

## Original Research

# Frequency Of Psychiatric Disorders Of Axis I In Suicide Attempters With Drugs And Self-Immolation: A Case-Control Study

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## Abstract

**Background:** Prevention of suicide is an essential part of the World Health Organization's first-ever psychotherapy program. Since by identifying the risk factors of suicide, preventive measures can be taken to prevent suicidal behavior, the present study was conducted with the aim of investigating the frequency of psychiatric disorders of axis 1 in individuals who attempted suicide by drug overdose and self-immolation in Zahedan city.

**Methods:** This case-control study was conducted in Khatam Al-Anbia Hospital and Ali Ibn Abi Talib Hospital in Zahedan during years 2017. The study population includes all those who referred to the emergency room with the confirmation of the emergency medicine specialist about intentional drug poisoning and self-immolation (case group) and those who referred to the orthopedic, internal and surgical departments who did not have the same problem (control group, mentally stable). The tools used in this study include; Questionnaire of demographic characteristics and structured diagnostic interview for Structured Clinical Interview for DSM-IV (SCID).

**Results:** Mean age, gender, marital status, employment frequency, and economic status in the three studied groups did not differ significantly between groups. The frequency of bipolar disorder was significantly higher in the self-immolation group compared to mentally stable group ( $P=0.048$ ). The frequency of major depression in patients who committed self-immolation or poisoning was significantly higher than the control group ( $P<0.001$ ). The frequency of pervasive anxiety in patients who had self-immolated or poisoned was significantly higher than the control group ( $P<0.001$ ).

**Conclusion:** Our abstracted evidence suggests that the frequency of bipolar disorder in people who self-immolated is prominently higher than mentally buoyant persons. Given the significance of Axis I disorders with higher incidence of suicide, comprehensive research is recommended on axis one disorder and suicidal thoughts among the young population and on the predictive role of Axis I disorders and self-destructive tendencies as precursor for attempting suicide.

**Keywords:** Psychiatric disorders, Axis one, Suicide by medication, Self-immolation

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## Introduction

The multi-axis diagnosis system, which officially entered the field of psychiatry since 1980 with the publication of the "Diagnostic and Statistical Manual of Mental Disorders" (DSM), diagnoses psychiatric diseases and problems in five axes (1). Axis I of the diagnostic framework focuses on the clinical manifestations that lead to significant distress and impairment. This axis categorizes various conditions into distinct groups, such as disorders related to adjustment, anxiety, and pervasive developmental issues. (2). Axis I includes all major clinical disorders except personality development disorders. Skilled disorder includes a number of conditions in which a person's behavior is inappropriate and apparently not under the control of the patient, and includes intermittent explosive disorder, theft, arson, gambling, and hair obsession. (3 - 4). According to the World Health Organization's definition, a suicide attempt is a non-fatal behavior in which a person intentionally engages in an abnormal behavior—such as self-harm or substance consumption above recommended levels—without the assistance of others in an attempt to change their circumstances as they see them. (5). The global annual suicide rate averages 11.4 per 100,000 population (15 for men and 8 for women). However, due to the sensitive nature of suicide and its illegality in some countries, suicide rates are likely underreported. In high-income countries, the male-to-female suicide ratio is approximately 3:1, whereas in low- and middle-income countries, the ratio is approximately 1.5:1, the highest rate of suicide occurs in young people, and suicide is the second most common cause of death globally for those between the ages of fifteen and twenty-nine. (6). According to the documents presented by the World Health Organization, approximately 1.53 million people are projected to die by suicide in 2020, and people around the world will commit suicide with an estimated 10-20 times more suicide attempts. (7) Suicide is a significant public health concern in Iran. According to the country's welfare

organization, Iran ranks 58th globally in terms of suicide rates. (8). Intentional drug poisoning is a common method of suicide globally. (9) A study by Kashfi et al. found that among 2071 burn cases over 5 years, 21.1% were due to self-immolation. It is also higher in women. (10). Psychological issues are considered as one of the independent and influential risk factors in the occurrence of suicide. (11) Studies (12, 13) have found that unsuccessful suicide attempts are more closely linked to mental disorders than successful attempts. (14) In such a way that about 20-50 percent of bipolar disorder sufferers commit suicide, and 15-19 percent of them die due to suicide (15). The World Health Organization's (WHO) first psychotherapeutic scheme, which sought to lower national suicide rates by ten percent by 2020, included suicide prevention as a core component. Considering that by identifying the risk factors of suicide, preventive measures can be taken to prevent the occurrence of suicide, current study was conducted to determine the factors making people vulnerable of suicide.

## Methods

This case-control study was conducted in Khatam Al-Anbia Hospital and Ali Ibn Abi Talib Hospital in Zahedan. The study population includes all patients who referred to the emergency department of Khatam Al-Anbia Hospital and Ali Ibn Abi Talib Hospital in Zahedan, who were referred to the emergency medicine specialist for intentional drug poisoning and self-immolation (case group) and those who referred to the orthopedic, internal and surgical departments (group control) that did not have the same problem. Inclusion criteria included all patients attempting suicide who referred to the emergency room of Khatam Al-Anbia Hospital and Ali Ibn Abi Talib Zahedan Hospital in 2017 and the exclusion criteria included; Lack of consent to participate in the study and patients with information deficiencies. The tools used in this study were: Questionnaire of demographic characteristics (age, educational level, marital status) and structured diagnostic interview for

DSM-IV (SCID) is a structured diagnostic interview based on DSM-IV criteria. The interviewer must possess clinical knowledge and expertise in the field of psychopathology since performing this interview demands the interviewer to make clinical decisions based on the interviewee's responses. This type of interview is closer to the clinical work of the doctor and this is its main advantage. All participant information was recorded on a checklist created by the researcher and entered into SPSS version 22 software. Statistical analyzes were presented in two descriptive and analytical sections. In the descriptive section, the frequency of the central disorders was reported. In the analytical part, non-parametric and parametric proportional tests were used based on the establishment of statistical assumptions. If the initial assumptions such as normality were not met, the Mann-Whitney non-parametric method was utilized. For the analysis of qualitative findings, the K-squared test was used, and for the comparison of quantitative data, the independent T-test was utilized. All tests were analyzed at a significance level of 5%.

## Results

In this study, 185 people (11 people with self-immolation, 74 people with poisoning and 100 people as a control group) were included in the study. The mean age of the subjects was  $31.09 \pm 8.53$  years. Of the 185 people who entered the study, 87 (47%) were men and 98 (53%) were women (Table 1).

A comparative analysis of the three groups under investigation revealed no discernible disparities in terms of average age, with the p-value exceeding 0.05, thus indicating a lack of statistical significance. Similarly, the distribution of gender across the three groups was found to be statistically indistinguishable, with the probability value surpassing the 0.05 threshold. The marital status of participants in each group also failed to exhibit any notable differences, as evidenced by a p-value greater than 0.05. Furthermore, an examination of occupational frequencies across the three groups yielded no statistically significant

variations, with the p-value once again exceeding 0.05. Lastly, the economic status of participants in each group was found to be similarly distributed, with no statistically significant differences detected, as reflected by a p-value greater than 0.05.

Notably, individuals who engaged in self-immolation exhibited a significantly higher prevalence of bipolar disorder (18.2%) compared to the mentally stable group (2%), with a p-value of 0.048 indicating a statistically significant difference. However, this disparity was not observed when comparing the self-immolation group to the poisoning group ( $P=0.275$ ). A more pronounced difference emerged when examining the frequency of major depressive disorder, with both self-immolation (54.5%) and poisoning (45.9%) groups demonstrating substantially higher rates than the control group (15%) ( $P<0.001$ ). Conversely, no statistically significant difference was detected between the two suicide attempt groups ( $P>0.05$ ). Furthermore, a marked increase in pervasive anxiety was observed among self-immolation (27.3%) and poisoning (27%) groups relative to the control group (5%) ( $P<0.001$ ), although this distinction was not evident when comparing the two non-suicidal groups ( $P>0.05$ ), as illustrated in Table 2.

## Discussion

This study encompassed a diverse sample of 185 individuals, consisting of 11 self-immolation cases, 74 poisoning attempts, and 100 controls. The study population's mean age was 31.09 years, with a standard deviation of 8.53 years, indicating a relatively wide age range. A nearly even split was observed in terms of gender, with 87 males (47%) and 98 females (53%) participating in the study. Notably, our analysis failed to uncover any statistically significant correlations between suicidal behavior and various demographic factors, including age, gender, marital status, occupation, socioeconomic status, and geographic location. However, a striking exception emerged in the context of bipolar disorder, where individuals who had self-immolated exhibited a

remarkably higher prevalence (18.2%) compared to the mentally stable group (2%). In contrast, no significant difference was observed between the poisoning group and the self-immolation group. Furthermore, our findings highlighted a pronounced disparity in the incidence of major depressive disorder, with both self-immolation (54.5%) and poisoning (45.9%) groups displaying substantially higher rates than the mentally stable group (15%). Interestingly, this distinction was not evident when comparing the two non-suicidal groups. A similar pattern emerged with regard to generalized anxiety disorder, where individuals who had self-immolated (27.3%) or poisoned (27%) exhibited significantly elevated frequencies compared to the mentally stable group (5%), with no discernible difference between the two non-suicidal groups.

According to Zarghami et al.'s research, the majority of individuals who self-immolate in Mazandaran have a medical disease as well as one or more psychological problems. The most prevalent of which are, in that order, major depressive disorder, panic disorders, addiction to nicotine, and adjustment disorders. (16). Our study's findings are consistent with those reported by Zarghami et al. In our study, it was also found that depression and anxiety are significantly associated with a higher incidence of suicide (of both types of self-immolation and poisoning), but bipolar disorder is associated with a higher type of self-immolation. Hence, timely intervention and screening of individuals with mental health issues is crucial in preventing suicidal behaviors. Guillaume et al.'s study includes past experiences of substance and alcohol misuse, mental diseases, such as severe depression and bipolar disorder, anxiety-related disorders, and physical ailments, as well as suicide attempts by both men and women (17). Our study's findings are consistent with those reported by Guillaume et al. Our study revealed a significant association between depression, anxiety, and bipolar disorder and an increased risk of suicide, with a notable difference in prevalence compared to the control group. For

individuals with a history of substance abuse, risk factors for suicidal behavior include depression, dysfunctional family relationships, social isolation, and a history of physical or emotional trauma. (18). Our study found that depression was the most prevalent comorbid condition among suicidal patients, although we did not observe a significant difference in substance abuse rates. Substance use disorder and other mental diseases have a positive link with suicide, according to research done in 2009 by Flensburg-Madsen et al. with the goal of examining variables influencing suicide. (19). However, there was no discernible link between substance misuse and suicide thoughts or actions in our research. The rate was somewhat greater than that of the control group, but the difference was not statistically significant. This discrepancy might be caused by variations in the study's eligibility rules, the size of the sample under investigation, or the patients' demographic characteristics, the difference in the way the variables are checked, the difference in the place and time of the study and the difference in the way of controlling the effect of confounders.

In addition to substance use disorder, many other mental disorders are common in people attempting suicide. (20-21). In our study, it was also found that the frequency of general anxiety in patients who had self-immolated (27.3%) or poisoned (27%) was significantly higher than the mentally stable group (5%). Therefore, the treatment and screening of anxiety disorder is necessary, but regarding substance use disorder, in our study, no difference was found with the control group, which may be the difference in the sample size, because in our study, only 11 people were included in the self-immolation group, which was less than The mentioned study is In Pirae et al.'s study, out of a total of 185 suicide attempters, 13.5% had a history of suicide attempt. (22). In the study of Vaghee et al. (23) and Poursharifi et al. (24), the results showed that most of the studied people suffering from mood disorders had committed suicide in the past. Our study's findings are consistent with the mentioned study. In our

study, it was also found that depression and anxiety are significantly associated with a higher incidence of suicide (of both types of self-immolation and poisoning), but bipolar disorder is associated with a higher type of self-immolation. Therefore, proper treatment and screening of sick people is very important to reduce suicide cases.

In a study conducted by Modabber et al. with the aim of investigating the relationship between suicidal thoughts and psycho-social characteristics in depressed patients. In this study, 80 patients with depression who had suicidal thoughts participated in the accessible sampling method. The questionnaire of this study had two parts: psychosocial characteristics and Beck's suicidal ideation scale. The study's findings demonstrated a substantial correlation between suicidal ideation and factors such as sex, employment, education, prior suicide attempt, method of suicide, physical sickness, and non-psychotic medication usage. The research suggests that female patients with less education than a diploma who use psychotropic drugs should receive more attention as a group at risk, given that suicidal thoughts are one of the strongest risk factors for successful suicide and that identifying groups at risk plays an important role in preventing suicide. (25). Our study also revealed that women commit suicide at a greater rate, particularly self-immolation; nevertheless, no discernible difference was identified when compared to the control group. Chatripor et al. compared suicidal thoughts and depression in individuals in the province of Ilam who were suicidal and those who were not in their research. Fifty healthy individuals (non-depressed and non-suicidal) and fifty suicide attempters who were referred to hospitals in Ilam City participated in the study. The case group people were selected by available sampling, and the mentally stable group people were selected by cluster method. The Beck Depression Scale and Beck Suicidal Thoughts Scale were used to measure depression and suicidal thoughts. In this study, 54.8 single people and 45.2 married people participated in this study,

and 69% single people and 31% married people participated in the female group. In the healthy group, the distribution of the studied samples according to age showed that the highest percentage of males was in the 23–30-year-old range (50%), while the highest percentage of females was in the 16–22-year-old range (56.7%). The results of the study between the variables of depression and suicidal thoughts showed that there is a significant difference between the level of depression in people attempting suicide and healthy people. Also, there was a positive and significant relationship between suicidal thoughts and the level of depression in people attempting suicide ( $r=0.79$ ,  $P<0.000$ ) (26). The results of the mentioned study are confirmed in our study. In our study, it was also found that depression and anxiety are significantly associated with a higher incidence of suicide (of both types of self-immolation and poisoning), but bipolar disorder is associated with a higher type of self-immolation. Therefore, proper treatment and screening of sick people is very important to reduce suicide cases. In a study conducted by Bagheri et al. with the aim of investigating the factors related to suicide attempts in middle-aged and elderly people, the results showed that the cause of suicide attempts in the studied people of two age groups was conflict with spouse and family problems, physical illness or Mental illness, addiction, financial problems or violence of the spouse. There is a significant relationship between suicide attempts in two age groups and the presence of depression and suicidal thoughts. It was also found that the average scores of depression and suicidal thoughts of elderly people are higher than those of middle-aged people, but there is no significant difference between the scores of suicidal thoughts of the two groups. In the end, it was concluded that depression and suicidal thoughts are among the risk factors for committing suicide and calls for the necessity of preventive planning and treatment in order to promote and ensure the physical, mental and social health of the elderly and middle-aged people in the society



(27). In contrast, we discovered that there was no discernible difference in the two groups' demographic traits, including age, gender, marital status, employment, economic standing, and location of residence. This could be because the majority of research participants were under 30 years old, making our study sample very young. However, similar to the aforementioned study, it was found that mood disorder, especially depression, is associated with a higher incidence of suicide. In a study conducted by Zare et al. with the aim of investigating the frequency of mental disorders and factors related to suicide attempts in patients referred to the emergency room of Ali Ibn Abi Taleb Rafsanjan Hospital, the results showed that depression with 58%, self-harm with 56%, Schizophrenia 54% and antisocial personality with 54% had the highest frequency in the study group. The research group's highest frequent conditions were found to be depression (58%), self-harm (56%), schizophrenia (54%), and antisocial personality (54%). Physical illnesses were reported by 17.7% of research participants, whereas marital status and depression were reported by 57.5% and 47.8% of individuals, respectively. 71.6% of suicide attempters had a score that indicated a need for voluntary hospitalization, whereas 1.7% of those who attempted suicide needed to be admitted to the hospital. The average score on the suicide risk assessment checklist was significantly correlated with the following disorders: anxiety, depression, antisocial behavior, self-harm, and schizophrenia. Suicide attempts are predicted by mental health conditions. Additionally, the seriousness of suicide in cases of suicide attempts increases when more than 10 suicide-related indicators are present at the same time, including depression, drug misuse, marital status, and adolescent years (28). We saw similar results as well. Additionally, our study revealed that there is a substantial difference in the prevalence of depression, anxiety, and bipolar disorder compared to the control group, and that these conditions are strongly linked to a greater risk of suicide.

## Conclusion

Our analysis revealed a higher prevalence of bipolar disorder among individuals who engaged in self-immolation than non-suicidal patients. Furthermore, a slight increase in the frequency of major depressive disorder was detected among patients who attempted self-immolation or poisoning. Similarly, the incidence of pervasive anxiety disorders was found to be substantially higher among individuals who attempted self-immolation or poisoning, with no discernible distinction between the two methods of attempted suicide. Therefore, considering the significance of axis one disorder with higher incidence of suicide, it is advised to conduct thorough study on axis one disorder and suicidal thoughts among the young population and on the predictive role of axis one disorder and suicidal thoughts as risk factors.

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## Authors Contributions:

All authors contributed toward data analysis, Drafting and revising the paper and agreed to be Responsible for all the aspects of this work

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**Tables:****Table 1. Average age in the three groups**

<b>P-value</b>	<b>SD</b>	<b>Mean</b>	<b>N</b>	<b>Groups</b>
P1= 0.083 P2= 0.075 P3=0.308 P4= 0.08	9.437	34.36	11	<b>Self-immolation</b>
	7.907	29.58	74	<b>Poisoning</b>
	8.760	31.85	100	<b>Control</b>
	8.532	31.09	185	<b>Total</b>

P1: Comparison of three groups, P2: Comparison of self-immolation with poisoning, P3: Comparison of self-immolation with control, P4: Comparison of poisoning with controls

**Table 2: Frequency of axis I disorder in the three studied groups**

P-value	Total	Control	Poisoning	Self-immolation	Groups	
					Disorder	
P1= 0.235 P2= 0.574 P3=0.345 P4= 0.287	9	3	5	1	N	Bipolar I disorder (BP-I)
	4.9	3.0	6.8	9.1	%	
P1= 0.029 P2= 0.275 P3=0.048 P4= 0.073	10	2	6	2	N	Bipolar II disorder (BP-II)
	5.4	2.0	8.1	18.2	%	
P1<0.001 P2= 0.594 P3=0.001 P4<0.001	55	15	34	6	N	major depression
	29.7	15.0	45.9	54.5	%	
P1= 0.205 P2= 0.509 P3=0.271 P4= 0.404	7	2	4	1	N	Panic Disorder
	3.8	2.0	5.4	9.1	%	
P1= 0.577 P2= 0.63 P3=0.298 P4= 0.498	20	9	9	2	N	Obsession
	10.8	9.0	12.2	18.2	%	
P1<0.001 P2= 1 P3=0.031 P4<0.001	28	5	20	3	N	Pervasive Anxiety
	15.1	5.0	27.0	27.3	%	
P1= 0.055 P2= 0.329 P3=0.076 P4= 0.099	12	3	7	2	N	Abuse and Addiction to Drugs and Substances
	6.5	3.0	9.5	18.2	%	

P1: Comparison of three groups, P2: Comparison of self-immolation with poisoning, P3: Comparison of self-immolation with control, P4: Comparison of poisoning with controls