 420).

Characteristic	Mean ± SD/range
Age, years	32.25 ± 8.4/20–56
Years of working	10.1 ± 9.2/1–38
Weekly working hours	47.07 ± 10.1/8–120

	Number	Percentage
Gender		
Male	75	17.9
Female	345	82.1
Education level		
High school	24	5.7
Associate degree	32	7.6
Undergraduate	300	71.4
Master	61	14.5
Doctor of philosophy	3	0.7
Vocational position		
Clinic nurse	355	84.5
Administrative nurse	13	3.1
Head nurse	52	12.4
Department/ward		
Clinic	154	36.7
Intensive care	117	27.9
Emergency unit	31	7.4
Operation room	19	4.5
COVID-19 unit	14	3.3
Administrative unit	16	3.8
Other units	69	16.4
Shift		
Day	142	33.8
Night	21	5.0
Night-day	257	61.2
Area of residence		
Province	393	93.6
Town/village	27	6.4
Marital status		
Married	216	51.4
Single	204	48.6
Children		
With a child	184	43.8
Childless	236	56.2
Health problem		
Yes	78	18.6
No	342	81.4
Income status		
Less than expense	147	35.0
Equal to expense	234	55.7
More than expenses	39	9.3

experts. Consistency among expert opinions was evaluated using the Lawshe technique. The calculated CVI was 0.90.

Construct validity

Exploratory factor analysis

EFA and CFA were utilized to assess the construct validity of this scale. Using Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) coefficient, the sample's suitability was assessed. In the study, the KMO coefficient was 0.791, and the Bartlett's sphericity test results were as follows: $\chi^2(28) = 432.991$ and $p < 0.05$. Generally, a KMO coefficient close to 1 represents the perfect sample in determining the sample suitability (Tabachnick & Fidell, 2013). For Bartlett's sphericity test, a p value of <0.05 is expected (Tabachnick & Fidell, 2013). Accordingly, the data of the Turkish version of the scale were found to be appropriate for factor analysis. The total explained variance of the determined two-factor Turkish version was 56.67 %. Further, the factor loading value ranged between 0.60 and 0.79 (Table 2). The Turkish version of the scale contained the same items as the original scale: No item was added or removed.

Table 2
Factor analysis and total correlation of MD-APPS Turkish version (N = 420).

Items no	Factor loadings	Corrected items-total correlation	% Of the variance explained	Cronbach's alpha
Factor 1			30.114	0.760
Item 1	0.79	0.46		
Item 3	0.79	0.45		
Item 6	0.71	0.50		
Item 8	0.66	0.64		
Factor 2			26.560	0.680
Item 2	0.78	0.27		
Item 4	0.70	0.57		
Item 5	0.68	0.43		
Item 7	0.60	0.46		
Total			56.674	0.770

Confirmatory factor analysis

CFA was performed in a separate sample of 200 participants. The factor loading values varied between 0.75 and 0.95 (Fig. 1); in particular, the loading values for factors 1 and 2 varied between 0.80 and 0.95 and between 0.75 and 0.92, respectively. The model fit indices for the Turkish version of the MD-APPS were as follows: $\chi^2 = 34.03$, df = 18, and root mean square error of approximation (RMSEA) = 0.067. The χ^2/df was used in the model fit calculation, with a value of ≤ 2 indicating a perfect fit (Tabachnick & Fidell, 2013). For the Turkish version of the MD-APPS, the χ^2/df was 1.891. In addition, the goodness-of-fit index was 0.96; comparative fit index, 0.99; incremental fit index, 0.99; relative fit index, 0.98; and normed fit index, 0.99.

Reliability

The Cronbach's alpha coefficient of the Turkish version of the MD-APPS was 0.77, indicating the reliability of the scale. The Cronbach's alpha coefficient for factors 1 and 2 was 0.760 and 0.680, respectively (Table 2), indicating the reliability of the scale within its sub-dimensions. The item total correlation coefficients varied between 0.27 and 0.64.
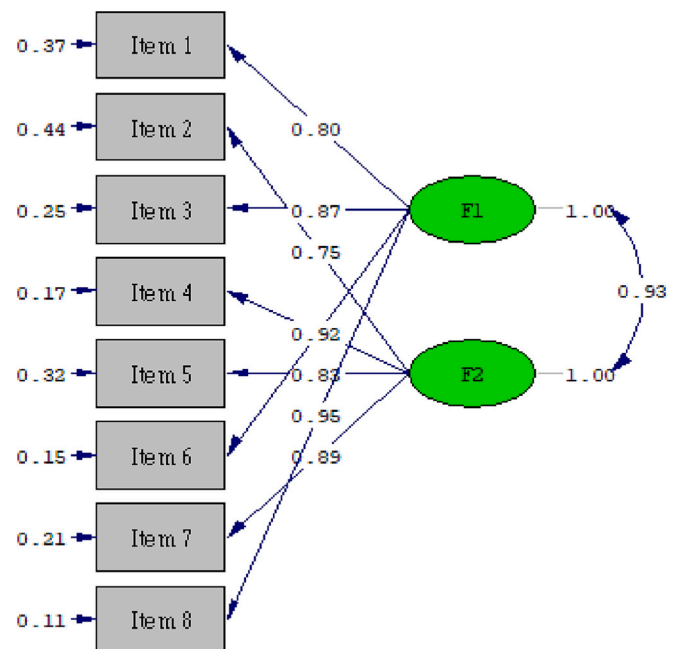

Fig. 1. Path diagram: confirmatory factor analysis of MD-APPS Turkish version.

For the test–retest method (*n* = 20), Paired sample *t*-test and spearman correlation analysis were performed, which revealed a high level of correlation in the mean scores (*r* = 0.992, *p* < 0.05). The mean scores did not significantly differ in the paired sample t-test (*t* = 0.809, *p* > 0.05). Thus, the stability of the scale and its invariance over time were proven.

Discussion

In this study, the MD-APPS was applied to nurses and adapted to Turkish culture and language, and its reliability and validity were evaluated. When the results are examined, the Turkish version of this scale is a valid and reliable measurement tool for moral distress. We can say that this is the first study to adapt the MD-APPS to another language in line with our research.

Validity

Content validity

The CVI value calculated according to expert opinions is above the accepted value. In the literature, Acceptance value is >0.80 (Wilson et al., 2012), and in this study, it was calculated as 0.90. Accordingly, the statements in the scale were related to Turkish culture and represented and provided the content to be measured for content validity.

Construct validity

The KMO coefficient and Bartlett's sphericity test were utilized to evaluate the suitability and adequacy of the sample included in the study for factor analysis. A significant Bartlett's sphericity test result and a KMO coefficient above 0.60 are desired (Tabachnick & Fidell, 2013). Herein, the KMO coefficient was 0.791, and the Bartlett's sphericity test result was significant, indicating that the sample was sufficient, and the data were satisfactory for the factor analysis.

EFA and CFA. EFA demonstrated that the scale was like the original version, and both scales formed a two-factor structure. The scale's two-factor Turkish version's explained variance, which is an important indicator of construct validity was 56.67 %. Generally, the explained variance of multifactorial scales is expected to be >40 %. A higher variance indicates that the construct validity is stronger (Bektas & Kudubes, 2022; Boateng et al., 2018). In this study, the high variance showed the strength of the construct validity. The factor loading values ranged between 0.60 and 0.79 for the Turkish version and between 0.48 and 0.79 for the original version. The literature states that the minimum factor loading value should be 0.30 (Ayar, Unalp, Bektas, et al., 2022; DeVellis, 2016). The factor loading values of the Turkish version are higher than the desired value and similar to those of the original version. These findings suggest a robust factor structure and construct validity for the Turkish version.

CFA was conducted alongside EFA, which is generally accepted in the literature (Brown, 2015; Johnson & Christensen, 2019; Xia & Yang, 2019). In this study, it was performed in a separate sample. The χ^2/df was <2; RMSEA, <0.08; and other fit indices, >0.90. These values are consistent with those accepted in the literature (Marsh et al., 2020; Tabachnick & Fidell, 2013), and with those of the original scale (Baele & Fontaine, 2021), indicating that the construct validity of the Turkish version is strong.

Reliability

Internal consistency

Cronbach's alpha coefficients are the most used measure for assessing internal consistency within the context of reliability analysis. These values show homogeneity of the scale, and acceptable values range from 0.60 to 1.00 (Johnson & Christensen, 2019; Sencan, 2005). The MD-

APPS in the Turkish version had a Cronbach's alpha coefficient of 0.77. This value shows that the internal consistency and reliability of the scale are good. In the original version, the alpha coefficient is 0.87 (Baele & Fontaine, 2021). Accordingly, the Turkish version can be interpreted to be similar to the original version in terms of internal consistency. Another variable calculated within the scope of reliability analysis is item total correlation coefficients. These coefficients explain the relationship between item and total scale scores (Johnson & Christensen, 2019). The expected value is >0.20. The item's total correlation coefficient in this study varied from 0.27 to 0.64. So, all items on the scale measured the desired quality and had reliability.

Stability

A test-retest analysis was done to determine stability within the scope of reliability analysis. In this analysis, it is expected that the answers of the same people to the scale at different times will be the same (Noble et al., 2019). Herein, the mean scores did not significantly differ between the initial test and the test administered after 2 weeks (*p* > 0.05). The correlation coefficient is expected to be high in test–retest analyses (Ayar, Unalp, Bektas, et al., 2022). The correlation coefficient of the scale in this study was 0.99, which is considered high. These results prove that the scale is stable over time and is thus reliable.

Limitations

There are some limitations. Firstly, the random sample selection may have reduced the results' capacity to be generalized. Secondly, concurrent, and divergent validities were not examined.

Conclusion

Similar to the original MD-APPS, the Turkish version has two sub-dimensions. The alpha coefficient is high, and the linguistic and cultural aspects are equivalent. The Turkish version is a valid and reliable tool for evaluating moral distress among nurses. Nevertheless, validation studies in other countries and languages will provide additional evidence on the reliability and validity of the scale.

CRediT authorship contribution statement

All authors have agreed on the final version and meet at least one of the following criteria.

1) Significant contributions to the conceptualization and design, data collection or analysis, and interpretation of data
2) Preparing the article or critically reviewing it for intellectual content.

Declaration of competing interest

None.

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