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1 Department of Counseling, Boj.C, Islamic Azad University, Bojnourd, Iran.

2 Department of Psychology, Qu.C., Islamic Azad University, Quchan, Iran.

3 Department of Counseling, Boj.C, Islamic Azad University, Bojnourd, Iran.

Corresponding author email address:
mmohammadipour@iau.ac.ir

Psychometric Properties of the Adolescent Identity Instability Questionnaire

Fatemeh Zhinouz. Malekzadeh¹, Mohammad. Mohammadipour^{2*},
Mahmoud. Jajarmi³



ABSTRACT

Objective: The present study was conducted to examine the psychometric properties of the Identity Instability Questionnaire in adolescents with self-injurious behavior.

Methods and Materials: The present study was fundamental (basic) in purpose, developmental in its methodological approach, and psychometric in nature. The statistical population in the present study consisted of all male and female students of the second grade of public schools with self-injurious behavior in Gonbad-Kavos city in the academic year 2024-25. Of which 315 people (200 girls and 115 boys) were selected non-randomly and purposefully. The Lechner Identity Hyperstability Questionnaire (2023) was used to collect data. Data analysis included mean, standard deviation, confirmatory factor analysis, and convergent validity and reliability using SPSS 28 and SMART PLS 3 statistical software.

Findings: Confirmatory factor analysis showed that the measurement model of the Identity Instability Scale with 20 items had a good fit. The factor loading of all items was higher than 0.50, the composite reliability and Cronbach's alpha were higher than 0.70, and the convergent validity was higher than 0.50. The results of the item analysis method showed that the items had an appropriate degree of difficulty and had a normal distribution.

Conclusion: The results of this study indicated the suitability of the psychometric properties of the Identity Instability Questionnaire for use in adolescents with self-injurious behavior. Future research can use this tool for diagnostic and therapeutic purposes in adolescents with self-injurious behavior.

Keywords: Identity instability, self-injurious behavior, psychometrics, validity, reliability.

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Introduction

Adolescence is a turbulent and challenging period of life (Veloso-Besio et al., 2023). Stress and worry are common at this stage, as adolescents face substantial physical, psychological, and cognitive changes and naturally react to these transformations (Orben et al., 2020). At times, such tension and stress can draw them toward self-damaging behaviors (Goñi-Sarriés et al., 2025). Studies indicate that 17% of adolescents, 13% of adults, and 6% of adults over 25 have a history of at least one episode of self-harm (Aggarwal et al., 2021). Self-harm is a major public health concern in many societies (Alves et al., 2025). In Iran, research has reported a self-harm rate of 9 per 100,000 people, with adolescents accounting for about 10% of cases (Miri et al., 2022).

Self-injurious behaviors generally refer to acts in which a person, without suicidal intent, directly or indirectly harms themselves, including scratching the skin, cutting, burning, head banging, hitting oneself, and similar behaviors (Clark et al., 2025). In the DSM-5-TR, self-harm encompasses two categories: direct self-injury (e.g., self-cutting) and indirect self-harm (e.g., risk-taking behaviors, substance and alcohol misuse; (He et al., 2025). Although self-harm occurs in both clinical and non-clinical populations, its prevalence peaks during adolescence (roughly ages 12–18) and generally declines into adulthood (Asadolahi & Gholamipour, 2023; Hambleton et al., 2022). Meta-analytic findings estimate that 22.9% of adolescents have engaged in some form of self-injurious behavior; longitudinal meta-analyses further suggest that individuals who self-harm have a 27.4% higher likelihood of suicide than others (He et al., 2025). Chronic self-harm imposes a considerable burden on health-care systems, as many individuals require ongoing medical care and hospitalization due to their injuries (Zhang et al., 2025). These trends underscore the need for further study.

Reviews of the psychopathology literature on self-injury suggest two principal classes of causes: interpersonal and intrapersonal factors (Hambleton et al., 2022; Kovács et al., 2021). Interpersonal factors include demonstrations of independence, maintaining boundaries, exerting interpersonal influence, bonding with peers, retaliation, self-care, sensation seeking, and displays of tolerance or toughness (Hosseini motlaq & Rahimi, 2024). In contrast, intrapersonal factors

internally elicit and reinforce self-injury (Zhou et al., 2024). Most research focusing on intrapersonal factors indicates that these behaviors are often impulsive and associated with psychiatric difficulties and diverse personality traits (Randazzo & Ammari, 2025).

Adolescence is a critical period for identity formation (Bogaerts et al., 2023). Erikson, (1968) defined identity as a subjective sense of continuity over time, whereas identity confusion is characterized by a diffuse lack of purpose and the inability to commit to life choices (Collict et al., 2025). Studies show that individuals who engage in self-harm typically experience higher levels of identity instability than those who do not (Valladares-Garrido et al., 2024). People who self-injure may feel they have little control over their lives, which can lead to confusion about identity and personal values (Kovács et al., 2021). Identity instability refers to a state in which a person—or a group—experiences ambiguity, confusion, or uncertainty about identity (García-Iglesias et al., 2022). This state is especially common during life transitions such as adolescence or major life changes e.g., divorce or migration; (Sun et al., 2024).

Recent research has shown a significant association between identity instability and adolescent self-harm (Kaufman et al., 2020). Self-harm is often used as a mechanism for coping with negative emotions or filling the void arising from identity confusion (Kovács et al., 2021). An adolescent lacking a stable sense of self may resort to self-injury to temporarily restore a feeling of control or to reduce internal tension (Fonagy et al., 2019). This link highlights not only the research importance of identity instability but also its clinical relevance. Despite its importance, few instruments have been developed to assess identity instability, particularly in high-risk groups such as adolescents who self-harm. The Identity Instability Questionnaire designed by (Lechner, 2023) is a recent and psychometrically sound tool in this area, constructed to measure key dimensions of identity instability and supported by acceptable validity and reliability in international samples.

However, psychometric studies emphasize that instruments must be validated within the cultural and linguistic context of the target population (Van de Vijver & Leung, 2021). In collectivist cultures such as Iran, the experience of identity, its meaning, and even the expression of adolescents' harmful behaviors may differ from Western societies (Massoodi et al., 2025);

therefore, a psychometric evaluation of the Persian version of this questionnaire is essential. In Iran, much of the adolescent literature has focused on social, religious, or academic identity (Bahmani et al., 2022; Massoodi et al., 2025), yet there is no dedicated, validated instrument for measuring identity instability. At the same time, domestic studies and clinical reports indicate a rising rate of self-harm among adolescents, and psychological interventions require precise tools for screening and identifying those at risk. This research gap justifies the present study. The current research was designed to examine the psychometric properties of the Lechner Identity Instability Questionnaire 2023 among adolescents engaging in self-injurious behavior during 2024–2025.

Methods and Materials

The present study was fundamental in aim and, methodologically, a developmental psychometric investigation. The statistical population comprised all male and female students in upper-secondary (senior high) grades at public schools in Gonbad-e Kavus during the 2024–2025 academic year (1403–1404 SH) who engaged in self-injurious behavior. To avoid rule-of-thumb sampling Moradi et al., (2021), the sample size was determined in G*Power with $\alpha = 0.05$ (95% confidence), assuming a small effect size of 0.60 on a 5-point Likert scale; the required sample was estimated at 300. To reach this target (plus a 10% allowance), 330 questionnaires were distributed online; ultimately, data from 315 students were analyzed. Sampling was nonprobability and purposive. Inclusion criteria were self-injurious behavior and willingness to participate; students who provided incomplete data or did not meet entry criteria were excluded.

All procedures observed ethical considerations. Participation was voluntary, and informed consent was obtained from both parents and students. Data were kept confidential, and students identified as high risk for self-harm were referred to psychology and counseling centers.

Psychometric evaluation employed confirmatory factor analysis (CFA), item analysis, and the LOOP method to assess the validity and reliability of the Identity Instability Scale. The maximum Type I error rate for hypothesis testing was set at $p \leq .05$. Data were

analyzed using SPSS 28 and SMART PLS 3. Given the exploratory and novel nature of the questionnaire and the study model, a partial least squares (PLS) approach was used for model testing.

Measures

Identity Instability Questionnaire (Lechner, 2023)

Developed by Lechner, (2023), this instrument consists of 21 items rated on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). It has two subscales: Self-Disconnection (void/empty/self-empty identity; items 1–14) and Other-Reliance (enmeshed/self-involved identity status; items 15–21). Higher total and subscale scores indicate greater identity instability, self-disconnection, and reliance on others. Reported Cronbach's alphas for Self-Disconnection, Other-Reliance, and the total scale were .73, .80, and .88, respectively (Lechner, 2023).

Convergent validity was examined using the Spann-Fischer Coherence Scale, a 16-item instrument rated on a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree). Total score is the sum of item scores, with items 5 and 7 reverse-coded in advance; higher scores indicate greater coherence. The correlation with the Identity Instability Questionnaire was $r = .38$, indicating acceptable convergent validity.

Discriminant validity was assessed using the Santa Clara Brief Self-Compassion Scale, a 5-item measure rated on a 7-point Likert scale (1 = not at all true of me to 7 = very true of me). The total score is the sum of item scores; higher scores reflect greater self-compassion. The correlation obtained was $r = .50$, which was judged acceptable for discriminant validity. The questionnaire has not previously been examined in an Iranian sample, and the present study aimed to standardize it for use in Iran.

Findings and Results

Of the participants, 200 (63.5%) were female and 115 (36.5%) were male. The mean age was 17.36 years ($SD = 0.59$; range = 13–20). The measurement model of the Identity Instability Questionnaire was evaluated via confirmatory factor analysis using partial least squares (PLS) in SmartPLS. Given the exploratory and novel nature of the instrument, PLS was selected for model estimation. Item validity was examined using factor

loadings ($\geq .50$) and their significance ($t > 1.96$). Convergent validity was assessed with the average variance extracted (AVE $\geq .50$). Reliability was examined via Cronbach's alpha and composite reliability (CR $\geq .70$).

All items loaded above .50, except Item 1, which showed an unacceptable/weak loading and was removed from the final model. The path coefficients from

the two components—Self-Disconnection and Other-Reliance—to the latent construct of identity instability were .98 and .95, respectively, indicating strong associations. Model fit indices indicated acceptable fit: NFI = .92; SRMR = .073 ($< .08$). Overall, fit indices supported the measurement model.

Table 1

CFA results: validity and reliability of the Identity Instability Questionnaire

Component	Item no.	Loading	t	AVE	Composite reliability	Cronbach's α
Self-Disconnection	2	.77	21.55	.62	.95	.94
	3	.83	31.76			
	4	.81	29.94			
	5	.86	26.58			
	6	.88	46.15			
	7	.86	34.40			
	8	.88	49.54			
	9	.86	38.90			
	10	.82	24.63			
	11	.57	8.01			
	12	.66	13.30			
	13	.70	14.18			
	14	.66	12.69			
	15	.87	56.00	.66		
Other-Reliance	16	.80	28.73	.93	.91	
	17	.87	41.36			
	18	.87	48.57			
	19	.79	20.39			
	20	.74	16.43			
	21	.74	16.21			

As shown, all retained items demonstrated adequate loadings (min = .57 for Item 11; max = .88 for Items 6 and 8). Item 1 loaded below .50 and was removed; the final questionnaire thus comprised 20 items. All loadings were significant ($t > 1.96$; $p < .05$). AVE values ranged

from .62 (Self-Disconnection) to .66 (Other-Reliance), supporting convergent validity. Reliability indices exceeded .70 for both CR and α , indicating good internal consistency; the total-scale Cronbach's alpha was .963.

Table 2

Item analysis for the Identity Instability Questionnaire (selected indicators)

Component	Item (abbrev. translation)	Mean	SD	Skew	Kurtosis	Item-total (partial)	α	if deleted
Self-Disconnection	I don't know who I am.	3.01	0.79	0.86	-0.46	.735	.962	
	When someone asks "Who are you?", I don't know what to say.	2.72	0.97	0.41	-0.84	.784	.961	
	I feel confused inside.	3.10	0.92	0.64	0.31	.724	.962	
	I feel I am not a stable person.	2.49	0.97	0.99	0.89	.830	.960	
	I feel I have lost my true self.	3.44	0.72	-0.60	-0.62	.830	.960	
	I don't feel confident about myself.	2.77	0.97	0.56	0.45	.859	.960	
	I feel a sense of inner identity void.	3.12	0.59	-0.31	-0.55	.861	.960	
	I feel different inside than I appear outside.	3.16	0.68	-0.29	-0.72	.813	.961	
	There are parts of me I can't understand.	3.35	0.85	-0.38	0.23	.771	.961	
	I feel incomplete.	3.50	0.80	-1.15	1.09	.536	.964	
	I am not sure about my identity.	2.46	0.73	0.63	0.48	.589	.963	
	I often struggle when reflecting on my identity.	3.62	0.80	-0.36	0.20	.657	.963	
	I feel I haven't found my true self.	3.78	0.84	-0.72	0.16	.616	.963	

Other-Reliance	Others' opinions of me matter more than my own.	2.53	0.65	0.10	0.64	.823	.961
	I sometimes feel I don't belong to a particular persona.	3.39	0.75	-0.13	-1.27	.662	.962
	In an intimate relationship, I don't know what the relationship means.	3.29	0.92	-0.04	0.79	.883	.960
	I am easily influenced by others.	3.20	0.94	-0.12	1.04	.783	.961
	I don't adapt quickly to new situations.	3.07	0.82	-0.04	1.27	.707	.962
	If a situation makes me interested in a different lifestyle, I can't keep at it because I get bored.	3.19	0.77	-0.10	-1.09	.568	.964
	I try to act like others so I'll be accepted as part of the group.	3.29	0.90	-0.54	-0.84	.711	.962

Item means fell between ~ 2.46 and 3.78 , indicating adequate item difficulty (no floor/ceiling effects). Skewness and kurtosis for all items were within -2 to $+2$, supporting item-level normality. All corrected item-total

correlations exceeded $.50$, and "alpha if deleted" showed no substantial increase, indicating each item contributed meaningfully to internal consistency.

Table 3

Fornell-Larcker discriminant validity and descriptive statistics

Variables	Self-Disconnection	Other-Reliance	Identity Instability (Total)
Self-Disconnection	.78		
Other-Reliance	.75	.81	
Identity Instability (Total)	.92	.87	.76
Mean	40.54	21.96	62.49
SD	9.63	5.19	14.73
Skewness	-0.48	-0.57	-0.46
Kurtosis	1.17	-0.65	0.81

Note. Diagonal elements are \sqrt{AVE} . All correlations were statistically significant ($p < .001$).

As shown, Fornell-Larcker criteria were met: the square roots of AVE (bolded) exceeded the inter-construct correlations, supporting discriminant validity. The correlation between Self-Disconnection and Other-Reliance was strong ($r = .75, p < .001$). On a 20-item, five-point scale (range: 20–100; theoretical midpoint = 60), the sample mean for the total scale was 62.49, i.e., 2.49 points above the theoretical midpoint. Skewness and

kurtosis for the total scale and both subscales fell within -2 to $+2$, indicating approximately normal distributions. Together, the CFA/PLS results and item analysis support the validity (convergent and discriminant) and reliability of the Persian version of the Identity Instability Questionnaire in adolescents with self-injurious behavior.

Discussion and Conclusion

Identity instability is a key construct in adolescent psychology, referring to a lack of coherence and stability in one's identity, confusion about values and goals, and frequent shifts in feelings and behaviors (Erikson, 1968; Luyckx et al., 2025). Adolescents with identity instability often struggle to choose academic pathways, manage interpersonal relationships, and make major life decisions, and this instability can co-occur with self-injurious behaviors and emotional difficulties (Côté, 2006). In the present study, the psychometric properties of the Persian version of the Identity Instability Questionnaire were examined using confirmatory factor analysis (CFA) and item analysis to determine its structure, reliability, and validity among Iranian

adolescents who engage in self-injury. Data were analyzed in SPSS 28 and SmartPLS 3, enabling detailed evaluation of factor loadings, model fit, and item quality.

CFA results indicated that the 20-item measurement model demonstrated acceptable fit. Model-fit indices—including CFI, TLI, RMSEA, and SRMR—fell within conventional benchmarks, showing that the questionnaire's factor structure corresponded well with the sample data. All item loadings exceeded 0.50, indicating meaningful associations between items and their respective constructs and confirming each item's capacity to capture facets of identity instability. In other words, each item functioned effectively and in line with the scale's intent.

Reliability was satisfactory: both Cronbach's alpha and composite reliability (Kaufman et al.) surpassed

0.70, suggesting strong internal consistency and dependable, replicable results. Convergent validity (AVE > 0.50) indicated that more than half of the variance in each construct was explained by its items, supporting the scale's success in measuring the intended concept. Item analysis showed that all items displayed appropriate difficulty and approximately normal distributions, indicating adequate ability to differentiate participants across levels of identity instability and balanced response patterns—both essential for structural analyses and hypothesis testing. Given the questionnaire's exploratory and novel application, the use of a partial least squares approach (PLS-SEM) allowed testing of structural relations among constructs and supported the Identity Instability Questionnaire as a valid tool for Iranian adolescents.

The study population was limited to students from a single city and educational level, constraining generalizability. Purposive, online sampling may introduce selection bias. Data were self-reported and may be influenced by emotional or social factors. The cross-sectional design precluded examination of longitudinal changes in identity instability. Replicate the study in other regions and educational levels to enhance generalizability. Employ random or mixed sampling strategies to reduce selection bias. Conduct longitudinal studies to track changes in identity instability over time and its association with self-injurious behavior.

Overall, findings show that the Persian version of the Identity Instability Questionnaire is a valid and reliable instrument for assessing identity instability among Iranian adolescents who engage in self-injurious behavior. The tool can be used in clinical research, prevention programs, and psychological interventions, and may assist in identifying at-risk adolescents and informing targeted intervention design.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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