Research Paper
Validation of the Persian Version of Occupational Coping Self-efficacy for Nurses Scale

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ABSTRACT

Background: Assessing the self-efficacy beliefs of Iranian nurses in coping with occupational stressors requires to have a reliable tool. This study aims to assess the validity and reliability of the short form of Occupational Coping Self-Efficacy for Nurses (OCSE-N) Scale for Iranian nurses.

Methods: This is a methodological study. Participants were 151 nurses who were randomly selected from among those working in oncology wards of hospitals affiliated to Tehran University of Medical Sciences in 2021. The nurses completed the short form of OCSE-N and the Coping Inventory for Stressful Situations- Short Form (CISS-SF). This study employed exploratory factor analysis and Confirmatory Factor Analysis (CFA) to examine the factor structure of the Persian OCSE-N. The reliability was assessed by calculating Cronbach's alpha coefficients. The data were analyzed in AMOS and SPSS software v. 26.

Results: The results of Principal Component Analysis by the Promax rotation and CFA showed that the Persian OCSE-N had two factors: 1) Coping self-efficacy to cope with the relational burden and 2) coping self-efficacy to cope with occupational burden. The correlation between subscales of OCSE-N and CISS-SF confirmed the convergent validity of the Persian OCSE-N. Cronbach's alpha coefficients for factors 1 and 2 were reported 0.75 and 0.77, respectively.

Conclusion: The Persian OCSE-N is a valid and reliable tool to measure the perceived self-efficacy in coping with stressful situations among Iranian nurses.

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Highlights

● The Persian OCSE-N consists of two factors: Coping self-efficacy to cope with the relational burden and coping self-efficacy to cope with occupational burden.

● The occupational coping self-efficacy in nurses had a negative significant relationship with emotion-oriented coping style.

● The occupational coping self-efficacy in nurses had no significant relationship with problem-oriented and adaptive coping styles.

● The Persian OCSE-N is a valid and reliable tool for assessing perceived self-efficacy in coping with stressful situations at workplace among Iranian nurses.

Plain Language Summary

It is important to investigate the stressful experiences at workplace and the methods of coping with these stressful situations in nurses. The self-efficacy beliefs in coping with occupational stress, as a component of positive psychology, was assessed in this study using the Persian OCSE-N. The findings showed that the Persian OCSE-N had acceptable validity and reliability and had two factors of coping self-efficacy to cope with the relational burden and coping self-efficacy to cope with occupational burden.

1. Introduction

Empirical evidence mainly shows that nurses have stressful experiences more than other healthcare staff (Yu et al., 2019; Laschinger et al., 2015). Some researchers have emphasized the importance of coping with stressful experiences at the workplace for nurses (Betke et al., 2021; Lee et al., 2016). Anshasi et al. (2020) reported that long-term exposure to stressors can negatively affect the physical health and well-being of nurses. They emphasized that the high level of stressful experiences reduces the performance and productivity of nurses and, consequently, interfere with the patient care process. It is, therefore, very important to investigate the predictors of occupational stress, factors changing how to cope with such stressful conditions, and consequences of such conditions in nurses. One of these factors in coping with occupational stress is perceived self-efficacy (Terry et al., 2019; Ren et al., 2017; Fallatah et al., 2017).

According to the Transactional Theory of Stress and Coping (TTSC), people stably evaluate their relationships with the surrounding environment based on how it is significant for their well-being (Lu et al., 2019; Garrosa et al., 2010). This process occurs based on cognitive appraisal, which is defined as the "process of categorizing an encounter and its various facets with respect to its significance for wellbeing". Cognitive appraisal is

important for determining the importance of coping with events for one's wellbeing (Ho, 2019; Zhang et al., 2017). Based on the TTSC proposed by Lazarus and Folkman (1984), cognitive appraisals include primary, secondary, and reappraisal factors. In primary appraisal, which measure one's stress level in a stressful situation, a situation may be judged as irrelevant, positive, or stressful. The situations judged as stressful fall into one of the following groups: benefit, challenge, threat, or harm/loss. The situation is a challenge when it is associated with physical and psychological activity. In a challenging appraisal, one see an opportunity to prove herself/himself and anticipate personal progress and growth. The situation is considered pleasant, exciting, and interesting, and the person is hopeful, confident, and eager to meet situational expectations (Widyana & Kuntarti, 2019). A stressful situation turns into a threat when one finds herself/himself in danger and anticipates future harm or loss, which can be a physical pain and injury or an attack on self-esteem. Although one may have a negative image of the future in threat appraisal, s/he still seeks to master the situation. The person uses his/her coping capabilities to have a positive outcome from the situation and to recover his/her wellbeing (Chew et al., 2018). Primary appraisals are reflected by secondary appraisals, which refer to one's available coping options for dealing with stress. In other words, secondary appraisals involve one's evaluation of resources to cope with any situational demand. The person evaluates his/her abilities, social supports, and other resources to adapt

to new conditions and reestablish a balance between herself/himself and the environment. The competence related to tasks or prerequisite knowledge to cope with the tasks is of special importance. There is no fixed time order for primary and secondary cognitive appraisals because they are interrelated and often occur at the same time (Koota et al., 2020; Arimon-Pages et al., 2019).

Consistent with Bandura's Social Cognitive Theory (SCT), the above-mentioned theoretical framework emphasizes the role of perceived self-efficacy. In fact, self-appraisal is the core of both SCT and TTSC. Cognitive appraisal processes actually affect how people prefer to cope with stressors through direct attention to environmental features or conditions as well as some internal resources such as coping self-efficacy. As one's assessment of his/her ability to cope with situational demands, coping self-efficacy affect his/her response to stressors and stressful situations (Handiyani et al., 2019; Munoz, López, & Vieitez 2018). Coping self-efficacy can determine one's distinct level of efforts and resilience in facing obstacles and stressful situations. People with high levels of coping self-efficacy are more likely to employ active coping strategies when they face challenging situations, whereas those with lower levels of coping self-efficacy may take advantage of passive strategies to manage their emotional turmoil in such situations (Chen et al., 2019). Freire et al. (2020) showed a relationship between perceived self-efficacy and use of active coping strategies. Moreover, many studies have indicated the moderating and mediating roles of perceived self-efficacy in the relationship between experiencing stressful situations and subsequent pressures (Cattelino et al., 2021; Sabouripour et al., 2021; Lee, Kim, & Wachholtz., 2016).

For systematic and purposeful study of perceived self-efficacy in Iranian nurses facing occupational stressors, it requires to understand its importance and then have a suitable tool to measure it. Considering the necessity of validating the structure of the OCSE-N for Iranian samples, this study aims to assess the validity and reliability of the Persian version of OCSE-N short-form for Iranian nurses. Confirmatory Factor Analysis (CFA) was employed to examine its factor structure, described by exploratory factor analysis (EFA) (Giles, 2002). EFA has been seriously criticized due to its insistency on data-based structures, rather than theory-based structures as well as being unable to measure the errors. Undoubtedly, more results on the repeatability of OCSE-N's can provide the evidence that there is no significant cultural difference in the factor structure of different versions of this scale. This study also examines the relationship of

the subscales and total score of Persian OCSE-N with occupational stress coping styles.

2. Materials and Methods

This is a methodological study with a correlational/descriptive design conducted on 151 nurses randomly selected from among those working in oncology wards of hospitals affiliated to Tehran University of Medical Sciences in Tehran, Iran in 2021. According to Kline (2015), the sample size should be 5-20 for each estimated parameter in studies that aim to analyze the factor structure of measurement tools. Therefore, the sample size was determined 17 for each parameter of Persian OCSE-N. The OCSEQN was filled with the participants' satisfaction and written informed consent was obtained from the participants in this study. In this study, the relationship between self-efficacy beliefs in the face of stressful occupational experiences and the three dimensions of stress coping styles were studied in order to assess the construct validity of this scale.

Tools

The short-form of OCSE-N: It was developed by Pisanti et al. (2008) to measure perceived self-efficacy in coping with occupational stress among nurses. The OCSE-N consists of 9 items scored on a 5-point Likert scale from 1 (not at all easy to cope with) to 5 (extremely easy to cope with). Instructions in this scale is given as following: "the following statements describe occupational stressful situations which nurses may cope more or less easily with. For each situation, please rate how confident you feel you can easily cope with it" (Pisanti et al., 2015). This scale has two primary factors: Coping self-efficacy to cope with the relational burden and coping self-efficacy to cope with occupational burden. The significant negative correlation of these two factors with emotion-focused and avoidant coping styles and also their significant positive correlation with problem-focused coping style confirmed the convergent validity of OCSE-N. Cronbach's alpha coefficients obtained for subscales of OCSE-N were 0.77 and 0.79, which indicated the acceptable reliability of this scale.

The CISS-SF: It was developed by Endler and Parker (1990) to measure different coping styles that people adopt in stressful situations, including task-oriented, emotion-oriented, and avoidant styles. This tool has 21 items (7 items for each coping style) scored on a 5-point Likert scale, from 1 (never) to 5 (very much). The avoidant coping style has two subscales of distracted and social coping, which are measured by items 4 and

3, respectively. The scores for each dimension of this questionnaire ranges from 7 to 35. The total score determines the dominant coping style of respondents; the highest score indicates the respondent's coping style of preference. Cohan, Jang, and Stein (2006) performed CFA on CISS-SF and reported that the four-factor model of CISS-SF was more fitted to data compared to its three-factor model. Cronbach's alpha coefficients and correlation coefficients resulting from the test-retest of subscales also suggested the high reliability of CISS-SF. Khodaei, Rahimi, and Zare (2021) reported the Cronbach's alpha coefficient of task-oriented, emotion-oriented, and avoidant coping styles for its Persian version as 0.83, 0.78, and 0.77, respectively.

Translation and back translation

For translation, the back-translation method was used. In this regard, the original (English) version of the OCSE-N was translated into Persian by a bilingual (Persian speaking) person. Then another bilingual (English speaking) person retranslated the Persian version into English to maintain linguistic and conceptual harmony (Marsella & Leong, 1995). In the next step, the two versions were compared to minimize differences between them. Accordingly, semantic similarities were carefully examined. Finally, eight faculty members confirmed the content validity and cultural relevance of the questionnaire. After preparing the initial draft of the Persian OCSE-N, in order to find out its conceptual compatibility with the original version and also to fit the items with the cultural values of Iranian society, eight faculty members examined the Persian version.

Data collection

First an invitation was sent to the participants. Then, they was given information about the study objectives and procedures, with an emphasis on the quality of work life of nurses. Then, they individually filled out the questionnaires lasted for 15-20 minutes.

Statistical analysis

This study employed both EFA and CFA to examine the factor structure of the Persian OCSE-N. The reliability was tested by calculating Cronbach's alpha coefficients and measuring the internal consistency of its subscales. Before performing EFA, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's test of sphericity were used to measure the adequacy of the sample and correlation matrix. Since the values of these two tests were equal to 0.78 and (X^2(36N=151)= 429.43, P<0.001), respectively, it can be stated that the sample and correlation matrix were suitable for this analysis. To evaluate the fitness of the model, the indices including Comparative Fit Index (CFI) (>0.90), Goodness of Fit Index (GFI) (>0.90), Adjusted Goodness-Of-Fit Index (AGFI) (>0.85), and Root Mean Square Error of Approximation (RMSEA) (>0.08) were used. The data were statistically analyzed in SPSS and AMOS 26.0.

3. Results

In this study, the factor structure of the Persian OCSE-N was described by performing EFA. Considering the scree plot, eigenvalues, and the percentage of variance explained by each component, the most appropriate component were extracted by Principal Component Analysis (PCA) and Promax rotation. While confirming the two-factor model of original OCSE-N, the EFA results showed that the two principal factors of OCSE-N, i.e., coping self-efficacy to cope with the relational burden (Factor 1) and coping self-efficacy to cope with occupational burden (factor 2) explained 42.33% and 14.27% (and 56.59% together) of the variance in perceived self-efficacy in coping with the occupational (nursing) stressors (Table 1). The factor loadings of the main factors of OCSE-N are presented in Table 2. As can be seen, all factor loadings were statistically significant (P<0.05).

Two different models were tested in this study: In the single-factor model, all items were regarded as markers of a single construct (Perceived self-efficacy in coping

Table 1. Statistical characteristics for two factors of OCSE-N using PCA

Factors	Eigenvalue	%	
		Variance	Cumulative
Coping self-efficacy to cope with the relational burden	3.81	42.33	42.33
Coping self-efficacy to cope with occupational burden	1.28	14.27	56.59

Table 2. Factor loadings of the main factors of OCSE-N

Items	Factor 1
8	0.87
9	0.83
2	0.70
4	0.69

Items	Factor 2
6	0.90
7	0.85
1	0.57
3	0.57
5	0.50

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with stressful situations), whereas the two-factor model consisting of two factors (coping self-efficacy to cope with the relational burden and coping self-efficacy to cope with occupational burden) determines the correlation between two latent factors. Based on the results obtained from the single-factor model, CFI, GFI, and AGFI values were <0.90, RMSEA was >0.06, and the ratio of chi-square to degree of freedom (X^2/df) was >2. For the two-factor model, CFI, GFI, and AGFI were >0.90, RMSEA was <0.06, and X^2/df was <2. Therefore, the two-factor model fitted the data better than the single-factor model (Table 3). Figures 1 and 2 show the diagram and standardized path coefficients for the two-factor and single-factor models, respectively. As can be seen, factor loadings of the Persian OCSE-N items ranged from 0.49 to 0.93 in the two-factor model and from 0.49 to 0.78

in the single-factor model. Moreover, all factor loadings were statistically significant (P<0.05).

To assess the convergent validity of the Persian OCSE-N, the correlation between the subscales of this tool and three subscales of CISS-SF was evaluated (Table 4). The correlation matrix results presented in Table 4 showed that two factors of OCSE-N had non-significant positive correlation with task-focused coping styles and a non-significant negative correlation with avoidant coping styles, but a significant negative correlation with emotion-oriented coping styles. In other words, the results demonstrated that there is a positive relationship between the preferential use of non-adaptive styles for coping with stressful situations at workplace and the quality of work life, but there is a negative relationship between

Table 3. Fit indices for the single-factor and two-factor models

Fit indices	χ^2	df	(χ^2/df)	GFI	AGFI	RMSEA
Single-factor model	155.33	27	5.75	0.85	0.80	0.150
Two-factor model	51.14	26	1.97	0.95	0.91	0.046

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Table 4. Correlation matrix of perceived coping self-efficacy and coping styles

Variable	Task-Oriented Coping Style	Emotion-Oriented Coping Style	Avoidant Coping Style
Coping self-efficacy to cope with the relational burden	0.13	-0.15*	-0.04
Coping self-efficacy to cope with occupational burden	0.12	-0.28**	-0.06

**P<0.001; *P<0.05.

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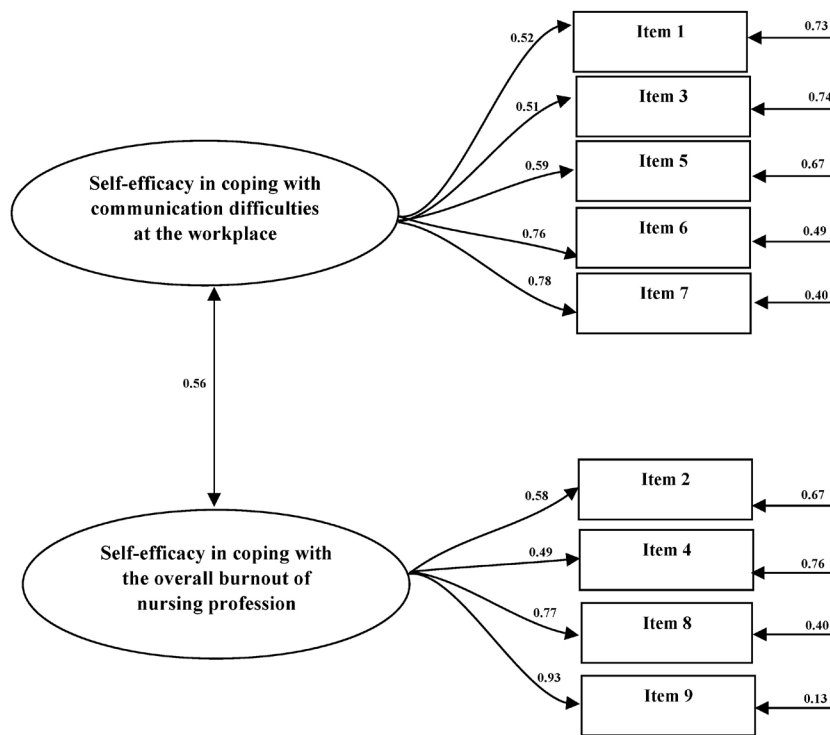**Figure 1.** The two-factor model of Persian OCSE-N

the adoption of adaptive styles for coping with stressful situations at workplace and the quality of work life. Cronbach's alpha coefficients for factors 1 and 2 were 0.75 and 0.77, respectively.

4. Discussion

The present study aimed to assess the validity and reliability of the short form of OCSE-N for Iranian nurses.

The results of PCA using the Promax rotation showed that the Persian OCSE-N also had two main factors: coping self-efficacy to cope with the relational burden and coping self-efficacy to cope with occupational burden. CFA's fit indices confirmed these two factors obtained from EFA. A comparison between the results obtained from the single-factor and two-factor models of the Persian OCSE-N revealed that the latter fitted the data better. Cronbach's alpha coefficients for the subscales of coping
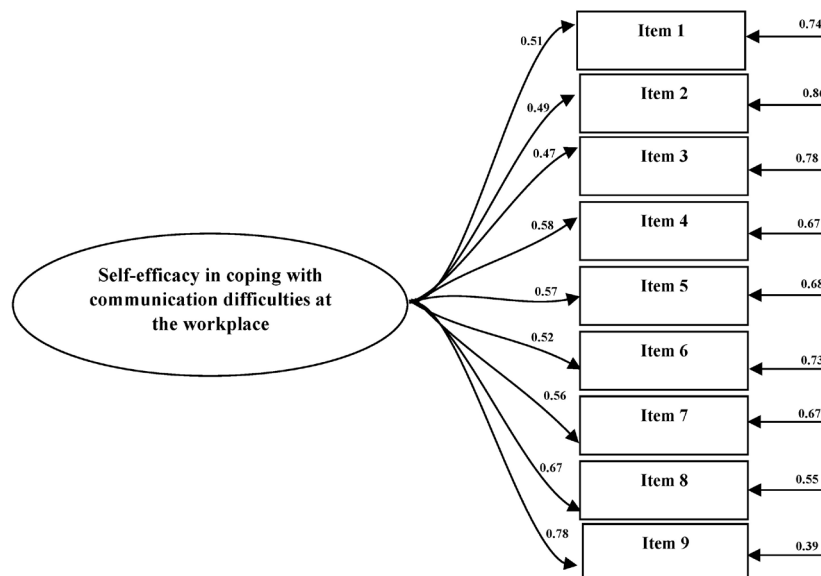

Figure 2. Single-factor model of Persian OCSE-N

self-efficacy to cope with occupational burden and coping self-efficacy to cope with the relational burden were 0.77 and 0.75, respectively. Consistent with the findings of Pisanti et al. (2008), this study showed the two-factor model of OCSE-N.

In this study, the relationship between scores of OCSE-N and CISS-SF subscales was examined to assess the convergent validity of the Persian OCSE-N. The results indicated the negative significant relationship of emotion-oriented coping style with the score of OCSE-N, whereas the relationship of task-oriented and avoidant coping styles with the score of OCSE-N was not significant. In Pisanti et al. (2008)'s study, the relationship of task-oriented coping style with perceived coping self-efficacy was reported significant and positive, but it was not significant and positive in our study. The relationship of avoidant coping styles with perceived coping self-efficacy was also significant in their study, but it was not significant in our study. Therefore, the results of these two studies indicate that there are qualitative similarities and quantitative differences between functional characteristics of coping styles adopted in stressful situations in terms of cultural contexts.

The similarity in factor structure of Persian and original versions of OCSE-N indicates that the main structure and theoretical/causal mechanisms of occupational coping self-efficacy in nurses followed same principles. However, when the perceptions of occupational coping self-efficacy are compared distinctly in terms of cultural contexts, nurses may experience different intensities of coping self-efficacy beliefs in different occupational situations. Therefore, investigating the intensity of self-efficacy beliefs in coping with occupational stress among nurses in different cultural and gender groups is recommended in future studies.

Consistent with the findings of O'Connor and Shimizu (2002), this study emphasized the important role of two OCSE-N factors to explain the non-significance relationship between task-oriented coping style and coping self-efficacy in stressful situations. The nature and type of stressful events were not specified in this study for measuring coping styles. O'Connor and Shimizu (2002) reported that coping styles adopted by people may vary depending on the mutability or immutability of events they face. People usually use purposeful problem-focused strategies to cope with mutable events, whereas they are more likely to adopt emotion-focused or avoidant strategies to cope with immutable events. Future studies are hence recommended to specify the nature and type of stressful events to be able to interpret the features related

to the nature of such events. Future studies are also recommended to assess the controllability or the degree of stressful situations in order to measure different coping styles. Terry (1994) emphasized that situational factors, such as controllability or degree of stress, can affect the subsequent coping responses. In fact, Terry found out that the situation assessment and the situation type also distinctively affect coping behaviors, in addition to intrapersonal factors, such as the sense of personal control. The findings of Terry showed that situational assessments mainly affect emotion-focused efforts, whereas the type of stressful situations mostly deals with problem-focused efforts. As a result, future studies are recommended to investigate the role of both individual factors (e.g., the sense of personal control) and situational assessments in the use of strategies to cope with stressful situations at workplace.

5. Conclusion

The Persian OCSE-N is a valid and reliable tool with two factors of coping self-efficacy to cope with the relational burden and coping self-efficacy to cope with occupational burden. These two factors form distinct levels of adaptation to occupational stressors. Since OCSE-N can be used for assessing the coping self-efficacy in stressful situations and in developing occupational stress management interventions for healthcare staff, it is of great importance to further study OCSE-N both theoretically and practically. As a result, it is recommended to use this tool to evaluate the coping self-efficacy as the outcome of interventions for occupational stress management.

This study had some limitations in terms of data interpretation and generalization of findings to other populations. Since this study used self-reporting tools for data collection, it may affect the responses to questions. In other words, this study did not use behavioral observation and clinical indicators in order to validate the self-reporting scales. Moreover, since the study samples were nurses working in oncology wards of selected hospitals in Tehran, the study findings should be cautiously generalized to nurses of other hospital wards or medical centers.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the Ethics Committee of Payame Noor University (Tehran) (Code: 43238). Written informed consent was obtained from the participants.

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