

# Suicidal Ideation Among Medical Students: an Integrative Review

REVIEW

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## Abstract

**Background:** Suicide is more common among people who follow a medical career. This occurs because undergraduation course subjects students to psychologically strained situations, which can reduce their mental health and predispose them to suicidal ideation.

**Objectives:** To analyze the factors related to suicidal ideation among medical graduates, highlighting depression and personality traits. To check stigmas surrounding suicidal ideation.

**Method:** An integrative review study was carried out using the Scopus database (Elsevier). We selected studies published between 2014 and 2019, using two descriptors: "medical students" and "suicidal ideation".

**Results and Findings:** 139 scientific articles were selected, of which 10 met the eligibility criteria. Specific personality traits and depression predispose to suicide. Although the stigma of suicide and substance use is greater among men, female gender, poor financial status, and psychiatric disorders increase depression scores. Students close to graduation are more likely to cope with stress than others.

**Limitations:** The articles included in this work were produced using different methodologies and different measurement instruments. The prevalence of depression and suicidal ideation among students may be greater, given that stigma may favor the occurrence of response bias.

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**Conclusion:** Rates of suicidal ideation are very prevalent in medical students. To solve this problem, medical schools should take steps to prevent adverse situations.

**Keywords**

Suicidal Ideation; Mental Health; Medical Students.

## Introduction

Medical students are more predisposed to suicidal ideation than academics from other areas [1, 2]. This happens because during undergraduate students are subjected to stressful situations, to the requirement of new skills and to cognitive overload [1, 3]. These factors, by themselves, do not lead directly to ideation but play a fundamental role in predisposing individuals to depression whose outcome is suicidal ideation [4, 5].

Depression has as main characteristics, the reduction of interest in daily activities, feelings of guilt, suicidal thoughts and changes in biological rhythms. When not treated properly, these symptoms may predispose to the use of licit and illicit drugs, reduction of school performance, and suicidal ideation [1, 2]. Among medical students, those newly enrolled in the course have a higher prevalence of psychosomatic complaints and risk of mental disorder, and about 25% of first- and second-year students show signs of depression [6].

Another cause of suicidal ideation is stress. This factor has several causes, such as early academic life, changes in living and living conditions, and personal problems. In this sense, because of its workload and psychological pressure, medical school subjects the student to greater stress than other courses in the health area [3, 4, 7].

In general, academic stress is associated with poorer mental health, leading to the emergence of reduced quality of life, musculoskeletal dysfunction, anxiety symptoms, and depression. However, although the pressures are similar, not all students deal with stress equally. Each student

has their unique susceptibility and predisposition to face stressful situations and those most susceptible are the first to suffer earlier. This is probably related to the personality of each person [3, 4, 7].

These personality traits (commitment, stability, discipline, social competence, and cooperation) affect performance during medical training. This is because some of them make the student more vulnerable to stress and worse mental health, favoring the development of depressive symptoms and suicidal ideation [6].

For all these reasons, the importance of suicidal ideation and its risk factors among medical students is recognized. With this in mind, it was made an integrative review aiming to answer the following question: what factors predispose medical students to suicidal ideation? To conduct the discussion of this work, two main objectives were established:

- 1) To analyze through the eligible studies, how depression and personality traits contribute to suicidal ideation.
- 2) To check for selected articles the stigmas surrounding suicidal ideation.

## Methods

An integrative review about suicidal ideation in medical students was performed, using the Scopus (Elsevier) database. Two descriptors indexed in the Medical Subject Headings (MeSH), "medical students" and "suicidal ideation" were used, which were combined by the Boolean operator: AND. This study included studies published between 01/01/2014 and 01/14/2019. Subsequently, we selected articles for

the sample adopting a strategy based on three stages: research in the electronic databases; selection and identification of eligible studies by the application of inclusion criteria; and extraction of data from included studies.

### The inclusion criteria

- articles published in full and available free online;
- written in the English language.

Articles that did not address the topic under study, editorials, reviews, short letters, researches and articles in other languages were included in the exclusion criteria.

## Results

The database selected 139 scientific articles, of which 10 met the inclusion criteria (**Figure 1**). When applying the exclusion criteria, 20 articles were selected, of which only 10 papers remained, after examining them completely (**Table 1**).

## Discussion

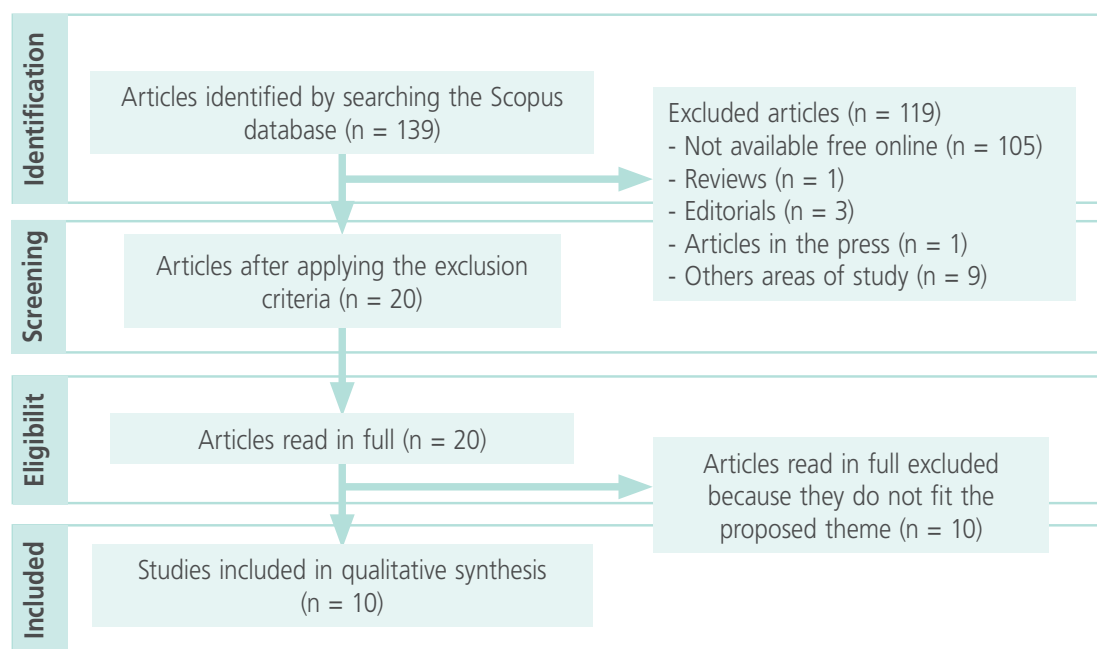
The beginning of medical graduation leads to a worsening of students' mental health, which increases the prevalence of depressive symptoms and suicidal ideation. Even over the years, mental health remains impaired, only improving when the students reach the final years of the course, as they learn to cope with stress and academic pressure [2, 4, 7].

### Personality traits and suicidal ideation

Chow *et al.*, 2018 [6] suggest that personality traits influence the predisposition of suicide, in other words, they can increase or decrease the student's susceptibility to situations with a high level of pressure. Among these traits, social competence, stability, and autonomy reduce the risk of depression and suicidal ideation, while dominance increases them. However, it is not clear yet whether they are actually the cause or the consequence of suicidal ideation and depression [4, 6].

Personality characteristics can also serve as a measure for the development of PUI (problematic

**Figure 1:** Flowchart of selected studies.



Source: Adapted from prism protocol [8].

**Table 1.** Studies and Main Findings.

Year	Author	Title	Journal	Study country	Study sample	Type of survey	Main Findings
2018	Chow [6]	The relationship between personality traits with depressive symptoms and suicidal ideation among medical students: A cross-sectional study at one medical school in Germany	International Journal of Environmental Research and Public Health	Germany	251 medical students	Cross-sectional study	Medical students who scored high on the Stability criteria had lower odds of depressive symptoms and suicidal tendencies than those with high scores on other work-related personality factors. Those who scored more on the Dominance criteria had a greater chance of depressive symptoms.
2018	Rivera-Segarra [9]	Suicide stigma among medical students in Puerto Rico	International Journal of Environmental Research and Public Health	Puerto Rico	123 medical students	Cross-sectional study	Bivariate analyzes suggest that gender was significantly correlated with suicide stigma. Hierarchical regression analysis suggested that knowledge about the subject 'suicide' and the emotional reaction to suicide were related to stigma of suicide.
2018	Berryman, E.K. [1]	Self-reflected well-being via a smartphone app in clinical medical students: Feasibility study	Journal of Medical Internet Research	New Zeland	29 medical students	Quantitative and qualitative study	A total of 29 participants were included, with a general agreement of 71% at the study day level. Self-reported wellness scores were associated with both positive and negative experiences described, with most negative experiences being associated with about 20% lower health scores on the day of the survey.
2017	Merlo, L.J. [7]	Gender differences in substance use and psychiatric distress among medical students: A comprehensive statewide evaluation	Substance Abuse	USA	1137 medical students	Cross-sectional study	Over 70% of the students recognized excessive alcohol consumption. Nearly 2/3 of respondents reported decreased psychological health from the beginning of medical school, with women noticing greater reductions and higher levels of stress. More than 10% of students endorsed "thoughts of committing suicide" during graduation, and 70.1% thought they would benefit from mental health care, although only 39.8% seek help.
2016	Coentre, R. [2]	Assessment of depression and suicidal behaviour among medical students in Portugal	International journal of medical education	Portugal	456 medical students	Cross-sectional study	The prevalence of depression among medical students was 6.1% and suicidal behaviour was 3.9%. The highest scores of depression were observed in female medical students, students living alone, with poor physical health, poor economic status, psychiatric diagnosis, family history of psychiatric disorders or with high levels of anxiety.

Year	Author	Title	Journal	Study country	Study sample	Type of survey	Main Findings
2016	Rosiek, A. [3]	Chronic stress and suicidal thinking among medical students	International Journal of Environmental Research and Public Health	Poland	100 medical students	Cross-sectional study	The students' lives were full of stressors. Students at the end of their undergraduate degree dealt better with stress than students who are starting to graduate. Chronic stress had a strong impact on mental health and suicidal thinking among students.
2015	Raeisei, A. [4]	The relationship between personality styles of sociotropy and autonomy and suicidal tendency in medical students	Global journal of health science	Iran	102 patients	Descriptive-correlational study	The results showed that there is an inverse and significant relationship between autonomic style and suicide trends in men, but there was no association between sociotropy and suicidal tendencies in men. There was no significant relationship between autonomy and sociotropic personality styles and suicidal tendencies in women.
2015	Alpaslan, A.H. [10]	The association between problematic internet use, suicide probability, alexithymia and loneliness among Turkish medical students	African Journal of Psychiatry [South Africa]	Turkey	328 people	Cross-sectional study	The Problematic Use of Internet (PUI) was detected in 6.4% (n = 21) of the participants. Its prevalence was significantly higher in men than in women (p = 0.009). There was a significant positive correlation between solitude, alexithymia, suicide probability, and PIU. A significant positive relationship was also found between PUI and discouragement, suicidal ideation and hostility.
2015	Mojs, E.H. [5]	Are students prone to depression and suicidal thoughts	Archives of Medical Science	Poland	1183 students	Cross-sectional study	It was found that 6.5% of all participants (n = 77) had depression whereas 1.5% of them (n = 18) reported suicidal thoughts. We also observed the influence of such factors as gender, year, major area of study, and financial status, on depression scores. Moreover, depressive symptomatology was most frequent in subjects who were only children, in freshmen and in students of psychology (11.5%, 13.2% and 16.7% respectively)
2014	Sobowale, K. [11]	Depression and suicidal ideation in medical students in China: a call for wellness curricula	International Journal of Medical Education	China	348 medical students	Cross-sectional study	47 of the 348 (13.5%) students had moderate-severe depression. 7.5% of students reported suicidal ideation. The frequency of depression and suicidal ideation did not differ between students in the second and third years. Nearly 30% of depressed students had suicidal ideation. Depression and suicidal ideation were strongly correlated. Participants in the focus group reported only availability of counseling services to off-campus students to struggling medical students. No wellness curriculum has been established.

use of the internet). Lonely, introspective, and struggling people in interpersonal relationships use the internet as a way to meet their relationship needs and gain emotional support. In this sense, a study suggests a direct association between UPI, depression and suicidal behavior and that the UPI rate is 6.4% among medical students [10].

### Depression and suicidal ideation

Coentre *et al.*, 2016 [2] indicate that female gender, living alone, poor socioeconomic status or psychiatric disorders increase depression scores, which corroborates the findings of the study by Mojs *et al.*, 2012. It also includes the history of personal problems [5].

Depression emerges as a poor adaptation to the stressors to which medical students are subjected. However, some students are more susceptible to depression than others, whether due to personality (as previously mentioned) or personal problems. As depression is strongly related to suicidal ideation, it may be suggested that students with greater emotional frailty have greater suicidal ideation [3, 5, 11].

Medical students, otherwise, have higher levels of depression than the general population (27.2% vs. 13.8% -21%). As with depression, they also have more elevated levels of suicidal ideation, with women having higher rates than men (2.27 and 1.42 times higher than the general population) [1]. Since this high prevalence of students remains beyond college, the medical profession becomes one with the highest rates of depression and suicidal behavior [2].

Rivera-Segarra *et al.*, 2018 [9] state that stigma over suicide is a risk factor for attempts, in other words, those students who talk less about suicide are more likely to endorse suicidal thoughts and attempts. Although Rivera-Segarra *et al.*, 2018 [9] state that less than 10% of students with depression seek counseling services when they need help, Merlo *et al.*, 2017 [7] indicates this number is about 40%.

In any case, this is known to be due to a lack of knowledge about suicide, possible emotional reactions to a person with ideations, and some cultural values (for example, chauvinism). Therefore, stigma is more frequent in males and in those who have little knowledge about the subject [9]. In this sense, Merlo *et al.*, 2017 [7] further states that the use of substances such as alcohol, marijuana, and other drugs are more frequent in men than in women.

It may be assumed, then, that because men are not very comfortable reporting their problems to others, they are more likely to use drugs, perhaps as a way of evading their depressive thoughts.

### Limitations of work

The articles that were included in this work were made using different methodologies and different measurement instruments. In addition, it is unknown whether students have ever arrived in medical school with any psychiatric disorder, and undergraduate has sparked such problems or if the disorders have only started after college. This may justify difficulties in comparative data and some divergences in the statistical information found. A second limitation refers to the fact that the prevalence of depression and suicidal ideation among students may be greater, given that stigma may favor the occurrence of response bias.

### Conclusion

Suicidal ideation is common among medical students, especially those with specific personality traits and a greater predisposition to depressive symptoms. These symptoms arise with a dysfunctional adaptation of the stressful situations of academic life, favoring the suicidal behavior, which occurs more frequently in women. As for stigma, it is very prevalent in medical students, since less than 10% of students with depression seek help. Among these students, men are more prominent. In view

of these data, this study aims to highlight the high prevalence of suicidal ideation in students, and in the future, to plan and implement intervention proposals to promote the well-being of these students and avoid worse outcomes.

## Contributors

Fontes WHA, Silva YKS, Luna FMP, Morais RMRB, Feitosa JPGF: Literature review, data interpretation and writing.

Silva FG, Lisboa, FC: Review of information, writing and translation of the manuscript into English.

Gadelha MSV, Rolim Neto ML: Guidance on the manuscript, study design, and methodological review of the manuscript.

All authors contributed to and have approved the final manuscript.

## Conflict of interests

The authors declare there is no conflict of interests involving this work.

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