

Prevalence of Suicidal Ideation Among Undergraduate Students of Medical Colleges of Nepal: A Nationwide Multicentric Cross-sectional Study

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Abstract

Medical students constitute a vulnerable population due to substantial educational and personal stressors, with suicidal ideation affecting approximately one in nine students globally. Limited evidence exists regarding suicidal ideation among medical students in Nepal. This study aimed to determine the prevalence of suicidal ideation among undergraduate medical students in Nepal. Our study with a sample size of 162 found that nearly one in three students (31.6%) have had suicidal thoughts, and over a quarter (27.6%) experienced them within the past year. About 8.6% had made a plan, while 6.3% had attempted suicide. The strongest association with CI 95% was dissatisfaction with academic performance (OR = 4.13, CI: 1.97–8.69, $p = 0.0002$), followed by feeling neglected by parents (OR = 3.40, CI: 1.23–9.43, $p = 0.03$), current alcohol use (OR = 2.74, CI: 1.29–5.83, $p = 0.018$), and male sex (OR = 0.45, CI: 0.23–0.88, $p = 0.02$). These alarming findings underscore the urgent need for effective mental health support, preventive strategies, and deeper research into contributing factors.

Introduction

Medical students often experience significant academic, psychosocial, emotional and financial stress, which has been inconclusively linked to suicidal tendencies.^{1–4} Suicide is among the three leading causes of death worldwide, and suicidal ideation affects an estimated 11.1% of medical students globally, with reported prevalence ranging from 6% to 43%.^{5–7} Most of the time, suicide is preceded by suicidal ideation, which is defined as thinking about, considering or planning suicide and specifically involves thoughts about ending one's own life (World Health Organization).^{10,11} Medical professionals are considered a high-risk group for suicide, while depression, anxiety, fatigue and burnout are more common among medical students than the general population.^{1,6,12–15} Suicide remains a major public health concern worldwide, particularly in Asian countries but research on suicidal ideation among medical students in developing countries remains limited and Nepal currently lacks structured mental health screening and support programs for students.^{4,9,13} Therefore, this study aimed to determine the prevalence of suicidal ideation among undergraduate medical students in Nepal.

Methods

The study participants were undergraduate medical students enrolled in the MBBS program at various medical colleges in Nepal. The study was conducted from September 2024 to February 2025 among undergraduate MBBS students aged 18 years and above from 21 medical colleges affiliated with Tribhuvan University, Kathmandu University, Patan Academy of Health Sciences, B.P. Koirala Institute of Health Sciences, and Karnali Academy of Health Sciences. Students who provided informed consent and completed the questionnaire were included in the study, while students who did not consent, submitted incomplete responses, or were non-MBBS/postgraduate students were excluded.

Data were collected using Google Forms, which were sent to participants via email and through social media platforms including Facebook, LinkedIn and Twitter, as well as messaging apps such as

Messenger, Viber and WhatsApp. To ensure confidentiality, all personally identifiable information like name, email address, etc. were removed. Within the Google Forms, electronic informed consent was obtained before participation and only consenting participants were included in the study.

The sample size was determined by using statistical formula, sample size $(n) = z^2 \times (p \times q) / e^2 = 3.8416 \times (0.107 \times 0.893) / 0.0025 = 147$ where z = confidence interval at 95%, $z: 1.96$ $p = 0.107$, prevalence taken as 10.7% based on a study done among medical students of a tertiary care hospital in Nepal,¹⁹ $q = 1 - p$; 0.893 e = margin of error, 5%. By the above formula, the sample size for the study was calculated as 147. Considering 10% as a non-response rate, the required sample size was rounded to 162. Although the minimum calculated sample size was 162, all eligible responses i.e. 174 received during the study period were included in the final analysis. A proportionate stratified sampling technique was employed. Participants were stratified as per their affiliated medical institution and proportional allocation was performed.

A self-administered questionnaire adapted from previous studies was used to collect sociodemographic data, risk factor and suicidal ideation-related items from the General Health Questionnaire (GHQ-28). Suicidal ideation during the past 12 months was assessed using four GHQ-28 items addressing feelings that life was not worth living, death wishes, self-harm thoughts and recurrent thoughts of taking one's own life. Responses were rated on a four-point Likert scale ranging from 0 to 3. Scores of 2 or 3 were considered positive responses, while scores of 0 or 1 were considered negative. Binary scores for the four items were summed to generate a total suicidal ideation score ranging from 0 to 4 (continuous scale) where a score of ≥ 1 was considered positive for suicidal ideation.

A pretest was conducted among 10% of the calculated sample size, which is a commonly used proportion in survey-based research to evaluate the validity, clarity, and feasibility of the questionnaire before full-scale data collection. Participants for the pretest were selected from a similar population, and their responses were excluded from the final analysis. Furthermore, validity and reliability, the questionnaire was reviewed by experts in Community Medicine, who assessed the content relevance, clarity, and methodological appropriateness of the items. Questions about suicidal ideation in the General Health Questionnaire were validated and also found to have similar sensitivity in identifying suicidal ideation as other suicidal intent scales.²⁰ The GHQ-28 demonstrated strong internal consistency as a measure, with Cronbach's alpha at 0.9, split-half reliability at 0.89 and test-retest reliability at 0.58.²¹

The statistical analysis was performed using a statistical analysis program (IBM SPSS Statistics 28.0.1) via institutional subscription available to the principal author. Categorical data were presented as frequency with percentages (%) and continuous data as mean $\pm$ standard deviation (SD). The chi-square test for independence was used to determine if there is a significant association between the two variables. The strength of associations was measured as an odds ratio with a 95% confidence interval (OR, 95% CI). Statistical significance was assessed using the p-value, where a p-value of less than 0.05 indicates that the association is statistically significant.

The study was approved by the Institutional Review Board (IRB) of Nepal Health Research Council (NHRC), Kathmandu, Nepal (Reference No. 2700, Date: 2025-06-03).

Result

Out of the total 174 participants, 94 (54%) were male and 80 (46%) were female. Participants ranged in age from 18 to 30, with the highest number of participants aged 21-23, totaling 92 (52.87%). The mean age was approximately 21.79, with a standard deviation of 2.05. The majority identified as Hindu, with 160 (91.95%), followed by Muslims, with 7 (4.02%). This study also included the largest number of participants from final-year medical students, numbering 65 (37.3%), followed by first-year students, with 57 (32.8%). The risk factors with the highest prevalence were dissatisfaction with academic performance (89, 51.1%), followed by a history of being ragged (56, 32.2%) and alcohol consumption (48, 27.6%). Physical and sexual abuse had a prevalence of 16.1%, while smoking cigarettes had a prevalence of 13.8%.

55 (31.61%) students have had suicidal thoughts at some point in their lives, with 48 (27.58%) experiencing suicidal ideation in the past 12 months. Similarly, 8.6% and 6.3% had a suicidal plan and attempted suicide, respectively.

As shown in Table 3, four questions derived from GHQ-28 were used to assess suicidal ideation. 25 (14.37%) students felt that their lives were not worth living, with 22 (12.64%) having considered the possibility that they might take their own lives. Out of 48 students who had suicidal ideation in the past 12 months, 19 (39.59%) were male and 29 (60.41%) were female; 20 (41.6%) were in the first year and 15 (31.25%) were in the final year, respectively.

In the univariate logistic regression analysis, reference categories were female, age 18-20, first year of study and negative responses. Dissatisfaction with academic performance showed the strongest association with suicidal ideation (OR=4.13, 95% CI: 1.97–8.69, $p=0.0002$), indicating that students dissatisfied with their academic performance had over four times the odds of experiencing suicidal ideation compared with those who were satisfied. Significant associations were also observed for feeling neglected by parents (OR=3.40, 95% CI: 1.23–9.43, $p=0.030$) and current alcohol use (OR=2.74, 95% CI: 1.29–5.83, $p=0.018$), both of which were associated with increased odds of suicidal ideation. Male sex was associated with lower odds of suicidal ideation compared with female sex (OR=0.45, 95% CI: 0.23–0.88, $p=0.020$). Conversely, physical/sexual abuse (OR=2.29, 95% CI: 0.99–5.30, $p=0.081$), ragging (OR=1.08, 95% CI: 0.53–2.18, $p=0.990$), daily cigarette smoking (OR=1.71, 95% CI: 0.70–4.19, $p=0.300$), age, year of study and substance use (OR=1.33, 95% CI: 0.32–5.56, $p=0.990$) were not significantly associated with suicidal ideation, as their confidence intervals included 1 and their p -values exceeded 0.05.

Table 1. Sociodemographic characteristics of study participants in Frequency(n) and Percentages(%)

Variables	n(%)
Age	
18-20	49(28.16%)
21-23	92(52.87%)
24-26	29(16.67%)
>26	4(2.29%)
Sex	
Male	94(54%)
Female	80(46%)
Religion	
Hindu	160(91.95%)
Muslim	7(4.02%)
Buddhist	2(1.14%)
Kirat	1(0.57%)
Christian	1(0.57%)
Agnostic/Atheist	3(1.67%)
Nationality	
Nepalese	165(94.8%)
Non-Nepalese	9(5.2%)
Year of Study	
First year	57(32.8%)
Second year	17(9.8%)
Third year	35(20.1%)
Final year	65(37.3%)

Table 2: Risk factors prevalence among study participants

Variables	Positive responses (n, %)	Negative Responses (n, %)
Have you felt neglected by your parents?	17(9.8%)	157(90.2%)
Are you dissatisfied with your academic performance?	89(51.1%)	85(48.9%)
Do you consume alcohol currently?	48(27.6%)	126(72.4%)
Do you smoke cigarettes daily?	24(13.8%)	150(86.2%)
Do you have a habit of substance use (Marijuana, illegal drugs, Prescription Medicine)?	9(5.2%)	165(94.8%)
Do you have a history of being ragged?	56(32.2%)	118(67.8%)
Do you have a history of physical/sexual abuse?	28(16.1%)	146(83.9%)

Table 3: Responses to GHQ-28-derived questions for suicidal ideation

Questions	Positive response	Negative response
Have you recently (within the past 12 months) felt that life is not worth living?	25 (14.37%)	149 (85.63%)
Have you recently (within the past 12 months) found yourself wishing that you were dead and away from it all?	18 (10.33%)	156 (89.66%)
Have you recently (within the past 12 months) had thoughts of the possibility that you might do away with yourself?	22 (12.64%)	152 (87.36%)
Have you recently (within the past 12 months) found the idea of taking your own life coming into your mind?	20 (11.49%)	154 (88.51%)

Table 4: Univariate logistic regression analysis

Variables	OR	Confidence interval (CI) 95%	p-value
Sex			
Female (Reference)			
Male	0.45	[0.23-0.88]	0.02
Years of Study			
First year (Reference)			
Second year	1.64 0.74	[0.55-4.92]	0.37 0.51
Third year	0.34	[0.33-1.84]	0.01
Final year		[0.14-0.81]	
Age			
18-20(Reference)			
21-23	0.97 0.26	[0.34-2.78]	0.963
24-26	0.00	[0.03-2.25]	0.272
>26		[0.00-Undefined]	1.0
Felt neglected by parents	3.40	[1.23-9.43]	0.03
Dissatisfied with academic performance	4.13	[1.97-8.69]	0.0002
Being physically/sexually abused	2.29	[0.99-5.30]	0.081
Being ragged	1.08	[0.53-2.18]	0.99
Consume alcohol currently	2.74	[1.29-5.83]	0.018
Smoke cigarettes daily	1.71	[0.70-4.19]	0.30
Habit of substance use (Marijuana, illegal drugs, Prescription Medicine)	1.33	[0.32-5.56]	0.99

Discussions

Suicide occurs throughout the lifespan and was the second leading cause of death among 15–29-year-olds globally.⁹ Medical students are vulnerable to suicidal ideation owing to various factors like academic load, financial crisis, and work pressure, family life situation, busy schedules, unsightly incidents of suffering, diseases, and death, triggering unbalanced temperament in day-to-day life.² This turbulence in mental health can lead to poor academic performance, substance abuse, etc., which

further reinforces the cycle and eventually suicide.² Medical students are often reluctant to seek psychiatric help due to stigma, confidentiality, and the time factor.⁸ 31.61% of students have experienced suicidal thoughts at some point in their lives, with 27.58% reporting suicidal ideation in the past 12 months in our study. Additionally, 8.6% of students have developed a suicidal plan, and 6.3% have attempted suicide.

Previous studies of non-medical college and university students have reported a wide range of lifetime prevalence rates for suicidal ideation, ranging from 9.7% to 58.3%.²² Meta-analyses indicate that approximately 27.1% of students experience suicidal ideation at some point in their lives, with a prevalence of 14.1% for ideation in the past year.²² Additionally, 3.1% of students have reported suicide attempts.²² In our study, we found a higher prevalence of suicidal ideation, plans, and attempts among students. Specifically, 31.61% of respondents reported having suicidal thoughts at some point in their lives, and 27.58% experienced suicidal ideation in the past year. Furthermore, 8.6% of students indicated that they had developed a suicidal plan, while 6.3% reported having attempted suicide. In contrast, cross-national studies of the general adult population estimate the lifetime prevalence of suicidal ideation at around 9.2%, with 3.1% for planning, and 2.7% for attempts.¹⁰ The rates found in our study are significantly higher than those reported in the general population, suggesting that medical students face an increased risk and vulnerability compared to their peers in the general population.

A recent meta-analysis with 95% CI revealed that several factors significantly increase the risk of suicidal ideation among medical students, including being female (OR = 1.47; CI:[1.13–1.92]; $p < 0.01$), experiencing academic difficulties (OR = 2.23; CI:[1.39–3.58]; $p = 0.0009$), and facing parental neglect (OR = 2.53; CI:[1.08–5.92]; $p = 0.03$).²³ Additionally, current alcohol consumption is associated with a higher risk (OR = 2.74; CI:[1.29–5.83]; $p = 0.018$).²³ The meta-analysis also identified risk factors such as physical or sexual abuse and bullying (ragging) as statistically significant.²³ The findings of this study are largely consistent with the existing meta-analysis, highlighting key psychosocial and behavioral factors associated with suicidal ideation among medical students. Female sex was significantly associated with lower odds of the outcome (OR = 0.45, 95% CI: 0.23–0.88, $p = 0.02$). Feeling neglected by parents (OR = 3.40, 95% CI: 1.23–9.43, $p = 0.03$), dissatisfaction with academic performance (OR = 4.13, 95% CI: 1.97–8.69, $p = 0.0002$), and current alcohol use (OR = 2.74, 95% CI: 1.29–5.83, $p = 0.018$) were significant predictors of suicidal ideation. In contrast, physical or sexual abuse showed a positive but non-significant association (OR = 2.29, 95% CI: 0.99–5.30, $p = 0.081$), while bullying (ragging) was not significantly associated (OR = 1.08, 95% CI: 0.53–2.18, $p = 0.99$). Similarly, cigarette smoking (OR = 1.71, 95% CI: 0.70–4.19, $p = 0.30$), age, year of study and other substance use, including marijuana, illegal drugs, and prescription misuse (OR = 1.33, 95% CI: 0.32–5.56, $p = 0.99$), did not show statistically significant associations. Overall, these findings suggest that academic stress and emotional neglect may play a more prominent role than certain behavioral risk factors in this population.

These results highlight the need for targeted prevention efforts aimed at vulnerable groups within the medical student population, particularly addressing risks associated with academic stress, being female,

and negative personal and family experiences. The findings of this study provide valuable insights into medical student suicidality in the underexplored South Asian country, Nepal. The unexpectedly high rates observed highlight an urgent need for further research to better understand the underlying causes, existing challenges, and effective strategies for prevention and management in these populations.

Many students struggle with dissatisfaction about their academic performance, so the learning environment needs to be more supportive and less stressful. The curriculum and exams should be updated, evidence-based, and designed to help students grow in knowledge and skills without feeling overwhelmed. Colleges should also make sure students never feel neglected by building a strong support system where they can find help and understanding. Regular mental health screening, surveillance and monitoring, open conversations about stress and coping, awareness programs on mental health, along with easily accessible, confidential counseling and mental health services can go a long way in ensuring students feel safe, valued, and cared for throughout their training.

Limitations

The study design limits causal inference. Self-reporting of data may have introduced response bias. The relatively small sample size and limited national representativeness may further restrict external validity. In addition, mental health stigma may have influenced participants' willingness to disclose accurate information.

Conclusions

A significant number of students reported suicidal thoughts and related behaviors, reflecting concerning levels of psychological distress among medical students. This highlights the need to better understand the underlying causes as well as strengthen and implement preventive efforts. Supporting student well-being requires accessible counseling and psychiatric services in all health institutions, along with mental health awareness programs, stress management training, and a more supportive academic environment through appropriate policy and curriculum improvements. Establishing peer support systems within medical colleges, promoting early screening, and ensuring timely, confidential referral to psychiatric care can help identify and support vulnerable students at an earlier stage.

Declarations

Funding sources

No funding required for the study.

Ethical approval

statement

The study was approved by the Institutional Review Board (IRB) of Nepal Health Research Council (NHRC), Kathmandu, Nepal. All participants provided their consent to take part in the study.

Conflict of Interest

None

Provenance and peer review

Not commissioned, externally peer-reviewed.

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Data availability statement

All data will be made available on a reasonable request to the corresponding author.

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