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Suicidal thoughts and attitudes towards suicide in crises among university students in Tehran, Iran: a cross-sectional study

Mohammad Faramarzi[1], Vahid Rashedi[2], Shabnam Nohesara[1], Homa Mohammadsadeghi[3], Shayan Eghdami[4] and Mohammadreza Shalbafan[1*]

*Correspondence:
Mohammadreza Shalbafan
Shalbafan.mr@iums.ac.ir
[1]Mental Health Research Center, Psychosocial Health Research Institute, Department of Psychiatry, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
[2]Iranian Research Center on Aging, Department of Aging, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
[3]Central Queensland Hospital and Health Service, Mental Health Alcohol, and other Drugs Services, Rockhampton, QLD, Australia
[4]Brain and Cognition Clinic, Institute for Cognitive Sciences Studies, Tehran, Iran

Abstract

Background University students are a high-risk population for suicidal ideation, but few studies from Iran examine both suicidal thoughts and attitudes toward crisis situations that may precipitate suicidal behavior. This study assessed the prevalence of suicidal ideation and its relationship with crisis attitudes among university students in Tehran.

Methods In this cross-sectional study, 407 university students (mean age 23.72 ± 2.94 years; 61.2% female) from three academic disciplines completed the Beck Scale for Suicide Ideation (BSSI) and the Predicament Questionnaire (PQ), which assesses aversiveness of 32 hypothetical crisis scenarios. Descriptive statistics characterized the sample and score distributions. Spearman correlation assessed the association between BSSI and PQ scores. Binary logistic regression identified independent predictors of high-risk suicidal ideation (BSSI ≥ 12). Nonparametric tests were used for group comparisons following normality testing.

Results High-risk suicidal ideation prevalence was 20.9% ($n = 85$), with an additional 45.0% showing mild ideation. Mean BSSI and PQ scores were 6.07 ± 7.46 and 72.75 ± 18.08, respectively. Both instruments demonstrated excellent internal consistency (Cronbach's $\alpha = 0.855$ and 0.935, respectively). BSSI and PQ scores were moderately correlated (Spearman's $\rho = 0.439$, 95% CI 0.357–0.514, $p < 0.001$), representing 19.2% shared variance. Binary logistic regression (Nagelkerke $R^2 = 0.147$) identified three significant independent predictors: history of suicide attempts (OR = 4.24, 95% CI 1.74–10.36, $p = 0.002$), PQ total score (OR = 1.05, 95% CI 1.03–1.07, $p < 0.001$), and economic status (marginally significant, OR = 1.33, 95% CI 0.95–1.85, $p = 0.096$). Gender and academic field were not significant predictors in the multivariate model.

Conclusions One in five Tehran university students demonstrated high-risk suicidal ideation, with crisis aversiveness, suicide attempt history, and economic hardship as key correlates. These findings suggest that comprehensive screening incorporating both direct suicide assessment and crisis attitude evaluation may enhance identification of at-risk students. University mental health services should consider targeted

interventions addressing financial stress and implementing specialized support for students with previous suicide attempts.

Keywords Suicidal ideation, Crisis attitudes, University students, Iran, Beck scale, Predicament questionnaire

1 Introduction

The World Health Organization (WHO) defines suicide as a deliberate act aimed at ending one's own life, representing a complex and multifactorial phenomenon influenced by psychological, social, biological, and cultural factors. According to WHO statistics, suicide is a leading cause of death among young adults aged 15–29 years, ranking among the top five causes globally with significant regional variations. Approximately 703,000 people die by suicide worldwide each year, with many more attempting suicides. This represents a significant public health challenge that requires urgent attention, particularly among vulnerable populations such as university students [1, 2].

In Iran, suicide mortality rates vary significantly depending on the data source and reporting methodology. The official suicide mortality rate reported by WHO was 8.14 per 100,000 in 2019, while some regional studies report higher rates of up to 131 per 100,000, likely to reflect differences in case ascertainment and reporting systems. These discrepancies highlight the challenges in accurate suicide surveillance in Iran and underscore the need for comprehensive epidemiological studies to establish reliable prevalence estimates [3–6].

University students represent a particularly vulnerable population for suicidal ideation and behaviors. The transition from family life to university, often involving full or partial independence, is a particularly stressful period for young adults. During this phase, students are confronted with academic pressures, financial challenges, decisions about their future, and the need to establish life goals and social networks. These developmental and environmental stressors can contribute to mental health issues, including depression, anxiety, and suicidal ideation [7–11].

Recent large-scale studies have provided more precise estimates of suicide-related behaviors among Iranian university students. Yaghubi et al. (2024) reported 57.95% of Iranian students with suicide-related behaviors using the SBQ-R in a national online survey, identifying male gender, marriage, social support, later bedtime, and meaning in life as protective factors, while anxiety, stress, and sexual abuse were associated with increased risk. Among medical students specifically, Oskouei et al. (2025) found 70.3% prevalence of current suicidal ideation using BSSI criteria and demonstrated through structural equation modeling that perfectionism influences suicidal ideation through repetitive negative thinking and loneliness, explaining 30% of the variance. These findings indicate that suicidal ideation among Iranian university students has reached alarming proportions, necessitating comprehensive assessment and intervention approaches [12, 13].

Cultural factors specific to Iranian society may profoundly influence both suicidal behavior and attitudes toward crisis situations. Iran's collectivist culture emphasizes family honor, social reputation, and religious values, which may affect how individuals perceive and respond to potentially stigmatizing situations. In such collectivist societies, shame and honor are central concepts that shape individual behavior, with family members risking criticism for failing to uphold culturally acceptable behaviors. The fear of

social shame and honor-based pressure from families and communities can leave individuals feeling trapped, particularly in situations involving perceived violations of family honor. Islamic cultural norms, where suicide is considered strongly prohibited and highly stigmatized, further compound these pressures by creating additional barriers to help-seeking behavior. Understanding these cultural nuances is essential for developing culturally appropriate assessment tools and interventions [14–16].

One critical psychological variable associated with suicide is an individual's attitude toward crisis situations and their perceived ability to cope with adversity. The Predicament Questionnaire (PQ), developed by Shahtahmasebi et al. (2016), represents a novel approach to suicide risk assessment by measuring attitudes toward hypothetical crisis scenarios rather than current symptoms [17]. This forward-looking assessment captures vulnerability to future suicidal crises before they develop, which may be particularly relevant in cultural contexts where honor, shame, and social reputation are paramount concerns. The PQ evaluates perceived aversiveness of 32 hypothetical crisis scenarios, including social exposure, severe disability, and reputation threats, on a 4-point likelihood scale for leading to suicide [18, 19].

Traditional suicide risk assessment has focused primarily on current psychiatric symptoms, demographic factors, and past suicidal behaviors. However, this approach may miss individuals who are vulnerable to future suicidal crises but do not currently exhibit overt risk factors. The Beck Scale for Suicide Ideation (BSSI), while excellent for assessing current suicidal thinking, captures present-state phenomena rather than underlying vulnerability patterns [8]. The combination of BSSI assessment with PQ evaluation may provide a more comprehensive understanding of suicide risk by capturing both current ideation and future vulnerability to crisis-precipitated suicidal thoughts [20].

Despite growing concern regarding student suicide, risk factors specific to university populations, especially within the Iranian cultural context, remain underexplored. The limited availability of high-quality, population-level evidence, particularly concerning attitudes toward suicide and crisis perception, impedes efforts to tailor prevention strategies to the needs of specific groups. Understanding how Iranian university students perceive various hypothetical crises, and how those perceptions relate to current suicidal thoughts, is crucial for identifying at-risk subgroups, refining screening tools, and developing culturally sensitive prevention and intervention programs [21, 22].

The current study addresses these gaps by examining both crisis attitudes (PQ) and suicidal ideation (BSSI) among university students in Tehran. Specifically, this study aims to: [1] determine the prevalence of suicidal ideation among Tehran university students using standardized criteria [2], examine the relationship between crisis attitudes and current suicidal ideation [3], identify demographic, economic, and psychological predictors of high-risk suicidal ideation, and [4] explore how Iranian cultural factors may influence crisis perception and suicide risk within this population. The findings will inform evidence-based approaches to suicide prevention in Iranian university settings and contribute to the broader understanding of cultural influences on suicide risk assessment.

2 Methods

2.1 Design and participants

This cross-sectional study was conducted from October 2022 to September 2023 among university students in Tehran, Iran. Using convenience sampling, 407 students were

recruited from three academic disciplines (Medical Sciences, Humanities, and Engineering) across multiple public universities in Tehran.

Sample size and power: A retrospective sensitivity analysis using G*Power 3.1.9.7 [23] confirmed that our sample of $N = 407$ provides 80% power to detect correlations of $r \geq 0.20$ at $\alpha = 0.05$. While convenience sampling was used due to practical constraints, the multi-university, multi-disciplinary approach was designed to enhance representativeness across different student populations.

Inclusion criteria: Students aged 18–24 years enrolled in undergraduate or graduate programs at participating Tehran universities.

Exclusion criteria: Students who had transferred from other academic majors, those unable to provide informed consent, and incomplete survey responses.

2.2 Assessment tools

Initially, demographic data, such as gender, age, education level, marital status, residency, and economic level, were collected. The Predicament Questionnaire (PQ) and Beck Suicidal Ideation Scale (BSSI) were then completed by participants [8, 24]. We examined the correlation between each of these variables and all items of the survey. Also, since the current Iranian society is struggling with significant gaps in economic levels, we studied the effect of the economic level variable in three different levels (Current expenses without savings, Current expenses with savings, and Minimum cost of living).

PQ questionnaire: The Predicaments Questionnaire, designed by Shahtahmasebi et al. in 2016, measures the social attitude toward suicide in all individuals, regardless of any social group or socioeconomic class. This study considers suicide as a response to predicaments, and it demonstrates that the questionnaire's scores have a direct relationship with the suicide rate in a group or population [17].

PQ consists of 32 scenarios, assessing the likelihood of suicide following each scenario on a 4-point scale (No, Low, Moderate, High) and a higher score indicates that suicidal thoughts are more likely to occur for the scenario in critical circumstances. Based on responses, the participant's attitude toward suicide was evaluated. Rafati et al. reported that the Persian PQ was valid in terms of content validity and face validity. Furthermore, it was reliable, with a Cronbach's alpha of 0.94 [25].

BSSI: The Beck Scale for Suicidal Ideation (BSSI) includes 19 items designed to measure the intensity of suicidal thoughts, plans, and behaviors over the past week. Responses are rated on a 3-point scale from 0 to 2. The total score, ranging from 0 to 38, categorizes participants as having no suicidal thoughts (0–3), mild suicidal thoughts [4–11], or high-risk suicidal thoughts (12 or more). The Persian version of BSSI was validated by Esfahani et al., who reported that Cronbach's alpha coefficients of the screening part and the whole scale were satisfactory (>0.8) [26].

2.3 Statistical analysis

Statistical analyses were performed using SPSS version 27 (IBM Corp., Armonk, NY). Variable distributions were evaluated for normality using the Shapiro-Wilk test and by inspection of skewness and kurtosis; because continuous variables departed from normality, nonparametric methods were used. Associations between categorical variables were assessed with Pearson's chi-square test (or Fisher's exact test when expected cell

counts were < 5). Two-group comparisons employed the Mann-Whitney U test and comparisons across three or more groups used the Kruskal-Wallis H test. Relationships between continuous or ordinal variables were examined using Spearman's rank correlation. All hypothesis tests were two-tailed with a nominal significance threshold of $p < 0.05$. Given the multiple statistical comparisons performed, we acknowledge the increased risk of Type I error. Post-hoc pairwise comparisons following significant Kruskal-Wallis tests were conducted using Dunn's test with Bonferroni correction. For the regression analysis, variables with $p < 0.20$ in bivariate analyses were considered for inclusion in the multivariate model. Model assumptions were checked including linearity of the logit, absence of multicollinearity (VIF < 5), and influential outliers. Model fit was assessed using Hosmer-Lemeshow goodness-of-fit test.

2.4 Ethical considerations

This study involved no interventions in participants. Online written informed consent was obtained from all students. All personal information remained confidential. The Ethics Committee of the Iran University of Medical Sciences approved the study. (No. IR.IUMS.FMD.REC.1401.330).

2.5 Participant safety protocols

Participants identified as high-risk for suicide (BSSI score ≥ 12) were provided with mental health resources and emergency contact information. The research team followed the protocols for immediate referral to mental health services when necessary.

3 Results

A total of 407 university students participated in this study. Participants ranged in age from 18 to 34 years (M = 23.72, SD = 2.94). The majority were female (61.2%, $n = 249$), single (84.5%, $n = 344$), and enrolled in Humanities programs (46.7%, $n = 190$), followed by Engineering (36.9%, $n = 150$) and Medicine (16.5%, $n = 67$). Regarding economic status, 189 participants (46.4%) reported being able to cover current expenses with savings, 138 (33.9%) could meet current expenses without savings, and 80 (19.7%) reported living at minimum cost levels. A history of suicidal thoughts was reported by 132 participants (32.4%), while 25 participants (6.1%) reported previous suicide attempts. Complete sample characteristics are presented in Table 1.

3.1 Instrument reliability

Internal consistency for both instruments was excellent in our sample; The PQ demonstrated high reliability (Cronbach's $\alpha = 0.935$), and the BSSI showed good reliability (Cronbach's $\alpha = 0.855$), supporting the psychometric adequacy of both measures in this Iranian student population.

3.2 Descriptive statistics for key variables

Mean BSSI total score was 6.07 (SD = 7.46, range 0–38), with a median of 2.00, indicating a right-skewed distribution. The PQ total score averaged 72.75 (SD = 18.08, range 34–121), with a median of 73.00, suggesting approximately normal distribution. Individual PQ scenarios 6, 7, and 8 (hypothesized to represent intimate/sexual crisis situations) showed relatively high mean ratings; PQ6 (M = 3.21, SD = 0.87), PQ7 (M = 3.29,

Table 1 Sample characteristics of Tehran university students ($N = 407$)

Characteristic	Value
Total sample size	407
Age (years)	23.72 ± 2.94
Gender, n (%)	
Male	158 (38.8)
Female	249 (61.2)
Academic field, n (%)	
Medicine	67 (16.5)
Engineering	150 (36.9)
Humanities	190 (46.7)
Economic status, n (%)	
Current expenses with savings	189 (46.4)
Current expenses without savings	138 (33.9)
Minimum cost of living	80 (19.7)
Marital status, n (%)	
Single	344 (84.5)
Married/Other	63 (15.5)
Mental health indicators	
History of suicidal thoughts, n (%)	132 (32.4)
History of suicide attempts, n (%)	25 (6.1)
High-risk suicidal ideation (BSSI ≥ 12), n (%)	85 (20.9)

Table 2 Descriptive statistics for key variables (BSSI and PQ Scores)

Variable	*N*	Mean	SD	Median	Min	Max	Q1	Q3
BSSI total score	407	6.07	7.46	2.00	0	38	0.00	10.00
PQ total score	407	72.75	18.08	73.00	34	121	60.00	85.50
PQ scenario 6	407	3.21	0.87	3.00	1	4	3.00	4.00
PQ scenario 7	407	3.29	0.89	4.00	1	4	3.00	4.00
PQ scenario 8	407	3.26	0.89	3.00	1	4	3.00	4.00
PQ scenarios 6 + 7 + 8	407	9.76	2.14	10.00	3	12	9.00	12.00

Table 3 Distribution of suicidal ideation risk categories (BSSI Cutoffs)

BSSI Category	*n*	Percentage
No suicidal ideation (BSSI = 0)	139	34.2
Mild suicidal ideation (BSSI 1–11)	183	45.0
High-risk suicidal ideation (BSSI ≥ 12)	85	20.9
Total	407	100.0

SD = 0.89), and PQ8 (M = 3.26, SD = 0.89), all on a 4-point scale. The composite score for scenarios 6 + 7 + 8 was 9.76 (SD = 2.14). Complete descriptive statistics are shown in Table 2.

3.3 Suicidal ideation risk categories

Based on established BSSI cutoff criteria, 139 participants (34.2%) showed no suicidal ideation (BSSI = 0), 183 (45.0%) demonstrated mild suicidal ideation (BSSI 1–11), and 85 (20.9%) met criteria for high-risk suicidal ideation (BSSI ≥ 12). The prevalence of high-risk suicidal ideation in this sample was notably elevated compared to general population estimates. Risk category distributions are detailed in Table 3.

Table 4 Group comparisons of BSSI and PQ total scores

Comparison	Group 1/description	Group 2	Test statistic	*p*-value	Sig.
BSSI by gender	Male: 6.30 ± 7.42	Female: 5.92 ± 7.50	U = 20,260	0.603	ns
PQ total by gender	Male: 72.99 ± 18.16	Female: 72.59 ± 18.06	U = 19,864	0.868	ns
PQ total by field	Med: 71.79, Eng: 76.50, Hum: 70.12		H = 10.317	0.006	*
BSSI by economic status	Level 1: 5.86, Level 2: 4.85, Level 3: 8.65		H = 15.732	0.000	*

Table 5 Spearman correlation analysis between BSSI and PQ scores

Variables	ρ (Spearman)	95% CI	*p*-value	r^2	Effect Size
BSSI Total × PQ Total	0.439	(0.357, 0.514)	0.000000	0.192	Medium-large
BSSI Total × PQ Scenarios 6 + 7 + 8	0.281	(0.189, 0.368)	0.000000	0.079	Small-medium

3.4 Group comparisons

Mann-Whitney U tests revealed no significant gender differences in either BSSI total scores (males: M = 6.30, SD = 7.42; females: M = 5.92, SD = 7.50; U = 20,260, $p = 0.603$) or PQ total scores (males: M = 72.99, SD = 18.16; females: M = 72.59, SD = 18.06; U = 19,864, $p = 0.868$).

Kruskal-Wallis analysis revealed significant differences across academic fields for PQ total scores (H = 10.317, $p = 0.006$), with Engineering students reporting the highest crisis aversiveness (M = 76.50, SD = 17.70), followed by Medicine (M = 71.79, SD = 16.28) and Humanities (M = 70.12, SD = 18.54). Post-hoc analysis with Bonferroni correction showed that Engineering students reported significantly higher crisis aversiveness than Humanities students (corrected $p = 0.004$).

Economic status was significantly associated with BSSI scores (H = 15.732, $p < 0.001$), with participants at minimum cost living levels showing the highest suicidal ideation scores (M = 8.65) compared to those with current expenses without savings (M = 4.85) and those with savings (M = 5.86). Complete group comparison results are presented in Table 4.

3.5 Correlation analysis

Spearman correlation analysis revealed a significant moderate-to-strong positive association between BSSI total scores and PQ total scores (ρ = 0.439, 95% CI 0.357–0.514, $p < 0.001$). This correlation represents a medium-to-large effect size with 19.2% shared variance ($r^2 = 0.192$), indicating that higher crisis aversiveness is substantially associated with increased suicidal ideation.

The composite score for PQ scenarios 6 + 7 + 8 showed a significant but smaller correlation with BSSI scores (ρ = 0.281, 95% CI 0.189–0.368, $p < 0.001$), representing a small-to-medium effect size ($r^2 = 0.079$). Detailed correlation results are shown in Table 5.

3.6 Logistic regression analysis

Binary logistic regression was conducted to identify independent predictors of high-risk suicidal ideation (BSSI ≥ 12). The model included gender, economic status, history of suicide attempts, PQ total score, and the gender × PQ scenarios 6 + 7 + 8 interaction term. The overall model was statistically significant (χ^2 [5] = 61.17, $p < 0.001$) and

Table 6 Binary logistic regression analysis: independent predictors of High-Risk suicidal ideation (BSSI ≥ 12)

Variable	B	SE	z	*p*-value	OR	95% CI	Sig.
Female (vs. Male)	−0.605	1.361	−0.444	0.657	0.546	(0.038, 7.871)	ns
Economic status (per level)	0.282	0.169	1.665	0.096	1.326	(0.951, 1.848)	†
History of suicide attempts	1.445	0.456	3.172	0.002	4.241	(1.737, 10.357)	**
PQ total score	0.049	0.009	5.269	< 0.001	1.051	(1.032, 1.070)	***
Female × PQ scenarios 6 + 7 + 8	0.045	0.125	0.360	0.719	1.046	(0.818, 1.338)	ns

demonstrated adequate model fit (Hosmer-Lemeshow χ^2 = 3.139, p = 0.925). The model explained 14.7% of the variance in high-risk suicidal ideation (Nagelkerke R^2 = 0.147) and achieved 80.3% classification accuracy.

Three variables emerged as significant independent predictors. History of suicide attempts was the strongest predictor (OR = 4.241, 95% CI 1.737–10.357, p = 0.002), indicating that students with previous suicide attempts had over four times higher odds of current high-risk suicidal ideation. PQ total score was also a significant predictor (OR = 1.051, 95% CI 1.032–1.070, p < 0.001), with each one-point increase in crisis aversiveness associated with a 5.1% increase in odds of high-risk suicidal ideation. Economic status approached statistical significance (OR = 1.326, 95% CI 0.951–1.848, p = 0.096), suggesting that worsening economic conditions may increase suicide risk, though this effect was marginal in the multivariate model.

Neither gender nor the gender × PQ scenarios 6 + 7 + 8 interaction term were significant predictors in the multivariate analysis (p = 0.657 and p = 0.719, respectively), indicating that gender differences in crisis perception do not independently predict suicidal ideation when other factors are controlled. Complete logistic regression results are presented in Table 6.

Also, the correlation between BSSI and PQ total scores (r = 0.424) represents a moderate effect size according to Cohen's conventions, explaining approximately 18% of the variance in suicidal ideation scores. as shown in Table 6. BSSI and PQ total scores were moderately correlated (Spearman's ρ = 0.424, 95% CI 0.34–0.50, p < 0.001).

4 Discussion

The finding that 20.9% of Tehran university students demonstrated high-risk suicidal ideation (BSSI ≥ 12) represents a substantial public health concern requiring immediate attention from university administrators, mental health professionals, and policymakers. When combined with the additional 45.0% showing mild suicidal ideation, nearly two-thirds of students in our sample endorsed some level of suicidal thinking. This prevalence is alarmingly high and suggests that suicidal ideation has reached endemic proportions among Iranian university students [2].

Our prevalence estimate aligns with the upper range of recent Iranian studies while employing more stringent diagnostic criteria. Yaghubi et al. reported 57.95% of Iranian students with suicide-related behaviors using the SBQ-R, though this broader metric encompasses lifetime ideation, threats, and future intent rather than current severity [13]. Among medical students specifically, Oskouei et al. found 70.3% prevalence of any current suicidal ideation using BSSI presence/absence criteria. The consistency of elevated rates across different instruments, sampling frames, and institutions underscores the severity of this mental health crisis in Iranian higher education [12].

The magnitude of these findings demands immediate policy intervention. Universities cannot address this crisis through traditional counseling services alone; comprehensive, population-level approaches incorporating primary prevention, early identification, and crisis intervention are urgently needed [2, 27].

4.1 Economic hardship as a driving force

Economic status emerged as a marginally significant predictor of high-risk suicidal ideation (OR = 1.33, $p = 0.096$), with students reporting minimum cost living levels showing the highest mean BSSI scores (8.65 vs. 4.85–5.86 for higher economic levels). This finding carries profound implications for both university policy and broader socioeconomic intervention [28, 29].

The association between economic hardship and suicidal ideation is likely to operate through multiple pathways. Financial stress may directly increase psychological distress, limit access to healthcare and social resources, and create feelings of hopelessness regarding future prospects. In the Iranian context, where university education is often viewed as the primary pathway to economic mobility, financial struggles may be particularly devastating to students' sense of self-worth and future orientation [9, 30, 31].

These findings aligned with international research demonstrating robust associations between socioeconomic disadvantage and suicide risk. However, they take on urgency in Iran's current economic climate, characterized by high inflation, currency devaluation, and limited employment opportunities for graduates [32–34]. Universities and policymakers must recognize that mental health interventions alone are insufficient without addressing the underlying economic stressors contributing to student distress [3, 21, 30].

4.2 Crisis attitudes as novel predictors: the predicament questionnaire

A central contribution of this study is demonstrating that attitudes toward hypothetical crisis situations (as measured by the PQ) are independently associated with suicidal ideation beyond established risk factors. The moderate correlation between PQ and BSSI scores ($\rho = 0.439$, explaining 19.2% variance) and the significant odds ratio in multivariate analysis (OR = 1.05 per PQ point) suggest that crisis aversiveness represents a distinct, measurable vulnerability factor [19].

The PQ's predictive utility lies in its assessment of perceived entrapment, defeat, and humiliation across culturally salient scenarios. Unlike traditional risk assessments focusing on psychiatric symptoms or demographic factors, the PQ captures cognitive-emotional responses to potential future adversities, a forward-looking vulnerability that may precede the development of acute suicidal crise [19, 30].

This finding has significant implications for suicide risk assessment in Iranian populations. The PQ scenarios involving social exposure, sexual reputation threats, and severe disability resonate particularly strongly with Iranian cultural values emphasizing honor, dignity, and social standing. Students who perceive these scenarios as highly aversive may be at elevated risk when facing real-life approximations of such situations [7, 14, 35].

4.3 Predictors of high-risk ideation: implications for targeted interventions

The logistic regression analysis identified three key predictors requiring differentiated intervention approaches:

History of suicide attempts emerged as the strongest predictor (OR = 4.24), consistent with extensive literature establishing prior attempts as the most robust predictor of future suicidal behavior. The 6.1% of students reporting previous attempts represent a high-priority group requiring intensive monitoring, specialized treatment, and safety planning. Universities must develop protocols ensuring that students with suicide attempt histories receive immediate assessment and ongoing follow-up [2, 30].

Crisis aversiveness (PQ scores) independently predicted high-risk ideation, suggesting that interventions targeting catastrophic thinking about potential adversities may reduce risk. Cognitive-behavioral interventions focusing on realistic appraisal of feared scenarios, development of coping strategies, and building tolerance for uncertainty may be particularly beneficial [19, 30].

Economic status showed marginal significance, but substantial clinical importance given the severity of financial hardship among Iranian students. Universities should expand financial aid programs, emergency assistance funds, and work-study opportunities while advocating for broader policy changes addressing student economic security [3, 21].

The absence of gender and academic field effects in multivariate models suggests that these demographic factors are less important than psychological and economic vulnerabilities in determining suicide risk. This finding supports universal screening approaches rather than targeting specific demographic subgroups [36].

4.4 Cultural context: honor, shame, and crisis perception in Iranian society

Iranian cultural norms profoundly shape how students perceive and respond to crisis situations, with implications for both risk assessment and intervention design. Iran's collectivist culture emphasizes family honor, social reputation, and religious values, creating a context where shame and social humiliation carry particular psychological weight [7, 14, 15].

The elevated ratings for PQ scenarios involving sexual exposure and severe disability reflect these cultural sensitivities. In Iranian society, perceived violations of family honor or social standing can lead to profound feelings of entrapment and hopelessness, particularly when combined with limited perceived options for redemption or escape. The fear of bringing shame upon one's family may paradoxically increase suicide risk by preventing help-seeking while amplifying feelings of burden and defeat [7, 14].

Religious factors add additional complexity, as suicide is strongly prohibited in Islamic teachings, creating internal conflict between suicidal impulses and religious beliefs. This prohibition may delay help-seeking while intensifying shame and self-condemnation among students experiencing suicidal thoughts [14, 15, 37].

4.5 Academic field differences: implications for targeted prevention

While academic field did not independently predict high-risk ideation in multivariate analysis, significant differences in crisis aversiveness emerged, with Engineering students reporting higher PQ scores than Humanities students. This pattern may reflect field-specific stressors, personality differences, or varying cultural norms across disciplines [21, 38].

The absence of field effects for suicidal ideation contrasts with international research showing elevated suicide rates among medical students and suggests that in the Iranian

context, economic and psychological factors may override academic pressures in determining risk. However, the higher crisis aversiveness among Engineering students warrants attention, as these students may be particularly vulnerable when facing academic or career setbacks [8, 21, 24].

Medical students deserve special consideration given international evidence of elevated suicide risk in this population and the 17.9% high-risk ideation rate observed in our medical school subsample. The demanding nature of medical training, combined with cultural expectations and career pressures, may create unique vulnerabilities requiring specialized prevention approaches [8, 21, 38].

4.6 Gender patterns in suicidal ideation

The absence of significant gender differences in suicidal ideation in our sample contrasts with international patterns typically showing higher rates of suicidal ideation among females and higher completion rates among males. This finding may reflect cultural factors specific to Iranian society, sampling characteristics, or methodological considerations [39, 40].

Globally, females consistently demonstrate higher rates of suicidal ideation, planning, and non-fatal attempts, while males show higher completion rates. The lack of gender differences in our Iranian sample may reflect cultural factors that either protect females from certain risk factors or expose males to additional vulnerabilities not captured in international samples [2].

The significant gender differences observed for specific PQ scenarios (scenarios 6 and 8) suggest that males and females may differ in their vulnerability to specific types of crises even when overall ideation levels are similar. Female students showed higher aversiveness to scenarios involving social/sexual exposure, potentially reflecting cultural expectations and gender-specific stigma concerns in Iranian society [7, 14, 41].

4.7 Implications for university mental health services

The study findings have direct implications for university mental health service design and implementation:

Comprehensive screening: Universities should implement routine screening combining direct suicidal ideation assessment (BSSI or similar) with crisis attitude evaluation (PQ or adapted brief version). This dual approach captures both current risk and underlying vulnerabilities to future crises [19, 42].

Risk stratification: Students with prior suicide attempts should receive immediate intensive assessment and ongoing monitoring. Those with high PQ scores but no attempt history represents a moderate-risk group benefiting from preventive interventions focusing on crisis appraisal and coping skills [30, 43].

Economic support integration: Mental health services should coordinate closely with financial aid offices to identify and support economically distressed students. Emergency financial assistance should be readily available and promoted as a mental health intervention [28, 29].

Cultural adaptation: All services should be designed with sensitivity to Iranian cultural values, emphasizing confidentiality, family consultation when appropriate, and integration with religious beliefs. Staff training should address cultural competency and the role of honor/shame dynamics in help-seeking [14, 15].

5 Limitations and future research directions

Several limitations must be acknowledged when interpreting these findings. The cross-sectional design precludes establishing causal relationships between crisis attitudes and suicidal ideation, necessitating longitudinal research to determine temporal sequences and predictive validity of PQ scores for future suicidal behaviors. Convenience sampling from Tehran universities limits generalizability to other Iranian regions with potentially different cultural norms, economic conditions, and educational stressors. The PQ's assessment of hypothetical scenarios may not fully capture real-life crisis responses, requiring prospective validation studies. Important psychological variables including anxiety, depression, social support, meaning in life, and trauma history were not systematically assessed and may mediate or moderate the observed relationships [9, 10, 44].

Future research priorities should focus on longitudinal prediction studies examining whether PQ scores prospectively predict suicidal behaviors and help-seeking patterns, with attention to critical thresholds and temporal patterns. Mechanism studies investigating psychological pathways linking crisis attitudes to suicidal ideation through perceived entrapment, defeat, burdensomeness, and belongingness are needed. Formal cultural adaptation studies should develop Iranian-specific versions of assessment tools and interventions incorporating religious coping, family dynamics, and honor-shame considerations. Additionally, economic intervention research testing whether financial support programs (emergency aid, work-study opportunities, debt counseling) reduce suicidal ideation among economically distressed students would address a key modifiable risk factor identified in this study. Large-scale epidemiological studies across Iran's diverse regions and institutional contexts would enhance generalizability and inform national prevention strategies [14, 15, 28, 42].

6 Conclusion

This study reveals a critical mental health crisis among Tehran university students, with over 20% demonstrating high-risk suicidal ideation and additional substantial proportions endorsing mild ideation. The identification of crisis attitudes as an independent predictor of suicidal risk introduces a novel assessment dimension with clear intervention implications.

The convergence of psychological vulnerabilities (crisis aversiveness and prior attempts) and socioeconomic stressors (economic hardship) in predicting suicide risk underscores the need for comprehensive, multi-level interventions addressing both individual psychological factors and structural determinants of student distress.

Most critically, these findings demand immediate policy attention and resource allocation. The prevalence of suicidal ideation documented here represents a public health emergency requiring coordinated response from universities, healthcare systems, and government agencies. Failure to address this crisis adequately will result in preventable student deaths and continued suffering among Iran's university population. The novel contribution of crisis attitude assessment offers hope for improved risk identification and targeted intervention. However, realizing this potential requires sustained commitment to research, intervention development, and systemic change addressing the root causes of student distress in Iranian higher education.

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Author contributions
Conceptualization and design: MF, SN, HM and MS; Data collection: MF, and MS; Data analyses: SE, MF, and VR, Initial draft preparation: SE, MF and VR; Editing & review: All authors.

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Data availability
The dataset used and analyzed during the current study can be shared by the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
Our study was approved by the Institutional Review Board of Iran University of Medical Sciences (IR.IUMS.FMD.REC.1401.330) and carried out based on the Declaration of Helsinki and subsequent revisions. Online written informed consent was obtained from all participants. Our survey was filled out voluntarily and anonymously. And therefore, no identifiable demographic data was collected.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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