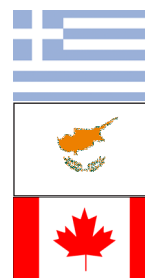


Validation of the Greek version of the Revised Moral Distress Scale in critical care nurses



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SUMMARY

- The revised Moral Distress Scale (MDS-R, 21 items) has been employed extensively for the assessment of moral distress associated with critical care nursing practice, and it has been validated in several countries with evidence of variation with regard to its construct validity.
- The aim of this study was to explore the applicability, reliability and validity of the Greek version of the MDS-R (21 items).
- The MDS-R (21 items) was translated into the Greek language and back-translated into English. Internal consistency and test-retest reliability were tested in random samples of critical care nurses in Greece. Construct and content validity were assessed through a panel of experts and by factor analysis.
- The internal consistency was adequate. Cronbach's alpha was 0.863 for the entire scale and 0.836, 0.847 for the moral distress frequency and intensity subscale, respectively. Test-retest reliability was satisfactory (Kendall's $\tau = 0.989$). Initial factor analysis resulted in a 3-factor solution accounting for 52% of variance. However, the majority of items loaded on the first factor, and 7 items exhibited high cross-loadings at the other two factors. Taking into account conceptual congruency, the one factor solution was deemed as more plausible. Support for predictive validity was provided by a statistically significant positive association with responders' intention to quit ($r = 0.369$, $p < 0.0001$) and an inverse association with reported work satisfaction ($r = -0.285$, $p = 0.014$). The overall mean total

MDS-R (21-items) score was 93.01 ± 55.03 (scale range:0-336).

- It is concluded that the reliability and validity of the Greek version of the MDS-R (21-items) scale are supported; however, further qualitative and quantitative studies are needed to elucidate the dimensions of Greek MDS-R (21- items).

INTRODUCTION

Nurses' moral distress has attracted considerable research interest (Atabay et al., 2015; Soleimani et al., 2016). Moral distress refers to the degree to which employees in health care, including nurses, experience psychological distress when they recognize the ethically appropriate action but are not able to take it due to obstacles related to organizational factors, time pressure, supervisory unwillingness, inhibiting power relations, restraining institutional policies, or legal considerations (Jameton 1984). Moral distress develops when health care professionals are powerless to translate their moral choices into moral actions (Jameton 1984). Associations between moral distress and intention to quit (Barlem et al., 2014), professional burnout (Epstein & Hamric, 2009; Hamric et al., 2012), or work dissatisfaction (Elpern et al., 2005) have been reported, along with the negative impact of such phenomena on the quality and safety of nursing care (Davis et al., 2012; Maiden et al., 2011).

Several instruments have been applied for the quantitative exploration of nurses' moral distress (Haikali 2010). The majority provide a measurement of the severity of moral distress, without addressing the frequency of morally distressing situations. The Moral Distress Scale (MDS) assesses the current severity of moral distress along

with the frequency of relevant situations (Corley et al., 2001; Corley et al., 2005). A number of international surveys have investigated the level of moral distress in nurses using constructed by Corley, either in its original version (38 items) or the modified versions (19-21 items; Hamric & Blackhall, 2007; Papathanassoglou et al., 2012; Rice et al., 2008). To our knowledge, the degree of moral distress in Greek critical care nurses has not been previously explored. Morally distressing situations are associated with the cultural context prevailing in each social, political and health care system (Burston & Tuckett, 2013; Eizenberg et al., 2009; Montagnino & Ethier, 2007; Shahriari et al., 2011; Shorideh et al., 2012; Tomaschewski-Barlem et al., 2014; Yam et al., 2001). Indeed, in a survey of European critical care nurses higher moral distress has been reported among Greek compared to other European participants (Papathanassoglou et al., 2012). As a result, there is need for international studies on the topic, as well as instruments validated in the particular health care context in which each study takes place (Soleimani et al., 2016; Tomaschewski-Barlem et al., 2014).

Based on the above, as well as on the fact that MDS is a well designed instrument with documented validity and reliability in international critical care nursing populations (Haikali, 2010), the aim of the present study was to explore: (a) the readability & comprehensibility, (b) applicability, (c) internal consistency, test retest reliability, and (d) validity of the Greek version of the intensive care-specific MDS-revised (MDS-R; 21 items) (Hamric & Blackhall, 2007).

LITERATURE REVIEW

Current evidence highlights the profound impact of moral distress on nurses as well as patients' outcomes and health care systems (Corley, 2002; Schluter et al., 2008). Moreover, association with low job satisfaction, intention to quit and burn-out have been reported (American Association of Critical-Care Nurses, 2008; McClendon & Buckner, 2007; Papathanassoglou et al., 2012). In ICUs increasing prevalence of moral distress has been reported (Redman & Fry, 2000), most commonly associated with participating in end-of-life decision-making (Latour et al., 2009), working with unskilled colleagues, futile care, or inappropriately aggressive care.

MDS-R (Hamric & Blackhall, 2007) originally constructed by Corley (Corley et al., 2001) encompasses two parts, each of them including the same 21 items, representing possible moral distressing situations. Part I assesses the frequency of occurrence of each one of morally distressing situations, and this frequency is evaluated on a 5-point Likert scale ranging from 0 (never) to 4 (very frequently). As a result, the scores deriving from this part of the scale range from 0 to 84. Part II assesses the degree of disturbance the respondents experience under the distressing situations stated in Part I, again through a 5-point Likert scale ranging from 0 (none) to 4 (great extent). Subsequently, the scores of the Part II of the scale range from 0 to 84, as well. Furthermore, the scale provides the opportunity to assess the overall severity of moral distress (accounting for both the intensity and the frequency of occurrence of the morally distressing experiences). Firstly, the researcher should multiply the score of each item in Part I by its score in Part II, leading to a new score for each item. Thus, each item's product of frequency of occurrence by intensity of the experience ranges from 0 to 16. Finally, the products of all the 21 items of the scale are summed up, leading to a composite moral distress score, which denotes the severity of the experienced moral distress. This score ranges from 0 to 336. The lower the score, the lower the severity of moral distress. The validity and reliability of MDS-R have been previously reported as adequate (Cronbach's $\alpha > 0.95$) (Corley et al., 2001; Maiden et al., 2011). MDS has been translated and validated in several countries including the USA,

Turkey, Italy, China and Iran (Barlem et al., 2014; Corley et al., 2001; Hamric et al., 2012; Karagozoglu et al., 2015; Lazzarin et al., 2012; Soleimani et al., 2016; Wocial & Weaver, 2013) and there is evidence of cultural variation, especially with regard to the construct validity of the scale (Soleimani et al., 2016).

METHODS

Design

Descriptive correlational methodological design.

Research ethics

Following personal communication with Dr Corley, permission was given to use the MDS-R/21-items as modified by Hamric and Blackhall (2007), along with administrative approval of the institutions agreed to participate in the study. Moreover, questionnaires were accompanied by an introductory letter explaining the aim of the study and a consent form, along with a non-transparent return envelope. Participation was voluntary and confidentiality and anonymity were assured. Each potential respondent received two reminders within 2 weeks.

Translation and group of experts

Translation of the MDS-R/21-items scale was done in the ethnographic mode to maintain the meaning and cultural content (Hilton & Skrutkowski, 2002). The strategy included translation from U.S.A English to the Greek language and then back translation to English. This procedure was repeated until discrepancies were settled (Burns & Grove, 2001), and was performed by three independent translators. Then, the Greek version of the MDS-R/21-items was administered to 12 critical care nurses, followed by extensive discussion about the readability and comprehensibility of individual items. The applicability of the scale was further established through an 8-person group of experts consisting of nurse administrators and faculty. The technical equivalence of the procedure was assured since data collection and analysis were performed under the scale instructions (Corley et al., 2001; Corley et al., 2005).

Sampling

The target population was all registered bachelor and associate degree nurses, as well as assistant nurses, employed in adult, private and public hospitals of Athens, at medical-surgical intensive care units. Due to the nursing shortage, in Greece, nursing assistants are approximately 60% of the nursing personnel and their clinical duties are almost identical to those of registered nurses (Papathanassoglou, 2006).

Based on power analysis (Osborne & Costello, 2004), the desired sample size was determined at 147-210 responders (7-10 responders per scale item) (Cohen 1987). At first, 6 eligible hospitals from the greater Athens area were randomly selected representing a total of 12 ICUs and 270 nurses. The inclusion criteria were: (a) at least 2 years of education in nursing, (b) minimum 6 months of work experience, (c) advanced knowledge of the Greek language, and (d) employment in a clinical area, providing direct patient care.

Reliability and validity assessment

For the assessment of face validity of the translated MDS-R/21-items, a panel of experts was formed comprising of 4 faculty members and 4 intensive care nurses. Experts assessed the relevance, ease of understanding and importance of all items. Predictive validity was assessed through testing associations with responders' intention to quit and job satisfaction. We hypothesized that a positive association

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with the intention to quit and a negative association with overall work satisfaction would be indicative of predictive validity. We also hypothesized that the frequency subscale would exhibit positive associations with the years of ICU nursing experience.

Internal consistency reliability of the MDS-R/21 items was tested by Cronbach's alpha coefficient, item-to-scale correlations, and re-assessment of Cronbach's α in the case that one or more items were eliminated. Test-retest reliability was assessed by Kendall's tau coefficient, since the small sample size ($n = 20$) for the test-retest procedure called for a truly non-parametric coefficient (Burns & Grove, 2001). The MDS-R/21 items scale was administered twice to 20 responders with an interval of 1 week. The construct validity of the Greek version of MDS-R/21- items scale was tested by exploratory factor analysis.

Data collection - instruments

Data were collected through self-administered questionnaires which included the MDS-R/21-items (Hamric & Blackhall, 2007) scale for the assessment of both the intensity of moral distress and the frequency of occurrence of morally distressing situations, and a short form with demographic, educational and vocational data. Job satisfaction was assessed through a 10-point numeric rating scale (0-10 NRS, "0" completely dissatisfied with job, "10" completely satisfied with job), and intention to quit through one Likert-3 question inquiring whether the respondent has considered resigning due to morally distressing situations.

Data analysis

Data were analyzed by the Statistical Package for Social Sciences (SPSS, version 24, SPSS Inc, Chicago, IL). Variables were tested for normality, and descriptive statistics [mean, standard deviation (SD), frequencies] were reported. The alpha level was set at 0.05. The correlation matrix for all variables was computed to test associations among variables. The Kaiser-Meyer-Olkin measure for sampling adequacy, and Bartlett's test of sphericity to test the appropriateness of the factor model were computed (Norusis, 1993). The maximum-likelihood method was used for factor extraction (Costello & Osborne, 2005). Only factors that accounted for variances greater than 1 (eigenvalue > 1) were included, and the number of factors was confirmed by examination of the scree plot. To identify meaningful factors, the Varimax orthogonal rotation was used to minimize the number of variables that had high loadings on a factor (Norusis, 1993). Following factor extraction, factor contents were tested by computation of internal consistency coefficients (alphas). In case of low coefficients, items contributing to low reliability were transferred to the next factor at which they exhibited high loadings provided that there was conceptual congruence (Burns & Grove, 2001).

RESULTS

Participants

Overall, 176 nursing employees returned completed questionnaires. The response rate was 70.4%. Responders were 81.8% female, 91.5% staff nurses, had a mean age of 32.90 ± 6.72 years, and 6.68 ± 6.37 years of ICU experience. Detailed sociodemographic and vocational data appear in Table 1.

Feasibility

Use of the scale was deemed feasible. Based on a pilot of 20 nurses who provided test-re-test data, completion of the scale took an average of 9.2 ± 3.4 minutes and there were no items that were unclear.

Table 1. Socio-demographic and vocational data of responders ($n = 176$; NRS: numeric rating scale)

Characteristics		Percentage or mean \pm SD (number of respondents)
Age		32.90 \pm 6.72 years
ICU nursing experience		6.68 \pm 6.37 years
Position	Head nurse	4% (7)
	Staff nurse	91.5% (161)
	Nurse Assistant	4.5% (7)
Gender	Female	81.8% (144)
	Male	18.2% (32)
Type of unit	Medical/surgical	60.8% (107)
	Cardiac surgery	8% (14)
	Coronary	22.2% (39)
	Neurosurgical/burn	4.0% (7)
Educational background	Associate Degree	5.7% (10)
	Diploma	68.8% (121)
	Bachelor degree	11.4% (20)
	Master's degree	12.5% (22)
	PhD	0.6% (1)
Job Satisfaction (10-point NRS)		5.84 \pm 2.13

Reliability testing

The test-retest reliability was assessed through the nonparametric correlation coefficient Kendall's tau and was confirmed by Pearson's r coefficients. A strong statistically significant correlation between the first and second measurement ($\tau = 0.989$, $r > 0.98$, $p < 0.0001$) was observed.

The internal consistency reliability of the scale was tested by the Cronbach's alpha coefficient for the entire scale and each subscale. Cronbach's alpha was 0.863 for the entire scale, 0.836 for the moral distress frequency subscale, and 0.847 for the moral distress disturbance subscale. Items 1 and 2 of the frequency subscale exhibited the lowest item to scale correlations but not to the degree of seriously compromising the internal consistency of the scale (Cronbach's α if item deleted, 0.842, 0.840, respectively).

Validity

The panel of experts deemed all MDS-R/21 items as relevant and important. Minor language and format modifications were made in response to experts' comments.

Factor analysis as described above resulted in a 3-factor solution accounting for 52% of variance. However, the majority of items loaded on the first factor, and 7 items exhibited high cross-loadings with factors 2 (items 1, 2, 14, 15) and 3 (items 17, 18, 19). Based on lack of conceptual congruency with regard to items' loading to factors 2 and 3, the one factor solution was deemed as more plausible compared to the three-factor one (Table 2).

Support for the Greek version of MDS-R/21 items predictive validity was provided by a statistically significant positive association with responders' intention to quit ($r = 0.369$, $p < 0.0001$) and an inverse association with reported work satisfaction ($r = -0.285$, $p = 0.014$). Moreover, the frequency subscale exhibited a weak association with the length of nursing experience ($r = 0.167$, $p = 0.024$).

Item ratings and scale scores

Item mean ratings and SDs appear in Table 3. Items with highest reported level of total disturbance (range 0-16) were items 1 ("Provide less than optimal care due to pressures to reduce costs"),

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Table 2. Results of exploratory factor analysis of the Greek version of MDS-R. Factor loadings > 0.30 are shown. Item loadings on factor 1 highlight an essential uni-dimensional nature of the scale, despite high cross-loadings on factor 2 and 3.

Items	Factors		
	1	2	3
1. Provide less than optimal care due to pressures to reduce costs.	.471	.659	
2. Ask the patient's family about donating organs when the patient's death is inevitable.	.540		
3. Follow the family's wishes to continue life support even though it is not in the best interest of the patient.	.393	.385	
4. Initiate extensive life-saving actions when I think it only prolongs death.	.514		
5. Follow that family's request not to discuss death with a dying patient who asks about dying.	.653		
6. Carry out the physician's orders for what I consider to be unnecessary tests and treatments for terminally ill patients.	.679		
7. Continue to participate in care for a hopelessly injured person who is being sustained on a ventilator, when no one will make a decision to "pull the plug".	.673		
8. Follow the physician's order not to tell the patient the truth when he/she asks for it.	.690		
9. Assist a physician who in my opinion is providing incompetent care.	.692		
10. Prepare an elderly person for surgery to have a gastrostomy tube put in who is severely demented and a "No Code".	.537		
11. Let medical students perform painful procedures on patients solely to increase their skill.	.385		
12. Provide care that does not relieve the patient's suffering because I fear that increasing the dose of pain medication will cause death.	.522		
13. Follow the physician's request not to discuss Code status with the family when the patient becomes incompetent.	.657		
14. Increase the dose of intravenous morphine for an unconscious patient that I believe will hasten the patient's death.	.473	.692	
15. Respond to a patient's request for assistance with suicide when the patient has a poor prognosis.	.507	.744	
16. Follow the physician's request not to discuss death with a dying patient who asks about dying.	.641		
17. Work with physicians/nurses who are not as competent as the patient care requires.	.570		-.621
18. Ignore situations of suspected patient abuse by caregivers.	.601		-.745
19. Ignore situations in which patients have not been given adequate information to insure informed consent.	.401		-.718
20. Follow the physician's request not to discuss Code status with the patient.	.614		
21. Follow orders for pain medication even when the medications prescribed do not control the pain.	.379		-.367

Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization.

4 ("Initiate extensive life-saving actions when I think it only prolongs death", 6 ("Carry out the physician's orders for what I consider to be unnecessary tests and treatments for terminally ill patients"), 7 ("Continue to participate in care for a hopelessly injured person who is being sustained on a ventilator, when no one will make a decision

Table 3. Item frequency ratings and scorings of total disturbance in a random sample of Greek critical care nurses (n = 176)

Item	Frequency mean, SD	Total disturbance mean, SD
1. Provide less than optimal care due to pressures to reduce costs.	2.00, 1.93	6.75, 7.77
2. Ask the patient's family about donating organs when the patient's death is inevitable.	.39, .96	.58, 1.96
3. Follow the family's wishes to continue life support even though it is not in the best interest of the patient.	2.37, 1.62	5.11, 5.24
4. Initiate extensive life-saving actions when I think it only prolongs death.	2.69, 1.33	6.89, 5.53
5. Follow that family's request not to discuss death with a dying patient who asks about dying.	1.85, 1.60	3.15, 4.15
6. Carry out the physician's orders for what I consider to be unnecessary tests and treatments for terminally ill patients.	3.19, 1.26	7.99, 5.91
7. Continue to participate in care for a hopelessly injured person who is being sustained on a ventilator, when no one will make a decision to "pull the plug".	3.27, 1.23	7.46, 5.94
8. Follow the physician's order not to tell the patient the truth when he/she asks for it.	2.52, 1.46	5.24, 4.94
9. Assist a physician who in my opinion is providing incompetent care.	2.86, 1.29	7.44, 5.45
10. Prepare an elderly person for surgery to have a gastrostomy tube put in who is severely demented and a "No Code".	1.67, 1.57	3.43, 4.53
11. Let medical students perform painful procedures on patients solely to increase their skill.	1.47, 1.44	3.41, 4.32
12. Provide care that does not relieve the patient's suffering because I fear that increasing the dose of pain medication will cause death.	1.34, 1.25	3.50, 4.12
13. Follow the physician's request not to discuss Code status with the family when the patient becomes incompetent.	2.34, 1.55	3.90, 4.57
14. Increase the dose of intravenous morphine for an unconscious patient that I believe will hasten the patient's death.	.32, .85	.70, 2.15
15. Respond to a patient's request for assistance with suicide when the patient has a poor prognosis.	.12, .58	.38, 1.94
16. Follow the physician's request not to discuss death with a dying patient who asks about dying.	1.78, 1.59	3.06, 4.20
17. Work with physicians/nurses who are not as competent as the patient care requires.	2.23, 1.35	6.56, 5.61
18. Ignore situations of suspected patient abuse by caregivers.	1.01, 1.23	3.29, 4.41
19. Ignore situations in which patients have not been given adequate information to insure informed consent.	1.39, 1.33	3.46, 4.46
20. Follow the physician's request not to discuss Code status with the patient.	2.39, 1.43	4.89, 8.46
21. Follow orders for pain medication even when the medications prescribed do not control the pain.	2.49, 1.47	5.78, 5.48

to 'pull the plug'), 9 ("Assist a physician who in my opinion is providing incompetent care"), and 17 ("Work with physicians/nurses who are not as competent as the patient care requires"). Items with lowest level of disturbance were item 2 ("Ask the patient's family

about donating organs when the patient's death is inevitable"), 14 ("Increase the dose of intravenous morphine for an unconscious patient that I believe will hasten the patient's death"), and 15 ("Respond to a patient's request for assistance with suicide when the patient has a poor prognosis"). Likewise, items with highest reported frequency were items 4, 6, 7, 9, 14 and with lowest reported frequency items 2, 14, 15.

The overall mean total MDS-R/21 items score was 93.01 ± 55.03 (scale range: 0-336).

DISCUSSION

Our findings support the reliability and validity of the Greek version of MDS-R/21 for the assessment of moral distress in Greek critical care nurses. The results confirmed the internal consistency and test-retest reliability, for both the frequency of occurrence and intensity of morally distressing situations subscale of the Greek version of the MDS-R/21 (Hamric & Blackhall, 2007), since values greater than 0.7 for Cronbach's alpha and 0.9 for test-retest scores are considered appropriate (Nunnally & Bernstein, 1994). Overall, the present findings are in line with previous studies providing support for the metric properties of MDS-R in various samples (Hamric & Blackhall 2007; Hamric et al., 2012; Karagozoglu et al., 2015).

Furthermore, although confirmatory factor analysis with Varimax rotation resulted in a 3-factor solution accounting for 52% of variance, due to lack of conceptual congruency with regard to items loading to factors 2 and 3, the one factor solution was deemed as more plausible compared to the three-factor one. The dimensions of the scale have been tested by various researchers with varied results. Recently, Soleimani et al., (2016) proposed a five-factor solution of the Iranian version of MDS-R suggesting a multidimensional construct. Despite the fact that this five-factor model by Soleimani et al. (2016) exhibited a statistically good fit, the researchers did not elaborate on the conceptual logic of factor groupings in terms of the clinical and conceptual content of each one of the five factors included in the proposed model. This may in part be attributed to the fact that Soleimani et al. (2016) validated a later version of MDS-R (Hamric et al., 2012), in which some items have been rephrased and/or updated. It is worth-noting that in the initial publication, MDS-R was described as a uni-dimensional instrument, which is commensurate with our findings. Nonetheless, Barlem et al. (2014) in a convenience sample of 247 Brazilian members of nursing personnel reported results supporting the multi-dimensionality of the proposed scale. In particular, Barlem et al. (2014) created a modified version of the MDS including 39 items, 21 coming from the first version of the scale created by Corley et al. (2001) and 18 coming from reviewing international literature on current sources of moral distress in nursing populations. This modified version of MDS by Barlem et al. (2014) included 5 factors: incompetent colleagues, disregard for self-determination of the patients, inappropriate working conditions, disregard of the nursing advocacy role for patients, as well as for terminally ill individuals.

These discrepancies may also be in part attributed to population differences, as in the Barlem et al. (2014) study non-critical care nurses were also included. In contrast, a Turkish study including critical care nurses exclusively proposed an one-factor solution (Karagozoglu et al., 2015). Although difficult to verify, it is probable that different cultural contexts, along with diverse populations, may have part contributed to the discrepancy regarding dimensions of MDS-R in diverse countries. Therefore, it is advisable that instruments addressing moral distress and related constructs are validated in the particular cultural context in which they are used, whilst updating versions are also warranted (Atabay et al., 2015). Thus, further studies exploring qualitatively the construct validity of the Greek version of the MDS-R 21-items are needed.

With regard to the level of moral distress, reported by our sample of Greek critical care nurses, the present findings denote a relatively low score, in line with results by Karagozoglu et al. (2015), although in a European Survey, Greek and German critical care nurses reported higher degree of moral distress compared to other European colleagues (Papathanassoglou et al., 2012). In contrast, Shooreideh et al. (2015) in 159 critical care nurses from Iran reported relatively higher levels of moral distress.

Limitations and implications

These results need to be viewed in light of a few limitations. The small sample size may have resulted in distorted results with regard to factor analysis, especially, in view of the ambivalence regarding the uni- or multi-dimensionality of the scale. Moreover, the low response rate and the study group that was limited to metropolitan hospitals may have lowered the generalizability of these findings (Burns & Grove, 2001). However, in previous Greek studies there was no evidence of significant differences between metropolitan and non-metropolitan hospital nurses' work attitudes (HNA, 2006).

CONCLUSION

Although these results support the validity and reliability of the Greek version of MDS-R-21 (Hamric & Blackhall, 2007) for use with Greek critical care nurses, further validation through qualitative exploration of the construct validity of the scale is needed to clarify the dimensions of the scale and to confirm the cultural adaptation of the scale. This would be important in elucidating factors contributing to moral distress in Greek critical care nurses.

REFERENCES

- American Association of Critical-Care Nurses. Moral distress position statement. http://www.aacn.org/WD/Practice/Docs/Moral_Distress.pdf. Revised August 2008. Accessed July 16, 2016.
- Atabay G, Çangarli BG, Penbek Ş (2015). Impact of ethical climate on moral distress revisited: multidimensional view. *Nursing Ethics* 22(1), 103-116.
- Barlem ELD, Lunardi VL, Lunardi GL, Tomaschewski-Barlem JG, Almeida AS, Hirsch CD (2014). Psychometric characteristics of the Moral Distress Scale in Brazilian nursing professionals. *Texto Contexto Enferm* 23(3), 563-572.
- Burns N, Grove SK (2001). *Practice of Nursing Research*. Saunders Company, Philadelphia.
- Burston AS, Tuckett AG (2013). Moral distress in nursing: contributing factors, outcomes and interventions. *Nursing Ethics* 20(3), 312-324.
- Cohen J (1987). *Statistical power analysis for the behavioural sciences*. (Rev. ed.) Hillsdale, NJ: Lawrence Erlbaum Associates.
- Corley MC (2002). Nurse moral distress: a proposed theory and research agenda. *Nursing Ethics* 9(6), 636-650.
- Corley MC, Elswick RK, Gorman M, Clor T (2001). Development and evaluation of a moral distress scale. *Journal of Advanced Nursing* 33(2), 250-256.
- Corley MC, Minick P, Elswick RK, Jacobs M (2005). Nurse moral distress and ethical work environment. *Nursing Ethics* 12(4), 381-390.
- Costello AB, Osborne J (2005). Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation* 10(7): <http://pareonline.net/getvn.asp?v=10&n=7>
- Davis S, Schrader V, Belcheir MJ (2012). Influencers of ethical

- beliefs and the impact on moral distress and conscientious objection. *Nursing Ethics* 1(6), 738–749.
- Eizenberg MM, Desivilya HS, Hirschfeld MJ (2009). Moral distress questionnaire for clinical nurses: instrument development. *Journal of Advanced Nursing* 65(4), 885–892.
- Elpern EH, Covert B, Kleinpell R (2005). Moral distress of staff nurses in a medical intensive care unit. *American Journal of Critical Care* 14(6), 523–530.
- Epstein EG, Hamric AB (2009). Moral distress, moral residue, and the crescendo effect. *The Journal of Clinical Ethics* 20(4), 330–342.
- Haikali JS (2010). Moral distress in Hellenic end-of-life care. Unpublished Doctoral Thesis. University of Athens, Athens.
- Hamric AB, Borchers CT, Epstein EG (2012). Development and testing of an instrument to measure moral distress in healthcare professionals. *AJOB Primary Research* 3(2), 1–9.
- Hamric AB, Blackhall LJ (2007). Nurse-physician perspectives on the care of dying patients in intensive care units: collaboration, moral distress, and ethical climate. *Critical Care Medicine* 35(2), 422–429.
- Hellenic Nurses' Association 2006. NHS's "Anthropography". HNA's Nursing Paper 113 (January): 9 (in Greek).
- Hilton A, Skrutkowski M (2002). Translating instruments into other languages: Development and testing process. *Cancer Nursing* 25(1): 1–7.
- Jameton A (1984). *Nursing practice: The ethical issues*. Englewood Cliffs, NJ: Prentice-Hall.
- Karagozoglu S, Yildirim G, Ozden D, Çınar Z (2015). Moral distress in Turkish intensive care nurses. *Nursing Ethics* pii: 0969733015593408, 1–16.
- Latour JM, Fulbrook P, Albarran JW (2009). EfCCNa survey: European intensive care nurses' attitudes and beliefs towards end-of-life care. *Nursing in Critical Care* 14(3), 110–121.
- Lazzarin M, Biondi A, Di Mauro S (2012). Moral distress in nurses in oncology and haematology units. *Nursing Ethics* 19(2), 183–195.
- Maiden J, Georges JM, Connelly CD (2011). Moral distress, compassion fatigue, and perceptions about medication errors in certified critical care nurses. *Dimensions of Critical Care Nursing* 30(6), 339–345.
- McClendon H, Buckner EB (2007). Distressing situations in the intensive care unit: a descriptive study of nurses' responses. *Dimensions of Critical Care Nursing* 26(5), 199–206.
- Montagnino BA, Ethier AM (2007). The experiences of pediatric nurses caring for children in a persistent vegetative state. *Pediatric Critical Care Medicine* 8(5), 440–446.
- Norusis MJ (1993). *SPSS for Windows. Professional Statistics*. SPSS Inc., Chicago.
- Nunnally JC, Bernstein, IH (1994). *Psychometric Theory*. New York: McGraw Hill, 3rd ed.
- Osborne JW, Costello AB (2004). Sample size and subject to item ratio in principal components analysis. *Practical Assessment, Research & Evaluation*, 9(11). Retrieved July 1, 2008 from <http://PAREonline.net/getvn.asp?v=9&n=11>.
- Papathanassoglou ED (2006). So hard to care... *Intensive Care Nursing in Hellas. Nursing in Critical Care* 11(5): 213–215.
- Papathanassoglou ED, Karanikola MN, Kalafati M, Giannakopoulou M, Lemonidou C, Albarran JW (2012). Professional autonomy, collaboration with physicians, and moral distress among European intensive care nurses. *American Journal of Critical Care* 21(2), 41–52.
- Redman BK, Fry ST (2000). Nurses' ethical conflicts: what is really known about them? *Nursing Ethics* 7(4), 360–366.
- Rice EM, Rady MY, Hamrick A, Verheijde JK, Pendergast DK (2008). Determinants of moral distress in medical and surgical nurses at an adult acute tertiary care hospital. *Journal of Nursing Management* 16(3), 360–373.
- Schluter J, Winch S, Holzhauser K, Henderson A (2008). Nurses' moral sensitivity and hospital ethical climate: a literature review. *Nursing Ethics* 15(3), 304–321.
- Shahriari M, Mohammadi E, Abbaszadeh A, Bahrami M, Fooladi MM (2011). Perceived ethical values by Iranian nurses. *Nursing Ethics* 19(1), 30–44.
- Shoorideh FA, Ashktorab T, Yaghmaei F, Alavi Majd H (2015). Relationship between ICU nurses' moral distress with burnout and anticipated turnover. *Nursing Ethics* 22(1), 64–76.
- Shorideh FA, Ashktorab T, Yaghmaei F (2012). Iranian intensive care unit nurses' moral distress: a content analysis. *Nursing Ethics* 19(4), 464–478.
- Soleimani MA, Sharif SP, Yaghoobzadeh A, Panarello B (2016). Psychometric evaluation of the Moral Distress Scale-Revised among Iranian nurses. *Nursing Ethics* pii: 0969733016651129, 1–17.
- Tomaschewski-Barlem JG, Lunardi VL, Lunardi GL, Barlem EL, da Silveira RS, Vidal DA (2014). Burnout syndrome among undergraduate nursing students at a public university. *Revista Latino-Americana de Enfermagem* 22(6), 934–941.
- Wocial LD, Weaver MT (2013). Development and psychometric testing of a new tool for detecting moral distress: the Moral Distress Thermometer. *Journal of Advanced Nursing* 69(1): 167–174.
- Yam B, Rossiter JC, Cheung K (2001). Caring for dying infants: experiences of neonatal intensive care nurses in Hong Kong. *Journal of Clinical Nursing* 10(5), 651–659.