Original Article

Translation and Validation of the "Moral Injury Symptom Scale-Healthcare Professionals" in Greek

Ioannis Moisoglou, RN, MSc, PhD
Faculty of Nursing, University of Thessaly, Larissa, Greece

Aglaia Katsiroumpa, RN, MSc, PhD (c)
Clinical Epidemiology Laboratory, Faculty of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Olympia Konstantakopoulou, Economist, MSc, PhD
Center for Health Services Management and Evaluation, Faculty of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Athena Karatza, RN, MSc (c)
Department of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Parisis Gallos, RN, MSc, PhD
Department of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Petros Galanis, BSc, MPH, PhD
Assistant Professor, Clinical Epidemiology Laboratory, Faculty of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Correspondence: Ioannis Moisoglou, RN, MSc, PhD, Faculty of Nursing, University of Thessaly, Larissa, Greece; e-mail: giannismois@gmail.com

Abstract

Background: Stressful events occur several times during work among healthcare professionals. Especially, during the COVID-19 pandemic, healthcare professionals have had to deal with a variety of ethical dilemmas causing high levels of moral injury.

Aim: To translate and validate the "Moral Injury Symptom Scale-Healthcare Professionals" (MISS-HP) in Greek.

Methods: We conducted our study with 345 nurses in Greece during August 2023. We employed the forward-backward method to translate the MISS-HP in Greek. We examined the construct validity of the MISS-HP by performing confirmatory factor analysis. We estimated concurrent validity of the MISS-HP by comparing it with the "Moral Distress Thermometer" (MDT), the "Quiet Quitting Scale" (QQS), and single item burnout measure.

Results: We found that the MISS-HP had exceptional reliability since all intraclass correlation coefficients in test-rest reliability analysis were higher than 0.990. Moreover, all correlations were statistically significant ($p<0.001$ in all cases). Additionally Cronbach's coefficient alpha for the MISS-HP was 0.636. Our CFA confirmed the three-factors structure of the Greek version of the MISS-HP: guilt/shame factor, spiritual troubles factor, and condemnation factor. All model fit indices in CFA were

excellent. In particular, x^2/df was 1.316, RMSEA was 0.030, GFI was 0.979, AGFI was 0.959, TLI was 0.975, IFI was 0.985, NFI was 0.939, and CFI was 0.984. We found that the concurrent validity of the Greek version of the MISS-HP was very good. In particular, we found statistically significant correlations between the MISS-HP and MDT (r=0.46, p<0.001), QQS (r=0.41, p<0.001), and the single item burnout measure (r=0.11, p<0.04).

Conclusions: The "Moral Injury Symptom Scale-Healthcare Professionals" is a reliable and valid tool to measure moral injury among healthcare professionals.

Keywords: Moral Injury Symptom Scale-Healthcare Professionals; moral injury; validation; nurses; Quiet Quitting Scale; Greece

Introduction

Moral injury can occur when nurses have to deal with difficult ethical issues (Morley, Bradbury-Jones & Ives, 2022). Moral injury is defined as the psychological distress that arises in situations where healthcare professionals know what is morally right to do, but due to circumstances are unable to do it (Giannetta et al., 2022). Moreover, moral injury can lead to low productivity and mental health issues, particularly if it persists over a long period of time (Čartolovni et al., 2021)

Healthcare professionals in particular during the COVID-19 pandemic experienced unprecedented working conditions with professional demands increasing sharply in an already exhausting working environment. For example, several studies suggest that nurses experienced high levels of burnout during the COVID-19 pandemic (Galanis et al., 2021, 2023g).

Moral injury experienced by nurses arises when they are exposed for prolonged periods of time to situations in which they feel that they cannot provide the health care they desire due to adverse circumstances (Čartolovni et al., 2021). In the case of moral injury, nurses feel guilt, anger and a sense of inability to contribute to others (Mantri et al., 2020). Moreover, in some cases, moral injury may involve a conflict between the religious beliefs of nurses and the conditions prevailing in their working environment (Mantri et al., 2020). In fact, moral injury appears to be at a higher level among nurses who work longer hours and experience burnout (Čartolovni et al., 2021).

Moreover, nurses have experienced a new phenomenon during the COVID-19 pandemic: the phenomenon of quiet quitting (Galanis et al., 2023c, 2023d, 2023f; Scheyett, 2022; Zuzelo, 2023). High levels of job burnout among nurses have resulted on frustration, anger, and reluctance to work. Thus, nurses now do not quit literally their jobs, but they just work at their minimum level without trying to offer more in their work. This phenomenon, namely quiet quitting, can affect nurses' moral resulting on moral injury among them.

Therefore, measuring moral injury among healthcare professionals in a reliable and valid way is necessary to understand their moral status. In this context, we translated and validated the "Moral Injury Symptom Scale-Healthcare Professionals" (MISS-HP) in Greek (Mantri et al., 2020).

Materials and methods

Study design: We conducted our study with 345 nurses in Greece during August 2023. We measured gender, age and shift work of nurses. The "Moral Injury Symptom Scale-Healthcare Professionals" includes 10 items with answers in a scale from 1 (totally disagree) to 10 (totally agree) (Mantri et al., 2020). Moreover, the English version of the MISS-HP includes three factors: guilt/shame factor (items #1, #2, #3, #4), spiritual troubles factor (items #5, #6, #7, #10), and condemnation factor (items #8, #9). Answers on items #5, #6, #7 and #10 are revised. Total scores on the MISS-HP ranges from 10 to 100 with higher scores indicate higher levels of moral injury. We employed the forward-backward method to translate the MISS-HP in Greek (Galanis, 2019). Then, we used the Greek version of the MISS-HP in a pilot study with 50 nurses to perform the test-retest reliability analysis (Galanis, 2013). We examined the construct validity of the MISS-HP by performing confirmatory factor analysis (Galanis, 2013). We estimated concurrent validity of the MISS-HP by comparing it with the "Moral Distress Thermometer" (MDT), the "Quiet Quitting Scale" (QQS), and single item burnout measure. In particular, we used the MDT to measure levels of moral distress (Wocial & Weaver, 2013), the QQS to measure levels of quiet quitting (Galanis et al., 2023e, 2023a), and the single item burnout measure to measure job burnout (Galanis et al., 2023b; Hansen & Pit, 2016).

Ethical considerations: Our study protocol was approved by the Ethics Committee of Faculty of Nursing, National and Kapodistrian University of Athens (reference number; 451, June 09 2023). Additionally, we applied the guidelines of the Declaration of Helsinki to perform this study (World Medical Association, 2013).

Statistical analysis: We calculated intraclass correlation coefficients to compare scores on the MISS-HP in the test-retest reliability study. Regarding confirmatory factor analysis, we calculated chi-square/degree of freedom (x^2/df); root mean square error of approximation (RMSEA); goodness of fit index (GFI); adjusted goodness of fit index (AGFI); Tucker–Lewis index (TLI); incremental fit index (IFI); normed fit index (NFI); comparative fit index (CFI). Acceptable value for x^2/df is <5, for RMSEA is <0.10, and for all other measures in the CFA >0.90 (Baumgartner & Homburg, 1996; Hu & Bentler, 1998). We used the AMOS version 21 (Amos Development Corporation, 2018) to conduct the confirmatory factor analysis. We calculated Pearson's correlation coefficient to examine the concurrent validity of the MISS-HP. P-values less than 0.05 were considered as statistically significant. We used the IBM SPSS 21.0 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) for the analysis.

Validity analysis: We employed confirmatory factor analysis to examine the structure of the MISS-HP. Our CFA confirmed the three-factors structure of the Greek version of the MISS-HP: guilt/shame factor (items #1, #2, #3, #4), spiritual troubles factor (items #5, #6, #7, #10), and condemnation factor (items #8, #9). All model fit indices in CFA were excellent. In particular, x^2/df was 1.316, RMSEA was 0.030, GFI was 0.979, AGFI was 0.959, TLI was 0.975, IFI was 0.985, NFI was 0.939, and CFI was 0.984. Correlations between guilt/shame factor, spiritual troubles factor, condemnation factor, and total scale ranged from 0.093 to 0.606. Moreover,

standardized regression weights ranged from 0.196 to 0.992. Results from confirmatory factor analysis are shown in Figure 1 and Table 2. We found that the concurrent validity of the Greek version of the MISS-HP was very good. In particular, we found statistically significant correlations between the MISS-HP and MDT ($r=0.46$, $p<0.001$), QQS ($r=0.41$, $p<0.001$), and the single item burnout measure ($r=0.11$, $p<0.04$). Moreover, we found statistically significant correlations between almost all subscales of the MISS-HP and MDT, QQS, and single item burnout measure. Table 3 shows the results from the concurrent validity of the Greek version of the MISS-HP. (Table 2).

Results

Demographic characteristics Study population included 345 nurses. In our sample, 87.2% (n=301) were females and 12.8% (n=44) were males. Mean age was 36.1 years (standard deviation; 10.2). Most of nurses worked in shifts (80.9%, n=279).

Test-rest reliability analysis

We found that the "Moral Injury Symptom Scale-Healthcare Professionals" had exceptional reliability since all intraclass correlation coefficients in test-rest reliability analysis were higher than 0.990. Moreover, all correlations were statistically significant ($p<0.001$ in all cases). Intraclass correlation coefficients for the MISS-HP in test-retest study are shown in Table 1. Additionally Cronbach's coefficient alpha for the MISS-HP was 0.636, while the acceptable value is 0.600.

Table 1. Intraclass correlation coefficients for the "Moral Injury Symptom Scale-Healthcare Professionals" in test-retest study.

Scale	Intraclass correlation coefficient	95% confidence interval	P-value
Guilt/shame factor	0.987	0.977 to 0.993	<0.001
Spiritual troubles factor	0.990	0.983 to 0.994	<0.001
Condemnation factor	0.993	0.988 to 0.996	<0.001
Total scale	0.993	0.987 to 0.996	<0.001

Table 2. Confirmatory factor analysis for the Greek version of the "Moral Injury Symptom Scale-Healthcare Professionals".

Model	x^2	df	x^2/df	RMSEA	GFI	AGFI	TLI	IFI	NFI	CFI
10 items	36.850	28	1.316	0.030	0.979	0.959	0.975	0.985	0.939	0.984

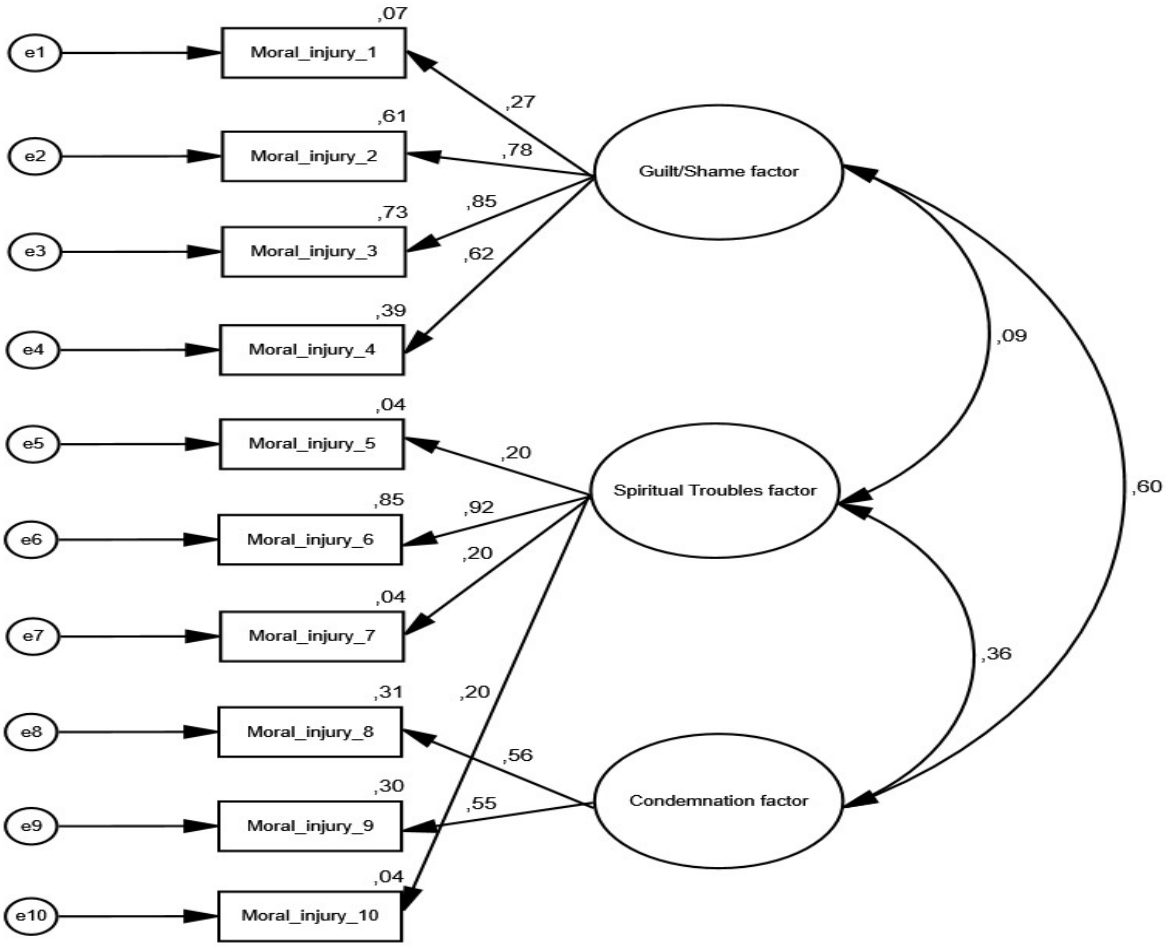

Figure 1. Confirmatory factor analysis for the Greek version of the "Moral Injury Symptom Scale-Healthcare Professionals".

Table 3. Concurrent validity of the Greek version of the "Moral Injury Symptom Scale-Healthcare Professionals".

Moral Injury Symptom Scale-Healthcare Professionals	Moral Distress Thermometer		Quiet Quitting Scale		Single item burnout measure	
	Pearson's correlation coefficient	P-value	Pearson's correlation coefficient	P-value	Pearson's correlation coefficient	P-value
Guilt/shame factor	0.44	<0.001	0.23	<0.001	0.12	0.03
Spiritual troubles factor	0.20	<0.001	0.38	<0.001	0.02	0.78
Condemnation factor	0.32	<0.001	0.32	<0.001	0.13	0.02
Total scale	0.46	<0.001	0.41	<0.001	0.11	0.04

Discussion

To our knowledge this is the first study that translates and validates the "Moral Injury Symptom Scale-Healthcare Professionals" in Greek language. In our study, we used a sample of nurses in Greece to translate and validate the MISS-HP. Our results showed that the MISS-HP is a reliable and valid tool to measure moral injury among healthcare professionals.

Our confirmatory factor analysis is in accordance with the original English version of the MISS-HP revealing a three-factors structure of the Greek version of the scale: guilt/shame factor (items #1, #2, #3, #4), spiritual troubles factor (items #5, #6, #7, #10), and condemnation factor (items #8, #9) (Mantri et al., 2020). Also, a three-factor model was also identified in a study with 3000 healthcare professionals in China during the COVID-19 pandemic (Zhizhong et al., 2020).

Moreover, we found an acceptable value for Cronbach's coefficient alpha for the MISS-HP (0.636). Similar acceptable values for Cronbach's coefficient alpha were found in studies in USA and China (Mantri et al., 2020; Zhizhong et al., 2020). Additionally, our test-rest reliability analysis found perfect values for intraclass correlation coefficients as suggested by the literature (Mantri et al., 2020; Zhizhong et al., 2020).

Regarding concurrent validity of the MISS-HP, we found that increased levels of moral injury were associated with increased levels of job burnout, moral distress, and quiet quitting among nurses. Literature confirms this finding since moral injury was associated with several negative variables, such as clinician burnout, risk of suicide, and suicidal thoughts (Bryan et al., 2014, 2013; Ames et al., 2019; Mantri et al., 2021).

Our study had several limitations. Since we employed a convenience sample of nurses, we cannot generalize our results. Thus, future studies can include samples from different healthcare professionals. Moreover, we used self-reported questionnaires, such as the MDT, the QQS, and the single item burnout

measure to examine the concurrent validity of the MISS-HP. Finally, more types of validity can be examined such as convergent validity of the MISS-HP.

In conclusion, the Greek version of the "Moral Injury Symptom Scale-Healthcare Professionals" is a valid and reliable tool to measure moral injury among healthcare workers.

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