Prevalence of suicidal Ideation among nursing college students in Ardabil, Iran

Abstract

Background: Nursing students often encounter significant occupational and academic stressors, increasing their susceptibility to suicidal ideation (SI). This study investigates the prevalence and associated factors of SI among nursing students in Ardabil, Iran, a region burdened by socioeconomic challenges.

Methods: A cross-sectional survey was conducted among 256 nursing students at Ardabil University of Medical Sciences between November and December 2024. Data were collected using the Beck Scale for Suicidal Ideation (BSSI) and a sociodemographic questionnaire. Descriptive and inferential statistics (independent t-tests, ANOVA) were used to analyze associations.

Results: The prevalence of low-risk SI was 84.8%, high-risk SI 12.1%, and very high-risk SI 3.1%. Mean SI scores were significantly higher among females ($p = 0.007$), single students ($p = 0.03$), those with a history of mental illness ($p = 0.03$), and psychiatric medication users ($p < 0.0001$). Academic year, GPA, and residential status were not significantly associated with SI.

Conclusion: Nursing students in Ardabil face a high prevalence of SI, with gender, marital status, mental health history, and psychiatric medication use being significant predictors. Institutions must prioritize mental health support programs and socioeconomic interventions. Future studies should employ longitudinal designs to enhance generalizability.

Keywords: Suicidal ideation, Nursing students, Mental health, Stress

Introduction

Nurses and nursing students face unique occupational stressors, including emotional exhaustion from caring for vulnerable patients, exposure to traumatic clinical environments, and workplace violence(1, 2). These challenges begin during training, with studies reporting 59.1% of Moroccan and 90% of Egyptian nursing students experiencing clinically significant stress, primarily linked to academic pressures and demographic factors(3). Unaddressed, these stressors perpetuate into professional practice, contributing to adverse outcomes such as absenteeism rates (7.4% among Iranian nurses 80% higher than other sectors) and long-term mental health risks(4, 5) . These challenges extend to nursing students, whose rigorous academic and clinical demands amplify psychological distress(6), heightening vulnerability to mental health disorders, including suicidal ideation and behavior (7). Suicide remains a critical global public health issue, with over 720,000 deaths reported annually and ranking as the third leading cause of mortality among individuals aged 15–29(8, 9). This alarming burden is particularly pronounced in high-stress professions such as nursing(10). A recent study highlights the severity of this crisis among nursing students, revealing that 53.3% exhibited suicidal risk, with 20.7% categorized as high-risk(10, 11) . These findings align with broader trends observed in Iranian academic settings. A systematic review by Miri et al. (2022) found elevated suicide risks among Iranian school and university students, driven by academic pressure, socioeconomic challenges, and mental health stigma(12). Nursing students face distinct vulnerabilities due to age-specific developmental challenges and transitional stressors, including adaptation to clinical environments, fear of medical errors, and prolonged separation from familial support (13). These factors, compounded by psychosocial changes during early adulthood and uncertainties about career trajectories, amplify susceptibility to depression and suicidal ideation(14). Globally, suicide ranks as the second leading cause of death among university students, with lifetime prevalence rates of suicidal ideation, plans, and attempts reported at 27.4% and 12.7%, respectively (15, 16). Despite these trends, epidemiological data specific to nursing students remain limited, though emerging evidence suggests their risk profiles parallel or exceed those of general student populations(17). Regional studies in Iran underscore the compounding stressors faced by nursing students(18). A cross-sectional survey in Ardabil revealed that 55.4% of university students experience severe psychological stress, primarily attributed to academic workloads, financial dependence, and post-graduation employment anxieties (17). These challenges are intensified by the region's acute economic instability, characterized by a 40% inflation rate and 26.8% youth unemployment(19). Such socioeconomic disparities including financial hardship, limited mental

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health resources, and income inequality disproportionately elevate suicide risk among vulnerable groups(20). For nursing students in Ardabil, these systemic pressures intersect with clinical training demands (e.g., adapting to hospital environments, fear of medical errors) and occupational stressors, creating a high-risk environment for suicidal ideation.

Notwithstanding evidence of widespread distress, no study has specifically investigated the prevalence or predictors of suicidal ideation among nursing students in Ardabil, a region grappling with intersecting academic, economic, and clinical challenges. Given the intersection of academic, clinical, and socioeconomic stressors unique to this region and the critical role of nurses in healthcare systems this study aims to *(*1) determine the prevalence of SI among nursing students at Ardabil University of Medical Sciences and (2) identify modifiable risk factors, including gender, marital status, mental health history, and socioeconomic conditions. We hypothesize that female, single, and financially strained students will report significantly higher SI scores, consistent with global trends in high-stress academic populations.

Methods:.

Study design, period and location

The general methodological approach to this study was descriptive in nature. Specifically, we used a cross-sectional (prevalence) sur- vey design involving the use of a standardized questionnaire. The survey was conducted between November and December 2024 at the Nurses and Midwifery Training College, Ardabil University of Medical Sciences.Iran. The instruments were applied at the educational institution, according to students' available time, by prior appointment and explanation of the data collection procedure. Data collection was performed in a reserved place, with the purpose of ensuring privacy, and for students to have complete freedom to express themselves.

Population and sample; inclusion and exclusion criteria

The study population was composed of the total number of students (N=262) regularly enrolled in the nursing course. However, it is necessary to take into account the loss of samples by students who did not want to participate in the research, in addition to the inclusion and exclusion criteria established. Students entered the study after the second semester, when they had started their internship at the hospital. Those who were on sick leave or, for some reason, were absent from the course during the period of data collection were excluded. Therefore, the study obtained a final sample of 256 students.

measures

Data collection occurred from two research instruments: a sociodemographic questionnaire, used to characterize the sample, in order to classify nursing students as to course year, sex, age group, marital status, Residential status, History of mental illness ,Use of psychiatric medications; and The Suicidal Ideation Scale was developed by Beck in 1988 to identify and measure the severity of suicidal thoughts, behaviors, and plans(21). the Beck scale for suicidal ideation(BSSI), as self-report tool with 19 items and three subscales: desire for death(5 items),preparation for suicide(7 items) and actual suicide desire(4 items).The items are rated on a 3-point Likert scale from 0-2. The total score ranges from 0 to 38. The questions measure things such as the wish for death, the desire to commit suicide actively and passively, the duration and frequency of suicidal thoughts, the feeling of self-control, the factors preventing suicide, and the individual's readiness to attempt suicide. If the answers indicate active or passive suicidal tendencies, the person should continue with the next 14 questions. If the total score is between (0) and (5), low-risk suicidal thoughts are present(22). If the sum of the scores is between (6) and (19), there is a high risk of suicidal thoughts, and if the sum of the scores is between (20) and (38), there is a very high risk of suicidal thoughts and suicide attempts. The designers of the tool have obtained a reliability of 0.87 using Cronbach's alpha coefficient(23).

Data Analyze

The results were recorded in an EXCEL® spreadsheet, doublechecked. Statistical analyses were conducted through the program Statistical Package for the Social Sciences (IBM® SPSS®), version 22. Data were analyzed descriptively by means of absolute and percentage distributions and were analyzed inferentially by independent t-test, analysis of variance test.

Ethical statment

This study was approved by the ethical committee of Ardabil University of Medical Sciences (Code: IR.ARUMS. REC.1403.226). All ethical principles were considered in this study. The participants were informed about the study objectives and methods and were assured of the confidentiality of their

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information. They were free to leave the study at any time, and if desired, the research results would be available to them.

Results:
The average age of the research samples was 22.47±1.92 years, and 23-year-old students (23.8%) were more frequent than other individuals. The frequency of other personal characteristics of students is shown in Table 1.

TA B LE 1: Socio-demographic characteristics of participants (*N* = 256)		
Characteristics	**Frequency**	**%**
Gender		
Female	136	53.1
Male	120	46.9
Age(years)		
18-20	40	15.6
21-24	183	71.5
25-27	30	11.7
28-30	3	1.2
Marital Status		
Single	242	94.5
Married	14	5.5
Semester of study		
3	38	14.8
4	42	16.8
5	35	13.7
6	40	15.6
7	32	12.5
8	69	27
Student's GPA		
19<	4	1.5
17-19	57	22.3
15-17	128	50
15>	67	26.2
Residential status		
House	111	43.4
Dormitory	145	56.6
History of mental illness		
Yes	19	7.4
No	237	92.6
Use of psychiatric medications		
Yes	59	23
No	197	77

The average suicidal thoughts of students were 4.12±5.02 (Table 2).

Table2: Mean and standard deviation of suicidal and their dimensions			
Dimensions of suicidal ideation	**Minimum**	**Maximum**	**Mean Score± SD**
Desire for Death	5	10	6.77±1.74
Preparation for Suicide	0	6	0.31±1.02

Active Suicidal Desire	0	20	0.87±2.89
Total score	1	37	4.12±5.02

Most of the suicidal thoughts of students were low risk (84.8%) (Table 3).

Table3 : Frequency distribution of severity of suicidal thoughts	
severity of suicidal thoughts	**N(%)**
Low-risk suicidal thoughts	217(84.8)
High-risk suicidal thoughts	31(12.1)
Very high-risk suicidal thoughts and suicide attempts	8(3.1)

According to Table 4, the highest average of suicidal thoughts in the dimension of Desire for Death in students was in the item of Lack of desire to be alive with an average of 1.46±0.60 and the lowest was in the item of Not trying to save lives in difficult and dangerous situations with an average of 0.31±0.55. The highest average of suicidal thoughts in the Preparation for Suicide dimension in students was in the item Accepting suicidal thoughts with an average of 0.14±0.44 and the lowest was in the item Long-term suicidal thoughts with an average of 0. Also, the highest average of Active Suicidal Desire dimension in studens was in the item The presence of a plan for suicidewith an average of 0.9±0.34 and the lowest was in the item writing notes about suicide with an average of 0.05±0.27.

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Table4 : Frequency distribution, mean, and standard deviation of suicidal thoughts and their dimensions in nursing students, item by item.

dimensions	**items**	**N(%)**			**Mean ±SD**
		0 Score	**1 Score**	**2Score**	
Desire for Death	1-Lack of interest in life	131(51.2)	110(43)	15(5.9)	0.55±0.60
	2-Lack of desire to be alive	154(60.2)	87(34)	15(5.9)	1.46±0.60
	3-Insisting on dying rather than living	153(59.8)	87(34)	16(6.3)	0.46±0.61
	4-Not trying to save lives in difficult and dangerous situations	187(73)	58(22.7)	11(4.3)	0.31±0.55
	5-Suicidal tendencies	223(87.1)	26(10.2)	7(2.7)	0.61±0.43
Preparation for Suicide	6- Long-term suicidal thoughts	256(100)	0	0	0
	7- Constant thoughts of suicide	236(92.2)	15(5.9)	5(2)	0.10±0.35
	8- Accepting suicidal thoughts	231(90.2)	15(5.9)	10(3.9)	0.14±0.44
	9- Lack of control over suicidal thoughts	239(93.4)	13(5.1)	4(1.6)	0.08±0.32
Active Suicidal Desire	10- Not worrying about family and friends, religion, and suicide-related injuries at the time of the attempt	238(93)	13(5.1)	5(2)	0.09±0.34
	11- Running away from problems is the main reason for suicide.	235(91.8)	16(6.3)	5(2)	0.10±0.36

	12- The presence of a plan for suicide	238(93)	13(5.1)	5(2)	0.9±0.34
	13- the presence of a suitable method or opportunity for suicide	241(94.1)	10(3.9)	5(2)	0.8±0.33
	14- the courage or ability to commit suicide	236(92.2)	14(5.5)	6(2.3)	0.10±0.37
	15- the certainty of suicide	232(90.6)	18(7)	6(2.3)	0.12±0.38
	16- Preparing a means to commit suicide	246(96.1)	6(2.3)	4(1.6)	0.05±0.28
	17- writing notes about suicide	245(95.7)	8(3.1)	3(1.2)	0.05±0.27
	18- planning for events and issues after suicide	247(96.5)	5(2)	4(1.6)	0.05±0.28
	19- deceiving others about suicidal intentions	234(91.4)	10(3.9)	12(4.7)	0.13±0.45

The results of the independent t-test showed that there was a relationship between suicidal thoughts and gender, marital status, history of mental illness, and history of taking psychiatric medications. No statistically significant relationship was observed between other variables and suicidal thoughts (P<0.05)(Table5).

TA B LE5: suicidal thoughts according to independent variables of nursing students and their relationship (*N* = 256)

Characteristics	**Frequency**	**Mean ±SD suicidal thoughts**	**Test results *p* (2-tailed)**
Gender*			
Female	136	5.10±6.87	0.007
Male	120	3.25±3.7	
Age(years)**			
18-20	40	3.32±4.77	0.774
21-24	183	4.23±5.29	
25-27	30	4.56±7.75	
28-30	3	3.66±3.78	
Marital Status*			
Single	242	4.22±5.63	0.03
Married	14	2.42±2.70	
Semester of study**			
3	38	4.0±6.28	0.769
4	42	4.35±4.68	
5	35	4.54±6.17	
6	40	4.90±6.96	
7	32	4.28±6.11	
8	69	3.31±3.84	
Student's GPA**			
19<	4	7.0±9.38	0.337
17-19	57	3.22±3.74	
15-17	128	4.11±5.40	

15>	67	4.73±6.66	
Residential status*			
House	111	4.21±5.83	0.820
Dormitory	145	4.05±5.30	
History of mental illness*			
Yes	19	7.73±8.98	0.03
No	237	3.83±5.07	
Use of psychiatric medications*			
Yes	59	6.61±7.92	0/0001
No	197	3.38±4.33	

*T TEST **ONE WAY ANOVA

There was a significant difference in the scores for male suicidal thoughts(M=3.25 , SD=3.7)and female suicidal thoughts(M= 5.10, SD=6.87);t(254)=2.70 , p= 0.007 . There was a significant difference in the scores for single students suicidal thoughts(M=4.22 , SD=5.63)and Married students suicidal thoughts(M=2.42 , SD=2.70);t(20)=2.21 , p= 0/03 .There was a significant difference in the scores for students with a history of mental illness and suicidal thoughts(M=7.73 , SD= 8.98)and without a history of suicidal thoughts(M= 3.83, SD= 5.07);t(254)= 3.02 , p=0/03 .There was a significant difference in the scores for students with a history of Use of psychiatric medications and suicidal thoughts (M= 6.61, SD=7.92)and without a history of suicidal thoughts(M= 3.38, SD= 4.33);t(254)= 4.05 , p= 0.0001 .

Discussion

The findings of this study reveal a concerning prevalence of suicidal ideation (SI) among nursing students at Ardabil University of Medical Sciences. With 84.8% of students classified as low-risk, 12.1% as high-risk, and 3.1% as very high-risk, these results underscore the severe vulnerability of this population and highlight the urgent need for targeted interventions to address mental health challenges in this region. In the following, each of the key findings is discussed and analyzed within the framework of existing literature, considering both consistent and contradictory studies, and finally, the findings of our study are justified. The most significant finding of this research is the high prevalence of SI among nursing students. This result aligns with global studies that identify nursing students as a high-risk group. For instance, Moraes et al. in Brazil reported that 53.3% of nursing students were at risk of suicide, indicating a global crisis within the profession(7). Furthermore, a recent systematic review by Groves et al. focusing on nursing and midwifery students confirmed that these students experience higher rates of suicidal thoughts than the general student population due to academic and clinical pressures(16).However, some studies in countries with stronger economic resources and more developed support systems have reported lower prevalence rates. For example, a study in Germany by Schröpferet al., showed that while psychological stress exists among nursing students, the rate of SI is significantly lower than the findings of the current study and similar research in less developed regions(24). This difference highlights the role of structural and socio-economic factors in shaping student mental health. The high prevalence of SI in our sample can be directly attributed to the unique context of the Ardabil region. As mentioned in the introduction, this region faces severe economic challenges, including a 40% inflation rate and a 26.8% youth unemployment rate(25). These direct economic pressures, particularly on students who may be financially dependent, exacerbate anxiety about future careers and economic uncertainty. These factors, combined with the inherent stresses of nursing education (such as fear of medical errors and adaptation to clinical environments), create a "perfect storm" for psychological distress and SI. Therefore, our finding is not only a reflection of future occupational stress but also an indicator of current social and economic crises in the region.

This study clearly demonstrated that female students have higher SI scores (M=5.10) compared to male students (M=3.25). This finding is consistent with extensive global literature indicating that women are at a higher risk for internalizing disorders such as depression and anxiety (۱۵). Groves et al. also noted in their review that female nursing students may be more vulnerable due to heavier "emotional labor" and socio-cultural expectations(16).Nevertheless, some studies in different societies have found this gender gap to be smaller or even reversed. For instance, a study in Sweden

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by Olsson et al. conducted in a context of high gender equality, found no significant difference in SI rates between male and female nursing students(26). These researchers argued that in societies where emotional and family responsibilities are more equally distributed and the stigma of help-seeking among men is lower, gender disparities in mental health are reduced(27). Our finding can be attributed to the socio-cultural context of Iran. In such a setting, women may face dual pressures: on one hand, expectations for academic and professional success, and on the other, traditional family responsibilities. Furthermore, women may be more inclined to express emotions and report psychological symptoms, whereas men might conceal suicidal thoughts due to social stigma (stoicism). Therefore, the higher SI scores among female students may indicate both real vulnerability and a greater willingness to disclose these thoughts in questionnaires.

Another finding showed that single students reported higher SI scores (M=4.22) compared to married students (M=2.42). This finding is consistent with the study by Mohammadinia et al. and confirms the protective role of marriage(28). More recent research also supports this; for example, Kim in South Korea found that social support, often provided by a spouse, is a strong protective factor against stress and SI among students(29). On the other hand, some studies have shown that marriage during student years can itself be a source of stress. A study in Latin America reported that young married students sometimes experience higher rates of stress and anxiety due to financial pressures and dual responsibilities(30). This finding suggests that the quality of the relationship and the level of mutual support are more important than marital status itself. In our study, marriage functioned as a protective factor. The justification for this finding is that married students likely benefit from a more direct network of emotional and practical support(31). A spouse can act as an outlet for emotional release and a source of strength when facing academic and clinical challenges. This support can reduce feelings of loneliness, a strong predictor of SI, and increase a sense of stability and belonging, whereas single students may have less access to this support resource.

The findings of this study confirmed that students with a history of mental illness (M=7.73) and those using psychiatric medications (M=6.61) have significantly higher SI scores. These were the strongest predictors in the current study. This finding is fully aligned with global scientific literature, as a history of psychiatric disorders is recognized as one of the strongest risk factors for SI and suicidal behaviors (15). A global systematic review by Levero et al. also confirmed this relationship as a consistent finding across different cultures and populations(32).In this domain, contradictory evidence is virtually nonexistent, as this is a well-documented causal relationship. However, a subtle point can be made, the use of psychiatric medications, while indicating greater illness severity, is also an indicator that the individual is in treatment. Therefore, this group of students, despite having higher SI scores, may be the very group that has accessed the mental health system, which can be a starting point for effective therapeutic interventions. The justification for this finding is self-evident, underlying conditions like major depressive disorder, generalized anxiety disorder, or bipolar disorder are directly linked to distorted cognitions, hopelessness, and death-wish thoughts. The use of psychiatric medications also serves as a practical indicator of the severity of these conditions. Thus, these students constitute an extremely vulnerable subgroup requiring active monitoring, specialized counseling, and urgent support from the university. Our finding underscores the necessity of comprehensive mental health screening upon university entry and establishing fast, stigma-free referral pathways.

It is noteworthy that our study found no significant association between SI and academic year, GPA, or residential status (dormitory or home). This finding contrasts with some previous research suggesting that stress increases with academic progression and entry into clinical placements(13) . Some studies have found an inverse relationship between academic performance and mental health, where students with poorer performance experience more psychological distress. The lack of this association in our study could be due to various factors.These findings can be justified for several reasons; It is possible that entry into the clinical environment is an initial shock, but students gradually develop coping mechanisms. Consequently, the level of SI may remain stable throughout the academic program as stressors and coping skills increase concurrently. For this population, the *psychological pressure* of fearing academic failure may be more important than the *actual GPA*. Alternatively, a lack of variance in GPA within our sample may have prevented finding a significant association. The social support available in dormitories (friends and roommates) might compensate for the negative effects of being away from family, and conversely, family support for students living at home might be accompanied by family pressures. These complex interactions could neutralize any simple effect of residential status.

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