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Original Article

Substance Use and Health Related Quality of Life in Suicide Attempt: A Case-Control Study in Kerman, Iran

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Abstract

Introduction: Suicide is considered one of the leading causes of death worldwide. However, the combined impact of substance use and quality of life (QoL) on behaviors such as suicide attempts remains poorly understood, this lack of understanding may limit the ability to distinguish who attempt suicide from those requiring psychiatric hospitalization. Therefore, this study aimed to investigate the effect of substance use and quality of life on suicide attempt behavior.

Methods: This case-control study was conducted in Kerman, Iran, between February and May 2026 and enrolled 44 individuals with a confirmed suicide attempt (cases) and 44 age- and sex-matched psychiatric hospitalization without a history of suicide attempt (controls). Group differences were assessed with independent-samples t-tests and chi-square tests, and independent predictors of suicide attempt were identified using multivariable logistic regression.

findings: Current substance use (63.6% vs. 27.3%) and cigarette smoking (70.5% vs. 47.7%) were significantly more common among cases than controls ($P<0.05$), and all health-related quality of life domains were significantly lower among cases ($P<0.001$). In the multivariable model (Pseudo $R^2=0.764$), substance use was the strongest independent risk factor for suicide attempt (AOR = 9.33; 95% CI: 1.11–78.29; $P=0.040$), while higher physical health (AOR = 0.77), psychological health (AOR = 0.82), and environmental health (AOR = 0.76) scores were each independently protective ($P=0.004$).

Conclusion: findings support integrating substance use screening, mental health care, and quality-of-life-focused interventions into comprehensive, multidimensional suicide prevention strategies.

Keywords: Suicide, Attempted, Substance-related disorders, Quality of life, Case-control studies, Psychiatric hospitalization

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Introduction

Suicide is recognized as a major public health challenge worldwide and is currently one of the ten leading causes of death globally. It is estimated that someone dies by suicide approximately every 40 seconds, accounting for more than 700,000 deaths annually. Despite sustained global prevention efforts, current trends indicate that the world is not on track to achieve the suicide reduction targets established for 2030. In addition to the loss of life, suicidal behavior has profound and long-lasting psychological, social, and economic consequences on individuals, families, and communities.[1,2]

The prevalence of suicide varies considerably across countries and regions.[3] Nations such as the Scandinavian countries, Germany, Eastern Europe, Australia, and Japan—often referred to as part of the "suicide belt" have reported rates as high as 25 per 100,000 population. In contrast, countries such as Spain, Italy, Ireland, Netherlands, and Egypt have reported comparatively lower rates of approximately 10 per 100,000 population.[4] Suicide-related mortality in Iran has shown an increasing trend over the past two decades, indicating it as a growing public health concern in the region.[5,6]

Given the complexity of suicidal behavior, suicide attempts are widely understood to result from the interaction of different biological, psychological, social, and environmental factors.[7,8] Substance use plays a significant role in elevating suicide risk, potentially contributing to self-harming behaviors through heightened impulsivity and deteriorating quality of life.[9] Concurrently, health-related quality of life—a multidimensional construct encompassing physical health, psychological well-being, social relationships, and environmental conditions—has been recognized as an important determinant of suicidal behavior. Prior research has consistently demonstrated that lower quality of life across these domains is associated with greater hopelessness, reduced resilience, and an increased likelihood of suicidal ideation and suicide attempts.[10,11] substance use disorder (SUD) is a major predictor of suicide attempts and mortality. Individuals with SUD and suicidal thoughts often show worse health and behavioral dysregulation. Withdrawal and the fading of substance-

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induced pleasure, coupled with distress and depression, can significantly heighten the risk of suicidal thoughts and behaviors.[12-15]

Most research on suicide risk tends to focus on psychiatric disorders or substance use in isolation. However, the combined effects of these factors along with health-related quality of life encompassing physical, psychological, social, and environmental dimensions have not been adequately studied. Such a gap prevents us from differentiating between people with suicide attempt histories and psychiatric hospitalization people. This will be important in strengthening prevention and treatment efforts. For this reason, in the current study, we sought to compare the effects of substance use and health-related quality of life domains on the behavior of people with suicide attempt histories and psychiatric hospitalization.

Methods

Study Design and Setting

The present work was designed as a case-control investigation to explore the relationship between substance use, various aspects of health-related quality of life, and suicide attempts in Kerman, Iran. Participants were divided into two groups: individuals with confirmed suicide attempts (the case group) and patients admitted for psychiatric hospitalization (the control group). The control participants were closely matched to the cases based on age and sex to minimize confounding variables and improve group comparability. This approach enabled a more rigorous evaluation of the independent effects of substance use and health-related quality of life on suicide attempt. Data collection was conducted between February 20, 2026, and May 21, 2026, in Kerman, as a major urban center in southeastern Iran.

Study Population and Sample Size

The study included two groups from Kerman: a case group consisting of individuals who had confirmed suicide attempts, as recorded by the Deputy of Health at Kerman University of Medical Sciences, and a control group made up of psychiatric patients from Shahid Beheshti Educational and Medical Center who had no history of suicide attempts. Participants in both groups were recruited using a convenience sampling method. The sample size was calculated to compare means between the two independent groups, assuming a 95% confidence interval, a 90% statistical power, and a 1:1 case-to-control ratio. Based on a previous study by Zhou et al. (2021), which reported impulsivity scores of 98.79 ± 16.63 for the case group and 86.91 ± 15.18 for the control group, an initial sample size of 38 participants per group was estimated.[16] After accounting for an anticipated 10% attrition rate, the final sample size was determined to be 44 participants per group, resulting in a total of 88 participants for the study.

Eligibility Criteria

Participation criteria entailed that all persons must have been 18 years or older with the ability to fill the questionnaires and give their written informed consent. Participants from the case group must have had a recorded suicide attempt within the period of the study, which was defined as an action of self-harm that resulted in a non-fatal outcome and that was done with the intention to kill oneself, as reported and verified through the suicide registry of the Deputy of Health at the time of occurrence (recent and not lifetime attempt). Participants from the control group were required to have had a recorded mental disorder, as diagnosed by the psychiatrist treating the patient, hospitalized or undergoing treatment at the research center, and a lack of past history of suicide attempts.

Exclusion criteria were the same for all patients and included severe cognitive impairment, acute psychopathological symptoms, impossibility to build effective communication, and insufficient completion of the questionnaire. Patients who refused participation and withdrew their consent during the course of the research were excluded as well.

Data Collection Instruments

Data were collected with the help of two instruments. First of them is the SUPREMISS study protocol which is a structured tool used for collecting socio-demographic, clinical, and psychosocial data including demographic characteristics, previous suicide attempts, family history of suicidal ideas, anger, and substance abuse.[17]

Second instrument used is the World Health Organization Quality of Life-BREF (WHOQOL-BREF).[18] It is a validated questionnaire consisting of 26 questions which allows to evaluate quality of life in four aspects – physical, psychological, social relationships, and environmental health. There are also two general questions concerning overall quality of life and general health condition. Each question is rated according to five-point Likert scale where raw score is converted into standardized one from 0 to 100; the higher score means better quality of life. Cronbach's alpha for this scale in the current study was 0.96.

Data Collection Procedure

Following ethical approval from Kerman University of Medical Sciences, data collection began in both study groups. In the case group, eligible participants were identified through the suicide registration system of the Deputy of Health and were contacted by telephone. After explaining the study's objectives and assuring participants of confidentiality, face-to-face interviews were scheduled, and written informed consent was obtained before enrollment. In the control group, participants were recruited from psychiatric hospitalization and outpatients at Shahid Beheshti Educational and Medical Center. They were matched with case participants based on age and sex. Information about the study was provided, and informed consent was obtained before the interviews started. All interviews were conducted by a trained researcher in a private and secure setting, lasting approximately 30 to 45 minutes. Responses were recorded using coded forms to

ensure confidentiality. Participants' psychological status was monitored throughout the interview process. If severe distress or an emergent risk of repeated self-harm occurred, the interview was halted, and the participant was promptly referred for appropriate psychiatric care.

Statistical Analysis

All data were coded and analyzed using Stata statistical software. In the first stage, descriptive statistics—including mean, standard deviation, frequency, and percentage—were used to summarize demographic characteristics and study variables. The normality of continuous variables was assessed using the Shapiro–Wilk test, and the results confirmed an approximately normal distribution. Accordingly, the independent samples t-test was applied to compare means of quantitative variables between groups, and the chi-square test was used to evaluate associations between categorical variables.

In order to determine possible multicollinearity amongst the independent variables, the Variance Inflation Factor (VIF) was computed.[19,20] Pearson correlation was employed to measure the relationship between different continuous variables. In the final stage, multivariable logistic regression analysis was conducted to identify independent predictors of group membership (suicide attempt versus psychiatric hospitalization), with results expressed as adjusted odds ratios (AORs) with 95% confidence intervals (CIs). Model discrimination was evaluated using receiver operating characteristic (ROC) curve analysis and the area under the curve (AUC). A *P* value of less than 0.05 was considered statistically significant throughout all analyses.

Results

The total sample size was 88, with 44 individuals per group. Because the study was designed on the basis of matching for age and sex, the mean age was similar among the groups of suicide attempters and those who were hospitalized with a mental disorder (34.52 ± 13.61, and 34.72 ± 13.42 years, respectively). Furthermore, the number of males was also equal among the groups, 63.6%, and females, 36.4%.

Demographic and clinical characteristics of the two groups are presented in Table 1. With respect to educational attainment, 30 participants (68.18%) in the suicide attempt group and 22 participants (50.00%) in the psychiatric hospitalization group had attained a diploma-level education or above, and this difference was statistically significant ($P = 0.043$). Regarding health insurance coverage, 28 participants (63.64%) in the suicide attempt group and 36 participants (81.82%) in the psychiatric hospitalization group were insured, with a significant difference observed between groups ($P = 0.046$). Concerning place of residence, 30 participants (68.18%) in the suicide attempt group and 40 participants (90.91%) in the psychiatric hospitalization group resided in urban areas, representing a statistically significant difference ($P = 0.008$).

With respect to substance use, 28 participants (63.64%) in the suicide attempt group and 12 participants (27.27%) in the psychiatric hospitalization group reported current substance use, demonstrating a highly significant between-group difference ($P = 0.001$). Similarly, cigarette smoking was more prevalent among individuals with suicide attempts (70.45%) compared with psychiatric hospitalization (47.73%), a difference that was statistically significant ($P = 0.030$). No statistically significant differences were identified between groups for sex ($P = 1.000$), marital status ($P = 0.286$), employment status ($P = 0.661$), or alcohol consumption ($P = 0.665$).

Table 1. Comparison of Demographic and Clinical Characteristics Between Suicide Attempt and Psychiatric Hospitalization Groups

Variable	Category	Suicide Attempt n (%)	Psychiatric Hospitalization n (%)	*P* value
Gender	Female	16 (36.36)	16 (36.36)	1.000
	Male	28 (63.64)	28 (63.64)	
Marital Status	Single	24 (54.55)	19 (43.18)	0.286
	Married	20 (45.45)	25 (56.82)	
Educational	Below high school diploma	14 (31.82)	22 (50.00)	0.043*
	High school diploma or higher	30 (68.18)	22 (50.00)	
Insurance Status	No	16 (36.36)	8 (18.18)	0.046*
	Yes	28 (63.64)	36 (81.82)	
Employment Status	Unemployed	18 (40.91)	16 (36.36)	0.661
	Employed	26 (59.09)	28 (63.64)	
Residency	Rural	14 (31.82)	4 (9.09)	0.008*
	Urban	30 (68.18)	40 (90.91)	
Substance Use Experience	No	16 (36.36)	32 (72.73)	0.001*
	Yes	28 (63.64)	12 (27.27)	
Smoking Status	No	13 (29.55)	23 (52.27)	0.030*
	Yes	31 (70.45)	21 (47.73)	
Alcohol Use Experience	No	25 (56.82)	27 (61.36)	0.665
	Yes	19 (43.18)	17 (38.64)	

* $P < 0.05$

Overall health-related quality of life scores across domains are summarized in Table 2. The mean domain scores were as follows: physical health (51.42 ± 8.52), psychological health (54.92 ± 9.96), social relationships (54.07 ± 8.84), environmental health (53.37 ± 7.09), and general health (53.55 ± 10.88). The total quality of life mean score was 53.47 ± 5.83. All quality-of-life domains were at a moderate level and were relatively comparable in magnitude across the full sample.

Domain-level comparisons between groups are presented in Table 3. Mean scores across all five quality of life domains were significantly higher in the psychiatric hospitalization group than in the suicide attempt group ($P < 0.001$ for all comparisons). In the psychiatric hospitalization group, the highest mean score was observed in the psychological health domain (59.75), while the lowest was in the physical health domain (56.49). In the suicide attempt group, psychological health also yielded the highest mean score (50.09), whereas physical health was the lowest (46.35). The greatest between-group disparity was observed in the

general health domain (59.38 versus 47.73). Furthermore, the quality of life total score was significantly greater for the psychiatric admission group (58.15) than the attempted suicide group (48.79), meaning that the quality of life was considerably better in the former.

Pearson correlation coefficients among quality-of-life domains ranged from weak to moderate (Table 4). The strongest correlation was found between physical health and social relationships (r = 0.37), while the weakest was between environmental health and social relationships (r = 0.17). All correlation coefficients were below 0.40, indicating the absence of high multicollinearity among quality-of-life dimensions. Multicollinearity diagnostics further confirmed that VIF values for all model variables—including quality of life domains, marital status, residential status, substance use, and educational level—were below 2.0 (mean VIF = 1.15), supporting the statistical stability and robustness of the regression model.

Table 2. Mean and Standard Deviation of Adjusted Quality of Life Domain Scores in the Total Sample

Quality of Life Domain	Mean	Standard Deviation (SD)
Physical Health	51.42	8.52
Psychological Health	54.92	9.96
Social Relationships	54.07	8.84
Environmental Health	53.37	7.09
General Health	53.55	10.88
Total Quality of Life	53.47	5.83

Table 3. Comparison of Health-Related Quality of Life Domain Scores Between Suicide Attempt and Psychiatric Hospitalization Groups

Quality of Life Domain	Suicide Attempt (n = 44) Mean ± SD	Psychiatric Hospitalization (n = 44) Mean ± SD	t-value	*P* value
Physical Health	46.35 ± 6.56	56.49 ± 7.15	6.93	<0.001
Psychological Health	50.09 ± 9.05	59.75 ± 8.43	5.18	<0.001
Social Relationships	50.00 ± 8.04	58.14 ± 7.73	4.85	<0.001
Environmental Health	49.79 ± 6.26	56.96 ± 6.02	5.48	<0.001
General Health	47.73 ± 9.44	59.38 ± 8.99	5.93	<0.001
Total Quality of Life	48.79 ± 3.53	58.15 ± 3.38	12.69	<0.001

* $P < 0.001$

The multivariable logistic regression model was statistically significant (likelihood ratio $\chi^2 = 93.24$, $P < 0.001$) and accounted for 76.4% of the variance in the outcome variable (Pseudo $R^2 = 0.764$), as shown in Table 5.

Among quality-of-life domains, physical health, psychological health, and environmental health were identified as significant independent predictors of suicide attempt. Each one-unit increase in the physical health score was associated with a 23% reduction in the odds of suicide attempt (AOR = 0.77; 95% CI: 0.64–0.92; $P = 0.004$). A comparable inverse association was observed for psychological health, whereby each one-unit increase was associated with an 18% reduction in the odds of suicide attempt (AOR = 0.82; 95% CI: 0.72–0.94; $P = 0.004$). Similarly, each one-unit increase in environmental health score was associated with a 24% reduction in the odds of suicide attempt (AOR = 0.76; 95% CI: 0.63–0.92; $P = 0.004$). The social relationships domain demonstrated a relative protective effect but did not reach statistical significance (AOR = 0.91; 95% CI: 0.81–1.02; $P = 0.100$).

Of the background factors, substance abuse proved to be the strongest independent predictor, with those with a history of substance abuse being 9.33 times more likely to belong to the suicide attempt group compared with the psychiatric admission group (AOR = 9.33; 95% CI: 1.11-78.29; $P = 0.040$). Education level, marital status, and residential status did not prove to be independent

Table 5. Multivariable Logistic Regression Analysis of Health-Related Quality of Life Domains and Associated Factors in Relation to Suicide Attempt

Variables	Adjusted OR	SE	z-value	*P* value	95% CI
Physical Health	0.77	0.07	-2.91	0.004*	0.64–0.92
Psychological Health	0.82	0.06	-2.88	0.004*	0.72–0.94
Social Relationships	0.91	0.05	-1.65	0.100	0.81–1.02
Environmental Health	0.76	0.07	-2.87	0.004*	0.63–0.92
Educational Level	10.04	13.15	1.76	0.078	0.77–130.77
Marital Status	0.35	0.40	-0.92	0.357	0.04–3.24
Residential Status	0.06	0.12	-1.40	0.161	0.001–3.00
Substance Use	9.33	10.13	2.06	0.040*	1.11–78.29

AOR = Adjusted Odds Ratio; SE = Standard Error; CI = Confidence Interval. * Statistically significant at $P < 0.05$. Model statistics: Likelihood Ratio $\chi^2 = 93.24$, $P < 0.001$, Pseudo $R^2 = 0.764$

Table 4. Correlation Matrix and Multicollinearity Diagnostics of Study Variables

Variables	General Health	Environmental Health	Social Relationships	Psychological Health	Physical Health	VIF
Environmental Health	0.30	1.00	—	—	—	1.14
Social Relationships	0.22	0.17	1.00	—	—	1.29
Psychological Health	0.31	0.27	0.28	1.00	—	1.18
Physical Health	0.27	0.24	0.37	0.19	1.00	1.26
Marital Status	—	—	—	—	—	1.09
Residential Status	—	—	—	—	—	1.08
Substance Use	—	—	—	—	—	1.06
Educational Level	—	—	—	—	—	1.06

VIF = Variance Inflation Factor. Mean VIF = 1.15. (—) indicate variables not included in the correlation matrix

predictors of suicide attempts ($P > 0.05$ for all).

The discrimination ability of the multiple logistic regression model was determined through ROC curve analysis. This model showed outstanding discrimination ability, with an area under the curve (AUC) of 0.98, which indicates that it can differentiate between suicide attempters and psychiatric hospitalization patients very well (Figure 1).

Discussion

The present study presents a thorough analysis of the factors related to suicide attempts in connection to psychiatric hospitalization, as it should be noted that suicidal behavior involves complicated interactions of various individual, social, and quality-of-life-related variables. Since this study is based on the case-control design, it is worth mentioning that the associations presented here — regardless of how they are termed, such as "risk factor" and "protective" — do not reflect the presence of causality or a temporal pattern, but merely represent a set of relationships observed at one point of time. People with suicide attempt had quite distinctive characteristics compared with those without this issue; in particular, in terms of substance use and health-related quality of life.

The main finding of this study is the presence of the association between substance use and suicide attempt. People who used substances had nearly nine times higher odds to be included into the group of people with a suicide attempt compared with those who did not have such experience. This observation agrees with previously published evidence. Münch et al. (2023) found that substance-induced psychotic disorders were strongly associated with an elevated risk of later suicide attempts and were one of the strongest substance-related predictors of suicidal behavior.[9] The above statement is also supported by Soboka et al. (2024) and Rizk et al. (2021); these authors highlighted the role of chronic substance use, including opioid use, in increasing suicide risk via neurobiological changes, negative affect, and psychological distress.[21,22] Importantly, it should be noted that this association retained significance even when adjusted for all quality-of-life domains and demographic characteristics, indicating that substance use independently predicts suicidal behavior.

It can be explained by a number of mechanisms. Substances can influence decision-making processes, lead to behavioral inhibition decline, and increase impulsiveness, thus making people more inclined to self-harmful actions in case of emotional crisis. Moreover, the long-term consequences of substance abuse including deterioration of psychological state, social isolation, interpersonal problems, occupational issues, and poor quality of life — can cumulatively increase susceptibility to suicidal behavior. All of these results emphasize the importance of identifying and treating substance use disorders as one of the key elements of comprehensive suicide prevention approaches.

Environmental health domain demonstrated the strongest inverse statistically significant association with suicide attempt. An increase of one unit of the environmental health score resulted in an approximate 24% decrease in the odds of suicide attempt. The above observation is in accordance with previously published findings presented by Visoki et al. (2024) and Younis et al. (2023); both studies reported on the relationship between better social and environmental conditions and the decreased risk of suicidal behavior.[23,24] It can be explained by multiple factors in the environmental domain, including perceived safety, housing quality, access to healthcare services, and socioeconomic stability. These factors affect psychosocial stressors and availability of protective resources. They can help to understand the importance of structural and environment-based approaches for the purposes of suicide prevention.

Physical health domain also demonstrated the inverse association with suicide attempts; each one-unit increase in the score was associated with the approximate 23% decrease in the odds of suicide attempt. The above observation is consistent with the previous publications of Ahmedani et al. (2017), de Mendonca Lima et al. (2021), and Cryer

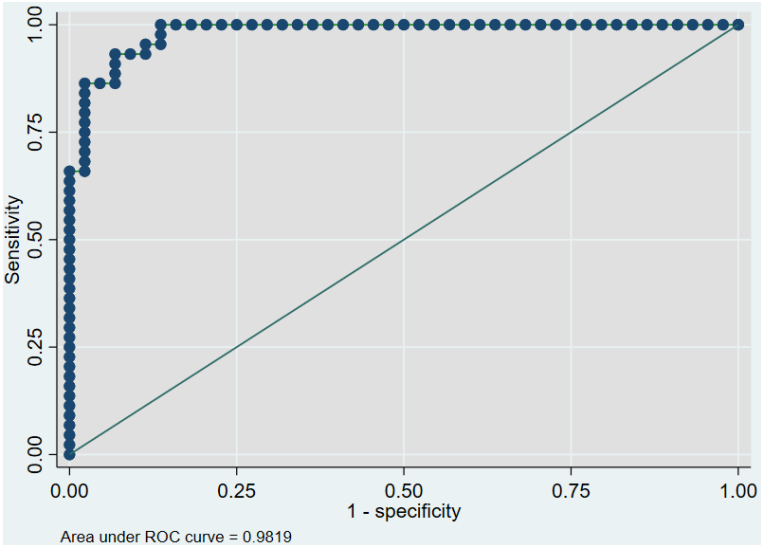


Figure 1. Receiver operating characteristic (ROC) curve

et al. (2020); all of these articles found the association between better physical health and lower risk of suicidal outcomes.[25-27] Chronic pain, functional disability, activities limitation, and psychological burden caused by the chronic physical diseases can all together increase the vulnerability to suicidal behavior. These results demonstrate the importance of taking into account physical health when developing suicide prevention measures.

The psychological health domain also appeared as a statistically significant protective factor; each one-unit increase in the score of this domain reduced the odds of a suicide attempt by approximately 18%. The above observation agrees with the works of McMahon et al. (2022), Favril et al. (2022), and Arafat et al. (2021); these authors reported on the protective role of psychological well-being against suicidal outcomes.[28-30] Psychological symptoms, including depression, anxiety, and chronic stress, can increase suicidal risk via increased cognitive-emotional vulnerability and inadequate coping mechanisms. The above results confirm the necessity of promoting psychological health and treating psychological disorders for the purposes of suicide prevention.

In addition to the main findings, a number of demographic and clinical characteristics differed significantly in the bivariate comparison of the two groups. More educated people tended to have suicide attempts; although education is usually considered a protective factor for mental well-being, its association with suicidal behavior can be rather complicated and dependent on context. Higher level of education can be associated with increased social and occupational expectations, higher awareness of the restrictions caused by illness, and the gap between aspirations and reality. Such factors can increase feelings of frustration and hopelessness of the vulnerable people. Such observations agree with those of McMahon et al. (2022) and Zhou et al. (2023); as well as Liu BaoPeng LB et al. (2018).[28-32]

Smoking was more common among people who had suicide attempts, in agreement with Favril et al. (2022).[29] Apart from the adverse physical effects, smoking has been associated with impulsiveness, poor emotional regulation, and health-risk behaviors. Therefore, it can be viewed as a sign of underlying psychological vulnerability and poor coping strategies in response to the chronic stress.

People in the suicide attempt group tended to live in rural areas; it is in agreement with Wu et al. (2024), Li et al. (2019), and Mo et al. (2020).[33-35] This pattern can be especially relevant for the Iranian setting, as there can be less availability of mental health and psychiatric services in rural settings compared to the major urban centers; in addition to this, there can be greater stigma related to the suicide, which can delay the treatment and increase the above urban-rural discrepancy.

Finally, fewer people with suicide attempt had health insurance coverage; this is in agreement with Arafat et al. (2021) and Kreuze et al. (2025).[30,36] The above association was close to the statistical significance ($P = 0.046$) and requires confirmation on larger sample sizes. It is known that health insurance is essential to ensure the accessibility of healthcare, continuity of treatment, and decrease of the financial burden of illnesses. Thus, lack of the health insurance coverage can reduce access to mental health services and unmet need for treatment, thus increasing the risk of suicidal behavior.

Limitations

The present study involved individuals with recent suicide attempts and psychiatric hospitalization populations that are inherently challenging to engage in research due to the sensitive nature of their clinical and psychological conditions. Establishing trust, ensuring emotional safety, and maintaining ethical standards throughout the interview process required substantial effort and may have influenced participants' willingness to disclose sensitive personal information. Emotional distress, psychological vulnerability, stigma concerns, and fear of judgment may have contributed to underreporting, particularly with respect to suicidal behavior, substance use, and psychosocial difficulties. Notwithstanding the use of trained interviewers and confidential data collection procedures, these factors represent an inherent methodological consideration in suicide-related research.

Additionally, as a case-control study, temporality and causality cannot be established between the identified risk factors and suicide attempts. The relatively modest sample size may have limited statistical power for detecting smaller effect sizes, particularly for covariates that narrowly missed significance. Future studies should consider larger, multi-center designs to improve generalizability.

Recommendations for Future Research

Future studies should employ prospective longitudinal designs to clarify the temporal and causal relationships between substance use, health-related quality of life, and suicidal behavior. Such approaches may provide a more comprehensive understanding of how changes in physical, psychological, and environmental well-being influence suicide risk over time.

Additionally, future research should investigate the effectiveness of multidimensional intervention programs targeting substance use disorders, mental health promotion, and quality-of-life enhancement. Evaluating such interventions in high-risk populations may contribute to the development of evidence-based, integrated approaches to suicide prevention and early risk identification.

Conclusion

The results obtained in the course of the present research show that the nature of suicidal behavior is very complex and emphasize the crucial role of substance abuse and health-related quality of life in differentiating individuals who attempted to take their lives from psychiatric patients. In terms of the case-control design, the results should be seen as statistical associations and not causality. Substance abuse demonstrated the strongest independent association with suicide attempts, and better physical health,

psychological well-being, and environmental quality of life were independently related to reduced odds of suicide attempt. Thus, it is clear that suicidal behavior cannot be explained in one clinical or psychosocial way but should be interpreted in light of several individual and environmental determinants.

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Artificial Intelligence Use Disclosure
The authors made use of AI to perfect the grammar of part of the section entitled "Methods and Limitations" in writing this paper. It is hereby stated that the authors did not make use of AI in designing, data collection, data analysis, results, and discussion.

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Competing Interests
The authors declared no conflict of interest.

Ethical Approval
This study was approved by the Ethics Committee of Kerman University of Medical Sciences (IR.KMU.REC.1404.562) and was conducted in accordance with the Declaration of Helsinki and all applicable ethical guidelines. Written informed consent was obtained from all participants and/or their legal guardians prior to enrollment.

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