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Epidemiological study of suicide cases in zabol

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ABSTRACT

Introduction:
Suicide is an act intentionally carried out by an individual to harm themselves, fully aware of the consequences. Emotional and relational factors also play a significant role in suicide attempts. Psychologists associate suicide with low self-esteem and feelings of emptiness.

Materials and Methods:
This descriptive study, conducted from 2021 to 2023, involved sampling patients admitted to Amir al-Momenin Hospital in Zabol. A checklist was completed for each patient diagnosed with a suicide attempt, covering demographic data, methods of suicide, psychiatric history, and other relevant factors.

Results:
Methods of Suicide:
- Males: 2% drug overdose, 11% pesticide poisoning, 13% hanging, 3% self-immolation, 5% other intentional injuries.
- Females: 27% drug overdose, 30% pesticide poisoning, 2% hanging, 4% self-immolation, 3% other intentional injuries.
- A significant association was found between suicide methods and gender (Fisher's Exact Test, P-value = 0.01).

Conclusion:
Suicide is a serious global public health issue. Patterns of suicide vary based on individual characteristics, methods, causes, and socio-cultural contexts.

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Introduction

Suicide is a combination of the words sui, meaning self, and cide, meaning killing. Suicide is an act that is carried out with the intention of harming oneself by a person who knows what he is doing and knows the possible consequences of his action (1). Suicide has specific ranges, starting from suicidal thoughts, which are the most common, and ending with a suicide attempt and ultimately a desire to die by suicide, which is the ultimate goal (2). The phenomenon of suicide in the world has acquired special importance as an increasingly important problem. According to estimates by the World Health Organization (WHO), nearly 850,000 deaths from suicide occurred worldwide in 2010 (3). The issue of suicide is more prominent when, according to reports, suicide attempts are more common in adolescent and young adult groups than in other age groups. The American Psychiatric Association has reported that suicide is the second leading cause of death among students and college students, the third leading cause of death in people aged 15 to 24, and the sixth leading cause of death among people under 15 (4). Suicide rates in Iran are lower than in most Western countries but higher than in other countries in the Middle East (5). Other factors affecting suicide include physical diseases such as epilepsy, diabetes, AIDS, cancer, high blood pressure, gastrointestinal ulcers, pulmonary diseases, spinal cord injuries, premenstrual syndrome, and rheumatoid arthritis (6–10). In our country, research has also been conducted to identify factors affecting suicide attempts. To improve the general health of the community, epidemiological investigation of suicide and suicide attempts is an essential component of the mental health of the community. In view of the above, the present study was conducted with the aim of epidemiologically investigating cases of suicide referred to Amir al-Momenin Hospital in Zabol during the years 1400-1402.

Materials and Methods

This study is a descriptive-analytical study including all individuals who were identified with a diagnosis of suicide in Amiralmomenin Hospital from the beginning of 1400 to the end of 1402. Inclusion criteria were: 1- Iranian nationality - 2- Residence in Zabol city for at least 9 months per year. The exclusion criteria were: lack of understanding of Persian language and unwillingness to continue cooperation. Given that a study completely similar to the present study was not available, the study sample size of 100 individuals identified with a diagnosis of suicide was determined as a pilot study with the opinion of the statistician.

In this descriptive study, researchers, with the help of hospital colleagues who were stationed in three shifts, morning, afternoon, and night, at Amiralmomenin Hospital (7), conducted sampling. In this way, if a person referred to the emergency room with a diagnosis of suicide, a checklist prepared for this purpose was completed for them. This checklist contains questions about demographic information (age, gender, marital status, occupation, education, place of residence, income level, etc.), as well as diagnosis of the disease based on DSM-IIIR diagnostic criteria and psychiatrist's diagnosis, reasons for suicide from the person's own words or those of his companions, time of suicide attempt, time of emergency visit, method of suicide, history of mental illness, type of mental illness, season and month of suicide attempt, lunar month of suicide attempt, days of the week, history of medication use, type of medication, and the patient's final condition (whether he was discharged with relative recovery after the measures taken, transferred to other departments such as ICU, internal surgery, neurology and psychiatry, and other departments, or whether the treatment measures were unsuccessful and ultimately led to his death). It should be noted that this checklist was designed with the help of relevant experts (psychologists, psychiatrists, and nurses). In order to comply with ethics, the names of the samples were omitted from the checklist and the information obtained remained completely confidential. After obtaining permission from the university in this study, the design colleagues referred to Amir al-Momenin Hospital in Zabol city. The informed consent form was given to the patients and, while informing the participants about the confidentiality of the information, the researcher-made checklist was handed to

the patients. The relevant checklist contained the patients' demographic information, including place of residence, gender, education, smoking history, and addiction history. In order to ensure the quality of the extracted information, the completion of several samples of the checklist was monitored to correct possible errors and incorrect inferences of the individuals from the questions. In cases where data on some patient variables were not available, given that the patients' home phone numbers were available in the file, the necessary information was obtained by telephone calls to the patient or the patient's relatives.

Results

In this study, 100 patients who were referred to Amir al-Momenin Hospital in Zabol city during the years 1400-1402 and who had committed suicide were studied. Most of the people who died due to suicide (63%) were boys. The mean age of the studied samples was 42.8 ± 15.7 with a range of variation from 12 to 70.Most of the people who died due to suicide (57%) were single. Most of the people who died due to suicide (64%) had a bachelor's degree.

Table 1. Frequency distribution of occupational status in patients who died due to suicide

Employment Status	Frequency	Percentage
Student	57	57%
Homemaker	7	7%
Unemployed	26	26%
Employed	10	10%
Total	100	100%

The results of Table 1 show that most of the people who died due to suicide (57%) were students.

Table2: Frequency distribution table of addiction status in patients who died due to suicide

Substance Use Status	Frequency	Percentage
Substance user	67	67%
Non-substance user	33	33%
Total	100	100%

The results of Table 2 show that most people who died by suicide (67%) were addicts. Most people who died by suicide (79%) lived in the city.

Table 3: Frequency Distribution of Psychiatric Disorder History Among Patients Who Died by Suicide

Psychiatric Disorder History	Frequency	Percentage
Present	69	69%
Absent	31	31%
Total	100	100%

The results of Table 3 show that the majority of individuals who died by suicide (69%) had a psychiatric disorder.

Table 4: Frequency distribution of prior suicide attempts among deceased suicide patients

Previous Suicide Attempts	Frequency	Percentage
With prior attempt(s)	47	47%
No prior attempts	53	53%
Total	100	100%

The results of Table 4 show that the majority of individuals who died by suicide (53%) had no history of previous suicide attempts.

Table 5: Frequency distribution of suicide methods among patients who died by suicide

Suicide Method	Frequency	Percentage
Drug overdose	29	29%
Poisoning	41	41%
Hanging	15	15%
Self-immolation	7	7%
Other intentional injuries	8	8%
Total	100	100%

The findings in the table above indicate that most suicide deaths (41%) were caused by poisoning.

Table 6: Frequency distribution of suicide methods among patients who died by suicide, categorized by age.

Suicide Method → Age Group ↓	Drug Overdose n (%)	Poisoning n (%)	Hanging n (%)	Self-Immolation n (%)	Other Intentional Injuries n (%)	Total n (%)
12-29 years	19 (27%)	27 (38%)	3 (4%)	2 (3%)	2 (3%)	53 (75%)
30-39 years	10 (14%)	17 (24%)	1 (1%)	0 (0%)	4 (6%)	32 (25%)
Total	29 (41%)	44 (62%)	4 (5%)	2 (3%)	6 (9%)	85(100%)

The results of the above table show that the majority of suicide deaths (55%) occurred in the age group of 12–29 years. This association was examined using Fisher's Exact Test, and with a P-value of 0.868, it is not significant, meaning there is no significant relationship between the method of suicide and the age of the patients.

Regarding the suicide methods in the studied sample:

- Among males, 2% of cases died by drug overdose, 11% by plant pesticides, 13% by hanging, 3% by self-immolation, and 5% by other intentional injuries.
- Among females, 27% of cases died by drug overdose, 30% by (plant) pesticides, 2% by hanging, 4% by self-immolation, and 3% by other intentional injuries.

This association was tested using Fisher's Exact Test, and with a P-value = 0.01, it was statistically significant, meaning there is a significant relationship between the suicide method and the patient's gender.

Discussion and Conclusion

Suicide and suicide attempts are significant public health issues and antisocial behaviors in both developed and developing countries. This phenomenon not only causes individual and familial harm but also creates social challenges. Suicide can be defined as a deliberate act of self-harm that may result in death (8). Statistics indicate that approximately one million deaths worldwide occur annually due to suicide. The causes of suicide vary among individuals and may include factors such as hopelessness, poor mental health, addiction and substance abuse, financial difficulties, family conflicts—particularly extramarital relationships—spousal issues, cultural factors, and more [2].

Ethical considerations:

This project has been approved by the Research Ethics Committee of Zabol University of Medical Sciences with the ethics code IR.ZBMU.REC.1402.054. Before the implementation of the project, the objectives, research methods, and confidentiality of information were explained to the study subjects, and the participants participated in this study with knowledge and consent.

Key Findings

- 63% of suicide deaths were male.
- The mean age was 42.8 ± 15.7, ranging from 12 to 70 years.
- 57% were unmarried.
- 64% held a bachelor's degree.
- 57% were students.
- 67% were addicted to substances.
- 79% were urban residents.
- 69% had a psychiatric disorder.
- 53% had no prior suicide attempts.
- 41% used poison (pesticides) as the suicide method.
- 55% were in the 12–29 age group.

Fisher's Exact Test showed no significant association between suicide method and age (P-value = 0.868). However, there was a significant gender-based difference (P-value = 0.01):

- Males: 2% drug overdose, 11% pesticides, 13% hanging, 3% self-immolation, 5% other intentional injuries.
- Females: 27% drug overdose, 30% pesticides, 2% hanging, 4% self-immolation, 3% other intentional injuries.

Limitations

- Underreporting due to social stigma.
- Incomplete medical records.
- Lack of direct access to forensic data in Zabol.

Conflict of Interest

The authors declare no conflicts of interest.

Author Contributions

- Halimeh Aali: Study design and analysis.
- Dadkhoda Sufi: Data interpretation.
- Reza Sanchooli,Batool Heidarisadegh : Data collection.
- Seyed Ali Forghani: Manuscript drafting.
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