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Psychometric Properties of the Persian Brief Suicide Cognitions Scale (B-SCS): A Validation Study Among Individuals with Suicidal Thoughts

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1 **Abstract**

2 **Background:** Suicide is a significant public health challenge in Iran, where
3 cultural and religious factors influence both suicidal behavior and assessment
4 approaches. This study aimed to validate the Persian version of the Brief
5 Suicide Cognitions Scale (B-SCS) among individuals with suicidal thoughts in
6 Iran, addressing a critical gap in culturally appropriate suicide risk
7 assessment instruments.

8 **Method:** A cross-sectional study was conducted with 162 individuals
9 experiencing suicidal ideation recruited from a psychiatric emergency
10 department in Tehran. Participants completed the Persian B-SCS along with
11 measures of depression, anxiety, hopelessness, and suicidal ideation.
12 Confirmatory factor analysis examined the scale's factor structure, while
13 reliability was assessed through multiple indices. Convergent validity was
14 evaluated through correlations with related constructs and calculation of
15 Average Variance Extracted (AVE). Measurement invariance across gender
16 was also examined.

17 **Results:** Confirmatory factor analysis strongly supported a unidimensional
18 structure with excellent fit indices ($\chi^2(9) = 10.262$, $p = .330$, RMSEA = .021,
19 CFI = .999, TLI = .998) and substantial factor loadings (.85 - .92). The scale
20 demonstrated excellent internal consistency ($\alpha = 0.956$, $\omega = 0.957$, CR =
21 0.956) and strong convergent validity, with significant correlations with
22 depression ($r = .977$), hopelessness ($r = .976$), anxiety ($r = .864$), and suicidal

1 ideation ($r = .924$). The AVE value (0.785) substantially exceeded the
2 recommended threshold. Measurement invariance testing confirmed that the
3 B-SCS functions equivalently across gender groups.

4 **Conclusions:** The Persian B-SCS showed strong psychometric properties,
5 including excellent internal consistency, a clear unidimensional structure,
6 and substantial convergent validity, providing robust preliminary support for
7 its potential use in assessing suicide-specific cognitions in Iranian clinical
8 settings.

9 **Keywords:** suicide, cognitive vulnerability, psychometric validation, Brief
10 Suicide Cognitions Scale, Iran

1. Introduction

Suicide constitutes a profound global public health challenge, contributing to over 720,000 deaths annually and imposing substantial emotional, social, and economic burdens on communities around the world (1). While suicide rates vary considerably across regions, the psychological mechanisms underlying suicidal behavior share fundamental elements across cultures (2). In Iran, suicide rates have been reported at approximately 6.1 per 100,000 population, with concerning evidence of increasing trends in recent years (3). Iran's cultural and religious context poses unique challenges for suicide research (4). As a predominantly Muslim country, religious beliefs significantly influence attitudes toward suicide, which is generally prohibited in Islam (5). Research shows complex interactions between these beliefs, cultural factors, and suicidal behaviors (6). While religious commitments may offer some protection, stigma surrounding mental health and suicide often obstructs help-seeking and accurate reporting (7). Additionally, rapid sociocultural changes, such as urbanization and evolving family structures, can increase psychological distress in certain populations (8).

Despite advances in suicide risk assessment and prevention strategies, accurately identifying at-risk individuals remains a challenge (9). Traditional approaches to suicide risk assessment have predominantly focused on measuring acute risk factors such as current suicidal ideation, plans, and intent (10). However, these approaches have demonstrated limited predictive

validity in clinical settings (11), prompting researchers to develop alternative frameworks that emphasize underlying cognitive vulnerabilities persisting beyond acute episodes.

The importance of suicidal cognitions is recognized within several theoretical frameworks, including the Fluid Vulnerability Theory (12), the Interpersonal Theory of Suicide (13), the Integrated Motivational-Volitional Model (14), and cognitive models of suicidal behavior (15), each emphasizing the role of enduring negative beliefs and perceptions in the development and persistence of suicide risk. Fluid Vulnerability Theory, proposed by Rudd, conceptualizes suicide risk as fluctuating over time, with acute episodes being time-limited while chronic vulnerability represents enduring predisposition (12). This chronic vulnerability stems from the suicidal belief system, characterized by three core domains: unlovability (perceiving oneself as fundamentally unworthy of love), unbearability (viewing emotional pain as intolerable), and unsolvability (believing problems cannot be resolved) (9).

To assess these enduring cognitive vulnerabilities, the Brief Suicide Cognitions Scale (B-SCS) was developed as a six-item instrument capturing the three core dimensions of the suicidal belief system (9). Unlike measures focused solely on acute risk indicators, the B-SCS assesses underlying cognitive patterns that may persist across time and context (16). This distinction is particularly important given the significant natural variability in suicidal thinking revealed by ecological momentary assessment studies,

1 which demonstrate fluctuations occurring on hourly, daily, and weekly bases
2 (17, 18). Recent systematic reviews further consolidate the evidence that
3 suicidal ideation fluctuates considerably even within short periods,
4 highlighting the need for measurement tools sensitive to both acute and
5 enduring risk factors (19-21).

6 While suicide risk assessment remains an essential aspect of clinical
7 practice, an individualized approach that incorporates understanding of
8 personal drivers and cognitive factors underlying suicidal crises is
9 increasingly recognized as critical (22). Measures such as the B-SCS can thus
10 contribute not only to risk estimation but also to individualized case
11 conceptualization and targeted intervention strategies. Specifically,
12 assessment of suicide cognitions provides several direct clinical benefits
13 beyond risk prediction. First, it identifies specific maladaptive beliefs
14 (unlovability, unbearability, unsolvability) that serve as actionable
15 therapeutic targets for cognitive interventions (15, 23). Second, it facilitates
16 personalized safety planning by revealing the psychological context and
17 personal meaning underlying an individual's suicidal crisis (24). Third,
18 monitoring changes in suicide-specific cognitions during treatment offers
19 valuable information about therapeutic progress, as reductions in these
20 cognitions may precede improvements in suicidal ideation (25). Finally,
21 consistent with Fluid Vulnerability Theory, distinguishing between acute
22 suicide risk and chronic cognitive vulnerability enables more appropriate
23 treatment planning, identifying which patients may benefit from longer-term

cognitive interventions targeting core beliefs versus those requiring primarily crisis management (12).

The B-SCS has been validated in several cultural contexts, demonstrating its utility across different populations. Arslan et al. validated the Turkish version (BSCS-T) among university students, confirming its single-factor structure and establishing significant associations with psychological vulnerability, depressive symptoms, and anxiety (16). Similarly, Arafat et al. validated the Bangla version among Bangladeshi university students, finding acceptable reliability and a unidimensional factor structure (26). These cross-cultural validations highlight both the universal nature of suicidal cognitions and the importance of cultural adaptation in assessment tools. Although the scale's psychometric properties often remain robust across contexts and suggesting that core cognitive vulnerabilities to suicide may be shared universally, cultural adaptation is crucial to ensure semantic, idiomatic, experiential, and conceptual equivalence, as expressions of distress, stigma, and help-seeking behaviors can vary significantly by culture (27). This process minimizes potential biases in interpretation and enhances the instrument's validity and acceptability in diverse populations.

Despite these advances, no study has validated the B-SCS for Persian-speaking populations, representing a significant literature gap. Cultural factors substantially influence how individuals experience and express suicidal cognitions (28). Previous efforts to validate suicide assessment instruments in Iran have focused primarily on measures of acute risk (29).

1 However, instruments assessing underlying cognitive vulnerability to suicide,
2 particularly those based on contemporary frameworks like FVT, remain
3 unavailable to Iranian clinicians and researchers.

4 Accordingly, The present study aims to address this gap by validating
5 the Persian version of the B-SCS among individuals with suicidal thoughts in
6 Iran. Specifically, we will: (a) translate and culturally adapt the B-SCS
7 following established guidelines for cross-cultural adaptation of self-report
8 measures; (b) examine the psychometric properties of the Persian BSCS; and
9 (c) investigate relationships between suicidal cognitions and other
10 psychological variables relevant to suicide risk in the Iranian population.

12 **2. Methods**

13 **2.1. Participants and Implementation Method**

14 This psychometric validation study received ethical approval from the
15 Research Ethics Committee of the University of Social Welfare and
16 Rehabilitation Sciences (Approval ID: IR.USWR.REC.1403.043) and was
17 conducted in accordance with the Declaration of Helsinki ethical principles.
18 The investigation employed a cross-sectional methodology focusing on
19 individuals with suicidal ideation in Tehran, Iran.

20 Participants were recruited through convenience sampling method
21 between July 2024 to April 2025. The sample comprised 162 individuals with

1 suicidal thoughts who were presenting to the emergency department of Razi
2 Psychiatric Hospital in Tehran. Initial screening was conducted through
3 clinical interview, with participants responding to the question "Have you
4 ever thought about suicide?" All participants answered affirmatively to this
5 screening question.

6 Inclusion criteria included informed consent, ability to read and write
7 in Persian, and presence of suicidal thoughts. Participants were excluded if
8 they submitted incomplete questionnaires or demonstrated random response
9 patterns. The sample size determination followed established psychometric
10 validation guidelines (30), with approximately 27 participants per item for
11 the 6-item questionnaire, exceeding the minimum recommendation of 5-10
12 participants per item. This robust sample size ensured adequate statistical
13 power for all psychometric analyses, including factor structure examination
14 and reliability assessment.

15 All participants completed the Brief Suicide Cognitions Scale (B-SCS),
16 Beck scales (Depression, Anxiety, Hopelessness, and Suicide Ideation) for
17 convergent validity assessment. Data collection occurred in a standardized
18 environment under the supervision of trained clinical staff to ensure
19 participant comfort and data quality. All participants received appropriate
20 clinical support following their participation, with immediate intervention
21 available for those experiencing acute psychological distress during the
22 assessment process.

1

2 **2.2. Measures**

3 ***2.2.1. Brief Suicide Cognitions Scale (B-SCS)***

4 The primary measure under investigation was the B-SCS, developed by Rudd
5 et al. (9). This 6-item self-report instrument assesses three dimensions of the
6 suicidal belief system: unlovability, unbearability, and unsolvability. Items
7 are rated on a 5-point Likert scale (1 = “strongly disagree” to 5 = “strongly
8 agree”), yielding total scores ranging from 6 to 30. Higher scores indicate
9 stronger endorsement of suicide-related cognitions. The original validation
10 study demonstrated excellent internal consistency and strong correlations
11 with measures of depression, hopelessness, and suicidal ideation (16, 26).

12 The Persian adaptation of the Brief Suicide Cognitions Scale followed a
13 rigorous methodological protocol adhering to international guidelines for
14 cross-cultural instrument adaptation (31, 32). Initially, two independent
15 bilingual specialists, a clinical psychologist and a linguist, translated the scale
16 into Persian, emphasizing both psychological accuracy and natural language
17 expression. Following synthesis of these translations, two separate bilingual
18 experts conducted blind back-translations to English. An expert committee,
19 comprising mental health professionals and language specialists, evaluated
20 all versions for semantic, idiomatic, experiential, and conceptual equivalence,
21 with particular attention to culturally appropriate articulation of the suicidal
22 belief system dimensions.

The preliminary Persian version underwent cognitive debriefing with 20 participants from the target clinical population who provided feedback on comprehensibility and cultural relevance. During individual interviews lasting 15-20 minutes, participants were asked to read each item aloud, explain their understanding in their own words, and identify any unclear or culturally inappropriate expressions. Participants also evaluated the appropriateness of response options and overall questionnaire format. This feedback informed final refinements, resulting in a culturally adapted instrument that maintained fidelity to the original scale's theoretical constructs while ensuring appropriateness for the Iranian context. The final version demonstrated strong face validity and readiness for comprehensive psychometric evaluation (See Appendix 1).

2.2.2. Beck Scale for Suicide Ideation (BSSI)

The BSSI is a 19-item self-report instrument measuring the intensity of suicidal ideation developed by Beck et al. (33). Items are scored on a 3-point scale (0-2), with total scores ranging from 0 to 38. The Persian version has shown good internal consistency ($\alpha = 0.85$) and criterion validity (34). In the current sample, the BSSI showed good internal consistency ($\alpha = 0.87$).

2.2.3. Beck Hopelessness Scale (BHS)

The BHS is a 20-item true-false self-report measure assessing negative expectations about the future developed by Beck et al. (35). Total scores range from 0 to 20, with higher scores indicating greater hopelessness. The

Persian version has shown good validity and internal consistency ($\alpha = 0.87$) (36). In the present study, the Persian BHS demonstrated good internal consistency ($\alpha = 0.88$).

2.2.4. Beck Depression Inventory-II (BDI-II)

The BDI-II is a 21-item self-report measure assessing the severity of depressive symptoms developed by Beck et al (37). Each item is scored on a 0-3 scale, with total scores ranging from 0 to 63. The Persian version has demonstrated excellent psychometric properties, exhibiting high internal consistency with a Cronbach's α of 0.87, and acceptable test-retest reliability, reflected by a correlation coefficient of $r = 0.74$. (38). In the current sample, the Persian BDI-II showed excellent internal consistency ($\alpha = 0.91$).

2.2.5. Beck Anxiety Inventory (BAI)

The BAI is a 21-item self-report measure assessing the severity of anxiety symptoms, developed by Beck et al. (39). Items are rated on a 4-point scale (0-3), with total scores ranging from 0 to 63. The Persian version has demonstrated good psychometric properties, with internal consistency of $\alpha = 0.92$ (40). In the present study, the Persian BAI demonstrated good internal consistency ($\alpha = 0.83$).

2.3. Data Analysis Method

Statistical analyses were conducted using SPSS version 27 and AMOS version 24. The confirmatory factor analysis (CFA) was conducted using maximum likelihood estimation to assess the one-factor structure of the B-SCS as proposed in the original validation study (9). Model fit was evaluated using multiple indices: chi-square test (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA) with its 90% confidence interval. Following established guidelines, acceptable model fit was defined as: CFI and TLI ≥ 0.90 , SRMR ≤ 0.08 , and RMSEA ≤ 0.08 . (41).

Measurement invariance was assessed to determine if the B-SCS has equivalent psychometric properties across genders (females vs. males). This analysis checks if suicide cognitions are measured similarly for both groups, ensuring reliable and valid comparisons. Three increasingly restrictive models were tested: configural invariance (same factor structure), metric invariance (equal factor loadings), and scalar invariance (equal loadings and intercepts). Model fit was compared using changes in CFI (Δ CFI) and RMSEA (Δ RMSEA) between models, with acceptable invariance defined as Δ RMSEA $\leq .015$ and Δ CFI $\leq .01$.

Reliability was assessed through multiple indicators. Internal consistency was evaluated using Cronbach's alpha (α), McDonald's omega (ω), and composite reliability (CR). Values above 0.70 were considered satisfactory for all reliability indices (42).

Convergent validity was evaluated at both the scale and construct levels. At the scale level, Pearson correlation coefficients were calculated between the B-SCS total score and established measures of related constructs (Beck Depression Inventory-II, Beck Anxiety Inventory, Beck Hopelessness Scale, and Beck Scale for Suicide Ideation). At the construct level, average variance extracted (AVE) was calculated for each factor, with values exceeding 0.50 indicating adequate convergent validity (43). All statistical tests were two-tailed with significance set at $p < 0.05$.

3. Results

3.1. Sociodemographic Characteristics

The study sample consisted of 162 participants with suicidal ideation. As shown in Table 1, the participants in this study had a mean age of 23.25 years ($SD = 3.549$), ranging from 18 to 45 years. The gender distribution was relatively balanced with 85 females (52.5%) and 77 males (47.5%). Regarding marital status, 149 participants (92.0%) were single, and 13 participants (8.0%) were married. In terms of educational level, the majority of participants ($n = 131$, 80.9%) had undergraduate education, while 16 participants (9.9%) had postgraduate qualifications, and 15 participants (9.3%) had completed high school or less. This educational profile reflects a generally well-educated sample, with approximately 90.8% of participants having pursued higher education.

--- Table 1 about here ---

3.2. Confirmatory Factor Analyses

To examine the factor structure of the B-SCS, confirmatory factor analysis (CFA) was conducted using maximum likelihood estimation. Preliminary screening indicated that skewness and kurtosis values for all B-SCS items were within the acceptable range of ± 2 , suggesting no substantial deviation from normality. Based on previous empirical evidence, a unidimensional model was tested (9). The CFA results provided strong support for the hypothesized one-factor structure of the B-SCS. The one-factor model demonstrated excellent fit to the data across multiple fit indices: $\chi^2(9) = 10.262$, $p = .330$, $\chi^2/df = 1.140$, SRMR = 0.03, RMSEA = .021, CFI = .999, TLI = .998, GFI = .980, AGFI = .954. Figure 1 illustrates the final factor structure of the study, displaying the standardized factor loadings. Additionally, as presented in Table 2, the standardized factor loadings for the unidimensionality items were notably substantial, ranging from .85 to .92. All factor loadings were statistically significant ($p < .001$), indicating that each item contributed meaningfully to the latent construct. The single-factor structure explained 82.097% of the total variance in the scale items. This high percentage of explained variance further supports the robust unidimensional structure of the B-SCS.

1 --- Table 2 about here ---

2 --- Figure 1 about here ---

3 3.3. Measurement invariance

4 Table 3 presents the results of the measurement invariance testing across
5 groups. The configural invariance model demonstrated excellent fit indices
6 ($\chi^2 = 17.483$, $df = 18$, $p = .490$, $CMIN/DF = .971$, $CFI = 1.000$, $TLI = 1.000$,
7 $RMSEA = .000$), indicating that the same factor structure holds across
8 groups. The metric invariance model (constraining factor loadings to be
9 equal) also showed good fit ($\chi^2 = 29.045$, $df = 23$, $p = .179$, $CMIN/DF = 1.263$,
10 $CFI = .994$, $TLI = .992$, $RMSEA = .041$), with minimal changes in fit indices
11 compared to the configural model ($\Delta CFI = -.006$, $\Delta RMSEA = .041$).
12 Further testing for structural covariances invariance yielded satisfactory fit
13 indices ($\chi^2 = 29.045$, $df = 24$, $p = .218$, $CMIN/DF = 1.210$, $CFI = .995$, $TLI =$
14 $.994$, $RMSEA = .036$), with negligible changes in fit indices compared to the
15 metric model ($\Delta CFI = .001$, $\Delta RMSEA = -.005$). According to Chen's
16 recommendations (44), these results provide strong evidence for
17 measurement invariance across groups, suggesting that the measurement
18 instrument functions equivalently across the compared groups.

19
20 --- Table 3 about here ---

21

1 **3.4. Reliability Analyses**

2 To assess the internal consistency of the B-SCS, three reliability coefficients
3 were calculated. Cronbach's alpha coefficient was excellent ($\alpha = 0.95$),
4 indicating strong internal consistency among the six items. McDonald's
5 omega coefficient ($\omega = 0.96$) and composite reliability ($CR = 0.95$) were
6 nearly identical to the alpha value, providing convergent evidence for the
7 exceptional reliability of the scale. These values substantially exceed the
8 recommended threshold of 0.70 for acceptable reliability in psychological
9 assessment instruments.

10

11 **3.5. convergent validity**

12 To assess the convergent validity of the B-SCS, we examined its correlations
13 with theoretically related constructs and calculated the Average Variance
14 Extracted (AVE). As shown in Table 4, the B-SCS demonstrated strong
15 positive correlations with the Beck Depression Inventory (BDI; $r = .977$, $p <$
16 $.001$), Beck Hopelessness Scale (BHS; $r = .976$, $p < .001$), Beck Anxiety
17 Inventory (BAI; $r = .864$, $p < .001$), and Beck Scale for Suicide Ideation (BSSI;
18 $r = .924$, $p < .001$). These strong correlations with established measures of
19 depression, hopelessness, anxiety, and suicide ideation provide robust
20 evidence for the convergent validity of the B-SCS.

21 Additionally, the Average Variance Extracted (AVE) value for the B-SCS was
22 0.785, substantially exceeding the recommended threshold of 0.50. This high

AVE value indicates that the latent construct of suicidal capacity accounts for approximately 78.5% of the variance in the scale items, further supporting the convergent validity of the measure.

--- Table 4 about here ---

Discussion

This study presents the first comprehensive psychometric validation of the Brief Suicide Cognitions Scale (B-SCS) in Iran, addressing a critical need for culturally appropriate suicide risk assessment instrument in Persian-speaking populations. Our findings provide preliminary evidence supporting the reliability, validity, and clinical utility of the Persian B-SCS as a measure of enduring cognitive vulnerability to suicide. Emotional expression in Iranian culture is influenced by religious, familial, and social expectations, potentially leading to greater caution in endorsing explicit statements of self-blame or despair (45). Such patterns could partly explain some differences in factor loadings or item distributions observed in our sample.

The confirmatory factor analysis strongly supported the unidimensional structure of the B-SCS, with substantial factor loadings ranging from .85 to .92. This single-factor structure explained 82.1% of the total variance, significantly higher than the 58-62% variance reported in previous validations (9, 26). The robust factor structure aligns with theoretical

conceptualizations of the suicidal belief system as an integrated cognitive framework encompassing perceptions of unlovability, unbearability, and unsolvability (12). Although the factor loadings in our study are substantial, they are consistent with the unidimensional theoretical structure of the B-SCS and align closely with findings from the original validation study. Rudd and Bryan reported comparable high factor loadings across their multiple samples, ranging from .69 to .88, with most loadings exceeding .75 (9). These consistently high loadings across different populations support the robust unidimensional structure of the scale. In unidimensional scales, substantial loadings on a single factor appropriately justify combining item scores into a single scale score (46), which is theoretically consistent with the B-SCS design to measure the integrated suicidal belief system. The high factor loadings may reflect our homogeneous clinical sample of individuals with active suicidal ideation, naturally leading to stronger item-factor relationships. The substantial average variance extracted (78.5%) further indicates that these items collectively capture a coherent psychological construct consistent with Rudd's conceptualization of the suicidal belief system as an integrated cognitive framework (12).

Nevertheless, we acknowledge that the uniformly high factor loadings observed across all items, while consistent with the scale's unidimensional structure, may suggest potential item redundancy that warrants further investigation. Future psychometric research should systematically examine whether a shortened version of the B-SCS could maintain adequate reliability,

validity, and theoretical coverage while further reducing patient burden. Such investigations would ideally employ item response theory analyses to identify potential redundant items and compare abbreviated versions against the full scale across diverse clinical samples (47, 48). This is particularly important given that even modest reductions in assessment burden can improve patient compliance and clinical utility in high-stress emergency settings where brief instruments are essential (49). However, any item reduction must carefully balance psychometric efficiency against theoretical completeness, ensuring that all three core domains of the suicidal belief system (unlovability, unbearability, unsolvability) remain adequately represented (9).

The Persian B-SCS demonstrated exceptional reliability across multiple indices ($\alpha = 0.95$, $\omega = 0.96$, $CR = 0.95$), exceeding values reported in previous validations, including the original study ($\alpha = 0.90$ - 0.91 ; (9)), the Bangladesh version ($\alpha = 0.84$; (26)), and the Turkish adaptation ($\alpha = 0.89$; (16)). Measurement invariance analysis confirmed that the B-SCS functions equivalently across gender groups, with configural, metric, and scalar invariance established. This finding is particularly important in the Iranian context, where gender differences in suicidal behavior have been documented (2), ensuring that observed differences in B-SCS scores between males and females reflect genuine differences in the underlying construct rather than measurement artifacts.

The convergent validity of the B-SCS was strongly supported by its substantial correlations with established measures of related constructs, including depression ($r = .977$), hopelessness ($r = .976$), anxiety ($r = .864$), and suicidal ideation ($r = .924$). The high AVE value (0.785) further confirms that the latent construct explains a substantial proportion of variance in its indicators.

The high correlations between the Persian B-SCS and established measures warrant methodological investigation. The correlation with depression ($r = .977$) suggests over 95% shared variance, questioning the scale's incremental utility. We acknowledge that several methodological factors specific to our study design likely inflated these correlations beyond what would occur in typical clinical applications. First, the sample's homogeneity, psychiatric emergency patients with active suicidal ideation assessed at one crisis point, creates severe range restriction that substantially inflates inter-correlations (50). The original validation in more heterogeneous samples showed more moderate correlations with depression and hopelessness (9), suggesting our findings represent an upper bound specific to this acute clinical context. Second, the sequential administration during a high-stress session can lead to shared method variance, potential carryover effects, and cognitive fusion, where distinct constructs (depression, hopelessness, suicide cognitions) become undifferentiated in acute states (51). Third, the emergency setting and acute distress levels may have

1 contributed to response sets such as agreement bias or careless responding
2 patterns (e.g., straight-lining) that spuriously inflate correlations (52).
3 Although protocols with obvious random responding were excluded, subtle
4 forms of inattentive responding may have remained undetected.

5 Nevertheless, the B-SCS holds distinct theoretical value, unlike
6 measures of current depressive symptoms, it targets enduring cognitive
7 schemas that may persist beyond symptom remission, identifying chronic
8 vulnerability requiring sustained cognitive intervention (12). Furthermore,
9 this findings resonate with Fluid Vulnerability Theory, which posits that
10 suicide-specific cognitions are fundamental vulnerability factors that
11 contribute to various forms of psychological distress. Thus, the high
12 correlations we observed are expected within this framework and should not
13 be interpreted as evidence of construct redundancy (12).

14 Our findings have important implications for suicide risk assessment in
15 Iranian clinical settings. The Persian B-SCS provides clinicians with a brief,
16 reliable, and valid instrument for assessing enduring cognitive vulnerability
17 to suicide, addressing a significant gap in available assessment instruments.
18 Unlike measures focused solely on acute risk factors, the B-SCS captures
19 underlying cognitive patterns that may persist even when acute suicidal
20 symptoms have temporarily resolved, aligning with the distinction between
21 acute and chronic risk emphasized in Fluid Vulnerability Theory (12).

The strong associations between B-SCS scores and established risk factors highlight the central role of suicide-specific cognitions in understanding suicidal behavior across cultures. These findings suggest that interventions targeting the suicidal belief system may be particularly effective in reducing chronic suicide risk in Iranian populations, where religious and cultural factors significantly influence attitudes toward suicide and help-seeking behaviors (5).

Our findings generally align with previous validations of the B-SCS in other cultural contexts, supporting its cross-cultural utility. However, several notable differences emerged. The Persian B-SCS demonstrated stronger internal consistency and higher factor loadings compared to the Bangla version (26), which reported a Cronbach's alpha of 0.84 and factor loadings ranging from 0.56 to 0.81. Similarly, our convergent validity coefficients were substantially higher than those reported in the Turkish validation (16). These differences may reflect several factors. First, our sample consisted exclusively of individuals with suicidal ideation in a clinical setting, whereas previous validations often included general university student populations. Second, cultural differences in expressing psychological distress may influence response patterns. In Iranian culture, where mental health stigma remains prevalent (7), those who do acknowledge suicidal thoughts may represent individuals with more severe symptoms, potentially explaining the stronger inter-correlations observed in our study.

1 **Limitations and Future Directions**

2 Despite its strengths, this study has several limitations. First, while our
3 sample size was adequate for psychometric analyses, the use of convenience
4 sampling limits the generalizability of the findings. Our sample was drawn
5 exclusively from a psychiatric emergency setting and may not represent
6 broader populations; thus, replication in more diverse and non-clinical
7 samples is warranted. Second, the strong correlations between the B-SCS
8 and measures of depression and hopelessness may indicate some conceptual
9 overlap, however, consistent with Fluid Vulnerability Theory, suicide-specific
10 cognitions are a distinct vulnerability factor beyond depression or
11 hopelessness.

12 Third, the cross-sectional design precludes examination of the scale's
13 predictive validity for future suicidal behavior. Longitudinal studies are
14 needed to determine whether B-SCS scores predict subsequent suicide
15 attempts beyond traditional risk factors, especially given the scale's
16 theoretical focus on enduring cognitive vulnerability. Fourth, although
17 convergent validity was established, discriminant validity between the B-SCS
18 and closely related constructs (e.g., depression, hopelessness) was limited,
19 likely due to the high severity and symptom overlap in our clinical sample.
20 This should be considered when interpreting the results, and future research
21 should assess discriminant validity in more heterogeneous samples.

Finally, while measurement invariance was established across gender, future studies should test invariance across other relevant groups and explore the scale's clinical utility in guiding treatment decisions and monitoring outcomes. Examining whether changes in B-SCS scores during treatment predict reduced suicide risk would be particularly valuable for clinical practice.

Conclusion

This study offers strong preliminary evidence that the Persian B-SCS has solid psychometric properties, including excellent internal consistency, a clear unidimensional structure, and significant convergent validity. These findings support its potential as a valuable tool for assessing suicide-specific thoughts in Iranian clinical settings. While our results are based on a single-site psychiatric emergency sample and should be viewed with this limitation in mind, they align with international validations of the B-SCS, reinforcing its clinical usefulness. We recommend using the B-SCS in similar acute clinical environments and encourage future research to explore its discriminant validity, predictive value, and measurement invariance across a wider range of clinical and non-clinical populations.

Declarations:

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Committee of University of Social Welfare and Rehabilitation Sciences (Approval ID: IR.USWR.REC.1403.043). All participants provided informed consent prior to participation.

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Competing interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

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Author Contributions

FA: Study Design, Conceptualization, Data Collection, Manuscript Writing.

OS: Project Supervision, Review & Editing. **AR:** Formal Analysis,

Manuscript Writing, Review & Editing. **MA:** Formal Analysis, Manuscript

Writing, Review & Editing. **SAG and ZA:** Review & Editing. **GS:**

Conceptualization, Project Supervision, Review & Editing. All authors have read and approved the final version of the manuscript.

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Table 1. *Sociodemographic variables according to gender*

	Men (n = 77)		Women (n = 85)	
	n	%	n	%
Relationship status				
Single	71	92.2	78	91.8
Married	6	7.8	7	8.2
Educational attainment				
Postgraduate	7	9.1	9	10.6
Undergraduate	61	79.2	70	82.4
high school or less	9	11.7	6	7.1
	M	SD	M	SD
Age	22.97	3.212	23.49	3.83 2

Table 2. *The factor structure of the 6-item B-SCS in a sample of 161 suicidal people*

Items	Factor loading
	Factor 1
1. I am completely unworthy of love.	.882
2. Nothing can help me solve my problems.	.878
3. I can't cope with my problems any longer.	.895
4. I can't imagine anyone being able to withstand this kind of pain.	.851
5. There is nothing redeeming about me.	.917
6. Suicide is the only way to end this pain.	.892
Eigenvalues	4.926
Percentage of variance	82.097

Table 3. *Measurement invariance testing*

	$\chi^2 (df)$	P	CFI	TLI	RMSEA (90% CI)
Configural invariance	17.483 (18)	.490**	1.000	1.001	.000 (.000; .068)
Metric invariance	29.045 (23)	.179**	.994	.992	.041 (.000; .081)
Scalar invariance	29.045 (24)	.218**	.995	.994	.036 (.000; .077)

Table 4. *Correlation matrix of B-SCS with BDI, BHS, BAI, and BSSI*

scale	1	2	3	4	5	alpha
1. B-SCS		.977**	.976**	.864**	.924**	.95
2. BDI			.949**	.832**	.908**	.91
3. BHS				.839**	.905**	.88
4. BAI					.799**	.83
5. BSSI						.87

Note: B-SCS= Brief Suicide Cognitions Scale; BDI= Beck Depression Inventory; BHS= Beck Hopelessness Scale, BAI= Beck Anxiety Inventory; BSSI= Beck Scale for Suicide Ideation.

*** Correlation is significant at the 0.01 level (2-tailed).*

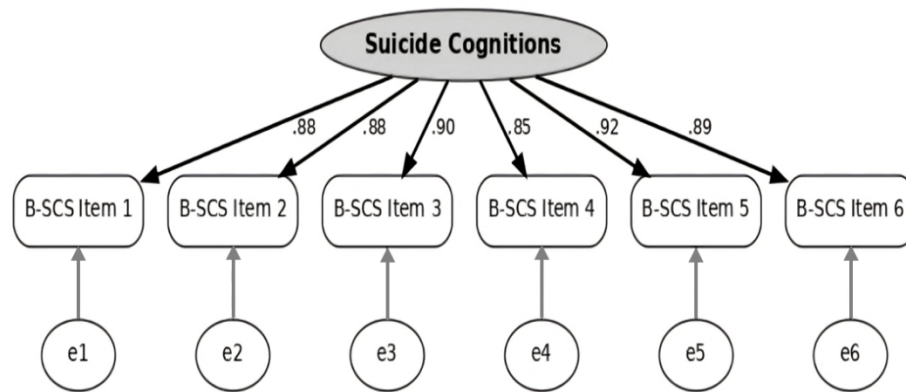


Figure 1. *Final model*