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Original Article

Suicidal ideation prevalence among medical students of Urmia, Iran

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Abstract

***Background & Aims*:** Committing suicide, particularly among young adults, has become a significant global concern, with approximately 726000 individuals succumbing to this tragedy each year. Suicidal ideation often begins as a nebulous inclination towards self-harm, which can subsequently escalate into actual suicide attempts. Medical students, in particular, are at heightened risk for suicidal ideation due to the prolonged duration of their studies, the demanding nature of their coursework, and the stressful conditions encountered in clinical and hospital settings. This study aims to assess the prevalence of suicidal ideation among medical students at Urmia University of Medical Sciences in 2024.

***Materials & Methods*:** This research was conducted using a descriptive cross-sectional design. A total of 311 students were randomly chosen through a stratified sampling method. Participants completed a demographic information form along with the Beck Scale for Suicidal Ideation (BSSI) Questionnaire.

***Results*:** In this research, the incidence of suicidal ideation among medical students was found to be 17.7%. Specifically, 14.5% of the participants reported experiencing suicidal thoughts, while 3.2% indicated a willingness to attempt suicide. A notable association was identified between age ($p = 0.04$) and place of residence ($p = 0.016$) with suicidal ideation. Conversely, no significant relationships were observed between gender ($p = 0.577$), marital status ($p = 0.813$), educational attainment ($p = 0.355$), nativity status ($p = 0.834$), and the frequency of shifts per month ($p = 0.518$) concerning suicidal ideation.

***Conclusion*:** The present research indicates a significant prevalence of suicidal thoughts among medical students. The occurrence of suicide within this demographic can lead to profound and lasting consequences for both the medical and educational frameworks of the nation.

***Keywords*:** Iran, Medical students, Suicide, Suicidal ideation, Urmia

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Introduction

Committing suicide has been a serious health problem in the world. Every year, 726000 people take their own lives and there are many more people who make suicide attempts (1). Every suicide is a tragedy that affects families, communities, and entire countries

with long-lasting effects on the people left behind (1). Suicide occurs throughout the lifespan and was the third leading cause of death among 15–29-year-olds globally in 2021(1). Youth suicide is one of the most tragic events, so according to the latest statistics from the Centers for Disease Control and Prevention (2), 49000 people in the United States died due to committing suicide in 2022, which means one death every 11 minutes (2, 3). Committing suicide is not limited only to high-income societies but is also considered a global problem that covers all regions, in such a way that more than 77% of suicide cases in the world are related to low- to medium-income areas (4). The prevalence of suicide in Islamic nations is generally low; however, there is a notable rise in such incidents in Iran, where the suicide rate surpasses that of other countries in the Middle East (3, 5). The suicide rate in Iran per 100000 people is 5.3 in both sexes (3.6 in women and 7 in men) (5) According to the available statistics in Iran, the average age of suicide victims is 29 years (5). While the highest rate of suicide in men was reported in Hamadan, Lorestan, and Ilam provinces, respectively, the highest rate of suicide in women was reported in Kermanshah and Ilam provinces (5). Studies have indicated the high rate of suicide in the west of Iran (5). Suicide prevention is therefore a priority for the World Health Organization (6).

One of the most important ways to prevent suicide is to identify people with suicidal thoughts (3). Suicidal thoughts encompass a spectrum of self-reported ideations regarding suicide, in a range from an influential vague desire to die to a complete plan of Suicide (3). The prevalence of suicidal ideation differs across various nations. In the United States, such thoughts are notably common among the student population (9.7% to 58.3%) (7). In Islamic countries, the lifelong prevalence of suicidal thoughts is 21.9% (8). Southeast Asia has the highest long-term prevalence of suicidal thoughts (46.2%), while the eastern Mediterranean region has the highest prevalence in the 12-month period (16.8%) (9). Students are vulnerable to experiencing suicidal ideation as a result of various factors associated with their developmental stage. These include the challenges of navigating a solitary lifestyle, separation from familial support, the gradual withdrawal from established relationships and routines over an extended period, residing in dormitory settings, and confronting financial and economic pressures. Additionally, the necessity to achieve varying degrees of independence, the academic difficulties they encounter, the adjustment to new social circles, and the uncertainty surrounding their future career paths further contribute to this risk (10, 11). Studies have been undertaken to examine the prevalence of suicidal ideation among students in the northwestern region of Iran. For instance, a study conducted in the East Azerbaijan province revealed that the prevalence of suicidal ideation among students was 4.1% (12). Among them, medical students are a specific group with a higher prevalence of psychological problems than other students (13). Extended periods of study, substantial lesson loads, competition among peers, and mandatory participation in clinical and hospital education, along with various other stressors, can significantly impact students' mental health and contribute to elevated levels of suicidal ideation (14, 15).

Research indicates that medical students experience a greater level of academic stress compared to their peers in other fields. Given the substantial financial investment made by governments in the education of medical students, the occurrence of suicidal ideation and attempts within this demography poses a significant threat to the integrity of the nation's educational and healthcare systems. In recent decades, the crises created in the economic fields in the country have strengthened the prevalence of suicidal thoughts among different segments of society, especially among medical students. During the studies conducted in the databases, the lack of domestic articles, especially in West Azerbaijan, is concerning. Therefore, the aim of this study is to investigate the prevalence and associated factors of suicidal thoughts among medical students at Urmia University of Medical Sciences with the hope of informing interventions to reduce these risks.

Upon this research, which involves an analysis of the statistical community and the collection of relevant data,

we suppose that the authorities will be prompted to address this critical issue. Such attention is anticipated to lead to a decrease in the incidence of suicidal thoughts and desires among medical students, as well as the development of effective interventions to address this concern.

Materials & Methods

This study is a descriptive-analytical cross-sectional study. The community of medical students of Urmia University of Medical Sciences from the Departments of Basic Sciences, physiopathology, externship, and internship included as statistical population, who were studying at the time of collecting the sample (from January to February of 2024) entered the research with implicit consent. The criteria for entering the study included the willingness to participate in the study, employment in medical education, physical, mental, speech, and auditory health. The exclusion criteria included the occurrence of an unfortunate event such as the death of loved ones and neighbors, serious illness and disability for the individual or family, withdrawal from the study, having a psychological problem, and consumption of a special drug. The sample size was calculated as 311 using Cochran's formula with a 95% confidence level.

People were selected by a stratified sampling method (16). In this method of sampling, we divided the medical students into four strata including basic sciences, physiopathology, externship, and internship. Then we randomly selected students from these strata. For students to complete demographic information from the checklist and to investigate suicidal thoughts, the Beck Scale for Suicidal Ideas (BSSI) questionnaire was used. The demographic data of the questionnaire included age, gender, marital status, education, indigenous or non-indigenous status, and the place of residence. The standardized questionnaire for measuring suicidal thoughts (BSSI) was provided to the respondents. The standardized BSSI self-assessment questionnaire comprises 19 questions designed to measure attitudes, thoughts, and suicide planning. The first five questions in this questionnaire are screening tests and the answers to these questions indicate the desire or unwillingness to commit suicide. If the respondent chooses zero in question number 5, he or she no longer has to answer the next 14 questions, but if he or she chooses one or two in question number 5, answering all the next 14 questions is mandatory. The overall score interpretation is that A score of 0 to 5 indicates the absence of suicidal thoughts (low-risk suicidal thoughts), 6 to 19 indicates the presence of suicidal thoughts (moderate-risk suicidal thoughts), and 20 to 38 indicates the readiness to commit suicide (high-risk suicidal thoughts) (17). The validity of the questionnaire is 0.76 and its validity is determined by the internal homogeneity method (Cronbach's Alpha = 0.95). This questionnaire is available as a norm in Iran (18). The data were then imported into SPSS 16 software, and Fisher's exact test was used to evaluate associations between demographic variables and the prevalence of suicidal thoughts.

Results

Of the 311 medical students of Urmia University of Medical Sciences, 141 respondents were male (45.3%) and 170 were female (54.7%). In terms of marital status, 298 were married (95.8% of people), and 13 were unmarried (4.2%). In terms of age 62 respondents (19.9%) were between 15 and 20, 195 (62.7%) were between 21 and 25, 48 (15.4%) were between 26 and 30, and 3 (1%) were over 30. In terms of residence, 158 students (50.8%) lived in a dormitory, 48 (15.4%) lived in a private house, 94 (30.2%) lived in their parents' house, and 9 (2.9%) lived in a rented house. In terms of courses, 104 (33.4%) students were taking part in basic sciences, 54 (17.4%) in physiopathology, 95 (30.5%) in externships, and 57 (18.3 %) in Internships. In the survey of nativity status, 209 (67.4%) participants were indigenous and 101 (32.6%) were non-indigenous. In the study of the number of shifts per month, 158 (50.8%) participants had no shifts, 97 (31.2%) had less than 5 shifts, and 55 (17.7%) had 5 or more shifts (Table 1). In terms of the prevalence of suicidal thoughts, 256 (82.3%) participants had no suicidal thoughts, 45 (14.5%) had suicidal thoughts and 3.2% (10 people) were prepared to commit suicide (Figure 1).

Consequently, in general, the prevalence of suicidal thoughts among medical students of Urmia University of Medical Sciences was reported to be 17.7% (55 people).

A significant relationship was found between the prevalence of suicidal thoughts and age (p = 0.04) and the prevalence of suicidal thoughts with place of residence (p = 0.016). Data analysis was conducted using Fisher's exact test. Prevalence of suicidal thoughts in the age group over 30 years was reported as 3.33% (1 person), which was higher than in other age groups. The prevalence of suicidal thoughts among students based in rented homes was reported to be 55.6% (5 people), higher than in other groups. However, no significant associations were found between suicidal thoughts and gender (p = 0.577), marital status (p = 0.813), educational attainment (p = 0.355), nativity status (p = 0.834), or the number of shifts per month (p = 0.518).

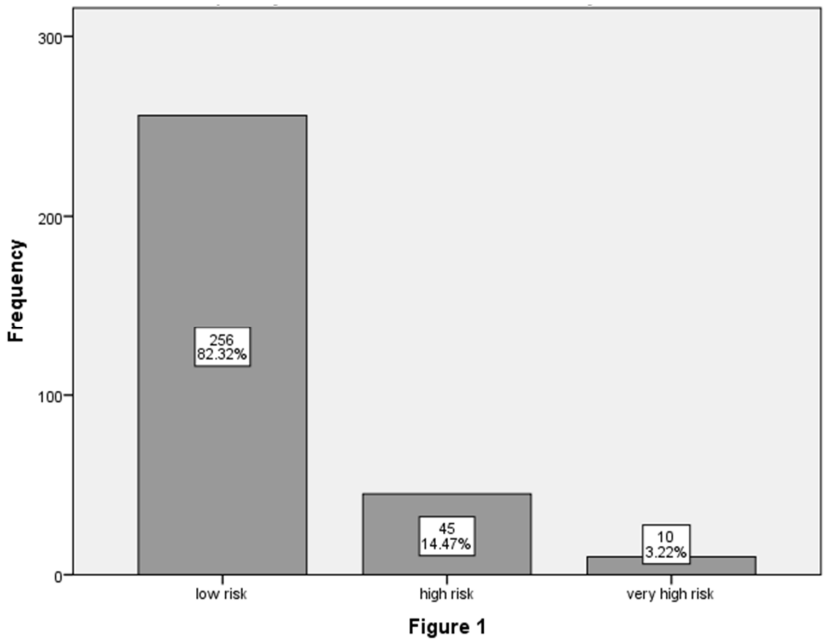

Fig. 1. Frequency of suicidal ideation sorted by risk

Table 1. Suicidal ideation prevalence sorted by variables

Variable		Suicidal ideation			*p*-value
		Low risk Frequency	Moderate risk Frequency	High risk Frequency	
Gender	Male	116 (82.3%)	22 (15.6%)	3 (2.1%)	0.577
	Female	140 (82.4%)	23 (13.5%)	7 (4.1%)	
Age	15-20	51 (82.3%)	9 (14.5%)	2 (3.2%)	0.04
	21-25	168 (86.2%)	19 (9.7%)	8 (4.1%)	
	26-30	35 (72.9%)	13 (27.1%)	0 (0%)	
	30 and above	2 (66.7%)	1 (33.3%)	0 (0%)	
Marital status	Married	12 (92.3%)	1 (7.7%)	0 (0%)	0.813
	Unmarried	244 (81.8%)	44 (14.7%)	10 (3.5%)	

Variable		Suicidal ideation			*p*-value
		Low risk	Moderate risk	High risk	
		Frequency	Frequency	Frequency	
Place of residence	Dormitory	132 (83.5%)	33 (14.6%)	3 (1.9%)	0.016
	Private house	40 (83.3%)	4 (8.3%)	4 (8.3%)	
	Parents' house	79 (84%)	13 (13.8%)	2 (22.2%)	
	Rented	4 (44.4%)	5 (55.6%)	0 (0%)	
Educational attainment	Basic science	91 (87.5%)	12 (11.5%)	1 (1%)	0.355
	Physiopathology	42 (77.8%)	9 (16.7%)	3 (5.6%)	
	Externship	79 (83.2%)	13 (13.7%)	3 (3.2%)	
	Internship	43 (75.4%)	11 (19.3%)	3 (5.3%)	
Nativity status	Indigenous	173 (82.3%)	30 (14.4%)	6(2.9%)	0.834
	Non-indigenous	82 (81.2%)	15 (14.9%)	4 (4%)	
Shifts per month	Below 5	81 (83.5%)	13 (13.4%)	3 (3.1%)	0.518
	5 and above	41 (74.5%)	11 (20%)	3 (5.5%)	
	No shifts	133 (84.2%)	21 (13.3%)	4 (2.5%)	

Discussion

In a study conducted by researchers, the prevalence of suicidal thoughts among medical students at Urmia University of Medical Sciences was 17.7%. The prevalence of suicidal thoughts varies from study to study. Coentre and Góis estimated the prevalence of suicidal thoughts in different Western and non-Western countries between 1.8% and 53.6% (19). In a study conducted in Brazil, the prevalence of suicidal thoughts among medical students was reported as 7.2% (20). In India, the prevalence of suicidal thoughts among medical students was reported as 53.6% (21). A research by Asfaw and colleagues in Ethiopia reported the prevalence of suicidal thoughts to be 23.7% (22). In studies that were held in Iran, there is also a significant difference between the prevalence of suicidal thoughts at different universities. In the Khosravi and colleagues study, the prevalence of suicidal thoughts among medical students was reported to be 17% (23). A research in Kurdistan estimated the prevalence of suicidal thoughts among medical students at 32.7% (24). In the University of Medical Sciences in Isfahan, the prevalence of suicidal thoughts among students was 8.45% (25). The study of Heshmati and colleagues also shows a 6% prevalence of suicidal thoughts among medical students at Zhejiang University of Medical Sciences (17). This study did not show a significant difference in the prevalence of suicidal thoughts in men and women. The studies by colleagues in Nepal and Serbia did not report a significant difference between the two sexes in terms of the prevalence of suicidal thoughts (26, 27). Other studies suggest a significant difference in the prevalence of suicidal thoughts between the two sexes. Sun and colleagues estimated the prevalence of suicidal thoughts in men to be higher than in women (28). In another study, the prevalence of suicidal thoughts was higher in women than in men (29). According to the study by Soofi Afshar and colleagues, the prevalence of thoughts was also reported in women more than in men (18). Meanwhile, another domestic article reported the prevalence of suicidal thoughts to be higher in men than in women (17). The Mousavi et al. study also reported a higher prevalence of thoughts in men than in women (25).

The present study found a significant correlation between the prevalence of suicidal thoughts and age, with the prevalence of suicidal thoughts in the age group over 30 years of age reported to be 33.3% higher than in other age groups. The study of Trindade and colleagues also found a significant correlation between age and the prevalence of suicidal thoughts, but the study reported the highest rate of suicidal thoughts in the age group of

19 to 22 years (30). Meanwhile, another study did not report a correlation between age and the prevalence of suicidal thoughts (21). Coentre et al. also found no significant correlation between age and the prevalence of suicidal thoughts (19).There was also no significant correlation between the prevalence of suicidal thoughts and sections of medical school in the study conducted by researchers. In the study by Torres et al. and the study by Van Niekerk et al., there was also no significant correlation between the prevalence of suicidal thoughts and the section (20, 31). In the study by Soofi Afshar and colleagues, there was no significant difference between the different sections in terms of the prevalence of suicidal thoughts(18). However, a study in Nepal reported a higher prevalence of suicidal thoughts in higher sections, significantly higher than in lower sections (27). Similarly, Fan and colleagues in their studies found that as the section increases, so does the rate of suicidal thoughts (13). But also, there were studies that indicated the prevalence of thoughts in lower sections was significantly more than higher sections (32, 33).

The study found a significant correlation between residence and the prevalence of suicidal thoughts, reporting that the prevalence of suicidal thoughts was significantly higher in students living in rented houses (55.6%). In another study, the prevalence of suicidal thoughts in non-dormitory students was significantly higher than in dormitory students (17), while the study by Sepehrmanesh and colleagues reported that the prevalence of depression and suicidal thoughts in dormitory workers was higher than in non-dormitory workers (34).

In the study conducted by researchers, there was no significant correlation between marital status and the prevalence of suicidal thoughts. In the study by Iranian colleagues, there was a significant correlation between marital status and suicidal thoughts, so that single people had fewer suicidal thoughts than married people (3). In another article, the prevalence of suicidal thoughts in single students was significantly higher than in married students (35). Chomon et al.'s study also shows that single students are 2.35 times more susceptible to suicidal thoughts than married students (36). In the study by Mohammadinia et al., there were more suicidal thoughts in single students than in married students, which may be attributed to cultural, environmental, economic, and social conditions (37).

In our study, there was no significant correlation between the status of being indigenous or not with suicidal thoughts, so there was no significant difference in the prevalence of thoughts between indigenous or non-indigenous students, and the prevalence of suicidal thoughts in indigenous and non-indigenous students was reported with the appropriate approximation. In the study by Soofi Afshar et al., the prevalence of suicidal thoughts was higher in indigenous students than in non-indigenous ones (18). In the study by Mirzaei and colleagues, the prevalence of thoughts was higher in non-native students (24).

The study found no link between the number of shifts per month with the prevalence of suicidal thoughts. The study conducted by Li et al. also shows that there is no significant correlation between the number of shifts and more hours of work per week with the prevalence of suicidal thoughts among medical workers (38), while the study suggests a significant correlation between long working hours and depression among medical workers (38). There was no significant correlation between the prevalence of suicidal thoughts with night shifts among medical students in the study by Pham and colleagues (39).

Conclusions

The current study shows that the prevalence of suicidal ideation among medical students is remarkable. The suicide of medical students can cause irreparable damage to the medical and educational system of the country. Therefore, it is necessary to draw the attention of health policymakers to this issue and take necessary measures to prevent suicide among medical students.

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Authors' Contributions

Conceptualization, Methodology, Validation, and Supervision were carried out by Parsa Shadnezhad and Maryam Babazadeh. Methodology, writing the original draft, writing the review, editing, and project administration were handled by Parsa Shadnezhad. Data collection was conducted by Parsa Shadnezhad, Amir Rostami, and Nikoo Abdizadeh.

Data Availability

The data that support the findings of this study are available on request from the corresponding author.

Conflict of Interest

The authors have no conflicts of interest associated with the material presented in this paper.

Ethical Statement

The study was approved by the Ethics Committee of Urmia University of Medical Sciences with the Code of Ethics IR.UMSU.REC.1402.051 and adhered to the tenets of the Declaration of Helsinki. All respondents were informed about the nature of the study and written informed consent was obtained.

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