

## Suicidal Ideation Among Medical and Nursing Students

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### ABSTRACT

**Background:** Suicidal ideation is a major predictor of suicide attempts. The present study was conducted to compare the prevalence of suicidal ideation and its risk factors among medical and nursing students in Nepal.

**Methods:** An online survey was carried out among a cohort of medical and nursing students of Lumbini Medical College using questions derived from General Health Questionnaire-28 and Patient Health Questionnaire-9.

**Results:** 153 medical and 148 nursing students participated in the study. Lifetime suicidal ideation was present in 20.6%(n=62) medical and 13.95%(n=42) nursing students. Suicidal ideation in the last one year was present in 48 medical and 36 nursing students. There were higher odds of suicidal ideation in medical students who had parental neglect, psychiatric disorder, physical and sexual abuse, substance abuse, and academic performance dissatisfaction ( $p<0.05$ ), whereas the odds were higher in nursing students with psychiatric disorder, parental demands, alcohol consumption, and academic performance dissatisfaction but was not statistically significant. Thematic analysis of the responses for open-ended question for reasons for previous suicide plans or attempts among four medical and eight nursing students revealed relationship issues, history of adverse childhood experiences, academics-related circumstances, and other individual problems as suicide antecedents.

**Conclusions:** Periodic motivational speeches and counselling sessions during all the semesters of professional schooling would help decrease suicidal ideation. Mental health awareness programs for medical and nursing students should be aimed at reducing mental illness-associated stigma and promoting timely professional help-seeking behavior.

**Keywords:** Medical students; Nepal; nursing students; suicidal ideation

### INTRODUCTION

The World Health Organization reported that suicide was the fourth leading cause of death among the youth aged 15-19 years in 2019.<sup>1</sup> Suicidal ideation is a major predictor for suicidal attempt and suicide. The common risk factors for suicidal ideation are substance abuse, parental neglect, and psychiatric disorder.<sup>2</sup> Many students do not share their problems with their peers, family members, or professionals because depression and other mental illnesses are still considered a taboo in Nepal and people fear of stigmatization.<sup>3</sup>

Previous studies have reported on suicidal ideation

among medical students in Nepal.<sup>4-7</sup> Studies regarding depression and mental illnesses among Nepalese nursing students have also been conducted in the past.<sup>8,9</sup> The present study was conducted to compare the prevalence of suicidal ideation and its risk factors among medical and nursing students in Nepal.

### METHODS

A cross-sectional survey was carried out among medical and nursing students of Lumbini Medical College, Palpa, Nepal in August 2021 after the research proposal was approved by the Institutional Review Committee (reference no. IRC/LMC 05-C/021). For students less than

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18 years of age, the head of the institution provided a 'loco parentis' consent. The survey used a questionnaire as the research instrument. The questionnaire consisted of three parts: basic demographic data, mental health assessment, and attempt of suicide or deliberate self-harm in the past.

Basic demographic data included information related to age, sex, nationality, body weight and stature to calculate the body mass index (BMI); and questions on abuse and personal behavior like alcohol consumption, cigarette smoking, and substance abuse.

Suicidal ideation in the recent past (12 months) was based on responses to four questions<sup>10</sup> in the depression subscale of the General Health Questionnaire-28 (GHQ-28).<sup>11</sup> The validity of this scale was established by providing a standardized method for comparing suicidal ideation.<sup>12</sup>

A dichotomous question to access the lifetime prevalence of suicidal ideation was added.<sup>10</sup> Similarly, an additional question "Have you ever been diagnosed with a psychiatric disorder?" was added in the Yes/No format. The Patient Health Questionnaire-9 (PHQ-9) was used to access the severity of depression.<sup>13,14</sup> Validity for PHQ-9 when accessed, the score  $\geq 10$  had a sensitivity of 88% and a specificity of 88% for major depression.<sup>13</sup> The last part of the questionnaire had open-ended questions on previous suicidal attempts; the methods and reasons for doing it.

Taking the prevalence of suicidal ideation as 4.7% among medical students in Nepal,<sup>6</sup> the sample size for the present study was calculated by using the formulae  $n = (Z^2 \times p(1-p)) / d$  for prevalence study. When the confidence level was set at 95%;  $Z = 1.96$ ; population proportion ( $p$ ) = 18.4%, and precision ( $d$ ) = 5% (0.05), the sample size was calculated to be 69 for medical students. The same prevalence was assumed for nursing students, and accordingly the minimum sample size was calculated to be 138.

The present study was an online survey. Questions were typed in Google form and the link provided to the students through their class representatives. Once the link was clicked it opened a page that explained the aims of the study and the contact details of the principal investigator. The survey did not collect name and email address of any of the participants, so the responses were anonymous. Participants were informed that no financial or material gifts will be provided for completing the questionnaire and that participation was voluntary. If the participants consented and clicked the

'agree' button, then they were directed to the next page for filling up the survey form. If the participant did not consent and clicked the 'disagree' button, the survey didn't continue, and the incomplete form was submitted.

After the desired sample size was achieved, the collected data was then downloaded into a Microsoft Excel worksheet and then exported to SPSS v 21 for analysis. A descriptive statistical analysis was done, and the association and significance of the study variables with the responses from the participants were expressed as odds ratio with a 95% confidence interval (OR, 95% CI). A p-value of less than 0.05 was taken as significant.

## RESULTS

A total of 153 medical and 148 nursing students participated in this study. The age ranged from 16 to 29 years with a mean age of  $19.52 \pm 2.00$  for medical and  $21.66 \pm 1.67$  for nursing students (Table 1).

**Table 1. Baseline characteristics of the study population.**

Baseline characteristics		Medical* (n=153)	Nursing* (n=148)
Gender	Male	73 (47.71%)	0 (0%)
	Female	80 (52.29%)	148 (100%)
Mean age (In years with SD)		21.66 (1.67)	19.52 (2.00)
	First	54 (35.29%)	30 (20.27%)
Year of school	Second	36 (23.53%)	44 (29.73%)
	Third	36 (23.53%)	42 (28.38%)
	Fourth	27 (17.65%)	32 (21.62%)
	Nepalese	130 (84.96%)	148 (100%)
Nationality	Non-Nepalese	23 (15.04%)	0 (0%)
	Married	1 (0.65%)	1 (0.67%)
Marital status	Unmarried	152 (99.35%)	147 (99.33%)

\*students

Lifetime suicidal ideation was present among 20.6% ( $n=62$ ) medical and 13.95% ( $n=42$ ) nursing students. The number of at least one positive response for any of the four GHQ-28 questions was 48 from medical students which was higher when compared to 36 from nursing students (Table 2).

Table 2. Suicidal ideation in the past 12 months as per GHQ-28 derived questions.

Questions	Negative response		Total	Positive response		Total
	Medical students	Nursing students		Medical students	Nursing students	
Have you recently (during the past 12 months) found yourself wishing that you were dead and away from it all?	143 (47.5%)	141 (46.8%)	284 (94.4%)	10 (3.3%)	7 (2.3%)	17 (5.6%)
Have you recently (during the past 12 months) felt that life is not worth living?	131 (43.5%)	134 (44.5%)	265 (88.0%)	22 (7.3%)	14 (4.7%)	36 (12%)
Have you recently (during the past 12 months) had thoughts of the possibility that you might do away with yourself?	117 (38.9%)	134 (44.5%)	251 (83.4%)	36 (12%)	14 (4.7%)	50 (16.6%)
Have you recently (during the past 12 months) found the idea of taking your own life coming into your mind?	132 (43.9%)	127 (42.2%)	259 (86.0%)	21 (7.0%)	21 (7.0%)	42 (14%)

The PHQ-9 score ranged from 0 to 21 in the present study with an overall mean score of  $5.26 \pm 4.38$  for medical students and  $4.0608 \pm 4.06$  for nursing students. In the cohort of medical students, it was seen that one had scores for severe and six moderately severe depression in contrast to the nursing students where two had severe depression and seven had moderately severe depression. (Table 3).

Table 3. Level of depression as per the PHQ-9 score.

Level of depression, PHQ-9 score	Medical students (n=153)	Nursing students (n=148)
Minimal 0-4	79 (51.64%)	94 (63.51%)
Mild, 5-9	50 (32.68%)	38 (25.68%)
Moderate, 10-14	17 (11.11%)	7 (4.73%)
Moderately severe, 15-19	6 (3.92%)	7 (4.73%)
Severe, 20-27	1 (0.65%)	2 (1.35%)

There were 62 medical students who had suicidal ideation. Statistically, a significant association of suicidal ideation with academic performance dissatisfaction, parental neglect, history of physical and sexual abuse, and

psychiatric disorder was observed; whereas substance abuse, smoking, alcohol consumption, overweight, tattoo, and body piercing did not show a statistically significant association (Table 4).

There were 42 nursing students who had suicidal ideation in the present study. Although none of the nursing students had a history of substance abuse 24 of them consumed alcohol and three of them smoked cigarettes. Suicidal ideation was present in all the nursing students who smoked ( $p=0.005$ ) and one-fourth of those who consumed alcohol. There was no statistically significant association between suicidal ideation and studied variables among nursing students (Table 5).

There were four medical students (2 male, 2 female) and eight nursing students and in the present study who had made a suicidal plan or had attempted to commit suicide. Hanging ( $n=2$ ), jumping from height ( $n=2$ ), poisoning/self-medication ( $n=3$ ), and cutting the wrist ( $n=1$ ) were the employed methods for suicide attempts in the present study. For the last open-ended question where students were allowed to mention the reasons for attempting suicide or suicidal plan thematic analysis revealed relationship problems, history of adverse childhood experiences, academics-related circumstances and other individual problems as suicide antecedents (Table 6).

Table 4. Univariate analysis of the variables related to lifetime suicidal ideation among medical students.

Variables	Suicidal ideation		OR	95% CI	p-Value	
	Present	Absent				
Academic performance dissatisfaction (n=114)	Yes	53 (46.5%)	61 (53.5%)	2.896	1.262 - 6.648	0.014
	No	9 (23.1%)	30 (76.9%)			
Parent's demand on academic performance (n=36)	Yes	19 (52.8%)	17 (47.2%)	1.923	0.904 - 4.091	0.87
	No	43 (36.8%)	74 (63.2%)			
Neglected by parents (n=17)	Yes	13 (76.5%)	4 (23.5%)	5.770	1.784 - 18.668	0.003
	No	49 (36.0%)	87 (64.0%)			
Physically abused (n=22)	Yes	14 (63.6%)	8 (36.4%)	3.026	1.184 - 7.735	0.017
	No	48 (36.6%)	83 (63.4%)			
Sexually abused (n=17)	Yes	11 (64.7%)	6 (35.3%)	3.056	1.065 - 8.763	0.031
	No	51 (37.5%)	85 (62.5%)			
Smoker (n=16)	Yes	7 (43.8%)	9 (56.3%)	1.160	0.408 - 3.298	0.793
	No	55 (40.1%)	82 (59.9%)			
Alcohol Consumption (n=71)	Yes	30 (25.4%)	41 (74.6%)	1.143	0.559 - 2.183	0.685
	No	32 (39.0%)	50 (61.0%)			
Other substance abuse (n=7)	Yes	5 (71.4%)	2 (28.6%)	3.904	0.732 - 20.802	0.120
	No	57 (39.0%)	89 (61.0%)			
Overweight (n=18)	Yes	7 (38.9%)	11 (61.1%)	0.926	0.338 - 2.536	0.881
	No	55 (40.7%)	80 (59.3%)			
Psychiatric disorder (n=12)	Present	10 (83.3%)	2 (16.7%)	8.558	1.805 - 40.572	0.004
	Absent	52 (36.9%)	89 (63.1%)			

Table 5. Univariate analysis of the variables related to lifetime suicidal ideation among nursing students.

Variables	Suicidal ideation		OR	95% CI	p-Value	
	Present	Absent				
Academic performance dissatisfaction (n=84)	Yes	28 (33.3%)	56 (66.7%)	1.786	0.847 - 3.767	0.144
	No	14 (21.9%)	50 (78.1%)			
Parents' demand on academic performance (n=39)	Yes	15 (38.5%)	24 (61.5%)	1.898	0.872 - 4.132	0.104
	No	27 (24.8%)	82 (75.2%)			
Neglected by parents (n=13)	Yes	5 (38.5%)	8 (61.5%)	1.655	0.509 - 5.385	0.519
	No	37 (27.4%)	98 (72.6%)			
Physically abused (n=13)	Yes	3 (23.1%)	10 (76.9%)	0.738	0.193 - 2.828	0.657
	No	39 (28.9%)	96 (71.1%)			
Sexually abused (n=7)	Yes	2 (28.6%)	5 (71.4%)	1.010	0.188 - 5.420	0.991
	No	40 (28.4%)	101 (71.6%)			
Alcohol Consumption (n=24)	Yes	10 (41.7%)	14 (58.3%)	2.054	0.830 - 5.080	0.115
	No	32 (25.8%)	92 (74.2%)			
Overweight (n=17)	Yes	5 (29.4%)	12 (70.6%)	1.059	0.349 - 3.213	0.920
	No	37 (28.2%)	94 (71.8%)			
Psychiatric disorder (n=4)	Present	3 (75%)	1 (25%)	8.077	0.816-79.984	0.069
	Absent	39 (27.1%)	105 (72.9%)			

Table 6. Thematic analysis of the open-ended question relating to cause of planned or attempted suicide.

Code	Themes
Argument with parents	Relationship problems
Family problem (parents fighting issues)	
Thwarted belongingness	
Death of family member	
Recent break-up	
Dating partner problem (violence/victimization)	
Neglected by friends	
Appalling relationship with in-laws	History of adverse childhood experiences
Physical abuse	
Sexual abuse	
Bullying victimization	Academics-related circumstances
Pressure from parents, teachers to perform well in studies	
Forceful admission to medical/nursing school by the parents	Other individual problems
Mental health problems (depression)	
Overthinking	
History of suicidal plan and/or attempts	

## DISCUSSION

The cost of undergraduate medical education in Nepal ranges from \$33360 to \$32700 for medicine and \$4200 to \$6300 for nursing programs (1\$=119.54 Nepalese Rupees) for the fiscal year 2021/22 as recommended by Medical Education Commission, Government of Nepal.<sup>15</sup> This cost includes only the tuition fees and does not include the hostel fees, mess charges, stationaries or toiletries. The cost of medical education is not affordable by many low- and middle-income families of this lower-middle income country. Although, there is a provision of ten percent of government scholarship in the total allocated seats, many deserving students from poor families cannot get through the tough competitive examination. There is no surprise that many families have loans for enrolling their students into medical education. There is a likelihood that parents demand a good academic performance of their children which could stress the student for better academic performance. Around 25% of the total paid seats are further allocated for foreign students. The tuition fees for foreign students is much higher than the fees recommended for Nepalese students. These seats are usually favored by students from adjoining country India, where the cost of medical education is much higher than that of Nepal. An exploratory study in India over a decade (2010 - 2019) reported 358 suicidal deaths among medical students (n=125), residents (105) and physicians (128).<sup>16</sup> The study reported that academic stress was the most apparent reason for suicide in

medical students (45.2%) followed by mental health problems (24%) and harassment/ humiliation (17.3%).<sup>16</sup> Although, similar data of suicide is not available in the context of Nepal, suicide committed by doctors are not infrequently read in the daily newspapers.

The present study reported all the nursing students who smoked had suicidal ideation, however in medical students it was seen in only 25% of those who smoked. The present study did not reveal nursing students indulged in substance abuse however, there were seven medical students who used cannabis of whom five had suicidal ideation. A study upon cigarette smoking and suicidal ideation among youths aged 18 to 24 years in Nepal showed 9.3% of smokers had suicidal ideation.<sup>4</sup> A literature review of published articles in the past 25 years (1998 - 2013) upon substance abuse among medical students revealed global prevalence of tobacco use was 17.23%, harmful or risky alcohol consumption was 24% and cannabis use was 11.84%.<sup>17</sup> The prevalence of the substance abuse among medical students may be much higher than reported because the search was limited to MEDLINE and LILACS database;<sup>17</sup> and there might have been studies which are not indexed in these databases especially from Nepal.

Similarly, a meta-analysis of 182 studies involving 122356 medical students from 43 countries reported a prevalence of depression and depressive symptoms to be 27.2% (range 1.4% to 73.5%).<sup>18</sup> The same study reported

the prevalence of suicidal ideation to be 11.1% (range 4.9% to 35.6%) among 21002 medical students from 15 countries.<sup>18</sup> It has been found that individuals with body modification including piercings, tattoos, scarification and surgical procedures had a higher risk of depression and suicide.<sup>18</sup>

Poor mental health is one of the significant contributors of suicide in Nepalese youths.<sup>3,20</sup> The stressful medical education and other associated contributing factors for suicidal ideation in medical students increases the risk of suicide.<sup>5,6,21</sup> Although, committing suicide is an impulsive act it is estimated that 25% to 30% express some suicidal warnings making it a contemplated act.<sup>16,20,22</sup>

A web-based cognitive behavioral therapy (wCBT) can be implemented among medical and nursing interns which has shown promising results in decreasing suicidal ideation thereby decreasing the risk of suicide.<sup>23</sup>

The present study was conducted in the middle of the covid-pandemic. And an attempt was not made to check the impact of the pandemic on suicidal ideation in the recent past. Furthermore, questionnaire survey can only provide the screening prevalence the definitive diagnosis of suicidal ideation needs to be done by face-to-face interview by a psychiatrist.

## CONCLUSIONS

Suicidal ideation in the past one year was present in 27.91% students. It was observed that two nursing students and one medical student was suffering from severe depression. Academic performance dissatisfaction had higher odds of having the risk of suicidal ideation in both medical and nursing students. Significant relationship was established between parents demand on academic performance and abuse among medical students, whereas cigarette smoking, alcohol consumption and psychiatric disorder among the cohort of nursing students. There was no statistical association between body piercing, tattooing and BMI in both the medical and nursing students.

## CONFLICT OF INTEREST

The authors declare no conflict of interest

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