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The Persian Altman Self-rating Mania Scale (ASRM): Psychometric Assessment in Bipolar Spectrum Disorder

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Abstract

Background: The Altman Self-rating Mania Scale (ASRM) is a brief instrument used for screening, repeated symptom monitoring, and research purposes.

Objectives: This study aimed to translate, adapt, and validate the Persian version of the ASRM to address the lack of self-assessment tools for mania in Iran.

Methods: This cross-sectional study, conducted using a convenience sampling method, involved 200 participants who were selected to take part in the study. The ASRM underwent forward-backward translation by bilingual experts. Participants completed the ASRM, 32-item Hypomania Checklist (HCL-32), and Patient Mania Questionnaire-9 (PMQ-9) during a single session. Psychometric testing included assessments of reliability, validity, and factor structure.

Results: The Persian ASRM demonstrated strong psychometric properties in our clinical sample (N = 200). The scale showed good internal consistency (Cronbach's $\alpha = 0.74$) and excellent test-retest reliability [intraclass correlation coefficient (ICC) = 0.82] over a one-week interval. Convergent validity was established through significant correlations with established measures: The PMQ-9 ($R = 0.43$, $P < 0.001$) and HCL-32 ($R = 0.43$, $P < 0.001$). Discriminant validity was confirmed by a non-significant correlation with the Spontaneous Use of Mental Imagery Scale (SUIS; $R = 0.08$, $P = 0.61$). Factor analysis revealed a unidimensional structure explaining 41.7% of the variance [Kaiser-Meyer-Olkin (KMO) = 0.72; Bartlett's $\chi^2 = 114.6$, $P < 0.001$], consistent with the construct of the original scale. All items showed adequate item-total correlations (0.33 - 0.47) and contributed meaningfully to the total score.

Conclusions: The ASRM serves as a reliable self-report tool, offering both validity and reliability in identifying and measuring the intensity of manic symptoms. The Altman Scale represents a validated self-assessment instrument with demonstrated reliability in screening for and measuring the severity of manic symptoms. It enables quick and straightforward evaluations of patients' conditions and is suitable for research, clinical, and screening purposes. Its practical design supports brief yet effective assessments, allowing for versatile use in research settings, clinical evaluations, and screening programs.

Keywords: Bipolar Disorder, Iran, Mania, Persian, Reliability, Self-rating, Validity

1. Background

Bipolar disorder is a chronic and relapsing psychological illness. The 12-month prevalence of bipolar disorder type 1 in countries of the American continent is estimated at 1.6%. The 12-month prevalence of bipolar disorder type 2 is about 1.3% (1). Some studies suggest that the prevalence of this disorder could be even higher, exceeding 10%. Bipolar disorder significantly impacts the quality of life of patients, leading to a decline in job performance and

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socioeconomic status, despite having similar educational levels as the general population (2-4).

Self-reported scales gained popularity in the 1990s, but initial skepticism about their reliability in assessing mania persisted. Platt et al. found a weak correlation between clinician evaluations and self-assessments during manic episodes, which improved post-recovery (5). This hindered the acceptance of self-reported tools for mania. However, subsequent studies by Bauer et al. in the 1990s showed strong correlations between self-administered and clinician-administered scales, regardless of patients' illness awareness. This challenged the notion that self-reported evaluations were unreliable for assessing mania (6).

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Therefore, having a Standard Measurement Scale can save specialists time and energy, leading to more reliable diagnoses and accurate treatments. The Mania Measurement Scale, adapted from Altman's Mania Self-assessment Scale, has been chosen. This self-report form consists of 5 questions, each with 5 marks, evaluating positive mood, self-confidence, sleep pattern, speech, and motor activity(4, 9). These questions help assess the presence and severity of mania and hypomania symptoms (9). The scale was selected for its strong empirical support, comprehensive coverage of manic symptoms, clarity of items, and brevity for clinical use. It has demonstrated good psychometric properties in cross-cultural validations, making it suitable for use in the Iranian context (10, 11).

2. Objectives

The purpose of this article is to provide a Persian translation and adaptation of a Self-administered Mania Scale. Currently, there is no existing scale designed for assessing mania in the Persian context. While some clinician-administered scales have been adapted, there remains a need to develop or adapt a self-reported tool to address this gap.

3. Methods

This cross-sectional psychometric validation study aimed to assess the reliability and validity of the Persian adaptation of the Altman Self-rating Mania Scale (ASRM). The study protocol was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (IR.SBMU.RETECH.REC.1401.881). We enrolled 200 participants aged 18 - 55 with bipolar spectrum disorders from outpatient mental health clinics affiliated with Shahid Beheshti and Mazandaran Universities of Medical Sciences. The sample size of 200 participants was determined based on established psychometric standards, which recommend 5 - 10 participants per questionnaire item for factor analysis, following the methodology used in the original ASRM validation study (4) and consistent with COSMIN guidelines for measurement property evaluation. While alternative methods such as power analysis exist, this approach was selected because it specifically addresses scale validation requirements and aligns with comparable cross-cultural adaptation studies. The chosen sample size exceeds minimum recommendations for key analyses, including reliability testing (≥ 100 participants), test-retest reliability (≥ 50), and validity testing (≥ 50 - 100), while accounting for potential attrition in clinical samples. This methodology follows best practices outlined in psychometric literature and has been successfully implemented in similar instrument validation research (12).

The translation process for the ASRM followed strict cross-cultural adaptation guidelines. Initially, two bilingual experts translated the English ASRM into Persian, which was then back-translated by a third translator who was unaware of the original scale. A panel of psychiatrists and clinical psychologists reviewed the translations for conceptual equivalence and resolved any discrepancies through consensus. The preliminary Persian version was pilot-tested with 30 participants to ensure clarity and cultural appropriateness before finalization.

Participants completed four measures to assess manic symptoms: The Persian ASRM (5 items), the 32-item Hypomania Checklist (HCL-32), the Patient Mania Questionnaire-9 (PMQ-9), and the Spontaneous Use of Mental Imagery Scale (SUIS-P; 12 items). Clinical

diagnoses were confirmed by treating psychiatrists using DSM-5 criteria. A subset of 50 participants completed the ASRM again after one week to evaluate test-retest reliability.

3.1. Instrument

3.1.1. Altman Self-rating Mania Scale

The ASRM was developed by Altman et al. in 1997 (4). It was used in 2013 by the American Psychiatric Association to assess manic symptoms in bipolar disorder. The scale consists of 5 items rated on an 8-point scale, with a total score ranging from 8 to 28. A higher score indicates more severe manic symptoms. Altman reported a reliability coefficient of 79.00 using Cronbach's alpha and a validity coefficient of 76 using the parallel forms method. A score of 6 or higher on the ASRM suggests a high likelihood of manic or hypomanic disorder, warranting further evaluation or treatment. Scores of 5 or below are less indicative of significant manic symptoms. The ASRM demonstrates a specificity of 85.5% and a sensitivity of 87.31% (4). In a study on the Persian version of the ASRM, internal consistency was found to be 0.74, test-retest reliability was 0.82, and convergent validity with PMQ-9 and HCL-32 was 0.43.

3.1.2. Patient Mania Questionnaire-9

The PMQ-9 is a 9-item scale developed by a research team at the University of Washington in 2015 to assess and monitor symptoms of mania. Each item is scored from 0 to 3 based on severity, with higher scores indicating more severe manic phase symptoms. The scale has demonstrated good validity and reliability in previous research, with acceptable internal consistency and reliability (13). The convergent validity of the PMQ-9 with the ASRM was found to be 0.43 in the present study, while its discriminant validity with the SUIS was 0.08.

3.1.3. 32-item Hypomania Checklist Scale

The HCL-32 was developed by an international team led by Angst et al. and originally published in 2005. The HCL-32 is a self-assessment instrument created by bipolar disorder experts to improve the detection of bipolar disorder in patients with depression. It is a self-report questionnaire designed to help identify bipolar disorder in individuals with depression. The diagnostic performance of the HCL-32 was evaluated using ROC curve analysis, which showed that the total score effectively distinguishes bipolar disorder patients from those with unipolar depression. The HCL-32 was chosen for its dimensional framework for assessing bipolar disorder, and previous studies have demonstrated its consistent factor structure in both clinical and non-clinical populations, with high reliability in clinical samples (14). The sensitivity of the HCL-32 is typically above 70%, and its specificity is usually between 50 - 70%. The Cronbach's alpha coefficient, a measure of internal consistency, is reported to be above 0.80. In a study conducted in Iran by Haghighi et al., the sensitivity of the HCL-32 was reported to be 73%, with a specificity of 91% (15).

3.1.4. Spontaneous Use of Mental Imagery Scale

The SUIS was developed by Reisberg et al. in 2003 (16). It consists of 12 items designed to assess the frequency of mental imagery use in daily life. Participants rate each item on a Likert scale ranging from 1 to 5. The total score is calculated by summing the scores of all 12 questions, with a possible range of 12 to 60. A higher score indicates a greater tendency to use mental imagery. The SUIS has shown good internal consistency, with a Cronbach's alpha of 0.83 in an Iranian population study. Additionally, its convergent validity with an ambiguous scenario test was moderate ($R = 0.34$; $P < 0.01$) (17).

3.2. Data Analysis

The sample was characterized using descriptive analyses (mean ± SD; frequency/%) followed by exploratory factor analysis. SPSS version 26 software was used to analyze the data. Cronbach's alpha was used to assess the internal consistency of the Persian ASRM. Convergent validity was established by correlating the Persian ASRM with the PMQ and the HCL. Divergent validity was assessed by correlating the Persian ASRM with the SUIS-P, which was expected to show no significant relationship.

4. Results

The study involved 200 Iranian participants diagnosed with bipolar spectrum disorders, including 130 men (65%) and 70 women (35%). The average age of the sample was 41.2 ± 10.6 years. The diagnostic breakdown was as follows: One hundred and thirty cases of bipolar I disorder (65%), 34 cases of bipolar II disorder (17%), and 36 cases of unspecified bipolar disorder (18%).

According to Table 1, the age distribution varied by diagnosis, with bipolar I patients being the oldest (46.95 ± 9.14) and bipolar II patients the youngest (35.56 ± 10.29). To ensure accurate and reproducible results, researchers need to carefully filter the data for missing values, outliers, and multicollinearity (17). Missing and outlier data were removed before statistical analysis.

Table 1. Demographic Characteristics and Diagnostic Status of Participants [a]

Variables	Gender		Age
	Man	Women	
BD I	72 (36.01)	58 (29.45)	46.95 ± 9.14
BD II	20 (10.01)	14 (7.12)	35.56 ± 10.29
BD unspecified	16 (8.14)	18 (9.37)	40.34 ± 12.32

[a] Values are expressed as No. (% total) or mean ± SD.

Table 2 presents the psychometric properties of individual ASRM items. All items showed appropriate response ranges (1 - 5), with means ranging from 1.91 (ASRM2) to 2.15 (ASRM5). Standard deviations were consistent across items (0.98 - 1.19). The items demonstrated acceptable normality, with skewness values between 0.84 - 1.35 and kurtosis values between 0.17 - 1.96, indicating that the items were appropriately sensitive across the symptom severity spectrum.

In the reliability study (Table 3), internal consistency was analyzed, and an alpha coefficient of 0.74 was obtained. All items showed strong correlations with one another and with the overall scale. The intraclass correlation coefficient (ICC) was 0.74, and the one-week test-retest reliability coefficient of the ASRM was 0.82.

One of the statistical methods for retaining, removing, or modifying an item is to estimate the correlations among items and the item-total correlations. Inter-item correlation represents the level of association between the scores of an item and those of other items on the scale.

Inter-item correlation indicates the degree of correlation between the scores of an item and the scores of other items on the scale. This correlation reflects how well the items on a scale evaluate the same content. According to the statistical analysis, the correlations between items ranged from 0.17 to 0.36 (mean = 0.268). It is important that the obtained values are not negative and remain as positive as possible, indicating good construct validity of the items.

As shown in Table 3, the item-total correlation analysis revealed that all five items were significantly correlated with each other and with the total ASRM score. The item-total correlation analysis showed statistically significant correlations between all five items and the total ASRM score (ranging from 0.33 to 0.46, $P < 0.01$). To examine construct validity, item-total correlation analysis was used to calculate the correlation of each item with the total score of the ASRM separately after removing each item and correcting the item-total correlation coefficient. If the correlation between an item and the total score for any of the items was not less than 0.3, it can be concluded that these items have adequate construct validity and that all items measure the same construct.

As shown in Table 4, to determine convergent validity, the analyses revealed statistically significant correlations between the ASRM and the HCL-32 ($R = 0.43$, $P < 0.001$). Additionally, the correlations between the ASRM and the PMQ-9 were also statistically significant ($R = 0.43$, $P < 0.001$). To determine divergent validity, the analyses found that the correlations between the ASRM and the SUIS were not statistically significant ($R = 0.08$, $P = 0.61$).

4.1. Exploratory Factor Analysis

Both assumptions for factor analysis were satisfied: The Kaiser-Meyer-Olkin (KMO) Index reached 0.72, which is above the recommended threshold, and Bartlett's test indicated significant correlations among variables ($\chi^2 = 114.641$, $P < 0.001$).

As shown in Table 5, principal component analysis yielded a one-factor solution explaining 41% of the total variance, confirming the unidimensional model proposed in the original scale. The analysis demonstrated the existence of a single factor, explaining 41% of the total variance, which is consistent with the original author's assumptions.

5. Discussion

The present study examined the psychometric properties of the Persian version of the Altman Self-rating Mania Scale (P-ASRM) and found strong evidence for its reliability and validity. Internal consistency and test-retest reliability were satisfactory, and the scale demonstrated meaningful correlations with established mania measures while showing no significant

Table 2. Item Statistics

Variables	Minimum-Maximum	Mean ± Std. Deviation	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
ASRM1	1.00 5.00	1.9898 ± 1.04263	1.090	0.174	0.791	0.346
ASRM2	1.00 5.00	1.9086 ± 0.98550	1.348	0.173	1.962	0.345
ASRM3	1.00 5.00	1.9388 ± 0.97997	1.247	0.174	1.628	0.346
ASRM4	1.00 5.00	2.1218 ± 1.02787	0.835	0.173	0.167	0.345
ASRM5	1.00 5.00	2.1523 ± 1.19401	1.028	0.173	0.251	0.345

Abbreviation: ASRM, Altman Self-rating Mania Scale.

Table 3. Internal Consistency and Item-Total Correlation

Variables	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ASRM1	8.0410	7.452	0.427	0.203	0.581
ASRM2	8.1231	8.170	0.334	0.136	0.623
ASRM3	8.0974	7.552	0.469	0.231	0.563
ASRM4	7.9231	8.030	0.335	0.137	0.624
ASRM5	7.8974	6.886	0.441	0.219	0.574

Abbreviation: ASRM, Altman Self-rating Mania Scale.

Table 4. Correlation Matrix (Convergent and Discriminant Validity for ASRM)

Variables	HCL	ASRM	PMQ	SUIS
HCL		0.439 [a]	0.457 [a]	0.09
ASRM			0.432 [a]	0.11
PMQ				0.08
SUIS				

Abbreviations: ASRM, Altman Self-rating Mania Scale; SUIS, Spontaneous Use of Mental Imagery Scale.

[a] Correlation is significant at the 0.01 level (2-tailed).

association with unrelated constructs. Factor analysis confirmed a unidimensional structure, consistent with the original scale.

These findings highlight the utility of the P-ASRM as a practical and efficient self-report tool for assessing manic symptoms in clinical populations. Its brevity makes it suitable for routine use in busy clinical settings, while its psychometric robustness supports applications in research and symptom monitoring. Importantly, the results extend prior validation studies to the Persian-speaking population, addressing a gap in available assessment tools.

A key advantage of this study is its focus on a clinical sample, which enhances the generalizability of findings to real-world psychiatric practice. Beyond clinical application, the tool can also support psychoeducation by helping patients monitor their own symptoms and track changes over time, even in cases of limited illness awareness. This is particularly relevant given that reduced insight during manic episodes is associated with poorer outcomes and functional decline.

Despite these strengths, some limitations should be acknowledged. The P-ASRM does not assess depressive symptoms and therefore cannot provide a comprehensive evaluation of mixed affective states. Future studies should consider its use in combination with validated depression rating scales to enhance diagnostic coverage. Moreover, while the P-ASRM is effective for screening and symptom monitoring, it is not sufficient for standalone diagnostic purposes and

Table 5. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.087	41.738	41.738	2.087	41.738	41.738
2	0.937	18.739	60.477	-	-	-
3	0.758	15.158	75.635	-	-	-
4	0.623	12.462	88.098	-	-	-
5	0.595	11.902	100.000	-	-	-

should be integrated with clinical interviews and other structured assessments.

In conclusion, the Persian adaptation of the ASRM demonstrates strong psychometric performance, offering a reliable and valid option for the assessment of manic symptoms in Persian-speaking populations. It fills an important gap in available tools and has potential utility across clinical care, research, and psychoeducational contexts.

5.1. Conclusions

The Persian ASRM is a reliable tool for assessing manic symptoms in Iranian patients. It demonstrates strong psychometric properties and correlates well with established measures such as the PMQ-9 and HCL-32. With only five items, it is quick and easy to administer in busy clinical settings. The self-report format promotes patient engagement and awareness of symptoms. The scale focuses on core manic features with a clear and concise structure. A score of 6 or higher should prompt further evaluation; however, it should not replace comprehensive clinical interviews. Pairing it with a Depression Scale, such as the PHQ-9, can help detect mixed affective episodes. This tool fills a critical need for monitoring manic symptoms in Persian-speaking populations and serves as a valuable instrument for both research and clinical practice across various healthcare settings.

Footnotes

Authors' Contribution: Study concept and design: E. T. and A. K.; Analysis and interpretation of data: F. N. and M. H.; Drafting of the manuscript: H. M.; Critical revision of the manuscript for important intellectual content: E. T. and A. K.; Statistical analysis: Y. N.

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Data Availability: The dataset presented in this study is available upon request from the corresponding author during submission or after publication.

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