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Psychometric properties of the Amharic Version of the Demoralization Scale-II in patients with chronic diseases

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**ABSTRACT**

Background: Demoralization syndrome (DS) is a psychological suffering from feelings of helplessness, hopelessness, as well as meaning and purpose loss, giving up, and subjective incompetence. The Demoralization Scale-II (DS-II) is a short, 16-item version developed to measure demoralization. Thus, this study aimed to evaluate the psychometric properties, including the reliability and validity, of the Amharic version of the Demoralization Scale-II (ADS-II) among patients with chronic illness.

Methods: In this cross-sectional study, the primary instrument was the DS-II, which was translated into Amharic, culturally adapted, and psychometrically evaluated among 868 patients with chronic diseases in North Shewa Zone, Ethiopia. The pre-testing process, the quality of forward and back translations and face/content validity of Amharic version of questions were assessed by experts. Exploratory factor analysis, evaluation of internal consistency, and convergent validity were components of the psychometric assessment.

Results: The EDS-II showed good reliability as indicated by alphas of 0.93 for Meaning and Purpose (MP), 0.90 for Distress and Coping Ability (DCA) and 0.95 for the total scale combined. For each item, corrected item-total correlations were above 0.50. Two factors (Meaning and Purpose, 52.8% variance explained; Distress and Coping Ability, 42.9%) with factor loadings of 0.62–0.88 based on principal component analysis were identified which together explained a total of 95.7% of the variance in scores across all items. Both subscales showed good convergent validity (CR = 0.94, AVE = 0.68; CR = 0.92, AVE = 0.58, respectively).

Conclusion: The ADS-II demonstrated good reliability, convergent validity, and construct validity among patients with chronic disease. The scale provides a culturally appropriate and reliable screening tool for identifying demoralization and related psychological distress, thereby facilitating early recognition and optimizing psychological and palliative care within routine chronic disease management. Future studies should further evaluate its applicability across diverse clinical settings and populations in Ethiopia.

Keywords: Demoralization, Psychometric, Amharic version, Chronic illness, Ethiopia

INTRODUCTION

Chronic diseases, also known as noncommunicable diseases (NCDs), are long-term illnesses that cause around 41 million deaths a year, or almost 74% of cases worldwide, with low-middle-income countries sharing the highest burden (1). In addition to the physical consequences, individuals with chronic illnesses also experience various psychological and emotional challenges such as the worry associated with the course of the illness, uncertainty about the future, functional difficulties, and social and financial challenges (2,3).

Demoralization is a feeling of powerlessness, hopelessness, lack of meaning and purpose, and subjective incompetence or failure and is a common psychological reaction to chronic illness (4). It is clinically significant when it is severe and has been associated with suicidal ideas and the desire to die quickly, often more strongly than depression itself (5). Pessimism, diminished sense of hope for a meaningful future, reduced ability to cope, social disengagement, and inadequate social support are the fundamental characteristics of demoralization (4,6).

Studies indicate that patients with life-threatening and chronic diseases often suffer from demoralization. Reported prevalence can vary between 13% and over 65%, depending on population demographics, disease severity and methods of assessment (7,8). High DS has been identified among cancer patients, and those with palliative or progressive diseases, and other chronic conditions in general, being consistently linked to low quality of life/QoL, high burden of symptoms, psychological distress and reduced social functioning (7,9).

Several covariates can influence demoralization, including psychiatric comorbidities (depression, anxiety and distress), illness-related stressors, and sociodemographic characteristics (unemployment, low income, poor education and lack of social support) (8,10,11). Demoralization is associated with malfunctions in the dopamine motivational and hope-related circuits, which could be affected by stress and trauma, as indicated by further neurobiological data (12). Most importantly, demoralization, when correctly diagnosed, is considered to be a highly treatable condition, with treatment focused on re-establishing hope, meaning, coping, and therapeutic rapport (12). Accurate identification and measurement of demoralization are therefore essential for both clinical practice and research.

The original Demoralization Scale (DS-I), developed by Kissane et al. (13), consisted of 24 items with a five-factor structure and response options ranging from 0 (“never”) to 4 (“all the time”). The DS-I demonstrated good to excellent psychometric properties and has been translated and validated in several languages (14–21). However, due to the length and complexity of the original scale, the DS-II was subsequently developed as a shorter and more clinically feasible instrument for assessing demoralization among medically ill populations.

The DS-II is a brief, psychometrically robust instrument developed to measure the severity of demoralization among medically ill populations (22). It is a self-administered scale consisting of 16 items with three response options (rather than five), which enhances its usability for patients with chronic illnesses. It has two subscales: Meaning and Purpose (MP), and Distress and Coping Ability (DCA). Evidence on the

reliability/consistency and validity was initially obtained from a study of Australian sample of 211 cancer and other chronic disease patients (22). The research showed that the DS-II had very good consistency, entire scale (0.89), MP subscale (0.84), and DCA subscale (0.82) (22). A Spanish adaptation of the DS-II was secondly examined in a group of 150 advanced cancer patients in Spain and several Latin American countries. The results showed that the internal consistency was comparably strong (0.88 total scale, 0.83 MP, and = 0.79 DCA) (23). In an Iranian sample, the DS-II obtained excellent reliability with alpha coefficients of 0.91, 0.89, and 0.92 for the MP subscale, the DCA subscale, and the whole scale, respectively (24). In addition, a cross-sectional study on Chinese patients with advanced cancer used a Chinese version of the DS-II, which found strong consistency (0.91 for the whole scale, 0.91 for MP, and 0.89 for DCA) (25). Moreover, the DS-II displayed excellent internal consistency in a sample of the general German population, yielding a alpha of 0.94 for the entire scale (26).

Although the DS-II has showed good consistency and validity across diverse cultural and clinical settings (23,27,28), no validated Ethiopian version is currently available. In Ethiopia, where chronic disease burden is increasing and patients may face further stressors such as poverty, barriers to care, and the effects of conflict, there is a critical need for culturally appropriate and psychometrically sound tools to assess demoralization. There is currently very little data on demoralization among Ethiopian patients with chronic illnesses, and no research has assessed the DS-II's psychometric qualities in this regard. To better identify demoralization, inform focused psychosocial therapies, and improve the

general quality of care for patients with chronic illness, a validated Amharic version of the DS-II must be established. Thus, this study aimed to evaluate the psychometric properties of the Amharic version of the DS-II among individuals with chronic illnesses.

MATERIALS AND METHODS

Study design, period, and area: This cross-sectional study was carried out from May to September 2025 in five public/government hospitals in the North Shoa Zone, Ethiopia, among patients with chronic illnesses. Adults who were at least eighteen years old having a documented diagnosis of a chronic illness for at least two weeks, no evidence of cognitive impairment based on clinical records and medical history, and those voluntaries were included in the study. Patients with uncontrolled mental illness or those unable to communicate or respond to the interview questions were excluded.

Sampling and sample size: Open-Epi version 3.03 used to calculate the sample size. The power (1- β) 80%, 95% CI, design effect 2, five percent margin of error, 10.9% of exposed controls, and 18.1% of exposed cases were taken into consideration (10). The ultimate sample size was 878 when 10% withdrawals was added. Given that the confirmatory factor analysis required five to twenty samples per item (29), the data collected from these participants was adequate to accomplish the study's goal.

The eligible study participants were chosen using the interval/systematic sampling method. The participants were recruited from Ataye Primary Hospital, Hakim Gizaw, Debre Berhan Comprehensive Specialized, Mehal Meda, and Shewa Robit Hospital.

The research was mainly based on the DS-II, which is basically a short 16-item version of the

Demoralization Scale. The DS-II is a two-factor measure that has been found to be a reliable and accurate indicator of demoralization in terms of item performance. A structured forward-backward translation process was used to assess the psychometrics quality of the Amharic version of the DS-II and guarantee its compatibility with the original scale. This procedure was carried out in two stages: (1) the DS-II was translated and culturally adapted, and (2) the Amharic version's initial psychometric qualities were assessed. The translation and cultural adaptation were done following the Quality of Life Group Translation Procedure criteria of the EORTC (European Organization for Research and Treatment of Cancer) (30).

In the first step, two bilingual healthcare professionals at the MSc level, fluent in both Amharic and English, independently translated the DS-II from English into Amharic. Subsequently, one independent bilingual healthcare professional, who was blinded to the original instrument, back-translated the Amharic version into English. The translated versions were then reviewed by a multidisciplinary expert panel consisting of five bilingual healthcare professionals from the Departments of Nursing, Midwifery, and Medicine, including experts in Psychiatry/Integrated Clinical and Community Mental Health. The panel members, including the principal investigator and co-investigators, had experience in mental health research, instrument adaptation, and psychometric assessment. They evaluated the semantic, conceptual, and cultural equivalence of the translated instrument by comparing the final Amharic version with the original DS-II and assessed its face and content validity to ensure its appropriateness for the Ethiopian context.

To assess the clarity, cultural appropriateness, and comprehensibility of the items, a preliminary pretest of the translated tool was conducted among 44 patients in a similar setting. Based on feedback obtained during the pretest, ambiguities and linguistic issues were revised to develop the final Amharic version of the DS-II. Finally, the expert panel confirmed that the questionnaire items were appropriate, well aligned with their respective domains, and that the wording adequately reflected the construct of demoralization.

Measurements

Chronic disease/illness: Selected common chronic diseases, i.e., diabetes, hypertension, chronic obstructed pulmonary disease, HIV/AIDS, asthma, cancer, kidney, cardiac, and liver diseases.

Demoralization Scale-II: Measured using an established and validated 16-item DS-II questionnaire. The DS-II consists of two eight-item sub-scales/factors: MP, and DCA sub-scales/factors. The items were responded using **Likert scale:** Never (0), Sometimes (1), and Often (2). The higher the scores, the greater the risk of demoralization (31). The DS-II showed good consistency ($\alpha = 0.89$ and ICC 0.80) among patients with progressive disease in Australia (31).

Data collection procedure: In-person interviews and a review of medical records were used to gather data over a five-month period. For hospitalized patients, interviews were conducted at the bedside, whereas for outpatients, interviews took place after completion of their medical consultations. Adequate time was allocated for each interview, and data collection was scheduled at a time that was convenient and appropriate for the participants. The data gathering process was carried out by a group of

five supervisors and ten skilled data collectors. The principal investigators conducted a one-day training on the study's objectives, data collection methods, and use of the research instruments before the actual data collection. Supervisors and primary investigators ensured that the data were accurate, consistent, and complete by closely monitoring the process throughout the data collection period.

Analysis and management of data: The data were processed using STATA 17.0 software. The indicators that were computed and the analysis that was conducted included: factor analysis (EFA), convergent and divergent validity, and internal consistency reliability. Since this was the first validation study of the DS-II among Amharic-speaking patients with chronic illnesses, exploratory factor analysis (EFA) was conducted to examine the underlying factor structure and determine whether the original two-factor structure of the DS-II was supported in the Ethiopian context.

For EFA, principal component factoring (PCF) with oblique (Promax) rotation was applied. PCF was selected to identify the underlying dimensions represented by the observed items, while Promax rotation was used because the two DS-II dimensions (Meaning and Purpose and Distress and Coping Ability) are theoretically related and were expected to be correlated. The suitability of the data for factor analysis was assessed using the Kaiser–Meyer–Olkin (KMO) measure, anti-image correlation, and Bartlett's test of sphericity. A KMO value of ≥ 0.50 and a significant Bartlett's test were considered indicators of adequate factorability.

Convergent validity was assessed as an important component of construct validity to determine whether items within each DS-II subscale consistently measure the same underlying

construct. It evaluates the degree to which indicators intended to represent a specific domain are positively associated and share a substantial proportion of variance. In this study, convergent validity was evaluated using composite reliability (CR) and average variance extracted (AVE), where higher CR values indicate greater internal consistency among items and higher AVE values indicate that items adequately represent their respective constructs. Discriminant validity of the DS-II subscales was evaluated using the Fornell–Larcker criterion and factor correlations. Internal consistency reliability was assessed using Cronbach's alpha coefficients for the total DS-II and its subscales. Corrected item–total correlations for both subscales (rit[sub]) and the total scale (rit[tot]) were also examined, with values ≥ 0.30 considered acceptable (32).

Ethical approval: Ethical letter was given by the Asrat Woldeyes Health Science Campus (AWHSC) Institutional Review Board of Debre Berhan University (DBU) (Protocol no: IRB-305). The study hospitals received a formal letter of sponsorship. The purpose, possible hazards, and advantages of the study were described by the data collectors. Written informed consent was acquired, and participation in the study was completely voluntary. After the material was read to those who couldn't read or write, they were requested to thumbprint the consent form. All participants' identities and other personal information were also kept private.

RESULTS

Baseline characteristics: About 868 participants with chronic illnesses enrolled in the study, making 98.8% response rate. The age distribution showed that the mean age of participants was 51.04 ± 17.06 years and nearly one-third of participants were aged 61 years or

older (31.3%), followed by those aged 46–60 years (29.8%). Females constituted the majority of the sample (59.7%). Most participants were married (68.5%), and more than half had no formal education (55.8%). The majority of participants were unemployed (85.3%) and lived with their families (94.2%). Regarding socioeconomic characteristics, over two-thirds relied on family members or children as their primary source of income (69.1%). Additionally, most participants were enrolled in community-based health insurance (70.3%) (Table 1).

Table 1: Baseline characteristics of participants in North Shewa Zone, Ethiopia, 2025.

Variables	Category	Frequency	Percent
Age	≤30	132	15.2%
	31 – 45	206	23.7%
	46 – 60	258	29.7%
	≥ 61	272	31.4%
Sex	Female	518	59.7%
	Male	350	40.3%
Residence	Rural	362	41.7%
	Urban	506	58.3%
Marital status	Married	594	68.5%
	Single	86	9.9%
	Divorced	88	10.1%
	Widowed	100	11.5%
Educational/ literacy	No	484	55.8%
	Primary	228	26.2%
	Secondary	76	8.8%
	Higher	80	9.2%
Occupation	Employed	82	9.4%
	Retired	46	5.3%
	Unemployed	740	85.3%
Living arrangement	Living alone	50	5.8%
	Living with families	818	94.2%
Community- based health insurance	No	258	29.7%
	Yes	610	70.3%

Number of children	0-1	192	22.1%
	2-3	210	24.2%
	≥4	466	53.7%
Family size	1 – 3	340	39.2%
	4 – 6	376	43.3%
	≥7	152	17.5%
Monthly income	Lower	308	35.5%
	Middle	290	33.4%
	Higher	270	31.1%
Source of income	Family	600	69.1%
	Oneself	268	30.9%

Internal consistency and psychometrics of the DS-II:

The mean $\pm$ SD total DS-II score was 5.74 ± 7.49 . Mean scores for the subscales were 2.66 ± 4.12 for Meaning and Purpose and 3.08 ± 3.77 for Distress and Coping Ability. Based on the established cutoff values for clinically significant demoralization [No (<11) and Yes (≥ 11)] (20), 18.7% of participants exhibited clinically significant demoralization.

The ADS-II showed excellent internal reliability, with an alpha coefficient of 0.95 for the whole scale. The two subscales showed strong reliability, with alpha coefficients ranging from 0.90 for the DCA subscale to 0.93 for the MP subscale. Additionally, the proportion of participants endorsing each item as “often” was calculated by assigning response categories of 1 (“sometimes”) and 2 (“often”). The questions “I feel distressed about what is happening to me” ($M \pm SD$, 0.58 ± 0.70 ; 12.4%) and “I feel irritable” (0.56 ± 0.66 ; 9.4%) had the greatest endorsement ratings. Conversely, the items “I would rather not be alive” (0.18 ± 0.47 ; 3.9%) and “I no longer feel emotionally in control” (0.15 ± 0.45 ; 3.5%) had the lowest endorsement percentages (Table 2).

Strong item discrimination and internal consistency were indicated by the consistently

high corrected item–total correlations for both the subscales (rit[sub]) and the overall scale (rit[tot]). Every item showed rit(sub) values between 0.53 and 0.84 and rit(tot) values between 0.50 and 0.86, surpassing the widely recognized minimal threshold of 0.30 (32). This implies that every item made a significant

contribution to both the general construct of demoralization and its corresponding subscale. Items reflecting loss of MP, and DCA showed particularly strong associations with both their subscales and the total scale, supporting the conceptual coherence and consistency of the DS-II (Table 2).

Table 2: Component characteristics of DS-II, North Shewa Zone, Ethiopia, 2025.

Items/ components	Sub scale	Mean SD	±	Often	r _{it} (sub)	r _{it} (tot)
There is little value in what I can offer others.	1	.53 ± .76		17.5%	.69	.63
My life seems to be pointless.	1	.37 ± .69		11.8%	.83	.78
My role in life has been lost.	1	.29 ± .62		8.5%	.84	.79
I no longer feel emotionally in control.	2	.15 ± .45		3.5%	.59	.68
No one can help me.	1	.23 ± .54		5.5%	.61	.64
I feel that I cannot help myself.	1	.43 ± .71		12.7%	.83	.81
I feel hopeless.	1	.33 ± .61		7.8%	.80	.81
I feel irritable.	2	.56 ± .66		9.4%	.72	.71
I do not cope well with life.	2	.40 ± .68		10.8%	.78	.86
I have a lot of regret about my life.	2	.38 ± .65		9.2%	.65	.58
I tend to feel hurt easily.	2	.39 ± .62		7.4%	.77	.76
I feel distressed about what is happening to me.	2	.58 ± .70		12.4%	.74	.67
I am not a worthwhile person.	1	.31 ± .59		7.1%	.81	.81
I would rather not be alive.	1	.18 ± .47		3.9%	.69	.72
I feel quite isolated or alone.	2	.23 ± .54		5.8%	.65	.68
I feel trapped by what is happening to me.	2	.38 ± .62		7.6%	.53	.50

SD: Standard deviation 1: Meaning and Purpose subscale 2: Distress and Coping Ability subscale rit (sub): part-whole-corrected item-test correlation for the corresponding subscale; rit (tot): part-whole-corrected item-test correlation for the total scale.

Additionally, Pearson correlation analysis revealed very strong positive associations between the demoralization syndrome total score and Meaning and Purpose subscale ($r = 0.955$, $p < 0.001$) as well as Distress and Coping Ability subscale ($r = 0.945$, $p < 0.001$). Additionally, strong correlation were found between the two subscales ($r = 0.805$, $p < 0.001$), indicating substantial overlap while supporting the multidimensional structure of the demoralization construct.

Exploratory factor analysis (EFA):

Preliminary analyses showed the data were highly suitable for EFA. The KMO was outstanding (overall KMO = 0.94), and Bartlett's test was significant ($p < .001$), confirming sufficient shared variance among items. Each individual item showed excellent sampling adequacy metrics (MSA > 0.85), supporting their inclusion in the analysis. Inter-item correlations were predominantly moderate to strong ($r = 0.60$ – 0.80), and all correlations were statistically significant ($p < .001$).

Principal-component factoring (PCF) with oblique (Promax) rotation was used for exploratory factor analysis because the constructs are conceptually related. A parsimonious two-factor solution was confirmed by parallel analysis and examination of the Cattell scree plot, which corroborated the first extraction's identification of two components with eigenvalues greater than one. A total of 95.7% of the variance was explained, with Factor 1 (MP) accounting for 52.8% of the variance and Factor 2 (DCA) for 42.9%. The construct validity was strongly supported by its distinct factor

structure and significant explained variation. Factor loadings for all items exceeded the acceptable threshold (>0.50) (33), indicating adequate individual item consistency and the values range from 0.622 to 0.881 across all identified factors (Table 3).

Table 3: Pattern matrix of the PCF with Oblique/Promax Rotation of the revised DS-II, 2025.

Item	Component	
	1	2
There is little value in what I can offer others.	0.757	
My life seems to be pointless.	0.868	
My role in life has been lost.	0.881	
I no longer feel emotionally in control.		0.688
No one can help me.	0.688	
I feel that I cannot help myself.	0.878	
I feel hopeless.	0.856	
I feel irritable.		0.800
I do not cope well with life.		0.851
I have a lot of regret about my life.		0.738
I tend to feel hurt easily.		0.843
I feel distressed about what is happening to me.		0.801
I am not a worthwhile person.	0.864	
I would rather not be alive.	0.761	
I feel quite isolated or alone.		0.736
I feel trapped by what is happening to me.		0.622

Convergent validity: CR and AVE served as the measures for the components obtained. The MP subscale showed a CR of 0.94 and an AVE of 0.68, while the DCA subscale had a CR of 0.92 and an AVE of 0.58. All value was higher than the recommended limits ($CR \geq 0.7$, $AVE \geq 0.5$, and $AVE < CR$), indicating that both subscales demonstrate good convergent validity (33).

exceeded the inter-factor correlation, whereas that for the DCA subscale was slightly lower than the correlation. These results partially support divergent validity by showing that the two subscales are closely linked but not redundant. Since both subscales represent similar aspects of demoralization, the observed overlap is theoretically expected.

The lack of availability of healthy food, medications, glucometers, and physical exercise facilities is a serious hindrance to managing diabetes. Both participants and healthcare providers agreed that lack of availability, high cost, and environment were the key barriers. Some participants noted that we lived in a distant place where resources such as healthy food and exercise facilities are not available.

'I often lack high-fiber and sugar-free foods at home, and the distance from the market and the high cost of food make it difficult to maintain a healthy diet.' (50-year-old housewife, p#8; 54-year-old man, T2D, p#12)

DISCUSSION

In this study, individuals with chronic illnesses in Ethiopia were assessed for the psychometrics of the DS-II in Amharic. The results show that the scale has great item performance and excellent internal consistency, suggesting that the items are

Divergent validity: Divergent (discriminant) validity of DS-II subscales was examined by the Fornell-Larcker criterion that compares the square root of AVE with the inter-factor correlation. The MP subscale's square root of the AVE was 0.82, whereas the DCA subscale's was 0.76. The two subscales had a strong association ($r = 0.80$, $p < 0.001$). The square root of AVE for the MP subscale

coherent and accurately assess the underlying construct. With all items exhibiting sufficient factor loadings, the principal component factor analysis supported a distinct two-factor structure corresponding to MP and DCA. Additionally, convergent validity was demonstrated, indicating that the subscales accurately reflect the dimensions for which they were designed. These findings suggest that demoralization, as conceptualized by the DS-II, is a measurable psychological construct among Ethiopian patients with chronic diseases and that the Amharic version can capture culturally relevant aspects of existential distress and loss of meaning.

Excellent internal consistency was demonstrated by the ADS-II's Cronbach's alpha coefficients, which ranged from 0.90 for the DCA subscale to 0.93 for the MP subscale. The overall scale had an even higher coefficient of 0.95, all of which were well above the commonly accepted reliability threshold of 0.70 (33). These findings correspond very closely to those of the Greek version, which yielded alpha coefficients of 0.913 for the total score and 0.906 and 0.810 for the first and second subscales, respectively (34). The German version also exhibited good consistency with values of 0.93 for the DS-II total scale, 0.90 for the MP subscale, and 0.87 for the DCA subscale

(27). Moreover, the Turkish version reported an alpha coefficient of 0.93 for the DS-II (35). Hence, these steady alpha values across language versions further substantiate the high consistency of the ADS-II. The similarity of reliability estimates across different cultural adaptations indicates that the underlying dimensions of demoralization may remain stable across populations, while the availability of a reliable Amharic version addresses the current gap in assessing psychological distress among Ethiopian patients with chronic illnesses.

Every item had corrected item-total correlations for subscales that ranged from 0.53 to 0.84 and for the total scale from 0.50 to 0.86, all of which are above the generally accepted minimum level of 0.30 (32). Additionally, the ADS-II score showed high positive correlations with the Meaning and Purpose ($r = 0.955$, $p < 0.001$) and Distress and Coping Ability subscales ($r = 0.945$, $p < 0.001$), while the two subscales were also correlated ($r = 0.805$, $p < 0.001$), supporting the multidimensional nature of the demoralization construct. Similarly, validation of the Persian DS-II demonstrated strong and significant correlations between the whole DS-II score and the MP subscale ($r = 0.90$, $p < 0.001$) as well as the DCA subscale ($r = 0.91$). The correlation between the two subscales was also significant ($r = 0.64$) (28). The strong relationship between the two domains indicates that although meaning-related concerns and distress-related coping difficulties represent distinct dimensions, they are interconnected components of demoralization among individuals facing chronic illness. This supports the theoretical framework of the DS-II and its applicability in the Ethiopian context.

With a CR of 0.94 and an AVE of 0.68, the MP subscale exhibited high psychometric performance in terms of convergent validity, whereas the DCA subscale displayed a CR of 0.92 and an AVE of 0.58. Good reliability is shown by CR values of 0.70 or higher, which imply that measurement error accounts for less than 30% of the variance. In a similar vein, acceptable convergent validity is shown by AVE values more than 0.50 (33). In line with our results, a study carried out in Iran also found that the Persian DS-II version showed sufficient convergent validity (28). Additionally, satisfactory construct reliability was found in a validation study of the Turkish DS-II version, with AVE values of 0.49 and CR coefficients of 0.88 for the purpose and meaning domain and an AVE of 0.49 with a CR of 0.89 for the distress and coping abilities domain (35). These results demonstrate sufficient convergent validity and reliability for both subscales. The strong convergent validity observed in this study indicates that the Amharic DS-II can accurately assess the psychological and existential challenges experienced by patients with chronic diseases. This has important clinical implications, as early identification of demoralization may allow healthcare providers to integrate psychological support and palliative care approaches into routine chronic disease management.

With the MP subscale explaining 52.8% of the total variance and the DCA subscale explaining 42.9%, the exploratory factor analysis showed a clear two-factor structure. This resulted in a high cumulative variance of 95.7%, which is higher than the suggested cumulative variance of $\geq 70\%$ (36). This significant explained variance shows a strong underlying factor structure and surpasses generally recognized standards for psychological

instruments. Additionally, all items had adequate to high factor loadings (0.62–0.88), indicating construct validity and good item–factor alignment. Adequate item representation of the underlying construct is indicated by factor loadings of 0.50 or above, according to Hair et al. (36). This was further supported by a refinement study of the DS-II conducted in Australia, which found an adequate level of explained variance (22). The evidence for the existence of the two-factor structure indicates the retention of conceptual integrity of demoralization in Amharic version despite the changes with language and culture. Using ADS-II for screening demoralized patients is a culturally relevant approach that is supported by this study result.

Limitations: A number of restrictions should be taken into consideration when interpreting these results. First, because only public hospitals were included, the findings might not apply to commercial healthcare systems. The sample may not represent all Ethiopian patients with chronic illnesses since it was taken from a particular area. Furthermore, because the DS-II uses self-reported data, results could be skewed by recall bias or social desirability. Lastly, the cross-sectional design makes it impossible to evaluate changes in demoralization over time or temporal stability.

CONCLUSIONS

Comparable to the original English form, the Amharic version of the DS-II showed great psychometric qualities and outstanding dependability among Ethiopian patients with chronic illnesses. The subscales of the MP, DCA showed good convergent validity, sufficient factor loadings, and high internal

consistency. The normalized intercorrelations between the subscales confirmed the construct validity. These findings imply that the Amharic DS, II is a robust, valid, reliable, and culturally feasible instrument that measures demoralization, which can be used as a solid basis for its application both in clinical and research contexts. Its use can lead to data, driven quality improvements, raise the awareness of the staff, and make objective measurement possible. Further studies should continue to evaluate its appropriateness for different Ethiopian demographic and therapeutic situations.

List of abbreviations

CR: Composite Reliability
DCA: Distress and Coping Ability
DS-II: Demoralization Scale-II
ADS-II: Amharic Version of Demoralization Scale-II
KMO: Kaiser–Meyer–Olkin
MP: Meaning and Purpose
PCF: Principal Component Factoring

Availability of data and materials: All relevant data are included in the study, and the corresponding author can provide the original raw data upon reasonable request.

MT conceived the study, developed the topic and written the proposal, done the data analysis, and led the drafting, review, and editing of the manuscript. MT, TMD, SDT, YLA, LAM, KAA, and TNK oversaw the financial management, coordinated workshops and training sessions, supervised data collection and overall project implementation, and provided critical revisions and substantive input to the final manuscript. All authors reviewed and approved the manuscript for publication.

REFERENCES

1. Organization WH, Organization WH. Noncommunicable diseases: fact sheet. World Heal Organ [en línea][consultado el 11/10/2022] Dispon en <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>. 2023;
2. Li J, Liu X, Xu L, Jin Z. Current status of demoralization and its relationship with medical coping style, self-efficacy and perceived social support in Chinese breast cancer patients. *Eur J Psychiatry*. 2020;34(4):211–8.
3. Becker N V, Scott JW, Moniz MH, Carlton EF, Ayanian JZ. Association of chronic disease with patient financial outcomes among commercially insured adults. *JAMA Intern Med*. 2022;182(10):1044–51.
4. Chang TG, Huang PC, Hsu CY, Yen TT. Demoralization in oral cancer inpatients and its association with spiritual needs, quality of life, and suicidal ideation: a cross-sectional study. *Health Qual Life Outcomes*. 2022;20(1):1–9.
5. Julião M, Nunes B, Barbosa A. Prevalence and factors associated with demoralization syndrome in patients with advanced disease: results from a cross-sectional Portuguese study. *Palliat Support Care*. 2016;14(5):468–73.
6. Fang CK, Chang MC, Chen PJ, Lin CC, Chen GS, Lin J, et al. A correlational study of suicidal ideation with psychological distress, depression, and demoralization in patients with cancer. *Support Care Cancer*. 2014;22(12):3165–74.
7. Chan WCH, Yu CTK, Kwok DKS, Wan JKM. Prevalence and factors associated with demoralization in palliative care patients: A cross-sectional study from Hong Kong. *Palliat Support Care*. 2022;1–9.
8. Robinson S, Kissane DW, Brooker J, Burney S. A systematic review of the demoralization syndrome in individuals with progressive disease and cancer: a decade of research. *J Pain Symptom Manage*. 2015;49(3):595–610.
9. Li H, Xiong Y, Zhang Q, Lu Y, Chen Q, Wu S, et al. Demoralization and sleep in breast cancer: A casual and computer-simulated network analysis. *Eur J Oncol Nurs*. 2025;76:102870.
10. Li YC, Ho CH, Wang HH. Protective factors of demoralization among cancer patients in Taiwan: an age-matched and gender-matched study. *Asian Nurs Res (Korean Soc Nurs Sci)*. 2017;11(3):174–9.
11. Ko KT, Lin CJ, Pi SH, Li YC, Fang CK. Demoralization syndrome among elderly patients with cancer disease. *Int J Gerontol*. 2018;12(1):12–6.
12. Dong L, Li L, Wu Y, Zhao X, Zhong H, Cheng X, et al. A systematic review of interventions for demoralization in patients with chronic diseases. *Int J Behav Med*. 2025;32(1):1–10.
13. Kissane DW, Wein S, Love A, Lee XQ, Kee PL, Clarke DM. The Demoralization Scale: a report of its development and preliminary validation. *J Palliat Care*. 2004;20(4):269–76.
14. Mullane M, Dooley B, Tiernan E, Bates U. Validation of the Demoralization Scale in an Irish advanced cancer sample. *Palliat Support Care*. 2009;7(3):323–30.
15. Hung HC, Chen HW, Chang YF, Yang YC, Liu CL, Hsieh RK, et al. Evaluation of the reliability and validity of the Mandarin Version

- of Demoralization Scale for cancer patients. *J Intern Med Taiwan*. 2010;21(6):427–35.
16. Mehnert A, Vehling S, Höcker A, Lehmann C, Koch U. Demoralization and depression in patients with advanced cancer: validation of the German version of the demoralization scale. *J Pain Symptom Manage*. 2011;42(5):768–76.
 17. Costantini A, Picardi A, Brunetti S, Trabucchi G, Bersani FS, Minichino A, et al. La versione italiana della Demoralization Scale: uno studio di validazione. *Riv Psichiatri*. 2013;48(3):234–9.
 18. Grassi L, Costantini A, Kissane D, Brunetti S, Caruso R, Piazza G, et al. The factor structure and use of the Demoralization Scale (DS-IT) in Italian cancer patients. *Psycho-Oncology*. 2017;26(11):1965–71.
 19. Quintero Garzón L, Hinz A, Koranyi S, Mehnert-Theuerkauf A. Norm Values and Psychometric Properties of the 24-Item Demoralization Scale (DS-I) in a Representative Sample of the German General Population. *Front Psychol*. 2021;12:681977.
 20. Bailey C, Doyle Z, Dearin J, Michael N, Kissane D. Demoralization and chronic illness in rural Australia: A cross-sectional survey. *Palliat Support Care*. 2020;18(3):271–6.
 21. Murri MB, Zerbinati L, Ounalli H, Kissane D, Casoni B, Leoni M, et al. Assessing demoralization in medically ill patients: Factor structure of the Italian version of the demoralization scale and development of short versions with the item response theory framework. *J Psychosom Res*. 2020;128:109889.
 22. Robinson S, Kissane DW, Brooker J, Michael N, Fischer J, Franco M, et al. Refinement and revalidation of the demoralization scale: the DS-II—internal validity. *Cancer*. 2016;122(14):2251–9.
 23. Belar A, Arantzamendi M, Rodríguez-Núñez A, Santesteban Y, Martinez M, López-Saca M, et al. Multicenter study of the psychometric properties of the new Demoralization Scale (DS-II) in Spanish-speaking advanced cancer patients. *J Pain Symptom Manage*. 2019;57(3):627–34.
 24. Mousavi N, Piryaee M, Nooripour R, Kissane D, Hooshyari Z, Effatpanah M, et al. Psychometric properties of Farsi version of Demoralization Scale-II (DS-II) in Iranian cancer patients. *Palliat Support Care*. 2024;22(6):1825–34.
 25. Wu WJ, Quan M man, Gao L, Li Q, Yan CX, Zhang Q, et al. Demoralization and depression in Chinese cancer patients. *Support Care Cancer*. 2021;29(11):6211–6.
 26. Ramm M, Jedamzik J, Lenz P, Poopana A, Heuft G, Conrad R. Psychometric properties and normative values of the revised demoralization scale (DS-II) in a representative sample of the German general population. *BMC Psychiatry*. 2023;23(1):685.
 27. Koranyi S, Hinz A, Hufeld J, Hartung T, Fendel U, Letsch A, et al. Psychometric Evaluation of the German Version of the Demoralization Scale-II and the Association Between Demoralization, Sociodemographic, Disease-and Treatment-Related Factors in Patients With Cancer. *Front Psychol*. 2021;12.
 28. Foroughi A, Khanjani S, Moghadam MS, Parvizifard A. The psychometric properties of the Persian version of the Demoralization Scale (DS-II) in women with breast cancer. *J Res Med Sci*. 2024;29(1):14.

29. Lomax RG. A beginner's guide to structural equation modeling. psychology press; 2004.
30. Edition F, Kuliś D, Bottomley A, Velikova G, Greimel E, Koller M. Eortc quality of life group translation procedure. 2024.
31. Robinson S, Kissane DW, Brooker J, Hempton C, Michael N, Fischer J, et al. Refinement and revalidation of the demoralization scale: The DS-II—external validity. *Cancer*. 2016;122(14):2260–7.
32. DeVellis RF, Thorpe CT. Scale development: Theory and applications. Sage publications; 2021.
33. Cheung GW, Cooper-Thomas HD, Lau RS, Wang LC. Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. *Asia pacific J Manag*. 2024;41(2):745–83.
34. Elmasian TF, Nikoloudi M, Tsilika E, Kostopoulou S, Zygogianni A, Katsaragakis S, et al. Psychometric properties of the Greek Version of Demoralization Scale-II (DS-II) in patients with cancer. *J Caring Sci*. 2023;12(2):103.
35. Türkel NN, Aksu MH, Türkel A, Ateş Ö, Coşar B. Psychometric properties of the Turkish version of the demoralization Scale-II and the association between demoralization and sociodemographic and disease-related factors in Turkish cancer patients. *BMC Psychol*. 2025;13(1):1–9.
36. Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL. Multivariate data analysis. Cengage learning Hampshire; 2019.