



Who Am I? Psychometric Properties of the Persian Version of the Sense of Self Scale (SOSS)

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ABSTRACT

Background: Considering the importance of the role of the sense of self component in the nature and severity of personality disorders, and the lack of a valid tool for evaluating and measuring the integrity of the sense of self in Iran, there is a greater need than ever to translate and validate the sense of self scale developed and standardized in other countries.

Aims: The purpose of the present study was to translate, validate, and examine the psychometric properties of the Persian version of the Sense of Self Scale.

Methods: In the present study, the research method was classified as research and development in terms of the objective, and descriptive survey in terms of the data collection method. The statistical population included all students of the state universities (affiliated with the Ministry of Science) of Tehran in the academic year 2023-2024, among whom 510 individuals were selected as the sample group using the convenience sampling method. The final version of the Sense of Self Scale (Fleury & Ickes, 2007) was distributed online after the process of translation, back-translation, and confirmation of content validity, together with the Depression, Anxiety, Stress Scale (Lovibond & Lovibond, 1995), and Borderline Personality Inventory (Leichsenring, 1999). After collecting the data, SPSS-25 and LISREL-8 software and the exploratory and confirmatory factor analysis methods were used for the statistical analysis.

Results: The results indicated the suitability and superiority of the two-factor model over the one-factor model. Cronbach's alpha coefficient was 0.91 for the first factor and 0.67 for the second factor. Also, the fragile sense of self factor had direct and significant correlations with depression, anxiety, stress, and borderline personality traits. In contrast, the coherent sense of self factor only had direct and significant correlations with depression, anxiety, and stress.

Conclusion: Considering the suitability of the psychometric properties of the Persian version of the Sense of Self Scale, it can be suggested to the experts in the field of psychology to use it for research, diagnostic, and clinical purposes.

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Extended Abstract

Introduction

Personality encompasses stable patterns of perceiving and thinking regarding the self and the environment, which are exhibited in a diverse range of social and personal domains (Hu et al., 2023). According to the latest definitions presented in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), a personality disorder is an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture (American Psychiatric Association, 2022). These disorders typically emerge during adolescence, show relative stability over time, and are associated with personal distress and impairments across multiple functional domains. (Vittengl et al., 2023). Well before the DSM-5 formalized the diagnostic framework for personality disorders, Otto Kernberg, a seminal psychoanalytic theorist, preferred the term 'personality organization' to 'personality disorder' when articulating his theoretical model (Kernberg, 1975, 1996; Hörz et al., 2021). Within the perspective of object relations theory, Kernberg emphasized the role of childhood experiences and their effects on an individual's perception of the self and relationships with others. He considered personality as the outcome of the internalization of significant early relationships (Kernberg & Yeomans, 2013). He differentiates three levels of personality organization—neurotic, borderline, and psychotic—suggesting that each level functions distinctly in terms of reality testing, identity integration, and defense mechanisms (Kernberg, 2016). Consistent with the theory of personality organization, Section III of the DSM-5 introduced an alternative model for personality disorders that moves beyond a purely categorical approach by incorporating the severity of impairment in

personality functioning. Rather than conceptualizing personality disorders solely as discrete diagnostic categories, this revised model places greater emphasis on personality structure and organization (Clark & Watson, 2022; Vittengl et al., 2023). This alternative model emphasizes two core dimensions: self and others, with the essence of personality disorder defined as disturbances in both self-functioning and interpersonal functioning. In this model, "self-functioning" encompasses the domains of identity and self-direction, whereas "interpersonal functioning" comprises the domains of empathy and intimacy (Widiger et al., 2019; Widiger & McCabe, 2020). These two dimensions can be understood as broadly corresponding to self-representations and object/other representations in Kernberg's model of personality organization. Within this framework, a central feature of psychological structure in individuals with moderate to severe personality pathology is the degree to which representations of self and others are integrated or fragmented. This disturbance is most prominently reflected in borderline personality organization in Kernberg's theory and is closely aligned with borderline personality disorder as conceptualized in the DSM-5 (Kernberg, 2022). Therefore, both the Alternative Model for Personality Disorders and Kernberg's approach emphasize disturbances in the sense of self as central to the conceptualization of personality pathology (Clarkin et al., 2020; Clarkin et al., 2023). These disturbances manifest in relational contexts as instability, poor differentiation, and impaired self–other boundaries (Ahangi et al., 2023).

Individuals with a weak and fragile sense of self may experience affective and cognitive instability, along with limited emotional awareness. They often lack a clear understanding of who they are, how they think, and which beliefs and values they endorse. Consequently, these individuals show deficits in

identity coherence and self-concept clarity and may attempt to maintain self-worth by continually shifting roles across affective and interpersonal contexts (Lichtenberg, 1975; Beeghly & Cicchetti, 1994; Cicchetti, 2004; Harter, 2015). These individuals often have histories of childhood trauma and exposure to unstable, stressful, and unreliable living environments, as well as inconsistent and conflicting emotional responses from caregivers. Such experiences may contribute to the development of affective instability and heightened negative emotions, thereby increasing vulnerability to personality pathology (Saboor et al., 2023). Kernberg (1975) similarly described such individuals as having a fragile sense of self, using the metaphor of "jelly" to illustrate the instability and poor consolidation of identity: when poured into a container, jelly assumes the shape of that container and easily slips away when one attempts to lift it.

In addition to fragility and reactivity, which are assumed to characterize a weak sense of self, instability is another significant issue. Individuals with a weak sense of self tend to experience sudden and remarkable shifts in opinions, career plans, values, preferences, and choice of friends (Flury & Ickes, 2007). Empirical research has consistently identified four core dimensions of a fragile sense of self, with many studies emphasizing distinct facets of this construct. These four dimensions include: 1) deficits in self-concept clarity regarding one's personality, interests, and emotions; 2) blurred self-other boundaries, characterized by a confusion of one's own feelings and perspectives with those of others; 3) affective and cognitive lability, manifest as sudden shifts in opinions and values; and 4) a pervasive sense of existential fragility or ontological insecurity (Briere, & Runtz, 2002; Gunderson, 2009). To provide a precise and comprehensive assessment of these four dimensions, Flury and Ickes (2007)

developed the Sense of Self Scale (SOSS), a 12-item self-report questionnaire. To evaluate its psychometric properties, they administered the scale to three large samples comprising a total of 1,200 undergraduate students. The results supported a unidimensional factor structure and demonstrated high internal consistency, excellent test-retest reliability, strong convergent and discriminant validity, and robust predictive validity. As further validation of the scale, Ickes et al. (2012) examined how components of the sense of self relate to Marcia's four identity statuses: identity diffusion, foreclosure, moratorium, and achievement. They studied 290 undergraduate students, including 74 men and 214 women, and found that individuals with achieved identity reported a stronger sense of self, while those characterized by identity diffusion, foreclosure, or moratorium reported a weaker sense of self.

Previous studies, including those by Flury and Ickes (2007) and Ickes et al. (2012), have been conducted to develop a tool for assessing sense of self and to evaluate its validity and reliability. The findings of these studies indicate that the psychometric properties of this measure are acceptable in European and American cultures. Moreover, the structure of this questionnaire is consistent with the psychopathology outlined in contemporary, validated models of personality disorders. However, the psychometric features of this scale have not yet been examined in Iran. Given linguistic and cultural differences, as well as the fact that the concept of personality and associated constructs are substantially shaped by cultural context, it remains unclear whether this measure, which has been standardized in other countries, can be directly applied in Iranian research and clinical settings. Therefore, the present study aims to translate the SOSS into Persian and examine

the psychometric properties of its Persian version within the Iranian cultural context.

Method

Research Design and Participants

The statistical population of this cross-sectional study comprised all students of state universities of Tehran (affiliated with the Ministry of Science, including Alzahra University, the University of Tehran, Tarbiat Modares University, Shahed University, Shahid Beheshti University, Allameh Tabataba'i University, Iran University of Science and Technology, and Sharif University of Technology) in the academic year 2023-2024, among whom 510 individuals (270 males and 240 females) were selected as the sample group via the convenience sampling method. The inclusion criteria for participation in this study were being at least 18 years old, having a high school diploma or higher, and having no history of substance use or other diagnosed psychiatric disorders, as determined by self-reported information collected in the demographic section. The exclusion criterion was failure to respond to at least 5% of the items on each questionnaire.

To conduct the present study, the original English version of the Sense of Self Scale was first translated into Persian. In the initial stage, two experts fluent in both English and Persian independently translated the scale into Persian. The two translations were then compared, and discrepancies were resolved through consensus, resulting in a preliminary Persian version of the scale. Subsequently, the Persian version was back-translated into English by an English-language expert under the supervision of two psychology specialists. The back-translated version was compared with the original English version to ensure conceptual equivalence. The Persian version was then reviewed by subject-matter experts, who confirmed its content validity. Next, the Sense of Self Scale was

administered to a pilot sample of 20 students. Participants' feedback regarding sentence structure, clarity, and item comprehensibility was collected, and final revisions were made accordingly. After the final Persian version was prepared, an online version of the study questionnaires was developed and distributed to the study sample through student groups, online channels, and social media platforms. Along with the questionnaire link, participants received information about the study objectives, protection of personal information, and confidentiality of responses.

Data were collected over a three-month period. Following data screening, the data were analyzed using SPSS version 25 and LISREL version 8. Descriptive statistics were used to calculate means and standard deviations. Exploratory factor analysis and confirmatory factor analysis were then conducted to examine the factor structure of the Persian version of the scale. In addition, convergent validity was assessed using two additional measures: the Borderline Personality Inventory (BPI) as a personality pathology-related measure, and the Depression Anxiety Stress Scales (DASS), as a well-established measure of psychological distress.

Measures

Sense of Self Scale (SOSS): This self-report questionnaire was developed by Flury and Ickes (2007) and consists of 12 items designed to assess four core components of sense of self (strong versus weak sense of self). These components include lack of self-perception, sudden shifts in emotions, beliefs, and values, a tendency to confuse one's own feelings, thoughts, and perspectives with those of others, and a sense of instability or fragility of self. Items are rated on a four-point Likert scale, ranging from 1 (strongly agree) to 4 (strongly disagree), yielding total scores between 12 and 48. Items 4, 7, and 12 are reverse-scored. The reliability of the SOSS, as assessed by Cronbach's alpha, has been reported as 0.83. This

scale demonstrates a robust unidimensional structure with high internal consistency, as well as excellent test–retest reliability, high convergent validity, discriminant validity, and strong predictive validity. The psychometric properties of the Persian version of the SOSS are described in detail in the findings section. In the present study, the reliability of the scale was 0.85.

Depression, Anxiety, and Stress Scale (DASS): This scale, developed by Lovibond & Lovibond (1995), comprises three self-report subscales designed to assess negative affective states related to depression, anxiety, and stress. Each subscale consists of seven items (21 items in total), with respondents rating the extent to which they experienced each symptom on a four-point scale. Scores for each subscale range from 0 to 21. Correlational analyses among the three factors indicated correlation coefficients of 0.48 between depression and stress, 0.53 between anxiety and stress, and 0.28 between anxiety and depression. Lovibond & Lovibond (1995) reported internal consistency coefficients for the three subscales of depression, anxiety, and stress as 0.91, 0.81, and 0.89, respectively. In a study by Sahebi et al. (2005), the validity of the Persian version of the DASS was examined using factor analysis and was found to be acceptable. Cronbach's alpha coefficients for the depression, anxiety, and stress subscales were reported as 0.77, 0.79, and 0.78, respectively. In the present study, Cronbach's alpha coefficients for the depression, anxiety, and stress subscales were 0.83, 0.74, and 0.77, respectively.

Borderline Personality Inventory (BPI): This tool was developed by Leichsenring (1999) to assess borderline personality traits in both clinical and non-clinical samples, with responses recorded using a yes/no format. Originally, the questionnaire consisted of 53 items and was developed based on Kernberg's concept of borderline personality organization, as

well as the diagnostic criteria outlined in the DSM. However, the 20-item short form has been identified as suitable for screening borderline personality features, with a minimum score of 0 and scores of 10 or higher indicating a probable diagnosis of borderline personality disorder. Leichsenring (1999) demonstrated that the internal consistency and test–retest reliability of this tool were adequate, with Cronbach's alpha coefficients for the subscales ranging from 0.68 to 0.91. Retest correlation was reported between 0.73 and 0.89. In addition, the study also indicated that the BPI exhibited adequate discriminant and diagnostic validity. In a study by Mohammadzadeh and Rezaei (2011), the validity and reliability of this questionnaire were further examined. Concurrent validity was reported as 0.70, while retest reliability, split-half reliability, and internal consistency were 0.80, 0.83, and 0.85, respectively. In the current study, the reliability of this tool was 0.90.

Results

In the current study, conducted to examine the psychometric properties of the Persian version of the Sense of Self Scale, 510 participants were included, comprising 240 women (47.1%) and 270 men (52.9%). In terms of educational level, 69 participants (13.5%) held an associate degree, 163 (32%) a bachelor's degree, 206 (40.4%) a master's degree, and 72 (14.1%) a doctoral degree. With respect to marital status, the sample consisted of 345 single participants (67.6%), 127 married (24.9%), 18 engaged (3.5%), 13 divorced (2.5%), and 7 (1.4%) in other categories. The mean age of participants was 26.12 years, with a standard deviation of 9.08 years.

Before conducting statistical analyses and to allow for cross-validation, the sample was randomly divided into two subgroups. Exploratory factor analysis was conducted on the first subgroup, while confirmatory

factor analysis and concurrent validity analyses were performed on the second subgroup. Also, prior to conducting data analysis, assumptions regarding the identification and removal of outliers, normality, linearity, homoscedasticity around the regression line, independence of errors, and the absence of multicollinearity were examined, and the results are presented below. Outliers were assessed using boxplots and the Mahalanobis distance, and none of the cases exhibited a significant distance from the rest of the sample. Skewness and kurtosis indices were examined to assess the assumption of normality of the distribution. Generally, a cutoff of ± 3 is considered appropriate for skewness, while values greater than ± 10 for kurtosis pose problems in multivariate research (Kline, 2011). The obtained values for skewness and kurtosis indicated that the normality assumption was met. To assess the assumptions of linearity and homoscedasticity around the regression line, scatterplots were examined, which showed that both assumptions were met. The Durbin–Watson statistic was used to assess the independence of errors, and since the obtained value (2.03) fell within the acceptable range of 1.5 to 2.5, this assumption was also confirmed. Multicollinearity was assessed using the variance inflation factor and tolerance indices. As none of the tolerance values were below 0.40 and no variance inflation factor values exceeded 10, the assumption of no multicollinearity was confirmed.

In the first subsample, sampling adequacy assumptions were evaluated using the Kaiser–Meyer–Olkin (KMO) measure (0.903) and Bartlett’s test of sphericity ($\chi^2=1425.797$, $p=0.001$), indicating that the items of the scale were appropriate for factor analysis. Following this, to assess the construct validity of the questionnaire, principal component analysis with Varimax rotation was conducted. To determine the optimal number of factors to retain in

the analysis, both Kaiser’s eigenvalue and the scree plot were used.

According to the results presented in Table 1, the eigenvalues of the two factors exceeded 1, based on Kaiser’s criterion. As shown in Table 1, the first factor, with the highest eigenvalue (5.488), was the most prominent extracted factor. Together, the two extracted factors explained 59% of the total variance. Table 2 presents the rotated factor loadings of each item on its respective components.

Table 2 shows that all item factor loadings on the underlying sense of self component exceeded 0.30, indicating that the observed variables were appropriate for measuring the latent construct of sense of self. Based on the factor loadings of the study items, the first factor was labeled "fragile sense of self", and the second factor was labeled "coherent sense of self".

Subsequently, confirmatory factor analysis was conducted to evaluate the factorial validity of the scale. Table 3 presents the fit indices for the one-factor and two-factor models. Model fit was assessed using a combination of absolute and incremental fit indices, including the Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Goodness-of-Fit Index (GFI), Incremental Fit Index (IFI), and Akaike Information Criterion (AIC). RMSEA values below 0.10 were considered acceptable, with values below 0.08 indicating a more favorable fit. SRMR values below 0.08 were interpreted as indicating a good fit. For the incremental fit indices, GFI and IFI values above 0.90 were considered acceptable, whereas values above 0.95 were interpreted as indicating excellent fit. Based on these criteria, the two-factor model demonstrated a better fit to the data than the one-factor model. In addition, the two-factor model yielded a lower AIC value, further supporting its superiority over the one-factor model. Figure 1

presents the final two-factor model identified in the present study.

Table 4 shows the reliability values of the questionnaire factors, as assessed using internal consistency. As shown in Table 4, the first factor, fragile sense of self, exhibited direct and significant

correlations with depression, anxiety, stress, and borderline personality traits. In contrast, the second factor, coherent sense of self, showed direct and significant correlations with depression, anxiety, and stress, but no significant relationship with borderline personality traits.

Table 1. Extracted eigenvalues and variance accounted for principal component analysis with Varimax rotation

Factors		Initial Eigenvalues		Extraction sums of squared loadings		
	Eigenvalue	Extracted percentage	Cumulative percentage	Eigenvalue	Extracted percentage	Cumulative percentage
1	5.488	45.732	45.732	5.488	45.732	45.732
2	1.643	13.693	59.424	1.643	13.693	59.424

Table 2. Rotated factor loadings of each item on the corresponding factors

Reliability of the item deleted	Item	Factor 1	Factor 2
0.820	9. I'm not sure that I can understand or put much trust in my thoughts and feelings	0.858	
0.823	3. I often think about how fragile my existence is	0.820	
0.829	2. It's hard for me to figure out my own personality, interests, and opinions	0.800	
0.821	8. It bothers me that my personality doesn't seem to be well-defined	0.797	
0.828	11. I need other people to help me understand what I think or how I feel	0.797	
0.825	10. Who am I? is a question that I ask myself a lot	0.758	
0.836	6. Other people's thoughts and feelings seem to carry greater weight than my own	0.744	
0.832	5. I sometimes wonder if people can actually see me	0.726	
0.834	1. I wish I were more consistent in my feelings	0.579	
0.861	7. I have a clear and definite sense of who I am and what I'm all about		0.804
0.866	4. I have a pretty good sense of what my long-term goals are in life		0.745
0.861	12. I tend to be very sure of myself and stick to my own preferences even when the group I am with expresses different preferences		0.706

Table 3. Fit indices for confirmatory factor analysis

Fit indices	Chi-Square	Chi-Square/df	RMSEA	SRMR	CFI	IFI	GFI	AIC
One-factor model	242.119	4.484	0.117	0.094	0.855	0.857	0.855	290.119
Two-factor model	115.382	2.177	0.068	0.050	0.952	0.953	0.931	165.382

Table 4. Reliability and concurrent validity values of the sense of self components

Factor	Cronbach's alpha	Depression	Anxiety	Stress	Borderline personality traits
Factor 1	0.91	0.360**	0.498**	0.293**	0.807**
Factor 2	0/67	0.549**	0.196**	0.342**	-0.082

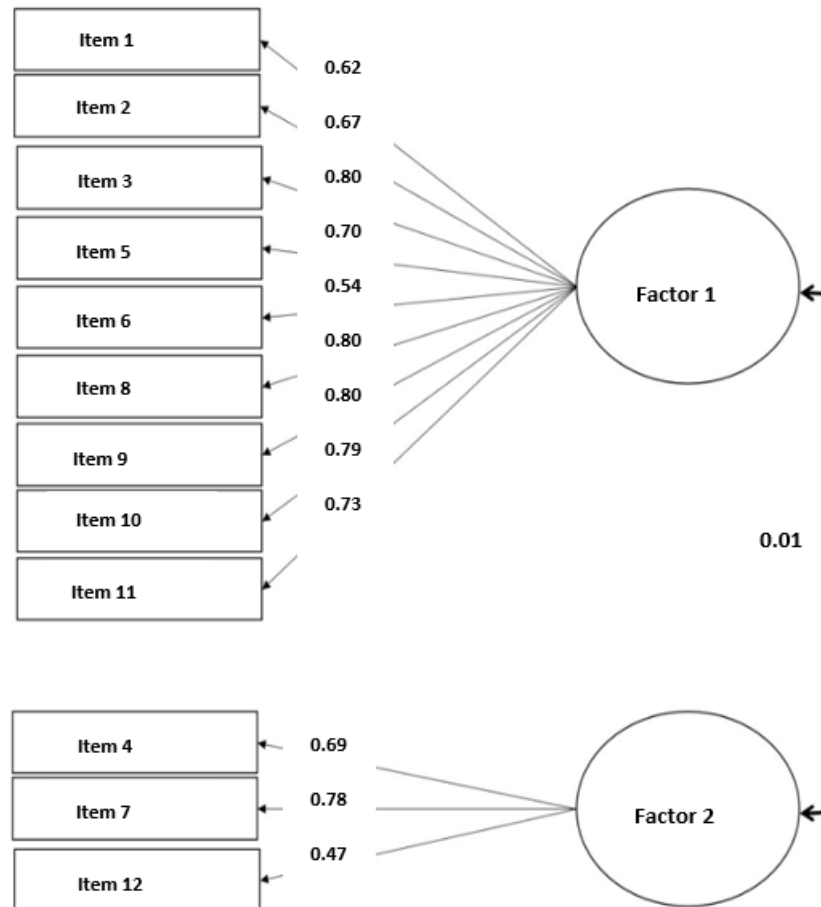


Figure 1. The Revised Two-Factor Model

Conclusion

The present study aimed to adapt the Sense of Self Scale (SOSS) into Persian and comprehensively evaluate its psychometric properties. Exploratory factor analysis yielded a two-factor structure—comprising fragile sense of self and coherent sense of self—that refines the original unidimensional framework proposed by Flury and Ickes (2007). The fragile sense of self factor, with the highest eigenvalue (5.488), emerged as the most prominent extracted factor. Together, the two extracted factors—fragile/coherent sense of self—accounted for 59% of the total variance in sense of self. Factor loadings for all items on the underlying sense of self components exceeded 0.30. Regarding the fragile sense of self factor, the highest factor loading was

observed for Item 9, "I'm not sure that I can understand or put much trust in my thoughts and feelings" with a loading of 0.858, while the lowest factor loading corresponded to Item 1, "I wish I were more consistent in my feelings" with a loading of 0.579. Regarding the coherent sense of self factor, the highest factor loading was observed for Item 7, "I have a clear and definite sense of who I am and what I'm all about" with a loading of 0.804, while the lowest factor loading corresponded to Item 12, "I tend to be very sure of myself and stick to my own preferences even when the group I am with expresses different preferences" with a loading of 0.706.

In the confirmatory factor analysis of the obtained model, the goodness of fit indices indicated the adequacy of the two-factor model and its superiority over the one-factor model. In the Flury and Ickes

(2007) one-factor model, the variable of sense of self is represented as a single total score derived from the sum of 9 items assessing vulnerable aspects of the weak and fragile sense of self and 3 items assessing non-fragile, coherent aspects of a strong sense of self, which are reverse-scored. In this model, the fragile/non-fragile—or unstable/stable—aspects of the sense of self are not clearly differentiated. In contrast, in the revised two-factor model of the current study, the first factor, labeled fragile sense of self, captures incoherent aspects of the self, whereas the second factor, labeled coherent sense of self, assesses more integrated aspects of the self, thereby allowing for a more precise differentiation between weak and strong sense of self.

The results of the data analysis indicated adequate reliability coefficients for the questionnaire factors, as assessed through internal consistency. Specifically, the fragile sense of self factor showed direct and significant correlations with depression, anxiety, stress, and borderline personality traits. This finding is consistent with part of the results reported by Flury and Ickes (2007), who identified a significant positive association between the weak sense of self and borderline personality characteristics. It is also in line with the theoretical formulations of both the Alternative Model of Personality Disorders and Kernberg's object relations approach, which conceptualize a weak, unstable, and fragile sense of self as a central feature in the psychopathology of borderline personality disorder (Clarkin et al., 2020; Clarkin et al., 2023). Conversely, the coherent sense of self factor showed direct and significant correlations only with depression, anxiety, and stress, and was not significantly associated with borderline personality traits. In explaining this finding, it can be argued that the participants in the current study who obtained high scores on the coherent sense of self factor—characterized by a clear and definite sense of

who they are, a relatively good understanding of their long-term goals, commitment to their personal preferences, and a satisfactory level of emotional awareness—are nevertheless living within an unstable social, political, and particularly economic context such as that of Iran. This unstable, stressful, and unpredictable living environment may expose even these individuals to negative emotional experiences and contribute to the development of recurrent affective patterns, including symptoms of depression, anxiety, and stress.

Several limitations of the present study should be considered when interpreting the findings. First, relying solely on a non-clinical sample may limit the diagnostic validity of the Sense of Self Scale. Therefore, future studies are encouraged to include more diverse samples to determine whether this tool can effectively distinguish between clinical and non-clinical populations. Second, the study was conducted exclusively among university students in Tehran, which restricts the generalizability of the findings. Therefore, future research should examine the applicability of the present results in non-student samples and across different geographical regions of Iran. Finally, the measurement methods used in the current study were limited to self-report tools. Future research would benefit from employing multiple methods, including interviews or laboratory-based assessments, to assess these personality-related characteristics more comprehensively.

Contemporary theoretical models, including descriptive frameworks such as the DSM and analytic-explanatory approaches to personality pathology, emphasize the role of sense of self in adaptive and maladaptive personality functioning. Given that no self-report measure of this construct had previously been validated in Iran, the Persian version of the Sense of Self Scale, translated and psychometrically evaluated in the present study, may

provide a valuable instrument for future research. In particular, within the field of personality, this scale can help researchers explore the relationships between the sense of self and other variables and constructs related to personality structure. By examining these variables in conceptual mediation and moderation models, future studies may better clarify the complex relationships among them. Additionally, this scale can be applied in assessment and diagnostic processes to measure the integration and coherence of individuals' sense of self, which is an important factor in adaptive personality functioning. Moreover, it can be used in various settings, including clinical contexts such as individual counseling or premarital counseling, as well as industrial and organizational environments (for personnel selection and recruitment). Overall, given the adequate psychometric properties of the Persian version of the Sense of Self Scale, its use for research, diagnostic, and clinical purposes can be recommended to professionals in the field of psychology.

Ethical Considerations

Compliance with ethical guidelines: This article is taken from the doctoral dissertation of the first author in the field of psychology in the Faculty of Psychology and Educational Sciences, Shahid Beheshti University. The ID of the ethics approval is IR.SBU.REC.1401.123. In order to maintain the observance of ethical principles in this study, an attempt was made to collect information after obtaining the consent of the participants. Participants were also reassured about the confidentiality of the protection of personal information and the presentation of results without mentioning the names and details of the identity of individuals

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Authors' contribution: The first author was the senior author, the second and third were the supervisors, and the fourth and fifth were the advisors.

Conflict of interest: The authors declare no conflict of interest for this study.

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