

## Epidemiology of Suicidal Attempts by Poisoning and Related Risk Factors in Pregnant Women in Imam Reza Hospital, Mashhad, Iran

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### Abstract

#### Background

Suicidal attempt is an important phenomenon among pregnant women in Iran. This study was designed to determine the epidemiological status and risk factors of suicidal attempts by poisoning in pregnant women.

#### Materials and Methods

All pregnant women who were referred to the poisoning department of Imam Reza Hospital (Mashhad, Iran) from November 2016 to November 2017, were evaluated in terms of suicidal attempts. Cases of poisoning with a suicidal intent were included in the study after obtaining informed consent. A checklist, including the baseline characteristics, risk factors, and underlying causes of suicide, was completed for every participant anonymously. After regaining consciousness, the participants were interviewed by a psychiatrist in the consultation room for 20 minutes, and the underlying psychiatric disorders, mood disorders, stressors, and suicidal thoughts were evaluated. Finally, the collected data were analyzed using SPSS software (version 16.0).

#### Results

Among 40 pregnant women evaluated in this study, 87.5% did not have a stable job or income, 55% had difficult living conditions, 45% suffered from sleep disorders, 45% had suicidal thoughts, and 42.5% reported addiction in husband. In addition, 32.5% of women had a history of depression, 32.5% had previous suicidal attempts, 32.5% had abortion thoughts, 20% had a family history of suicide attempt, 17.5% were addicts, and 17.5% had a history of self-injury.

#### Conclusion

This study indicated that the most important factors associated with suicidal attempts by poisoning in pregnant women include lack of job and income, difficult living conditions, and history of psychiatric problems and addiction.

**Key Words:** Iran, Pregnancy, Poisoning, Suicide, Women.

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## 1- INTRODUCTION

Suicide is the deliberate act of ending one's own life (1). Today, in many parts of the world, the number of suicides has increased. According to available statistics, suicide is the third cause of death in the age group of 15 to 24 years and the fourth cause of death in the age group of 10 to 14 years (1). Currently, the highest suicide rate is reported in the age group of 15-40 years, which is the most reproductive age range in women (1). Childbirth is one of the main goals of forming a family, and pregnancy is a very important stage in every woman's life. Evidence shows that during pregnancy, women feel most satisfied with themselves, which stems from a sense of hope for the future.

On the other hand, emergence of violent behaviors, such as self-harm and suicidal attempts during pregnancy, is a devastating phenomenon at both personal and social levels. Therefore, understanding the underlying factors resulting in this phenomenon is of particular importance. People's easy access to dangerous substances is another important factor associated with the increase in self-harm behaviors. Simple purchase of over-the-counter medications and availability of dangerous toxins and medications in unlicensed centers, such as herbal medicine stores, encourage people who are indecisive about committing suicide. In fact, easy access causes an increase in the prevalence of fatal complications (2). These findings underline the importance of identifying and preventing easy access to over-the-counter medications. One of the most important measures in preventing suicide is to screen for mental disorders from an early age and to identify the risk factors in order to eliminate or control them. Therefore, allocation of funding and research resources to screening programs is very important. Previous research has mostly focused on the risk factors and prevalence of suicide, while screening

issues have not been addressed (3). Available resources indicate that the frequency of suicide among pregnant women is increasing in Iran. Various risk factors are involved in the increased rate of this phenomenon, such as underlying mental and mood disorders, environmental stress, partner's inadequate attention, unwanted pregnancy, inappropriate age of pregnancy, genetic factors, cultural factors, and physical disorders (4, 5). Another important factor is the person's inability to solve problems, which leads to increased anxiety and reinforcement of suicidal ideation and impulsive behaviors in women who are at the reproductive age; this highlights the need for essential skills training before marriage and preparation for pregnancy. Generally, development of a positive attitude towards life and highlighting its meaningfulness through anxiety management skills training can help reduce violent behaviors, including suicide. Also, recognition of risk factors and probable harmful behavior is necessary (6). Therefore, this study aimed to determine the epidemiological status of suicidal attempts by poisoning and its risk factors in pregnant women.

## 2- MATERIALS AND METHODS

In this study, pregnant women with a diagnosis of poisoning, who were referred to the toxicology department of Imam Reza Hospital, Mashhad, Iran, between November 2016 and November 2017 were investigated regarding suicidal attempts. Then, cases of poisoning with suicidal intention were identified after regaining consciousness, and informed consents were obtained. Inclusion criteria included pregnant women with diagnosis of intentional poisoning and complete awareness and informed consensus; exclusion criteria included unintentional poisoning. A checklist containing all the baseline characteristics, underlying factors for suicide, status of employment and income, main cause of suicide (from her

own perspective), and purpose of suicide was completed for every participant anonymously. Finally, the participants were examined by a psychiatrist and interviewed for 20 minutes. The psychiatric section of the questionnaire, including psychiatric disorders, mood disorders, underlying stressors, possible suicidal thoughts, and time taken for making a decision, was completed via interviews with women and their families. Interviews were usually conducted in the counseling room of the poisoning ward immediately after the subject's level of consciousness had improved. The collected data were analyzed using SPSS software (version 16.0). To describe the data, descriptive statistics, including central tendency indicators, dispersion, and frequency distribution, were measured. P-value less than 0.05 was statistically significant.

### 3- RESULTS

In this study, 40 pregnant women, who had attempted suicide by poisoning, were evaluated using a checklist and psychiatric interview. The age range of the participants was 16 to 38 years, with an average of  $24 \pm 0.376$  years. Three women (7.5%) were Afghan citizens, and two (5%) were children of divorce. The findings showed that four (10%) women had a history of chronic diseases, including hypothyroidism and diabetes (**Table.1**). Three (7.5%) women had recently lost a close relative. One (2.5%) woman was sexually abused by a man other than her spouse. Overall, 18 (45%) participants had a stable lifestyle, while 22 (55%) women had difficult living conditions (**Table.2**). Based on the findings, seven (17.5%)

women had a history of self-injury, eight (20%) had a family history of suicide, seven (17.5%) had a history of drug abuse, and 17 (42.5%) reported their spouse's history of substance abuse. Based on the findings, 18 (45%) women showed great interest in having a child, 12 (30%) showed moderate interest, and 10 (25%) showed little interest. Moreover, 18 (45%) women had sleep disorders and were dissatisfied with their sleep quality. On the other hand, 13 (32.5%) women had a history of depression (**Table.3**), seven (17.5%) had thoughts of harm to the fetus, and 13 (32.5%) had abortion thoughts. The main cause of suicide was reported to be marital conflict (22 women; 55%), leading to abortion in four (10%) cases. Other factors included remarriage of the spouse, forced marriage, abuse by the spouse after alcohol abuse, being controlled by the spouse and relatives, feelings of guilt due to extramarital relationship, and pregnancy during the engagement period. Regarding the purpose of suicide, 19 (47.5%) women stated that they sought attention or revenge. Nineteen (47.5%) women considered suicide as the ultimate solution to their problems, while two (5%) women had no goals (**Table.4**). Overall, 17 (42.5%) women were primigravida, 19 (47.5%) women were in the first trimester of pregnancy, 13 (32.5%) were in the second trimester, and eight (20%) were in the third trimester. In terms of drug use for suicidal purposes, opioids, sedative hypnotics and muscle relaxants, antidepressants, and different types of pesticides were used by 17 (42.5%), 5 (12.5%), 5 (12.5%), and 5 (12.5%) women, respectively; also, 11 (27.5%) women used other drugs or several drugs at the same time.

**Table-1:** Frequency of suicide history and suicidal ideation at the same time in patients under study

Suicidal thoughts	Had a history of suicide	Had no history of suicide
Had suicidal idea	10 people (25%)	8 people (20%)
Had no suicidal idea	3 People (7.5%)	19 people (47.5%)
	13 people (32.5%)	27 people (67.5%)
40 people (100%)		

**Table-2:** Frequency of turbulent life and suicidal ideation at the same time in patients under study

Suicidal thoughts	Have difficult living conditions	Have no difficult living conditions
Have Suicidal idea	12 people (30%)	6 people (15%)
No suicidal idea	10 people (25%)	12 people (30%)
	22 people (55%)	18 people (45%)
40 people (100%)		

**Table-3:** Frequency of difficult living conditions history and history of depression at the same time in patients under study

History of depression	There is history of difficult living conditions	There is no history of difficult living conditions
There is history of depression	9 people (22.5%)	4 people (10%)
There is no history of depression	13 people (32.5%)	14 people (35%)
	22 people (55%)	18 people (45%)
40 people (100%)		

**Table-4:** Frequency of suicidal decision-making and suicidal thoughts at the same time in patients under study

Suicidal thoughts	Immediate Decision	Decision with previous plan
Have Suicidal idea	9 people (22.5%)	9 people (22.5%)
Have no Suicidal idea	18 people (45%)	4 people (10%)
	27 people (67.5%)	13 (32.5%)
40 people (100%)		

#### 4- DISCUSSION

Present study aimed to determine the epidemiological status of suicidal attempts by poisoning and its risk factors in pregnant women. This study showed that the most important factors associated with suicidal attempts by poisoning in pregnant women were lack of employment and income, difficult living conditions, history of psychiatric problems such as sleep disorders, history of depression, and history of suicide and suicidal ideation (Table.1). In this regard, Zhang et al. in 2018 (3) compared two screening methods. In the diagnostic code method, out of 196 pregnant women with positive screening for suicidal behaviors, 49 (76%) showed suicidal behaviors. On the other hand, in the natural language processing (NLP) method, among 486 pregnant women with positive screening for suicidal behaviors,

146 (36%) showed definite suicidal behaviors. In another study by Azturk et al. from Izmir, Turkey in 2018 (7), the medications abused for suicide in nine pregnant women included analgesics, rodenticides, valsartan, hydrochlorothiazide, amlodipine, amoxicillin, ergotamine, iron supplements, and multivitamins, respectively, and is not in line with our study. Moreover, in a study by Supraja et al. (2016), 462 pregnant women with a gestational age of < 20 weeks were evaluated, 35 of whom (7.6%) had committed suicide. The predictive factors for suicide included low age, middle socioeconomic status, low social support, domestic violence, depression symptoms, and history of suicide which is agreement with our study to some extent (8). In addition, a study by Gelaye et al. in 2016 (9), highlighted the importance of sleep disorders. In this

cross-sectional study conducted on 1298 pregnant women at 24-28 weeks of gestation, 17% reported having a low sleep quality which is consistent with our study. Moreover, 10.3% of the participants had depression, and 8.5% had suicidal ideation. A correlation was observed between sleep disturbances and suicidal thoughts. In a review of epidemiological studies by Bizu Gelaye et al. in 2016 (10), 57 out of 2,626 articles were selected. Overall, 20 articles focused on prevalence studies, 26 articles studied the associated risk factors, 21 articles studied suicidal thoughts, and five articles studied screening methods. Their review showed that pregnant women are more susceptible to suicidal ideation than the general population. They mentioned a number of risk factors, including the partner's violent behaviors, less than 12 years of education, and depressive disorders; accordingly, they emphasized on the need for screening. Additionally, in a study by Rodriguez et al. (2017) (11), the prevalence of suicidal thoughts in pregnant women with HIV was evaluated in South Africa. Of 673 pregnancies, 39% reported risk factors, such as partner violence, stigma, and extraneous relationships. Based on the findings, the prevalence of suicidal ideation among these women was higher than that reported in HIV-negative women.

Taylor et al. in 2016 (12) examined the correlation between psychotic and bipolar disorders and self-harm behaviors. A total of 420 pregnant women with schizophrenia and related disorders, bipolar disorder, and other psychiatric disorders were evaluated by NLP and free text methods. Overall, 103 (24.5%) women had suicidal ideation, 33 of whom (7.9%) exhibited self-harming behaviors. Also, self-harming behaviors seem to be associated with a history of similar behaviors in the past two years, young age, and smoking cigarettes. It is suggested to conduct further studies using more

screening methods. Also, there is a need for training and designing appropriate policies, such as certification for marriage and pregnancy. According to the results, there is a serious need for screening studies. It is recommended to identify people with risk factors from early childhood and before marriage by completing relevant questionnaires and conducting further interviews in the initial stages of referral to health centers. Moreover, people with personality disorders, especially borderline and antisocial personality disorders, who are susceptible to suicide, bipolar disorder, major depression, impulse-control disorder, schizoaffective disorder, panic disorder, posttraumatic stress disorder, and attention deficit-hyperactivity disorder, should be screened via interviews in order to initiate psychological and therapeutic interventions.

#### **4-1. Study Limitations**

The present study had some limitations. First, some patients avoided giving honest answers to some questions due to family and social limitations. Second, the duration of hospitalization in the poisoning ward was short, and some cases were discharged from the hospital with their personal consent or without informing the researcher. Third, our inability to further examine personality or psychiatric disorders because of the short duration of admission and failure to follow-up women and their families (when they were referred to the psychosomatic section) are among other limitations of this study. Finally, we were unable to study the role of domestic violence against pregnant woman as one of the predisposing factors due to women's fear of the consequences.

#### **5- CONCLUSION**

This study indicated that 47.5% of suicide via poisoning in pregnant women was in the first trimester of pregnancy. The most common drugs which was used for

suicide in order of frequency were opioid, sedative hypnotics, muscle relaxant, antidepressant and pesticides. The most important factors associated with suicidal attempts by poisoning in pregnant women include lack of job and income, difficult living conditions, history of psychiatric problems such as sleep disorders, history of depression, and history of suicide and suicidal ideation. And addiction in husband and herself.

**6- CONFLICT OF INTEREST:** None.

### 7- ACKNOWLEDGMENT

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