

Original Research Article

Assessment of suicidal risk and its associated factors amongst medical undergraduate students in a tertiary care center: a cross-sectional observational study

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ABSTRACT

Background: Suicide ideation among medical students is a significant mental health concern globally. The demanding nature of medical education, combined with various personal and professional stressors, makes medical students vulnerable to mental health issues, including depression and suicidal thoughts.

Methods: 250 medical undergraduate students from Government Medical College, Omandurar Government Estate were chosen. The risk of suicide was assessed through the suicide behaviors questionnaire - revised criteria (SBQ-R criteria). Scores were calculated for each response and analyzed.

Results: The study revealed that 13.5% of students experienced self-destructive thoughts, with 39.4% contemplating or attempting suicide; 26.1% felt they might attempt suicide someday, and 6.1% had attempted more than five times in the past year. Despite this, only 20% shared their suicidal thoughts with trusted individuals. Academic stressors were significant, with 26.9% struggling with the heavy curriculum, 16.3% with low scores, and 5.3% affected by patient suffering. Family support was crucial but underutilized, with only 20.4% seeking family help in distress. Alcohol consumption was reported by 25.3%, relationship pressures affected 23.7%, and 4.5% by social media pressures.

Conclusions: The study highlights a significant prevalence of suicidal ideation among medical students, underscoring a critical public health concern. The findings suggest that the rigorous demands of medical education, combined with high stress levels and mental health challenges, contribute to this alarming trend. Addressing these issues requires comprehensive support systems, including accessible mental health services, stress management programs, and a nurturing educational environment.

Keywords: Suicide, Medical students, Mental health

INTRODUCTION

The COVID-19 pandemic threw light on the abysmal mental health status of healthcare providers, starting a conversation on a problem prevalent for almost the entire history of modern medical practice.¹ According to World Health Organization (WHO) data more than 700000 people successfully take their own life every year with

even more people attempting suicide.² A related study conducted in 2019 found that in India, the crude suicide rate for the 15-24 age group is 13.8 and the overall age standardized crude suicide rate for the country was found to be 12.7.³ These are concerning numbers especially considering the vast majority of cases that go unreported due to social and cultural taboos. Additionally, the numbers are even higher in medical health professionals,

ranging anywhere between 2 to 6 times of the population average.⁴ In the US there is evidence that over 400 health care professional deaths are reported yearly.^{4,5} The UK reported 430 doctors' suicide deaths between 2011 and 2015. Despite spending most of their lives in hospitals, it seems that doctors are the ones receiving disproportionately low amounts of healthcare and especially mental healthcare. Physicians seem to be at a higher risk with a global SMR of 1.44.⁴ The issue is multifold in college students with them being one of the more vulnerable groups. Factors that may contribute to the increased risk of suicidal tendencies and behaviour in this population include the transition from high-school to university, increasing workload, increased psychosocial stress and academic pressures, and adaptation to a new environment.^{6,7}

Multiple studies done in the last decade show that imposter syndrome and subsequent anxiety and depression are the major culprit in suicide ideation and eventual suicide. Previous studies show that behavioral and lifestyle issues like burnout, lower emotional and mental quality of life, academic stress, long work hours, perfectionism associated with imposter syndrome, substance abuse, peer and parent pressure, demanding work environment, irregular sleep patterns all contribute to suicide ideation among medical students.⁶⁻⁹ Though previous studies show female gender as a risk factor, the lines seem to be blurring in a post-COVID world.¹

Though this is a major problem that requires prompt attention, there is a lacuna in data covering the prevalence of aforementioned factors in the Indian setup, most discussions revolving around anecdotal evidence rather than solid numbers. We believe that a statistically reliable study on exact causes and risk factors can help understand the problem more precisely and thereby help formulate better and tailor made solutions.

Objectives

Reaching a viable solution is the need of the hour with newspapers being filled with news of student suicides every day. Even suicide ideation is associated with poor psychosocial functioning, future depressive disorders, school dropout, risky sexual behaviour, aggressive behaviour. We think that by understanding the prevalence of suicidal thoughts, the mindset of students and the reasons that drive these thoughts, health care professionals will be able to counsel the students in a more effective manner. We also intend to increase awareness about how to get help and try to destigmatize conversations about mental health.

METHODS

In exploring the delicate subject of suicide risk assessment among medical students, this methodology delves into the systematic framework and procedures employed to comprehensively understand and address the unique

challenges faced by this particular demographic. Before gathering data, all participants were briefed on the study's purpose and design, and written consent was acquired from each of the participants. The site of the study was Government Medical College, Omandurar Government Estate. A cross sectional observational study was performed for a period of 6 months (May 2023 to October 2023). The sample size recruited was 250 students which was calculated by the method depicted below.

Sample size

$$\text{Sample size} = Z_{1-\alpha/2}$$

Sample size is standard normal variate (at 5% type 1 error ($p < 0.05$) it is 1.96 and at 1% type 1 error ($p < 0.01$) it is 2.58). As in majority of studies p values are considered significant below 0.05 hence 1.96 is used in formula where 'p' is expected proportion in population based on previous studies or pilot studies, and 'd' is absolute error or precision. This was decided by researchers. A prevalence of 20% was considered based on the article- "suicide ideation amongst medical students: a cross sectional study from South India by Jain et al. According to the formula, sample size was 246, and it was rounded off to 250.

Study population

Undergraduate medical students studying in Government Medical College, Omandurar Govt. estate. Inclusion criteria were males and females above the age of 18 and those who have given informed consent. The exclusion criteria included students with pre-existing psychiatric illnesses. Simple random sampling was the sampling method that was adopted. 250 undergraduate medical students in a tertiary care center (Government Medical College, Omandurar Government estate) were chosen and informed consent will be obtained.

Procedure

250 medical undergraduate students from Government Medical College, Omandurar Government estate were chosen. The risk of suicide was assessed through a questionnaire-suicide behaviours questionnaire - revised criteria (SBQ-R criteria). The scores were calculated for each response. The responses were analyzed. The mental health status of undergraduate students was assessed and measures to help those in crisis were explored by us. The Study tool adopted was a semi-structured self-administered questionnaire. Our questionnaire consisted of 23 questions, including four questions from the SBQ-R questionnaire. They were graded from 0-4. Participants who had responded "0" were assigned to the "non-suicidal" category; all other participants were assigned to the "suicidal" category.¹⁻⁴

A binary categorization was used: "highly suicidal" and "no/low risk". The "highly suicidal" category included the participants choosing 3 or 4 whilst participants who had

responded with 0, 1, 2 came under the no/low risk category. The responses of the 250 participants were analyzed statistically, and we explored the various factors associated with suicidal ideation in medical students.

RESULTS

Self-destructive thoughts were seen in 13.5% of students. 39.4% have contemplated or attempted suicide, out of which 26.1% students felt like they'll attempt suicide someday. 6.1 percent of students had attempted more than 5 times that year. However, only 20 percentage of students shared their suicidal ideations with their trusted ones. From the analysis we found that 26.9% of students are affected by bulky portions of the medical curriculum. 16.3% of students are affected by low scores and poor academic performance and 5.3% are negatively affected by witnessing the suffering of diseased people in the hospital. However, we found that family support has a significant impact on the mental health of medical students. Only 20.4 percent of students approached their family members in times of distress. 5.7% of students felt disturbed since they were compared with their siblings. Only 20% of students suggested a good response of family members to crisis situations like poor marks and breakups. 51 percentage of students had a family history of suicide, suggesting it's a possible risk factor. 41.6 % of medical students are negatively affected by family conflict.

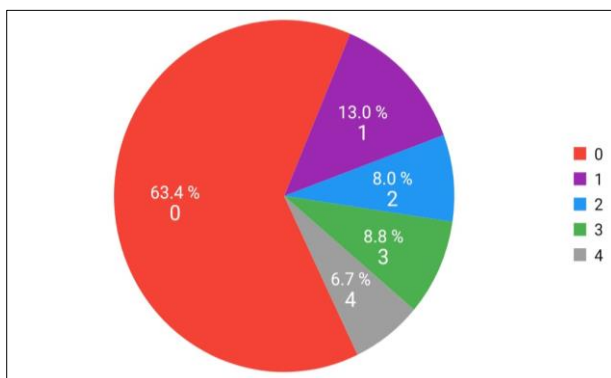


Figure 1: Have you ever thought about it attempted suicide?

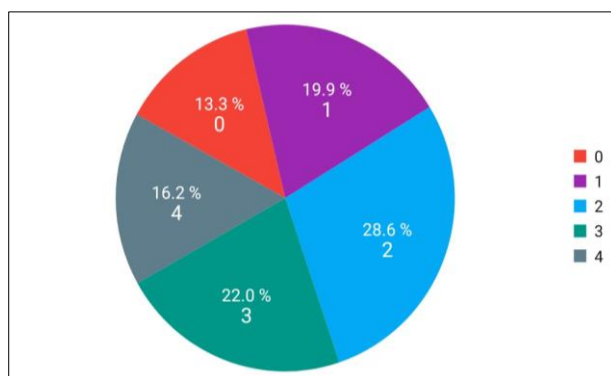


Figure 2: How affected are you by low scores?

71.8 percent of students feel lonely, even amongst friends and 35.5 percent of students felt insecure about themselves. 40.4 percent of students were negatively impacted when being rebuked in front of others.

Alcohol consumption was seen in 25.3 percent of students. 23.7 percent of students felt pressured to be in a romantic relationship, out of which 14.7 percent are negatively affected by a failed relationship and 8.5 percent felt pressured to showcase a happy life on social media, out of which 4.5 percent feel that they are negatively affected by social media content.

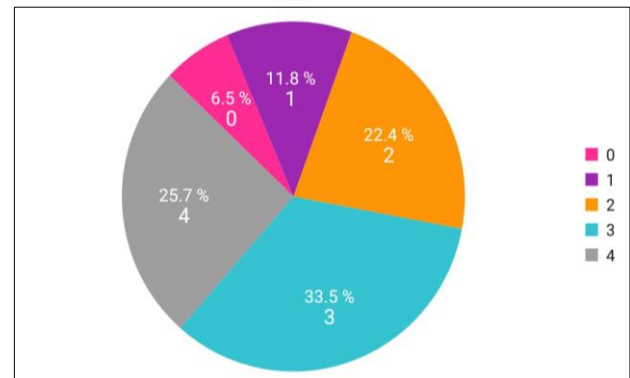


Figure 3: How affected are you by bulky portion?

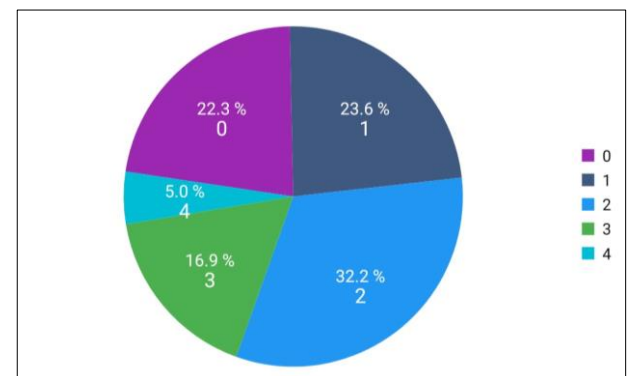


Figure 4: How negatively are you affected by the suffering of sick/diseased we see in the hospital?

DISCUSSION

Suicide attempt is generally defined as a self-destructive act carried out with some degree of intent to end one's life.¹⁰ The World Health Organization estimates that globally more than 800,000 people die by suicide each year. Worldwide, it ranks as the 18th most important cause of death, at the rate of 1 suicide every 40 seconds. Suicide is an emerging and serious public health issue in India. However, it is preventable with timely, evidence-based and often low-cost interventions.¹¹

In India, the top 10 causes or correlates of suicide in 2009 were family problems (23.7%), illness (21%) [including insanity/mental illness (6.7%)], unemployment (1.9%),

love affairs (2.9%), drug abuse/addiction (2.3%), failure in examination (1.6%), bankruptcy or sudden change in economic status, poverty and dowry dispute.¹²

Most common factors for suicide mental health conditions, depression, substance use problems, bipolar disorder, schizophrenia, personality traits of aggression, mood changes and poor relationships, conduct disorder, anxiety disorders, serious physical health conditions including pain, traumatic brain injury, access to lethal means including firearms and drugs, prolonged stress, such as harassment, bullying, relationship problems or unemployment, stressful life events, like rejection, divorce, financial crisis, other life transitions or loss, exposure to another person's suicide, or to graphic or sensationalized accounts of suicide, previous suicide attempts, family history of suicide, childhood abuse, neglect or trauma.¹³

A number of studies were conducted about suicide in college students. A study conducted in Norway involving 50,045 students showed a significant positive relationship between physical activity and mental health with an OR of 2.95 in women and 3.53 in men.¹⁴

Students who identified as sexual minorities were found to have increased suicide rates.¹⁵ A study conducted in Brazil involving 2137 students regarding the relationship between suicide ideation and trauma exposure showed that physical/sexual traumatic experiences after 12 years old and psychological neglect increased the likelihood of suicide attempts.¹⁶ PTSD was also associated with suicidal tendencies, portraying an association between stress intolerance and suicidal tendencies.^{17,18}

A prominent model is the interpersonal theory of suicide which posits that hopelessness about states of thwarted belongingness and perceived burdensomeness together contribute to suicidal desire, which lowers fear of death and increases physical pain tolerance.¹⁹ This is theorized to increase the likelihood that an individual will transition from suicidal desire to suicidal intent including lethal or non-lethal suicide attempts.²⁰

A qualitative study was conducted using semi-structured interviews in 2019 in Iran. Eighteen participants who had attempted suicide by self-poisoning were interviewed, and information was collected and unstable familial relationships as a significant factor in suicide attempts, demonstrating the role of emotional stress in attempting suicide.^{21,25}

Sleep disturbances serve as both a symptom and a risk factor for various mental health issues, including suicidal ideation.²² A meta-analysis was conducted where of the 1,720 unique publications identified with the search parameters, 1,106 were excluded based on their titles and abstracts and an additional 614 publications were excluded based on full-text review, resulting in 44 articles meeting the eligibility criteria. This revealed consistent positive

associations between different forms of sleep disturbance and suicidal thoughts and behaviors.^{21,23}

A study in China involving 8097 college students in China showed a prevalence of 21.4% of suicide attempts among internet addiction participants.²¹ A systematic search of articles from database inception up to 25 January 2019 across five databases: Medline, PsycINFO, EMBASE, HMIC and CINAHL revealed nine independent studies investigating social media and internet use and suicide attempts in young people and an independent direct association was found between heavy social media/internet use and increased suicide attempts in seven studies (adjusted ORs ranged from 1.03 to 5.10).²⁴

This corresponded with our study where 8.5 percent felt pressured to showcase a happy life on social media, out of which 4.5 percent feel that they are negatively affected by social media content.

Medical students experience significant stress due to a combination of academic and non-academic factors. Academic pressures include heavy workloads, time constraints, frequent exams, and high expectations from both self and others. Social and emotional stressors, such as family issues and lack of support from faculty, also contribute significantly to their overall stress levels.²⁶ Studies indicate that female medical students tend to experience higher levels of academic stress compared to their male counterparts.²⁶

Several factors contribute to the high prevalence of suicide ideation among medical students like rigorous academic demands and high expectations placed on medical students create immense pressure. The fear of failure and the competitive nature of medical education exacerbate stress levels.²⁷ The demanding schedule of medical training often leads to sleep deprivation. Studies have shown that insufficient sleep can impair cognitive function and emotional regulation, increasing the risk of mental health issues.²⁸

Despite being in the healthcare field, medical students often face stigma associated with mental health problems. This stigma, combined with concerns about confidentiality and future career implications, can deter students from seeking help.²⁹

Many medical students exhibit perfectionistic traits and experience impostor syndrome, where they doubt their accomplishments and fear being exposed as a "fraud." These factors contribute to heightened stress and anxiety.³⁰ The financial burden of medical education, including tuition fees and living expenses, adds another layer of stress. Concerns about debt and future financial stability can exacerbate mental health issues.³¹

CBT is one of the most effective treatments for individuals experiencing suicide ideation. It focuses on identifying and changing negative thought patterns and behaviors.

Studies have shown that CBT can significantly reduce suicide ideation and behaviors.³² Dialectical Behavior Therapy developed for borderline personality disorder, DBT has been adapted to treat suicide ideation. It combines cognitive-behavioral techniques with mindfulness practices to help individuals manage distressing emotions and reduce self-harm behaviors.³³

Antidepressants and mood stabilizers are commonly prescribed to individuals with severe depression or bipolar disorder, conditions often associated with suicide ideation. While medication can be effective, it must be carefully monitored due to potential side effects and the risk of overdose.³⁴

Immediate intervention during a crisis, such as through hotlines or emergency psychiatric services, can be life-saving. Crisis hotlines provide immediate support and connect individuals to necessary resources.³⁵

Limitations

The study included students only from one medical college in a particular state. Different geographical and ethnic factors could not be explored.

The results were based on a scoring system. Involving qualitative data could have improved the understanding of suicidal ideation amongst medical students.

CONCLUSION

In conclusion, the study highlights a significant prevalence of suicidal ideation among medical students, underscoring a critical public health concern within this demographic. The findings suggest that the rigorous demands of medical education, combined with high levels of stress and mental health challenges, contribute to this alarming trend. Addressing these issues requires comprehensive support systems, including accessible mental health services, stress management programs, and a nurturing educational environment. By implementing these measures, medical schools can better support the well-being of their students, ultimately fostering a healthier, more resilient future healthcare workforce.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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