

# The psychometric properties of the Persian version of the Demoralization Scale (DS-II) in women with breast cancer

Aliakbar Foroughi<sup>1</sup>, Sajad Khanjani<sup>2</sup>, Mahboobeh Soleymani Moghadam<sup>1</sup>, Aliakbar Parvizifard<sup>1</sup>

<sup>1</sup>Department of Clinical Psychology, Kermanshah University of Medical Sciences, Kermanshah, Iran, <sup>2</sup>Research Center for Cognitive and Behavioral Sciences in Police, Directorate of Health, Rescue and Treatment, Police Headquarter, Tehran, Iran

**Background:** Demoralization is a syndrome of existential distress and despair in patients with cancer and other severe medical illnesses. The Demoralization Scale (DS-II) is self-administered and contains 16 items, and it has two factors: meaning and purpose and distress and coping ability. **Materials and Methods:** Women with breast cancer (240) completed the scales DS-II, positive and negative affect, state hope, patient health, and quality of life. Confirmatory factor analysis (CFA) and divergent and convergent validity were used to measure the construct validity of DS-II. CFA was chosen to check the fit of the two-factor model. Divergent and convergent validity were investigated using Pearson's correlation test. The reliability of DS-II was evaluated by the internal consistency method. Cronbach's alpha was used to calculate the internal consistency of the DS-II. **Results:** The Cronbach's alpha coefficient for the subscales of meaning and purpose, distress and coping ability, and the total score was obtained: 0.67, 0.72, and 0.81, respectively, indicated this scale's good reliability. Furthermore, the Pearson correlation coefficient results showed the appropriate convergent validity and good divergent validity of the DS-II. **Conclusion:** The DS-II has sound psychometric properties and can be recommended as a reliable tool for assessing demoralization in women with breast cancer.

**Key words:** Breast cancer, demoralization, depression, hope, psychometric, women

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## INTRODUCTION

Breast cancer is one of the most common tumors among women.<sup>[1]</sup> This type of cancer is the third cause of death in Iran and is more prevalent in the fourth and fifth decades of life.<sup>[2]</sup> They face stress and the consequences of the disease and often have negative emotional responses. Moreover, depression is the most common emotional response in affected people. However, some suffering from demoralization may be misdiagnosed as depressed<sup>[3]</sup> as the construct of demoralization overlaps with depression.<sup>[4]</sup> However, it is necessary to separate these two concepts due to their distinct characteristics.<sup>[3]</sup> A person suffering from major depressive disorder sees the source of distress

within himself, feels guilty and unhappy, and does not feel motivated.<sup>[5]</sup> On the other hand, a person who suffers from demoralization sees the source of distress outside himself, feels not guilty, and his mood, sense of pleasure, interest, and motivation remain intact.<sup>[6]</sup> Furthermore, depressed people do not feel pleasure in the present time, while a person who feels demoralized can laugh or smile at present. However, they cannot imagine a valuable prospect for themselves.<sup>[7]</sup> In fact, mental incompetency is the clinical characteristic of demoralization.<sup>[8]</sup> In addition, a person suffering from major depressive disorder needs medical treatment. However, antidepressants do not affect the condition of a person suffering from demoralization. Due to its high impact on the patient and its relatively high prevalence in severe physical diseases like

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**Address for correspondence:** Ms. Mahboobeh Soleymani Moghadam, Department of Clinical Psychology, Kermanshah University of Medical Sciences, Kermanshah, Iran.

E-mail: soleymani.psy@gmail.com

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cancer, which is about 23.7%–88.8%,<sup>[9]</sup> demoralization has attracted much attention in clinical settings.<sup>[10]</sup> Although demoralization and depression both have a negative effect on the patient's recovery. Nevertheless, demoralization needs more attention from researchers as it is challenging to diagnose and has been studied less than depression.<sup>[11]</sup> Furthermore, in a systematic study, Costanza *et al.* showed that people who feel demoralized are at risk of suicide.<sup>[12]</sup> There are five scales to measure demoralization: Dohrenwend's Psychiatric Epidemiology Research Interview – Demoralization Scale [PERI-D], a scale developed by Stewart *et al.*, MMPI-2 Restructured Clinical [RC] Scale of Demoralization [RCd]), a scale based on and the "Diagnostic Criteria for Psychosomatic Research" (DCPR), and Kissane's Demoralization Scale [KDS].<sup>[13]</sup> David Kissane initially validated the Demoralization Scale (DS-I) in 2004<sup>[14]</sup> and presented six criteria for diagnosing demoralization: (1) hopelessness and lack of meaning and purpose, (2) pessimism, helplessness, and not having a worthwhile future, (3) lack of motivation, (4) social isolation, (5) continuity of symptoms for more than 2 weeks, and (6) lack of period of major depressive disorder or other psychiatric courses as a primary condition.<sup>[13]</sup> Then, in 2016, Robinson *et al.* revised and revalidated this scale and developed the DS-II form.<sup>[15]</sup> In DS-II, the number of items was reduced, and the format of the answers was simplified. These changes make it more user-friendly than the original scale.<sup>[16]</sup> According to Robinson *et al.*, demoralization has two factors. The first factor is meaning and purpose, which deals with the lack of meaning and purpose and helplessness. This factor is measured in items such as: "I think my life is meaningless" or "I prefer not to be alive." The second factor is distress and coping ability, which deals with boredom, disappointment, and a sense of failure. Items such as "I feel irritable" and "I cannot cope with my life" measure this factor.<sup>[15]</sup> Demoralization is a treatable condition. Therefore, its diagnosis helps to choose the type of interventions needed for its treatment.<sup>[17]</sup> Previous studies<sup>[17,18]</sup> as well as the study carried out by Robinson *et al.* have been conducted on different types of cancers with different prognoses.<sup>[16]</sup> It is expected that a person with cancer experiences different degrees of demoralization. Therefore, we focused on a more specific sample in the present study. In the present study, hopelessness, part of the distress and coping ability subscale, was well investigated with the State Hope instrument, which has not been investigated in previous studies.<sup>[17,18]</sup> Furthermore, the subscale of meaning and purpose was investigated with the quality of life instrument, whose existential construct deals with meaning and purpose.<sup>[14]</sup> This subscale, too, has not been considered in previous studies.<sup>[17,18]</sup> Therefore, this study investigates the validity and reliability of the Persian version of the DS-II in a sample of women with breast cancer.

## METHODOLOGY

The design of this research was cross-sectional. The research's statistical population included breast cancer patients who visited Imam Reza Hospital and Mahdiah Clinic of Kermanshah University of Medical Sciences from September 2021 to April 2022. The recommended sample for confirmatory factor analysis (CFA) is approximately 200 samples.<sup>[19]</sup> Therefore, 240 breast cancer patients who visited Imam Reza Hospital and Mahdiah Clinic of Kermanshah University of Medical Sciences were selected using convenience sampling.

To examine psychometric properties, the comparability between the Persian version of DS-II and the original DS-II has been validated by translation and back-translation procedures. The DS-II was first translated into Persian independently by four Ph.D. candidates in clinical psychology. Next, the Persian DS-II was back-translated by a bilingual individual, and the backtranslated version was reviewed by other bilingual people. The final version of the Persian DS-II was also compared to the original version by two bilingual clinical psychologists. In a preliminary study, the initial translation of the tool was carried out on a sample of 20 people who were referred to Imam Reza Hospital to check the comprehensibility of the questions for the participants and to fix the errors in the sentences. The problems in the questions were corrected based on the preliminary study results. After preparing the final version of the questionnaire, the research participants completed the following scales: DS-II, Positive and Negative Affect, State Hope, Patient Health, and Quality of Life. This study was approved by the Research Ethics Committee of Kermanshah University of Medical Sciences (ethical code: IR.KUMS.REC.1400.606).

### Instruments

#### *Demoralization Scale-II*

The DS consists of 16 items, and each item is rated on a 3-point Likert scale of 0 (never), 1 (sometimes), and 2 (often). Higher scores indicate higher levels of demoralization (the range of scores is from 0 to 32). This scale has two factors with eight items: the first factor is meaning and purpose and the second factor is distress and coping ability. DS-II has good internal validity ( $\alpha = 0.89$ ) for all patients and retest validity in patients with stable symptoms (intraclass correlation coefficient [ICC] of 0.80).<sup>[16]</sup>

#### *State Hope Scale*

The State Hope scale consists of two subscales of pathways and agency, each of which has three items. The overall Cronbach's alpha coefficient was 0.88 for the main scale and 0.86 and 0.59 for the subscales of agency and pathways, respectively.<sup>[20]</sup>

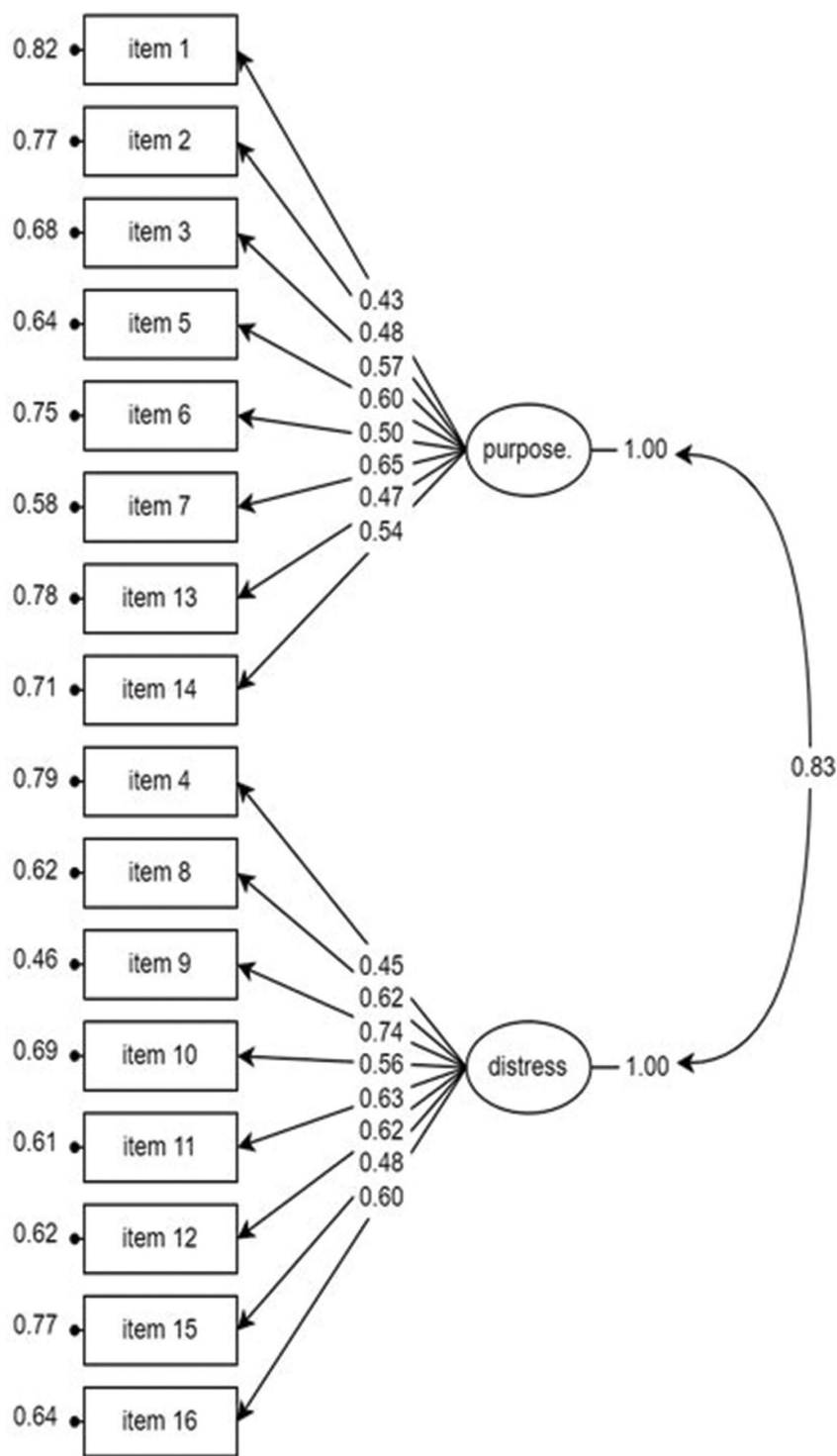


Figure 1: Demoralization Scale-II two-factor model

**Positive and Negative Affect Scale**

The Positive and Negative Affect Questionnaire contains 20 items. This scale has two subscales that evaluate a person’s positive and negative characteristics using a five-point Likert scale ranging from 1 = very slightly or not at all to 5 = extremely. The person being assessed must indicate their intensity level for each of the presented emotions.<sup>[21]</sup>

**Patient Health Questionnaire 9**

The Patient Health Questionnaire 9 includes nine items and evaluates depressive symptoms. Answers are scored on a Likert scale ranging from 0 (not at all) to 3 (nearly every day). The total score on the scale ranges from 0 to 27. The severity of symptoms can be evaluated through the total score, where Patient Health Questionnaire (PHQ) scores between 5 and 9 are mild depression, 10–14 are moderate

depression, 15–19 are moderately severe depression, and 20 and more are severe depression symptoms. This scale has been formally validated against structured diagnostic interviews conducted by mental health professionals.<sup>[22]</sup>

**McGill Quality of Life Questionnaire-Revised**

The McGill Quality of Life Questionnaire includes 14 items (in addition to the overall quality of life item) and four subscales. The physical subscale includes three questions, the psychological subscale includes four questions, the existential subscale includes four questions, and the social subscale includes three questions. The overall scale has good internal reliability ( $\alpha = 0.94$ ).<sup>[23]</sup>

**Face validity and content validity**

The face validity and content validity were assessed by sending DS-II to five experts in the field of clinical psychology. In the qualitative method of face validity, the experts confirmed that the questions with the facets of the questionnaire are appropriate and related and the words also reflect the concept of demoralization. Accordingly, experts affirmed that DS-II covers the concept of demoralization.

**Data analysis**

CFA and divergent and convergent validity were used to measure the construct validity of DS-II. CFA was chosen to check the fit of the two-factor model. Divergent and convergent validity were investigated using Pearson’s

correlation test between DS-II scores and Positive and Negative Affect, State Hope, Patient Health, and Quality of Life. The reliability of DS-II was evaluated by the internal consistency and test–retest method. Cronbach’s alpha was used to calculate the internal consistency of the DS-II. Test–retest reliability was measured with ICC. The SPSS software (version 24.0. Armonk, NY, USA: IBM Corp.) and LISREL (version 8.80, Jöreskog and Sörbom, 2006) were used for data analysis. For model fitness, the indices of the normal Chi-square, Normed Fit Index (NFI), Standardized Root Mean Square Residual (SRMR), Non-NFI (NNFI), Incremental Fit Index (IFI), Comparative Fit Index (CFI) the Goodness-of-Fit Index (GFI), and Root Mean Square Error of Approximation (RMSEA) were used. RMSEA coefficient <0.08, SRMR <0.10, fit indices of CFI, GFI, IFI, Relative Fit Index, NFI, and NNFI above 0.90, and Adjusted Goodness-of-Fit Index above 0.85 indicate the acceptability of CFA fit indices.<sup>[19,24]</sup>

**RESULTS**

**Description of the sample**

The sample consisted of 240 women with an age range of 28–67 years old with a mean of  $46.46 \pm 8.48$  years old. The duration of breast cancer diagnosis in the research sample was in the range of 14–5 months, with an average diagnosis duration of  $8.88 \pm 2.53$  months. The marital and educational status of the research participants is shown in Table 1.

**Confirmatory factor analysis**

CFA was conducted to investigate the two-factor structure of the Persian version of DS-II in the sample of women with breast cancer [Figure 1]. The fit indices of the two-factor structure in the sample show that the DS-II two-factor structure has a relatively good fit [Table 2].

**Correlations between Demoralization Scale-II and subscales**

Pearson’s correlation coefficient results showed a positive and significant correlation between DS-II with subscales of purpose and meaning ( $r = 0.90$ ,  $P < 0.001$ ) and distress

**Table 1: Profile of respondents**

Category	n (%)
Marital	
Single	24 (10)
Married	197 (82.1)
Divorce	3 (1.3)
Widows	16 (6.7)
Education	
< A high school diploma	114 (47.5)
High school diploma	42 (17.5)
Bachelor	46 (19.2)
Master	38 (15.8)

**Table 2: Fit indices of Demoralization Scale-II two-factor model**

Fit indexes	$\chi^2$	P	$\chi^2/df$	SRMR	GFI	IFI	CFI	NNFI	NFI	RMSEA
DS-II	62.345	0.001	3.35	0.07	0.85	0.90	0.90	0.88	0.87	0.08

SRMR: Standardized Root Mean Square Residual, GFI: Goodness-of-Fit Index, IFI: Incremental Fit Index, NFI: Normed Fit Index, NNFI: Non-NFI, RMSEA: Root Mean Square Error of Approximation, DS-II: Demoralization Scale-II, CFI: Comparative fit index

**Table 3: Convergent and divergent validity results**

Variable	Meaning and purpose	Distress and coping ability	State hope	Quality of life	Positive affect	Negative affect	Patient’s health
Demoralization	0.90	0.91	-0.57	-0.18	-0.60	0.58	0.66
Meaning and purpose	-	0.64	-0.45	-0.14	-0.48	0.48	0.57
Distress and coping ability	-	-	-0.59	-0.17	-0.60	0.57	0.61



and coping ( $r = 0.91$ ,  $P < 0.001$ ). Furthermore, Pearson's correlation coefficient results showed a positive and significant correlation between the DS-II subscales ( $r = 0.64$ ,  $P < 0.001$ ) [Table 3].

### Reliability

The Cronbach's alpha coefficient for the subscales of meaning and purpose, distress and coping ability, and the total score of DS-II was obtained at 0.67, 0.72, and 0.81, respectively, indicating this scale's good reliability. Test-retest reliability was calculated for the DS-II by a sample of 30 students who completed the DS-II again after 2 weeks. The results showed that test-retest correlation coefficients of the subscales of meaning and purpose, distress and coping ability, and total score were 0.83, 0.85, and 0.88, respectively.

### Convergent and divergent validity

Pearson's correlation coefficient results showed a positive and significant correlation between DS-II with patient's health ( $r = 0.66$ ,  $P < 0.001$ ), and negative affect ( $r = 0.58$ ,  $P < 0.001$ ); a positive and significant correlation between the subscale of meaning and purpose with patient's health ( $r = 0.57$ ,  $P < 0.001$ ), and negative affect ( $r = 0.48$ ,  $P < 0.001$ ); and a positive and significant correlation between the subscale of distress and coping ability with patient's health ( $r = 0.61$ ,  $P < 0.001$ ), and negative affect ( $r = 0.57$ ,  $P < 0.001$ ), which indicates the appropriate convergent validity of DS-II. Furthermore, the Pearson correlation coefficient results showed that there is a negative and significant correlation between DS-II with state hope ( $r = 0.57$ ,  $P < 0.001$ ), positive affect ( $r = 0.18$ ,  $P = 0.006$ ), and quality of life ( $r = 0.60$ ,  $P < 0.001$ ); a negative and significant correlation between the subscale of meaning and purpose with state hope ( $r = 0.45$ ,  $P < 0.001$ ), positive affect ( $r = 0.14$ ,  $P = 0.027$ ), and quality of life ( $r = 0.48$ ,  $P < 0.001$ ); and a negative and significant correlation between the subscale of meaning and purpose with state hope ( $r = 0.59$ ,  $P < 0.001$ ), positive affect ( $r = 0.17$ ,  $P = 0.007$ ), and quality of life ( $r = 0.60$ ,  $P < 0.001$ ), which shows that the scale has good divergent validity [Table 3].

## DISCUSSION

This study aimed to investigate the psychometric properties of the factor structure of the Persian version of the DS-II in women with breast cancer. The research results showed that this tool has a suitable factor structure that is in line with Robinson *et al.*<sup>[16]</sup> and the research conducted in Spain<sup>[17]</sup> and Germany.<sup>[18]</sup> Similar to the study by Robinson *et al.*, two factors of "meaning and purpose" and "distress and coping ability" were obtained. The first factor, i.e., meaning and purpose, deals with the lack of meaning and purpose in life and the person's helplessness.<sup>[5]</sup> Loss of meaning

and purpose is an existential factor of demoralization syndrome.<sup>[25]</sup> The answers to this subscale can be a good indicator of the patient's response to meaning-based treatments.<sup>[15]</sup> The second factor of this scale is distress and coping ability. This factor deals with boredom, the feeling of failure, and disappointment in a person.<sup>[5]</sup> The responses to this subscale can be a good indicator of response to cognitive and supportive treatments. Although these two factors are related, they measure different aspects of demoralization.<sup>[15]</sup> The present study's results showed that the DS has good internal consistency. These findings are consistent with the studies of Robinson *et al.*,<sup>[16]</sup> Belar *et al.*,<sup>[17]</sup> and Koranyi *et al.*<sup>[18]</sup> In this study, a good alpha score was obtained in both factors. Furthermore, the Patient Health and Negative Affect Scales were used for the convergent validity of this scale. This study found a high correlation between demoralization and PHQ, indicating a close relationship between this concept and depression. This result is consistent with previous studies.<sup>[26]</sup> Furthermore, Rudilla *et al.* found this positive correlation in their study. They concluded that the higher the people feel depressed, the more they feel a lack of meaning, hopelessness, and a sense of failure.<sup>[8]</sup>

These two concepts are distinguished by their main symptoms despite this positive correlation. The symptom of depression is unhappiness.<sup>[12]</sup> On the other hand, demoralization is characterized by a lack of meaning.<sup>[18]</sup> The State Hope, Positive Affect, and Quality of Life Scales were used for the divergent validity of the DS. The existential subscale is one of the quality of life subscales, which examines meaning and purpose in life.<sup>[14]</sup> The present study showed a weak correlation between demoralization and quality of life. Furthermore, this study showed that demoralization is not only associated with depression and lower quality of life but also with hopelessness. These findings are consistent with those of Tang *et al.*<sup>[27]</sup> Hopelessness is a mental state that is different from depression. Hopelessness is a subset of helplessness; hence, when hopelessness occurs, a person experiences helplessness.<sup>[13]</sup> Helplessness is a state in which previously used strategies (psychological or social) to cope with environmental changes are ineffective.<sup>[5]</sup> In helplessness, the person feels no responsibility for the events that lead to this feeling. However, in hopelessness, one perceives incompetence and feels responsible for the events.<sup>[25]</sup> When people are hopeless, they tend to fail and succumb to demoralization. As a result, it causes people to lose a sense of value toward the future.<sup>[28]</sup> Studies have shown that demoralization manifests as a factor closer to the emotional factor than the physical one.<sup>[17]</sup> Cancer, as a stressful condition, can cause high emotional suffering and, thus, demoralization in the patient.<sup>[6]</sup> The present study also showed a weak correlation between demoralization and positive affect and a strong correlation with negative affect. Therefore, as shown

by previous studies, including the meta-analysis of Tang *et al.*, demoralization is an independent concept with vital clinical significance in cancer patients.<sup>[29]</sup> This research has limitations that other researchers can consider: first, self-report tools were used to collect data in this study, which may be biased. Second, some patients were not careful enough to complete the questionnaires due to distress and reduced attention and concentration caused by chemotherapy, which caused the loss of several participants.

## CONCLUSION

In general, based on the results of this research, the Persian version of the DS has appropriate psychometric properties in the clinical sample. Therefore, the Persian version of this scale has suitable psychometric properties for clinical and research work.

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### Conflicts of interest

There are no conflicts of interest.

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