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Original Article

Investigating the Effect of Substance Desire and Child Abuse in Adolescent Suicide Attempt

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Abstract

Background: This study aimed to investigate the impact of child abuse and substance desire on adolescent suicide.

Methods: This cross-sectional analytical study was conducted on all adolescents aged 12 to 19 who attempted suicide in 2018 at Khorshid Hospital, Isfahan, Iran. A checklist of the patients' demographic information, toxicological data, and 2 standard questionnaires, including substance desire (family, personal, social) and child abuse questionnaire (emotional abuse, physical abuse, and neglect abuse), were collected. The data were analyzed using SPSS version 15. Comparisons between the 2 groups were performed using t tests, chi-square tests, regression analysis, and crude model analysis. Odds ratio (OR) and 95% confidence interval were calculated based on logistic regression.

Findings: A total of 196 teenagers were included in the study, with a mean age of 16.48 ± 1.6 years. Out of these, 155 individuals (79.1%) were female, resulting in a female-to-male ratio of 3.78. There was a significant relationship between gender and alcohol consumption in the personal aspect, as well as between the history of psychiatric diseases and alcohol consumption in the physical aspect ($P<0.005$). The previous history of suicide was the only variable that showed significance in all aspects of both the substance desire and child abuse questionnaires. History of neglect abuse (OR: 1.2, 95% CI [1.07–1.41]; $P=0.009$) was a predictive factor for suicide attempt. However, being male (OR: 0.12, 95% CI [0.039–0.37], $P=0.000$), having no psychiatric history (OR: 0.23, 95% CI [0.10–0.52], $P<0.001$) and not consuming alcohol (OR 0.33, 95% CI 0.15–0.71, $P=0.005$) were identified as protective factors for attempted suicide.

Conclusion: A public health strategy for suicide prevention includes implementing prevention strategies aimed at reducing risk factors, such as alcohol consumption and the risk of neglect abuse.

Keywords: Suicide, Adolescent, Addiction, Substance abuse, Child abuse

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Introduction

Suicide ranks as the 15th leading cause of death globally, accounting for 1.4% of all deaths.[1] According to the Centers for Disease Control and Prevention, it is the second leading cause of death among young people aged 15 to 24 in the United States.[2] Approximately 80% of all suicides occur in low and middle-income countries, with Eastern and Central European countries having the highest suicide mortality rate.[1] Multiple studies have indicated a significant increase in suicide attempts among teenagers in Iran.[3-5]

Adolescence, which spans from ages 10 to 19, is a challenging period marked by cognitive, biological, physiological, and psychological transitions. These changes make adolescents vulnerable to mental health issues, high-risk behaviors, suicidal ideation, and suicidal behavior.[6] Several factors have been identified as potential influences on suicidal attempts during adolescence, including previous suicide history,[1,7,8] psychiatric disorders,[1,2,9,10] and substance abuse disorders.[2]

On the other hand, it is estimated that in 50% of youth suicide cases, family factors, especially a history of suicide in the family,[1,2] as well as a history of psychiatric disorders, particularly depression and substance abuse in the family,[1] and low social and economic situations, play a significant role in suicidal attempts during adolescence.[2,11] A recent systematic review identified several risk factors for drug abuse among adolescents worldwide, including high impulsivity, rebelliousness, impaired emotional regulation, low religiosity, catastrophic pain, incomplete homework, excessive screen time, and alexithymia. Additionally, experiencing child abuse or a negative

upbringing, as well as having psychiatric disorders, were identified as contributing factors.[12]

Child abuse is another risk factor associated with adolescent suicide.[13] The prevalence of child abuse in Iran is significantly higher compared to that in developed countries and is similar to rates observed in developing countries.[5] A review study in Iran reported an overall prevalence of physical abuse (43.59%), emotional abuse (64.32%), and neglect (40.94%).[14] Youth who experience abusive behaviors or neglect at an early age are at an increased risk of suicide.[2] A previous study revealed that the presence of sexual abuse directly affected suicidal ideation, while emotional abuse and neglect indirectly increased suicidal ideation through dissociation and hopelessness.[15]

The present study aims to investigate the effect of 2 important risk factors of suicide, namely substance desire and child abuse, with the goal of identifying strategies for early intervention in adolescence. By recognizing these risk factors and providing opportunities for intervention in the early stages, it becomes possible to prevent suicides and the associated loss of life.

Methods

This cross-sectional analytical study was conducted at Khorshid Hospital, and the study protocol was approved by the Ethical Research Committee of Isfahan University of Medical Sciences. The sample size was calculated, considering an error of 5% (alpha = 0.05), a power of 80% (beta = 0.2), and an effect size of 10% (effect size = 0.1). Additionally, considering a prevalence rate of 41% based on previous studies, the estimated minimum sample size required for the study was 195 individuals.

$$n = \frac{\left(z^2_{1-\frac{\alpha}{2}}\right) \times p(1-p)}{d^2}$$

The study included all adolescents aged 12 to 18 who had attempted suicide in 2018. Exclusion criteria consisted of lack of consent to participate and incomplete questionnaire responses. The data collection tool included a checklist and 2 questionnaires, all of which had been validated in Iran.

The patient information checklist included various characteristics such as toxicology, patient history, and drug classes. The central nervous system (CNS) drug class included antipsychotics, benzodiazepines, and anticonvulsant drugs. Analgesic drugs consisted of acetaminophen and non-steroidal anti-inflammatory drugs. Cardiac drugs included beta blockers and calcium blockers. Other included various vitamins, supplements, anticholinergic drugs, hypothyroid drugs, and clonidine. Economic status was classified as low, moderate, or good based on the patient's statements.

The substance desire standard questionnaire (SDQ) [16] had a reliability of 79% based on Cronbach's alpha. The questionnaire assessed the degree of desire for substance abuse across 3 aspects: family, personal, and social. It contained 16 questions divided into 3 components: family (5 questions), personal (4 questions), and social (7 questions). Each question was rated on a 5-point Likert scale from very low to very high, with scores ranging from 1 to 5. The minimum score on the questionnaire was 16, while the maximum score was 80. Higher scores indicated a greater inclination toward drug abuse.

The Child Abuse Standard Questionnaire (CAQ) in Iran[17] has been validated in Iran and Hosseinkhani et al. Its reliability, based on Cronbach's alpha, is 97%. The questionnaire evaluates the level of child abuse across 3 aspects: emotional abuse (10 questions), physical abuse (10 questions), and neglect abuse (6 questions). Responses are rated on a 3-point Likert scale ranging from "never" to "always" (with values between 1 and 3). The minimum score on this questionnaire is 26, and the maximum score is 78. A score of 26 to 52 indicates an average level of child abuse, while a score of 52 or higher indicates a high level of child abuse.

In the analysis, 2 models were used. The crude model made no adjustments for confounding variables. Model 1 included adjustments for the 3 aspects of the CAQ, age, sex, marital status, occupational status, and economic situation. Model 2 included adjustments for all aspects of Model 1, as well as smoker status, history of substance abuse, history of psychiatric disease, self-mutilation history, alcohol consumption, suicide, and substance abuse in the family history.

Data analysis was conducted using SPSS version 15 (SPSS Inc., Chicago, IL., USA), with a 5% error level. The results were reported as frequency (percentage) for qualitative variables and mean (SD) for quantitative variables. Comparisons between the 2 groups were performed using t tests, chi-square tests, regression analysis, and crude model analysis. Confidence intervals of 95% were used in the comparisons.

Results

In this study, a total of 196 teenagers between the ages of 12 and 18 who had attempted suicide were included. The mean age of the patients was 16.48 ± 1.6 years. Out of the total cases, 155 (79.1%) were females, resulting in a female-to-male ratio of 3.78. The majority of patients (188 cases, 95.9%) had attempted suicide through oral poisoning.

According to patient history, 33.7% of the patients had a history of alcohol consumption, and 38.3% had a history of smoking. Additionally, 34.7% of the patients had previously attempted suicide, 48.5% had a history of self-mutilation, and over half of the patients (53.1%) had a history of psychiatric illness.

Among the patients, 34.2% had a family history of substance abuse, and 14.3% had a family history of suicide. The most common drug classes used in suicide attempts were CNS drugs (94 cases, 48%) and analgesic drugs (56 cases, 28.6%).

Regarding the standard CAQ, the minimum score obtained was 33, and the maximum score was 67. The mean ± SD of the total CAQ score was 47.22 ± 8.3. Most patients obtained average scores on the child abuse questionnaire. The neglected aspect of the CAQ received higher scores compared to the emotional and physical aspects, which obtained lower scores.

In the SDQ, the minimum score obtained was 18, and the maximum score was 53. The mean ± SD of the total score of child abuse was 33 ± 6.57. More teenagers obtained lower scores on this questionnaire compared to the CAQ. Most adolescents had low scores in all 3 aspects of the SDQ.

Table 1 presents a comparison of demographic characteristics, past history, and exposure of patients in different sections of the CAQ and SDQ. Regarding gender, girls received higher scores than boys in all sections except for the personal aspect of the SDQ (P.SDQ), where boys scored significantly higher than girls ($P = 0.000$). However, in the neglected aspect of the CAQ (N.CAQ), unmarried cases scored significantly higher than married and divorced cases ($P = 0.001$). Furthermore, unemployed cases had significantly higher scores than others in the P.CAQ ($P = 0.045$) and P.SDQ ($P = 0.040$). Most adolescents with less education obtained higher scores in the SDQ.

Regarding economic status, cases with good economic status had higher scores in the N.CAQ ($P = 0.000$). Conversely, cases with low economic status obtained significantly higher scores in the family aspect of the SDQ (F.SDQ; $P = 0.001$) and P.SDQ ($P = 0.000$).

The history of alcohol consumption was significant in the P.SDQ ($P = 0.000$). On the other hand, the history of smoking was significant in the emotional aspect of the CAQ (E.CAQ; $P = 0.008$), P.CAQ ($P = 0.003$), and P.SDQ ($P = 0.000$). The previous history of suicide was the only variable that was significant in all examined aspects ($P < 0.05$). The family history of suicide and substance abuse was significant in all aspects of the questionnaires except for the N.CAQ and S.SDQ.

Table 2 presents the results of multivariate logistic regression to explore factors associated with a history of intentional exposure to suicide in different models. History of neglect abuse was a predictive factor for suicide attempt (OR: 1.2, 95% CI [1.07–1.41]; $P = 0.009$). Even after adjusting for demographic characteristics and the patients' past history, the significant effect of neglect abuse aspect remained. However, being male (OR: 0.12, 95% CI [0.039–0.37], $P = 0.000$), no psychiatric history (OR: 0.23, 95% CI [0.10–0.52], $P < 0.001$) and not consuming alcohol (OR 0.33, 95% CI [0.15–0.71], $P = 0.005$) were identified as protective factors for attempted suicide.

Discussion

The aim of this study was to evaluate the impact of child abuse and substance abuse on suicide during the sensitive period of adolescence. Among the investigated variables, it was found that neglect abuse, female gender, history of psychiatric illness, and alcohol consumption increase the risk of suicide.

Child abuse is recognized as one of the risk factors for adolescent suicide [18,19,6]. The World Health Organization (WHO) defines child abuse as encompassing 4 aspects and identifies it as a risk factor for suicide,[20-25] In this study, most patients obtained an average score on the CAQ, with the neglected aspect receiving the highest score. The neglected aspect of child abuse involves disregarding the physical and emotional needs of children.[18] In our study, neglect abuse increased the probability of a suicidal attempt by 1.2 times.[19] Youth who experience abusive behaviors or neglect at an early age are more likely to be at an increased risk of suicide.[2] Similar to our study, several articles have reported neglect as the most common type of child abuse.[13,20-22] A study conducted in Turkey observed that neglect abuse was more prevalent in girls.[22] According to Child Protective Services statistics, 681 000 children worldwide were victims of child abuse, with neglect abuse accounting for the majority (78.8%).[21] However, contrary to our study, some studies have shown that neglect abuse is more prevalent in low-income families due to lifestyle and the inability to meet children's basic needs.[19] This discrepancy could be attributed to differences in sample size and the classification of economic situations between the studies. It is worth noting that in our study, the classification of the economic situation was based on self-reporting from the patients rather than a scientific classification.

In this study, most teenagers obtained low scores in the emotional and physical aspects of child abuse, and no correlation was found between these aspects and the risk of suicide attempts. In the physical aspect, most teenagers received the minimum score. However, in some studies, emotional abuse was reported as the most prevalent type of child abuse.[14,23-26] Emotional abuse includes behaviors that make children feel despised, undervalued, and rejected.[18] The prevalence of emotional child abuse varies across different studies, ranging from 7.3% to 88.2%.[18] Conversely, in some studies, physical abuse, which involves harm to the physical body,[18] was reported as the most common type of abuse [27]. These variations can be attributed to cultural and social differences between societies. The prevalence of physical harm in different studies varies from 3.10% to 77.5%.[18] Physical abuse is more common in boys than in girls,[18] which could explain the difference in our study, where the majority of

Table 1. Comparison of demographic, past history, and exposure of patients in different compartments of child abuse questioner and substance desire questionnaire

Variables		Child Abuse questionnaire (Mean ± SD)						Substance Desire questionnaire (Mean ± SD)						Total (N = 196)
		Emotional abuse	*P*	Physical Abuse	*P*	Neglect Abuse	*P*	Family	*P*	Personal	*P*	Social	*P*	N (%)
Demographic														
Gender	Female	17.90 ± 4.76	0.845	14.35 ± 4.90	0.799	15.01 ± 2.12	0.587	10.35 ± 2.59	0.221	8.26 ± 2.53	0.000	14.59 ± 3.68	0.243	155(79.1)
	Male	17.73 ± 4.93		14.15 ± 3.52		15.22 ± 2.32		10.93 ± 2.88		10.24 ± 3.18		15.36 ± 4.03		41(20.9)
Marriage	Married	18.44 ± 7.28	0.131	15.11 ± 5.18	0.141	15.00 ± 2.91	0.001	10.11 ± 1.83	0.516	9.33 ± 4.24	0.731	14.89 ± 3.33	0.274	9(4.6)
	Unmarried	17.76 ± 4.62		14.20 ± 4.57		15.11 ± 2.05		10.47 ± 2.70		8.65 ± 2.73		14.70 ± 3.73		185(94.4)
	Divorce	24.50 ± 4.95		20.50 ± 7.78		9.50 ± 2.12		12.50 ± 0.71		8.00 ± 1.41		19.00 ± 8.48		2(1)
Job	Student	17.57 ± 4.63	0.211	13.94 ± 4.61	0.045	15.14 ± 2.04	0.544	10.33 ± 2.65	0.151	8.46 ± 2.63	0.040	14.75 ± 3.70	0.988	159(81.1)
	Homemaker	18.92 ± 6.83		15.00 ± 4.93		14.67 ± 3.39		10.33 ± 2.01		7.92 ± 2.39		14.92 ± 3.55		12(6.1)
	Unemployed	19.20 ± 4.53		16.36 ± 4.27		14.72 ± 2.26		11.44 ± 2.83		10.36 ± 3.44		14.72 ± 4.37		25(12.8)
Education	Illiterate	17.45 ± 5.46	0.549	14.36 ± 3.17	0.581	14.90 ± 3.18	0.639	10.54 ± 1.86	0.632	9.00 ± 3.29	0.333	15.18 ± 3.96	0.012	11(56)
	SSC	17.64 ± 4.70		14.10 ± 4.70		15.13 ± 1.92		10.46 ± 2.66		8.68 ± 2.71		15.20 ± 3.75		142(72.4)
	Diploma	18.89 ± 4.82		15.24 ± 4.86		14.70 ± 2.70		10.70 ± 2.79		8.86 ± 3.05		13.38 ± 3.45		37(18.9)
	UG	17.50 ± 5.72		13.50 ± 4.28		15.66 ± 1.86		9.17 ± 3.19		6.66 ± 1.97		11.83 ± 2.71		6(3.1)
Area	Isfahan	17.92 ± 4.74	0.660	14.33 ± 4.77	0.871	15.04 ± 2.12	0.790	10.47 ± 2.73	0.975	8.70 ± 2.78	0.688	14.62 ± 3.81	0.167	172(87.8)
	Others	17.46 ± 5.17		14.17 ± 3.67		15.17 ± 2.46		10.46 ± 2.08		8.46 ± 2.95		15.75 ± 3.25		24(12.2)
Economic Status	Low	18.77 ± 4.84	0.407	14.79 ± 4.33	0.429	13.86 ± 2.48	0.000	11.77 ± 3.18	0.001	11.41 ± 2.52	0.000	15.50 ± 4.26	0.335	44(22.4)
	Moderate	17.69 ± 4.77		14.36 ± 4.90		15.37 ± 1.95		10.06 ± 2.38		7.90 ± 2.33		14.53 ± 3.65		135(68.9)
	Good	17.50 ± 4.93		12.93 ± 2.95		15.78 ± 1.93		10.43 ± 2.50		7.71 ± 2.70		14.57 ± 3.43		14(7.1)
Patient history, Yes / No														
Alcohol consumption	Yes	18.76 ± 4.62	0.062	15.21 ± 4.35	0.053	15.06 ± 2.26	0.984	10.83 ± 2.88	0.179	10.07 ± 3.11	0.000	15.44 ± 4.17	0.069	66(33.7)
Smoking	Yes	19.01 ± 4.64	0.008	15.56 ± 4.77	0.003	14.87 ± 2.36	0.335	10.73 ± 3.09	0..284	9.68 ± 3.17	0.000	15.22 ± 4.37	0.168	75(38.3)
Suicide history	Yes	19.72 ± 5.21	0.000	16.48 ± 5.70	0.000	14.35 ± 2.47	0.001	11.16 ± 2.84	0.008	9.23 ± 2.98	0.040	15.82 ± 3.83	0.004	68(34.7)
History of self-mutilation	Yes	18.70 ± 4.58	0.016	15.02 ± 5.05	0.38	14.90 ± 2.25	0.344	10.61 ± 2.95	0.488	9.14 ± 2.90	0.024	15.35 ± 4.07	0.032	95(48.5)
History of criminal punishment	Yes	19.40 ± 3.66	0.130	15.15 ± 4.86	0.395	15.05 ± 2.52	0.989	10.10 ± 1.80	0.507	9.30 ± 2.68	0.291	17.40 ± 4.21	0.001	20(10.2)
History of psychiatric disease	Yes	18.46 ± 4.85	0.062	15.05 ± 4.79	0.018	15.15 ± 2.09	0.502	10.52 ± 2.84	0.803	8.79 ± 2.87	0.541	14.79 ± 3.44	0.895	104(53.1)
History of other medications	Yes	19.26 ± 4.48	0.003	15.65 ± 5.01	0.004	15.42 ± 2.10	0.089	10.38 ± 2.88	0.720	8.76 ± 2.89	0.765	14.24 ± 4.08	0.175	66(33.7)
Family history of substance abuse	Yes	18.91 ± 4.83	0.027	16.06 ± 5.01	0.000	14.94 ± 2.14	0.590	12.00 ± 2.76	0.000	9.88 ± 2.78	0.000	15.37 ± 3.82	0.097	67(34.2)
Family history of suicide	Yes	19.78 ± 5.00	0.021	16.11 ± 5.41	0.027	14.89 ± 2.11	0.667	11.46 ± 3.20	0.033	9.86 ± 3.16	0.015	15.21 ± 3.73	0.487	28(14.3)
Exposure														
Route of exposure	Oral	17.82 ± 4.80	0.593	14.37 ± 4.70	0.373	15.11 ± 2.14	0.081	10.40 ± 2.64	0.073	8.67 ± 2.77	0.960	14.62 ± 3.70	0.012	188(95.9)
	Non-oral	18.75 ± 4.62		12.87 ± 2.90		13.75 ± 2.43		12.12 ± 2.75		8.62 ± 3.42		18.00 ± 3.89		8(4.1)

Table 2. Multivariate logistic regression analysis for predicting of previous suicide history in different models

Model	Suicide History			
	Variables	***P* value**	**OR**	**CI (95%)**
Crude Model	Neglect Abuse	0.009	1.219	1.050-1.416
Model 1	Neglect Abuse	0.004	1.259	1.076-1.472
	Sex	0.000	0.109	0.036-0.328
Model 2	Neglect Abuse	0.003	1.287	1.090-1.519
	Sex	0.000	0.120	0.039-0.370
	Lack of Psychiatric History	0.000	0.238	0.109-0.522
	Lack of Alcohol consumption	0.005	0.332	0.154- 0.717

CI: Confidence interval, OR: Odds ratio, other variables were not significant and have not shown in the table.

patients were female. Mullen et al. reported that a history of physical abuse increased the likelihood of suicide attempts by 5 times.[28]

In the present study, the majority of adolescents were girls, which is consistent with findings from other studies.[22,29-31] However, our study identified female gender as a risk factor for suicide, with girls being more likely to commit suicide than boys. A study conducted in 2020 reported that the risk of recurrent suicide among female patients was 1.64 times higher than among male patients.[32] Another study found that the lifetime risk of suicide is 2 to 4 times higher in men compared to women, while suicide attempts are 3 to 9 times higher in females.[33] Thus, while male adolescents have a higher death rate due to suicide, suicidal thoughts and attempts are more common among female adolescents.[7] The increased risk of suicide among teenage girls is likely related to factors such as societal suppression, low social status, and a sense of hopelessness.[7] Girls may also experience more stressful life events and be more affected by emotional problems (such as depression and anxiety) due to their social status.[34] Depression, which is more prevalent in girls than boys, is the most common disorder associated with suicide.[7]

In this study, over half of the patients had a history of psychiatric illnesses, and it was found that having a psychiatric illness increases the risk of repeat suicide attempts. Approximately 90% of young people who attempt suicide suffer from at least 1 psychiatric disorder.[2] A global meta-analysis confirmed that the highest age of onset for various psychiatric disorders is 14.5 years.[35] Major depressive disorder (MDD) is present in 35% of youth who have attempted suicide.[2] Several studies have demonstrated a significant relationship between mental health factors (such as stress, depression, smoking, and alcohol consumption) and suicidal ideation and behavior.[7-10] It appears that these conditions contribute to an individual contemplating and attempting suicide as a means of escaping personal problems [7].

Drug and alcohol use disorders are significant risk factors for suicide attempts.[2] However, in this study, the lack of alcohol consumption was identified as a protective factor against suicide attempts. Several studies have highlighted the relationship between alcohol consumption and an increased risk of suicide in teenagers.[36-38] Substance abuse, particularly alcohol misuse, is strongly associated with a higher risk of suicide in women compared to men, especially in adolescents.[1] However, in our study, we not only observed a lack of positive impact on suicidal attempts among individuals with a history of substance abuse, but also found that most of our patients obtained lower scores in three aspects of the SAQ. It should be noted that many patients may give the unreliable history regarding the substance abuse because of fear of prosecution, which could explain the difference between our population and other societies regarding substance abuse.

A history of a suicide attempt is one of the strongest predictive factors for future suicide attempts and increases the risk of suicide up to 10 times, especially within the first year of the initial attempt.[7] In this study, almost one-third of the patients had a previous history of suicide attempts. Another study found that approximately 25% to 33% of all suicide cases had a prior history of suicide attempts.[1]

This research was conducted on adolescents. The mean age of the adolescents in this study was 16.48 ± 1.6 years, with the majority of patients being 17 years old. According to Kaggwa's classification of adolescence,[39] most of our patients fell into the middle adolescence category (15-17 years), which is consistent with findings from other studies.[19,40,41] The prevalence of suicide attempts is highest in the mid-teens.[7] The increase in suicide during this period is associated with a higher prevalence of psychopathologies such as depression and substance abuse, as well as an increased inclination toward suicide among this age group.[7] In our country, it appears that romantic and economic hardships contribute to suicide attempts during this age.

One of the most significant factors influencing adolescent suicide is the family environment. In this study, 14.3% of the patients reported a family history of suicide, and nearly a third of the patients reported a family history of drug use. The family history of suicide impacts adolescent suicide through 2 pathways: genetics and imitation.[1] The heritability of suicidal behavior varies from 30% to 50%.[2] Children with parents who have a history of suicide attempts are 5 times more likely to attempt suicide compared to the general population.[2] Therefore, it is crucial to develop strategies, including screening programs, with a strong focus on addressing these issues, as the consequences can affect children for many years to come.

In this study, the majority of teenagers who committed suicide did so by drug poisoning, particularly with CNS drugs and analgesics. Research shows that drug

poisoning is the most common method used by Iranian adolescents in suicide attempts.[40] Several other studies conducted in Iran also found that drug poisoning with psychoactive drugs, benzodiazepines, and tricyclic antidepressants is the most common method of suicide among teenagers.[8,42,43] This could be explained by the availability of these drugs, considering the high rate of depression in our society.

Conclusion

Youth often encounter barriers when seeking mental health services, primarily due to fears of stigma, prejudice, and unequal treatment from the public.[2] The way forward is to reduce risk factors and strengthen protective factors to the greatest extent possible. The key prevention strategies include promoting mental health, providing education to parents, educators, and children,[40] ensuring accurate media coverage, fostering social support, limiting access to suicide risk factors such as drugs and alcohol, targeting high-risk subgroups, addressing adolescent problems at early stages of exposure to stress,[1] implementing follow-up and monitoring procedures for individuals with a history of suicide attempts,[40] developing strategies for coping with stress and grief,[1] and improving access to mental health centers.[7] Additionally, implementing measures similar to the Mandatory Reporting of Child Abuse and Neglect, which is used in many developed countries, can help detect and prevent child abuse.[14] It is important to plan studies with larger sample sizes, focusing on the same cultures, to organize effective strategies.

Limitation

The investigation of the sexual dimension of child abuse was limited due to social and cultural restrictions in society. Furthermore, the data collection relied on self-reporting, which introduces the possibility that some participants may not have provided honest answers.

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Competing Interests

The authors declared no potential conflict of interest.

Consent to Participate

Written informed consent was obtained from all participants. In the case of participants under the age of 16, consent was obtained from a parent and/or legal guardian.

Consent for Publication

The authors affirm that written informed consent was obtained from the participants to review their files and use their information for this study without identifying them.

Data Availability Statement

The datasets generated and/or analyzed during the current study are not publicly available. However, they can be obtained from the corresponding author upon reasonable request, with permission from the Ethical Committee of Isfahan University of Medical Sciences.

Ethical Approval

This study was conducted in accordance with the principles of the Declaration of Helsinki. Approval was obtained from the Ethics Committee of the University of Medical Sciences (code: IR.MUI.MED.REC.1398.221).

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References

1. Bilsen J. Suicide and youth: risk factors. Front Psychiatry. 2018;9:540. doi: 10.3389/fpsyt.2018.00540.
2. Ching CZ, Yi VH, Yuxuan T, Shen LW, Selvam P, Saffari N, et al. A systematic review on suicide and youth: biological, psychological, social and environmental risk factors. Int J Acad Res Bus Soc Sci. 2022;12(7):546-64. doi: 10.6007/IJARBSS/v12-i7/13974.
3. Mohammadkhani P, Mohammadi MR, Delavar A, Khushabi KS, Rezaei Dogaheh E, Azadmehr H. Predisposing and precipitating risk factors for suicide ideations and suicide attempts in young and adolescent girls. Med J Islam Repub Iran. 2006;20(3):123-9.
4. Haghighat M, Moravej H, Moatamedi M. Epidemiology of pediatric acute poisoning in southern Iran: a hospital-based study. Bull Emerg Trauma. 2013;1(1):28-33.
5. Badrfam R, Kabir K, Zandifar A. Child abuse in Iran: need to pay attention to next generation psychiatric problems. Asian J Psychiatr. 2020;50:101935. doi: 10.1016/j.ajp.2020.101935.
6. Pompili M, Serafini G, Innamorati M, Biondi M, Siracusano A, Di Giannantonio M, et al. Substance abuse and suicide risk among adolescents. Eur Arch Psychiatry Clin Neurosci. 2012;262(6):469-85. doi: 10.1007/s00406-012-0292-0.
7. Simbar M, Golezar S, Alizadeh S, Hajifoghaha M. Suicide risk factors in adolescents worldwide: a narrative review. J Rafsanjan Univ Med Sci. 2018;16(12):1153-68. [Persian].
8. Pajoumand A, Talaie H, Mahdavinejad A, Birang S, Zarei M, Fereshteh Mehregan F, et al. Suicide epidemiology and characteristics among young Iranians at poison ward, Loghman-Hakim hospital (1997-2007). Arch Iran Med. 2012;15(4):210-3.
9. Shin H, Kim KH, Kim JS, Lee E. Adolescent employment, mental health, and suicidal behavior: a propensity score matching approach. Int J Environ Res Public Health. 2020;17(18):6835. doi: 10.3390/ijerph17186835.
10. Brent DA, Perper JA, Moritz G, Allman C, Friend A, Roth C, et al. Psychiatric risk factors for adolescent suicide: a case-control

study. J Am Acad Child Adolesc Psychiatry. 1993;32(3):521-9. doi: 10.1097/00004583-199305000-00006.
11. Mohammadkhani P, Delavar A, Mohammadi M-R, Poshtmashhadi M. Different forms of child abuse and maltreatment, quality of life and general health in parents of abused children. Pract Clin Psychol. 2013;1(1):25-31.
12. Nawi AM, Ismail R, Ibrahim F, Hassan MR, Manaf MR, Amit N, et al. Risk and protective factors of drug abuse among adolescents: a systematic review. BMC Public Health. 2021;21(1):2088. doi: 10.1186/s12889-021-11906-2.
13. Palmer L, Prindle J, Putnam-Hornstein E. A population-based case control study of suicide among youth reported for abuse and neglect. Child Abuse Negl. 2021;117:105060. doi: 10.1016/j.chiabu.2021.105060.
14. Mohammadi MR, Zarafshan H, Khaleghi A. Child Abuse in Iran: a systematic review and meta-analysis. Iran J Psychiatry. 2014;9(3):118-24.
15. Berardelli I, Sarubbi S, Rogante E, Erbuto D, Giuliani C, Lamis DA, et al. Association between childhood maltreatment and suicidal ideation: a path analysis study. J Clin Med. 2022;11(8):2179. doi: 10.3390/jcm11082179.
16. Hassani-Abharian P, Mokri A, Ganjgahi H, Oghabian MA, Ekhtiari H. Validation for Persian versions of "desire for drug questionnaire" and "obsessive compulsive drug use scale" in heroin dependents. Arch Iran Med. 2016;19(9):659-65.
17. Hosseinkhani Z, Nedjat S, Majdzadeh R, Mahram M, Aflatooni A. Design of the child abuse questionnaire in Iran. Journal of School of Public Health and Institute of Public Health Research. 2014;11(3):29-38. [Persian].
18. Karami Dolisgan K, Razisni Y. A review of child abuses and its management in Iran. J Crit Rev. 2020;7(19):9899-906.
19. Guvendeger Doksat N, Zahmacioglu O, Ciftci Demirci A, Kocaman GM, Erdogan A. Association of suicide attempts and non-suicidal self-injury behaviors with substance use and family characteristics among children and adolescents seeking treatment for substance use disorder. Subst Use Misuse. 2017;52(5):604-13. doi: 10.1080/10826084.2016.1245745.
20. Euser S, Alink LR, Pannebakker F, Vogels T, Bakermans-Kranenburg MJ, Van IMH. The prevalence of child maltreatment in the Netherlands across a 5-year period. Child Abuse Negl. 2013;37(10):841-51. doi: 10.1016/j.chiabu.2013.07.004.
21. Pirdehghan A, Vakili M, Rajabzadeh Y, Puyandehpour M. Child abuse and neglect epidemiology in secondary school students of Yazd province, Iran. Iran J Psychiatry Behav Sci. 2015;9(4):e2256. doi: 10.17795/ijpbs-2256.
22. Zoroglu SS, Tuzun U, Sar V, Tutkun H, Savaçs HA, Ozturk M, et al. Suicide attempt and self-mutilation among Turkish high school students in relation with abuse, neglect and dissociation. Psychiatry Clin Neurosci. 2003;57(1):119-26. doi: 10.1046/j.1440-1819.2003.01088.x.
23. Vizeh O, Moradi SH, Fadaee Z, Habibi Asgarabad M. A comparative study of the prevalence of child abuse in highschools based on gender, education and history of divorce in the family. J Family Res. 2008;4(2):145-65. [Persian].
24. Torkashvand F, Jafary F, Rezaeian M, Sheikh Fathollahi M. A survey on child abuse and some demographic factors affecting students of the third grade of guidance school in Zanjan in 2011. J Rafsanjan Univ Med Sci. 2013;12(6):447-60. [Persian].
25. Finkelhor D, Vanderminden J, Turner H, Hamby S, Shattuck A. Child maltreatment rates assessed in a national household survey of caregivers and youth. Child Abuse Negl. 2014;38(9):1421-35. doi: 10.1016/j.chiabu.2014.05.005.
26. Tsuboi S, Yoshida H, Ae R, Kojo T, Nakamura Y, Kitamura K. Prevalence and demographic distribution of adult survivors of child abuse in Japan. Asia Pac J Public Health. 2015;27(2):NP2578-86. doi: 10.1177/1010539513488626.
27. Al Eissa M, Almuneef M. Child abuse and neglect in Saudi Arabia: journey of recognition to implementation of national prevention strategies. Child Abuse Negl. 2010;34(1):28-33. doi: 10.1016/j.chiabu.2009.08.011.
28. Mullen PE, Martin JL, Anderson JC, Romans SE, Herbison GP. Childhood sexual abuse and mental health in adult life. Br J Psychiatry. 1993;163:721-32. doi: 10.1192/bjp.163.6.721.
29. Al Khatib AJ. A comprehensive review of research on child abuse in Jordan. Child Care in Practice. 2022;28(2):125-36. doi: 10.1080/13575279.2020.1765144.
30. Randall JR, Doku D, Wilson ML, Peltzer K. Suicidal behaviour and related risk factors among school-aged youth in the Republic of Benin. PLoS One. 2014;9(2):e88233. doi: 10.1371/journal.pone.0088233.
31. McLoughlin AB, Gould MS, Malone KM. Global trends in teenage suicide: 2003-2014. QJM. 2015;108(10):765-80. doi: 10.1093/qjmed/hcv026.
32. Wong WH, Kuo WH, Sobolewski C, Bhatia I, Ip P. The association between child abuse and attempted suicide. Crisis. 2020;41(3):196-204. doi: 10.1027/0227-5910/a000625.
33. Rhodes AE, Sinyor M, Boyle MH, Bridge JA, Katz LY, Bethell J, et al. Emergency department presentations and youth suicide: a case-control study. Can J Psychiatry. 2019;64(2):88-97. doi: 10.1177/0706743718802799.
34. Avci D, Kilic M, Akgul Gundogdu N. Relationship between suicide risk, and violence tendency and eating attitude in working and non-working adolescents: a comparative study. Psychol Health Med. 2022;27(3):626-37. doi: 10.1080/13548506.2021.1921230.
35. Hill NT, Witt K, Rajaram G, McGorry PD, Robinson J. Suicide by young Australians, 2006-2015: a cross-sectional analysis of national coronial data. Med J Aust. 2021;214(3):133-9. doi: 10.5694/mja2.50876.
36. Farhadinasab A, Allahverdipour H, Bashirian S, Mahjoub H. Lifetime pattern of substance abuse, parental support, religiosity, and locus of control in adolescent and young male users. Iran J Public Health. 2008;37(4):88-95.
37. Tuisku V, Kiviruusu O, Pelkonen M, Karlsson L, Strandholm T, Marttunen M. Depressed adolescents as young adults - predictors of suicide attempt and non-suicidal self-injury during an 8-year follow-up. J Affect Disord. 2014;152-154:313-9. doi: 10.1016/j.jad.2013.09.031.
38. McManama O'Brien KH, Becker SJ, Spirito A, Simon V, Prinstein MJ. Differentiating adolescent suicide attempters from ideators: examining the interaction between depression severity and alcohol use. Suicide Life Threat Behav. 2014;44(1):23-33. doi: 10.1111/sltb.12050.
39. Kaggwa MM, Abaatyo J, Alol E, Muwanguzi M, Najjuka SM, Favina A, et al. Substance use disorder among adolescents before and during the COVID-19 pandemic in Uganda: Retrospective findings from a psychiatric ward registry. PLoS One. 2022;17(5):e0269044. doi: 10.1371/journal.pone.0269044.
40. Bazrafshan MR, Sharif F, Molazem Z, Mani A. Cultural concepts and themes of suicidal attempt among Iranian adolescents. Int J High Risk Behav Addict. 2015;4(1):e22589. doi: 10.5812/ijhrba.22589.
41. Forouzesh M, Barzegar A, Mahdavi SA, Ghadipasha M, Mousavi SS, Kordrostami R, et al. The rate of suicide and its reasons in children under the age of 18 years. Int J Med Toxicol Forensic Med. 2022;12(2):e35084. doi: 10.32598/ijmtfm.vi.35084.
42. Hojjat S, Hatami S, Norozi Khalili M, Kazemi S, Danesh M, Samadi Bilehsavar A, et al. Demographic characteristics of patients with suicide attempt in Bojnurd 2014. J North Khorasan Univ Med Sci. 2016;7(3):537-50. doi: 10.29252/jnkums.7.3.537. [Persian].
43. Masoumi G, Eizadi-Mood N, Akabri M, Sohrabi A, Khalili Y. Pattern of poisoning in Isfahan. J Isfahan Med Sch. 2011;29(163):2003-10. [Persian].