

Measuring moral distress among critical care clinicians: Validation and psychometric properties of the Italian Moral Distress Scale-Revised (MDS-R)

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Abstract

Objective. Moral distress is a common experience among critical care professionals leading to frustration, withdrawal from patient care and job abandonment. Most of the studies on moral distress have used the Moral Distress Scale (MDS) or its revised version (MDS-R). However, these scales have never been validated through factor analysis. This paper aims to explore the factorial structure of the MDS-R and develop a valid and reliable scale through factor analysis.

Design. Validation study using a survey design

Setting. 8 medical-surgical ICUs in the north of Italy

Subjects. A total of 184 clinicians (64 physicians, 94 nurses and 14 residents)

Interventions. The MDS-R was translated into Italian and administered along with a measure of depression (BDI-II) to establish convergent validity. Exploratory factor analysis was conducted to explore the MDS-R factorial structure. Items with low ($\leq .350$) or multiple saturations were removed. The resulting model was tested through confirmatory factor analysis.

Measurements and Main Results. The Italian MDS-R is composed of 14 items referring to 4 factors: Futile care, Poor teamwork, Deceptive communication, and Ethical misconduct. This model accounts for 59% of the total variance and presents a good fit with the data (RMSEA=.06; CFI=.95; TLI=.94; WRMR=.65). The Italian MDS-R evinces good reliability ($\alpha=.81$) and moderately correlates with BDI-II ($r=.293$; $p=.000$). No significant differences were found in the moral distress total score between physicians and nurses. However, nurses scored higher on Futile care than physicians ($t=2.051$; $p=.042$), while physicians scored higher on Deceptive communication than nurses ($t=3.617$; $p=.000$). Moral distress was higher for those clinicians considering to give up their position ($t=2.778$; $p=.006$).

Conclusions. The Italian MDS-R is a valid and reliable instrument to assess moral distress among critical care clinicians and develop tailored interventions addressing its different components. Further research could test the generalizability of its factorial structure in other cultures.

Introduction

Caring for critically ill patients is an emotionally demanding job (1, 2). Among the factors that affect clinicians' wellbeing, moral distress has received an increasing attention (3, 4). Moral distress is the painful feeling that occurs when healthcare professionals cannot carry on what they believe is the ethically correct action (5). The hallmark of moral distress is the perceived violation of one's professional values and duties (6, 7). Literature identified some psychological or organizational factors that may prevent clinicians from pursuing what they believe to be the ethically correct action. These include a lack of assertiveness or autonomy, socialization pressures to follow others, lack of time, inhibiting power structure, lack of collegial support, and organizational priorities that conflict with care needs (8).

Studies showed that clinicians who suffer from moral distress experience sadness, frustration and anger (9-11), and are at risk for burnout, withdrawal from patient care, conscientious objection, or job abandonment (9, 12-15).

The first scale of moral distress, the Moral Distress Scale (MDS) (16), was based on the Jameton conceptualization of moral distress (5), House and Rizzo's role conflict theory (17) and Rokeach's beliefs, attitudes and values theory (18). The MDS consists of 32 items describing such morally distressing situations as following the family's wishes to continue life support even when it is not in the best interest of the patient, or ignoring situations in which patients have not received adequate information for informed consent. Clinicians have to rate on a Likert scale how frequent and how distressing each situation is. The MDS was the first measurement of moral distress, and allowed many quantitative studies to explore its prevalence and impact on nurses' wellbeing (10; 19-21). However, the MDS was tested on a sample made up solely of nurses, and its factorial structure, which explained only 19% of the total variance, was not tested through confirmatory factor analysis.

A revised version of the MDS was developed by Hamric et al. (8). The MDS-R is shorter than the MDS and was used on a sample of nurses and physicians. However, its structural and convergent validity has not been tested.

Structural and convergent validity are pivotal components of construct validity, that is, the degree to which a test measures what it claims to be measuring (22). Structural validity explores the internal structure of the test items and is usually assessed through factor analysis. Convergent validity is measured by exploring the correlation between the test and similar constructs (23).

The aims of this study were to develop and validate the Italian version of MDS-R on a sample of critical care clinicians. Structural validity was explored through exploratory and confirmatory factor analysis. Given that sadness has been described as a feature of moral distress (24), convergent validity was assessed by exploring the relationship between moral distress and depression (25). Differences in moral distress according to socio-demographic characteristics were finally explored.

Methods

Procedures

Data were collected as part of a larger study on moral distress in 8 adult medical-surgical Intensive Care Units (ICU) in the North of Italy. Physicians, residents and nurses were requested to fill in a battery composed of a series of questionnaires investigating work-related and socio-demographic variables, moral distress, and depression. The questionnaires were completed during working hours within a two-week period. Participation was on a voluntary basis. Data collection took place between January and December 2015.

Instruments

Socio-demographic characteristics. Participants were asked to provide socio-demographic information regarding their age, gender, profession, years of experience in ICU, and generic intention to leave the job. Intention to leave the job was formulated as a dichotomous question (Are you considering leaving your position now?).

The Moral Distress Scale-Revised (MDS-R). The MDS-R consists of 21 items that describe morally distressing situations (Table 1). Each item is scored by clinicians in terms of frequency (e.g. how often the situation is experienced) and intensity (e.g. how disturbing the situation is). Responses are given on a 5-point Likert scale ranging from 0 (never) to 4 (very frequently) for the frequency scale and from 0 (none) to 4 (great extent) for the intensity scale. For each item, a composite score is computed by multiplying the frequency and the intensity scores. The total MDS-R score is obtained by summing up frequency x intensity scores, and ranges from 0 to 336.

After receiving permission from the authors, the MDS-R was translated into Italian by two bilingual psychologists who work in healthcare settings and was back translated by a bilingual medical doctor. During translation, minor changes were made to the wording of the items to make the same scale suitable for both physicians and nurses. The scale was then pilot-tested on 3 doctors and 2 nurses to resolve ambiguous expressions that could lead to item misunderstanding.

Beck Depression Inventory-2nd Edition (BDI-II). Depressive symptoms were assessed by using the Italian adaptation (26) of the *Beck Depression Inventory-2nd Edition* (23). BDI-II is a self-report inventory designed to assess the severity of depressive symptoms over the past 2 weeks. It is composed of 21 items describing physical/affective and cognitive symptoms.

Each item is rated on a 4-point Likert-type scale ranging from 0 to 3 based on the severity of symptoms. The total score ranges from 0 (no symptoms) to 63 (very severe symptoms), and is obtained by summing up the scores of each item. The BDI-II has excellent internal consistency ($\alpha = .90-.92$) and test-retest reliability ($r=0.93$) (25; 26).

Ethics

The project was approved by the Institutional Review Boards of the participating Hospitals. Participants signed a written informed consent granting permission to use the data for research purposes.

Analysis

Before data analysis, outliers and questionnaires with more than 2 items missing on each MDS-R scale (Frequency and Intensity) were removed (8). Content validity checking was performed by three researchers to assess whether all the items could be retained in the Italian version of the scale. Skewness and kurtosis indices were computed to verify the normality of the distribution.

The structural validity of the MDS-R was evaluated by exploring its factorial structure. Exploratory Factor Analysis (EFA) is a statistical method used to uncover the underlying structure of a large set of variables. It is commonly used by researchers when developing a scale, and serves to identify a set of factors underlying a battery of measured variables (27). Given the non-normality of the distribution, EFA for ordinal data was conducted in Mplus, version 6, using the *Weighted Least Squares with Mean and Variance adjustment* (WLSMV) estimator with Promax rotation. The resulting models were compared by using the following fit indices: *Root Mean Square Error of Approximation* (RMSEA), *Standardized Root Mean Square Residual* (SRMR), *Comparative Fit Index* (CFI) and *Tucker*

Lewis Index (TLI). Values below .08 at the RMSEA and SRMR (28, 29), and values above .90 or higher at the CFI and TLI (27), were deemed to indicate an acceptable fit. Values below .06 at the RMSEA and SRMR, and values above .95 at the CFI and TLI, were deemed to be pointers to a good fit (31). Items with factor loadings smaller than .35 or with poor conceptual clarity (e.g. items that saturated on more than two factors) were removed.

The resulting model was tested by Confirmatory Factor Analysis (CFA) using the WLSMV estimator. CFA is a form of factor analysis that is used to test how well the hypothesized measurement model, made up of factors, fits the data (32). The goodness of fit of the model was evaluated by using the following indices: RMSEA, CFI, TLI and *Weighted Root Mean Square Residual* (WRMR). Values < 1 at WRMR indicate a good fit (33). Scale scores based on the extracted factors were computed by using mean values. The reliability of the Italian MDS-R and its subscales were calculated through Cronbach α .

Convergent validity was assessed by exploring the correlations between the Italian MDS-R scores and the BDI-II scores using Pearson's correlation coefficient.

To test for differences in moral distress according to age, years of experience, gender, profession and intention to leave one's position, ANOVA and T-tests were conducted with the Italian MDS-R scores as dependent variables.

Results

Participants

Out of 262 eligible clinicians, questionnaires were collected from 191 clinicians, with a response rate of 73%. After list-wise exclusions based on the completion of the MDS-R, data on 184 participants remained available. Participants' socio-demographic characteristics are reported in Table 2. Participants were mostly nurses (55%) and physicians (37%), had an

average age of 41.32 (SD=10.01) years and an average working experience of 11.9 (SD=8.3) years in ICU.

Descriptive analysis of the Italian MDS-R

Table 3 sets out the Italian MDS-R and its associated descriptive statistics. The Italian MDS-R is available at the author's behest. Most items presented high indexes (>1) of asymmetry and kurtosis and were accordingly treated as ordinal data.

Factorial validity of the Italian MDS-R

Based on content validity checking, 4 items (10, 11, 12, 21) of the original MDS-R were eliminated. Item 11 was removed because it was applicable only to teaching hospitals. Items 10, 12 and 21 were removed because they were judged to be unrelated or too confusing to answer.

An EFA was conducted in order to explore the dimensionality of MDS-R. The best fit indices were obtained by a 4 factor model (RMSEA=.05; CFI=.97; TLI=.94; SRMR=.04). Upon inspection of the factor structure, an additional 3 items were removed (1, 13, 17) because they cross-loaded different factors or presented factor loadings smaller than .35. A follow-up factor analysis produced a 4 factor model (Table 4) with good fit indices (RMSEA=.01; CFI=.99; TLI=.99; SRMR=.03) and conceptual clarity. These factors were interpreted as representing the following dimensions: 1) Futile care, 2) Ethical misconduct, 3) Deceptive communication, and 4) Poor teamwork. Overall, the factors extracted explained 59.21 % of total variance. Specifically, factor 1 (Futile care) accounted for 32.15% of the total variance, factor 2 (Ethical misconduct) for 10.67%, factor 3 (Deceptive Communication) for 8.44% and factor 4 (Poor Teamwork) for 7.95% of the total variance.

A CFA of the Italian MDS-R showed good fit indices (RMSEA=.06; CFI=.95; TLI=.94; WRMR=.65). The standardized factor loadings for the Italian MDS-R were all significant ($p < .001$) and ranged between .39 and .78. All the correlations between factors were significant ($p < .001$). The internal consistency of the Italian MDS-R was good (Cronbach $\alpha = .81$), with Cronbach α of the scales ranging from .55 to .73.

Convergent validity of the Italian MDS-R

The Italian MDS-R score positively correlated with the BDI-II score ($r=.293$ $p=.000$). The correlations between Italian MDS-R subscales and BDI-II are set out in Table 5. The highest correlation was found between Deceptive communication and BDI-II ($r=.268$; $p=.000$). No correlation was found between Ethical misconduct and BDI-II ($r=.153$; $p=.051$).

Socio-demographic characteristics and moral distress

The moral distress score differed neither across age groups ($F=.217$; $p=.805$) nor across professional experience groups ($F=.910$; $p=.404$). No significant differences were found in the moral distress score between men and women ($t=-1.315$; $p=.190$), or between physicians and nurses ($t=-1.117$; $p=.266$). Residents were excluded from this analysis because of their small number. However, looking at the Italian MDS-R subscales, nurses reported higher scores on Futile care than physicians ($t=2.051$; $p=.042$), whereas physicians exhibited a higher score on Deceptive communication than nurses ($t=3.617$; $p=.000$). Finally, moral distress was significantly higher for those clinicians who considered leaving their position ($t=2.778$; $p=.006$).

Discussion

In the last 10 years, moral distress received increased interest in the field of critical care. Studies on moral distress and its impact on clinicians' wellbeing (10; 19-21) have used the MDS or its revised version (MDS-R). However, these scales have never been validated. Scale validation is an important step to produce reliable and theoretically-based data. The present study aimed to fill this gap by developing and validating the Italian version of MDS-R.

Our findings show that the Italian version of the MDS-R is a valid and reliable measure to assess moral distress among nurses, physicians and residents. Despite its brevity (14 items compared to 21 items of the MDS-R), the scale showed good internal consistency ($\alpha=.81$), which is slightly lower than the MDS-R (.88) (8).

Factor analysis highlighted the existence of four factors contributing to moral distress, namely, Futile care, Deceptive communication, Ethical misconduct and Poor teamwork. This four-factor model showed a good fit with the data and explained 59% of the total variance, which is considerably higher than the variance explained by the three-factor model of the original MDS (19%) (16). This finding may offer empirical evidence that supports a theoretical refinement of the concept. So far, moral distress has been conceived as a mono-dimensional construct. Only recently, some scholars have begun to suggest that moral distress could be better conceptualized as a concept made up of several dimensions (34). Our findings provide empirical evidence that support the multidimensionality of moral distress, meaning that there are different correlated factors contributing to it.

The identified factors have been previously mentioned as major sources of moral distress. Futile care encompasses those situations where clinicians perceive that the care provided is inappropriate, either because of no medical benefit or because it is harmful to patients (35). The provision of futile care has been identified as a major factor causing moral distress in previous studies (36, 37). Ethical misconduct refers to ethically questionable behaviors that may occur in everyday clinical practice, such as ordering unnecessary

treatment, or not speaking up when an error occurs. This factor may be considered by some theorists as the core of moral distress, since it more explicitly refers to an ethical realm (7, 38, 39). Deceptive or misleading communication, such as giving “false hopes” or not discussing death with a dying patient, may not be a rare occurrence in clinical practice especially in the field of critical care and oncology where truth-telling may be perceived as difficult and painful for both clinicians and patients (40,41). Although in the Italian healthcare system the habit of concealing hurtful information is frequent, a deceptive communication with patients and families emerged as component of moral distress similarly to other studies (16). Finally, a poorly functional team, where there is inadequate communication and a lack of trust in colleagues’ competence, has been identified as a factor generating moral distress because of the negative impact it may have on patient care (42). Poor teamwork may yield to conflicting advice to patients, discontinuity of care and poor quality of care.

The four-factor model of moral distress seems to reflect the complexity of clinical ICU work, that involves not only a biomedical dimension, but also a relational and an ethical one (43). Indeed, caring for critically ill patients involves the clinicians’ biomedical knowledge regarding the treatment of the disease, their relational competencies in communicating with patients and in working as a team, and their professional values.

From a practical perspective, the multidimensionality of the Italian MDS-R will allow a more accurate assessment of moral distress and the implementation of tailored interventions addressing the components of moral distress that will be found out to be more critical for a specific ICU or for a specific professional category. For example, in our study no differences were detected in the overall moral distress score between nurses and physicians. However, when looking at the different factors, nurses scored higher than physicians on Futile care and physicians scored higher than nurses on Deceptive communication. It is possible that nurses’ professional role and their proximity to patients could make them more sensitive to situations

of futile care and therefore account for this difference (44). Similarly, physicians who are usually responsible to update family members and communicate bad news could report more distress if they see that this important task is not attended or not performed properly.

As in the development of other psychological measures, it is possible that the factor structure that emerged in this study is influenced by the normative and social culture of our sample (45). Future research conducted in other countries could verify the validity of this model. The validation of the Italian MDS-R into different cultural settings will enhance the generalizability of the scale and allow a cross-cultural comparison of findings.

Our study was the first to assess the relationship between moral distress and depression. We found a significant correlation between the Italian MDS-R and BDI-II, suggesting that moral distress may be associated with depressive symptoms. Consistently with other studies, we also found that moral distress was higher in clinicians contemplating the possibility of leaving their posts (8). Previous studies found a correlation between moral distress, burnout and job satisfaction (20,46) suggesting that moral distress is a phenomenon that could seriously impact on clinicians' wellbeing and on job retention and should therefore be addressed. Based on this study results, different interventions might be implemented to decrease the different components of moral distress. Communication skills trainings could be offered to promote a honest communication with patients, and staff debriefing sessions could be offered to facilitate teamwork and reflect on the ethical aspects of patient care. Ethical rounds could also serve to promote professionalism and foster a positive ethical climate.

There are several limitations to this study. The participants were drawn from a convenience sample of hospitals belonging to a single region in the north of Italy, hence the generalizability of our findings is limited. Even if the sample size was deemed fair for a validation study (27), further studies on larger samples are needed. The Italian MDS-R scale

was validated on a sample of ICU professionals. This implies that the generalizability of the scale to clinicians working in other settings should be confirmed.

Conclusions

This study provides a first validated instrument to screen for moral distress that is short and presents good psychometric properties. This scale may allow a more accurate assessment of moral distress and the implementation of tailored interventions addressing its different components. Our results highlighted the negative impact of moral distress on depression and on intention to leave one's job. Future research could explore protective factors able to buffer the negative impact of moral distress, such as coping styles, workload, job control, and social integration.

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