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ORIGINAL RESEARCH

Symptoms of anxiety and depression and reasons for seeking mental health services among medical students from São Paulo, Brazil

Síntomas de ansiedad y depresión y razones para buscar servicios en salud mental en estudiantes de medicina de São Paulo, Brasil

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Abstract

Introduction: Medical students are at high risk of developing risk factors for mental disorders.
Objectives: To determine the prevalence of symptoms of anxiety and depression among second year medical students of a university in São Paulo, Brazil, and to identify their reasons for seeking mental health services.
Materials and methods: Cross-sectional mixed-methods study conducted in 74 second year medical students, who completed an online survey that included an ad hoc questionnaire, the validated versions for Brazilian population of the Beck Depression Inventory (BDI) and the State-Trait Anxiety Inventory (STAI), and open-ended questions about the reasons for seeking and using the mental health services offered by the medical school and their motivation to continue with their medical training. A qualitative analysis of the responses to the open-ended questions was performed.
Results: Mean scores in the Trait-Anxiety and State-Anxiety scales were 47.52 and 48.17 (moderate anxiety), while the mean score in the BDI was 11.67 (mild depression). Transgender students and those who were beneficiary of a quota system or social and/or economic support program had higher scores in the State-Anxiety scale (53.00 and 49.32 points; high anxiety) and in the BDI (12.00 and 13.99). Furthermore, 36.48% of the students had used the mental health services offered by the school of medicine and 85.13% reported having sought emotional support from friends and the medical school. Answers to the open-ended questions revealed that the main reasons that led students to seek the school's mental health service were anxiety, depression, stress, and attention deficit.
Conclusion: In the present study, second year medical students had mild depression symptoms, as well as moderate levels of State and Trait anxiety. In addition, the main reasons for seeking and using the mental health services offered by the medical school were anxiety, depression stress, and academic orientation (attention deficit).

Resumen

Introducción. Los estudiantes de medicina tienen un alto riesgo de desarrollar factores de riesgo de trastornos mentales.
Objetivos. Determinar la prevalencia de síntomas tanto de ansiedad como de depresión en estudiantes de segundo año de medicina de una universidad de São Paulo, Brasil, e identificar sus razones para buscar servicios de salud mental.
Materiales y métodos. Estudio transversal de métodos mixtos realizado en 74 estudiantes de segundo año de medicina. Los estudiantes completaron una encuesta en línea que incluía un cuestionario *ad hoc*, las versiones validadas para población brasileña del Beck Depression Inventory (BDI) y el State-Trait Anxiety Inventory (STAI), y preguntas abiertas sobre las razones para buscar y utilizar los servicios de salud mental ofrecidos por la Facultad de Medicina y sobre su motivación para continuar su formación médica. Se realizó un análisis cualitativo de las respuestas a las preguntas abiertas.
Resultados. Las puntuaciones promedio en las escalas de Ansiedad-Rasgo y Ansiedad-estado fueron de 47.52 y 48.17 (ansiedad moderada), mientras que la puntuación promedio en el BDI fue 11.67 (depresión leve). Los estudiantes transexuales y los que eran beneficiarios de un sistema de cuotas o de un programa de apoyo social y/o económico obtuvieron puntuaciones más altas en la escala Ansiedad-Estado (53.00 y 49.32 puntos; ansiedad alta) y en el BDI (12.00 y 13.99). Además, 36.48% de los estudiantes había utilizado los servicios de salud mental ofrecidos por la Facultad de Medicina y 85.13% declaró haber buscado apoyo emocional en amigos de la facultad. Las respuestas a las preguntas abiertas revelaron que las principales razones que llevaron a los estudiantes a buscar el servicio de salud mental de la facultad fueron la ansiedad, la depresión, el estrés y el déficit de atención.
Conclusiones. En el presente estudio, los estudiantes de segundo año de medicina presentaron síntomas leves de depresión y niveles moderados de ansiedad Estado y Riesgo. Además, las principales razones para buscar los servicios de salud mental ofrecidos por la facultad de medicina fueron la ansiedad, la depresión, el estrés y la orientación académica (déficit de atención).

Introduction

Doctor of Medicine (MD) programs are often regarded as one of the most academically and emotionally challenging undergraduate programs, requiring medical students to devote a significant amount of time and effort (both emotionally and physically) to complete their studies.[1] These demands and the stress they cause have a negative impact on the students' psychological well-being and can lead to the development of depression and anxiety symptoms, which are more frequent among these students in comparison with students enrolled in other undergraduate programs.[1-5]

In this regard, Rotenstein *et al.*,[6] in a systematic review conducted in 2016 that included 195 studies involving medical students in 47 countries, showed that 27% of the students screened positive for depression and that only 16% of them reported having sought medical treatment. In addition, Rotenstein *et al.*[6] strongly recommend conducting further research to identify strategies for preventing and treating depression and depressive symptoms in this population since the studies included in the review did not address aspects related to coping strategies and mental health assistance.[6]

Furthermore, several authors have also reported a high prevalence of depression and/or anxiety symptoms in this population group in different regions of the world. For example, Dyrbye *et al.*,[7] in a study conducted in 1 701 medical students enrolled in 5 medical schools of the United States, found that 49% of the students screened positive for depressive symptoms, and Haldorsen *et al.*,[8] in a study that included 571 medical students from a university in Copenhagen, reported that 30.5% of these students had experienced depressive symptoms in the last 14 days.

In the case of Brazil, a study conducted at the Universidade Federal do Rio Grande in 232 first- and sixth-year medical students reported that 19.5% had anxiety symptoms and 18.6% had depressive symptoms.[9] Moreover, a multicenter study, in which 1 350 medical students from 22 Brazilian medical schools were included, found that 41% of them had depressive symptoms and 81.7% and 85.6% had state-anxiety symptoms and trait anxiety symptoms according to their scores in the Beck Depression Inventory (BDI) and State Trait Anxiety Inventory, respectively.[3]

Despite this situation, medical students with mental disorders are undertreated, as they often do not seek help.[10] Untreated psychological and mental disorders in this population lead to the occurrence of problems such as poor grades and class attendance, decreased emotional and behavioral skills, social isolation, alcohol and substance abuse, internet addiction and suicidal ideation, and suicide attempts.[10-14] However, some studies suggest that the implementation of early interventions during their training may reduce the frequency of depression and anxiety symptoms.[2,3,15]

Given this situation, in 2003, the American Medical Association called for a change in the way depression and suicide is approached in both medical students and physicians, including a change in attitudes toward physicians needing help, the development of support systems, and the removal of barriers to mental health treatment.[16] Likewise, in the United Kingdom, the Royal College of Psychiatrists has recommended that all higher education institutions, including medical schools, should have a formal mental health policy.[17]

Finally, it has been described that medical training is, in general, a stressful process that may contribute to the occurrence of depression and anxiety.[4,6] Consequently, the objectives of the present study were to determine the prevalence of symptoms of both

anxiety and depression among second year medical students of a university in São Paulo, Brazil, and to identify their reasons for seeking mental health services.

Material and methods

Study design, setting, and participants

Cross-sectional mixed-methods study. The study population comprised all students enrolled in 2019 in the second year of the MD program offered by the School of Medicine at the University of São Paulo, Brazil (N=170). Students were invited to participate in the study by completing an online survey that was advertised on the social media accounts of the school and sent to the institutional e-mail addresses of the students. Those who completed the survey were included, so sample size calculation was not required since convenience sampling was used.

It should be noted that in Brazil a medical degree is obtained after completing a six-year undergraduate program, which is traditionally divided into three periods, namely: basic cycle (1st and 2nd year), clinical cycle (3rd and 4th year), and internships (5th and 6th year). In addition, we only considered second-year students, as this will allow us to conduct further research through the following years of their medical training, if necessary.

Procedures

The online survey was divided into three sections. The first section consisted of an ad hoc questionnaire to inquire about the following information: age; biological sex; gender identity (cisgender, transgender and non-binary); people with whom they shared their home; leisure activities and time spent per week in these activities; whether they were engaged in extracurricular activities (academic and sport related); whether they practiced any sport or not, and the type of sport they were engaged in and the time spent per week in this activity; social media sites in which they had an account and the time spent per day checking their accounts; whether any or both of their parents were a physician or not; whether they were beneficiaries of quota systems or social inclusion and/or economic support programs or not; whether they were using o had gotten any type of mental health therapy or used medication to improve their mental health during their training or not; and whether they had used the mental health services offered by the school of medicine or not and their perception of said service. Finally, students were also asked if they had sought emotional support, the persons with whom they did it (parents, partner, medical school friends, other friends), and the frequency in which they did it (daily, weekly, every two weeks, monthly).

The second section aimed at assessing the presence of symptoms of anxiety and depression, and it included the validated versions for Brazilian population of the State-Trait Anxiety Inventory (STAI)[18] and the Beck Depression Inventory (BDI).[19]

The STAI is a self-report questionnaire consisting of 40 items rated on a 4-point Likert scale that assesses two types of anxiety separately, using two scales of 20 items each, namely: state anxiety (S-anxiety) and trait anxiety (T-anxiety). S-anxiety refers to the emotional response to a perceived threat or dangerous situation, which is considered a transient emotional state (fear, nervousness, discomfort, etc.) induced by said situations and whose intensity may vary. T-anxiety refers to how individuals feel or react (e.g. feelings of stress, worry, etc.) to typical situations that everyone experiences on a daily basis.

In each scale, scores range from 20 to 80, and higher scores indicate greater anxiety. Likewise, according to the score, the level of anxiety can be defined as low (<33 points), moderate (33-49 points), and high (>49 points).[3,18]

The BDI is a 21-item self-report instrument used to measure the severity of depression based on the intensity of the symptoms. Each item is rated on a 0 to 3 Likert scale, and the severity of depression is established using the following cut-off scores: no or minimal depression (0 to 9 points), mild depression (10 to 18 points), moderate depression (19 to 29 points), and severe depression (30 to 63 points).[19]

All fields in both sections were marked as mandatory, so participants could move forward only after answering all questions, thus eliminating the risk of surveys with missing data.

Finally, the last section included open-ended questions about their motivation to continue their medical training and the reasons for seeking and using the mental health services offered by the school of medicine, the latter in the case the student had stated the use of such services. All questions were marked as mandatory as well.

The survey was available for completion from August 2019 to December 2019 via Google Forms.

Data analysis

Data are described using absolute frequencies and percentages for qualitative variables and means and standard deviations (SD) for quantitative variables since they showed a normal distribution (Shapiro-Wilks test). In addition, Student's T-test or Fisher's exact test were used to compare the scores obtained in the three scales (i.e., S-anxiety, T-anxiety, and BDI) between students according to some sociodemographic characteristics; a significance level of $p<0.05$ was considered. The results of the reliability analyses performed using Cronbach's alpha showed that the data ranged from moderate to highly reliable, as the Cronbach's alpha was 0.87 in the BDI and 0.93 and 0.92 in the STAI for the T-anxiety and the S-anxiety scales, respectively. All analyses were conducted in the SPSS software for Windows, version 22.0.

Also, a qualitative analysis of the responses given by the students to the open-ended questions was performed. Responses were transcribed for analysis and categorized according to traditional methods of content analysis.[20] The analysis of the information started with the free reading of the transcribed text by two independent researchers. The first reading was aimed at making researchers familiar with the study topic without any intention of categorization. In the second reading, both researchers independently determined the analytical categories and subcategories (issues) of the topics identified in the responses. Finally, the results of each researcher were paired by similarities in meaning and were discussed with the research group. The results of this analysis were divided into analytical categories, and these categories were in turn further divided into subcategories (issues). Examples for each category are provided below.[20,21]

Ethical considerations

This study was carried out in accordance with the ethical principles for conducting biomedical studies involving human subjects established in the Declaration of Helsinki.[22] In addition, it was approved by the Research Ethics Committee the School of Medicine of the University of São Paulo (Protocol#3,373,721 from June 06, 2019). Data confidentiality

and anonymity was ensured at all times, and all participants signed a consent form prior to completing the survey.

Results

Quantitative analysis

Of the 170 second-year medical students, 74 completed the survey, i.e., a response rate of 43.53% was achieved. Of these, 58.10% were men, 59.45% lived with their parents, and 97.29% identified as cisgender. Participants' mean age was 22.83 years (SD: 5.19) (Table 1).

Table 1. Sociodemographic characteristics of the sample and scores obtained in the questionnaires (n=74).

Variable		Scores Mean (SD)		
		STAI		BDI
		Trait	State	
Total 74		47.52 (2.66)	48.17 (3.13)	11.67 (7.99)
Age mean (SD)	22.83 years (5.19)			
Biological sex				
Male (43) *		47.63 (2.87)	48.02 (3.27)	10.41 (8.67)
Female (31)		47.56 (2.55)	48.41 (3.13)	13.48 (6.88)
Gender identity				
Cisgender (72) *		47.61 (2.58)	48.04 (3.05)	11.66 (8.09)
Transgender (2)		44.50 (4.94)	53.00 (2.82)	12.00 (2.82)
People with whom the student shares their home **				
Parents (44)		47.52 (2.99)	48.21 (2.95)	10.17 (7.34)
Friends (10)		47.46 (1.86)	46.98 (4.36)	12.66 (5.92)
Alone (8)		46.67 (3.12)	48.51 (3.31)	12.13 (11.27)
Beneficiary of a quota system or a social inclusion and/or economic support program				
Yes (24)		47.16 (2.44)	49.32 (3.01)	13.99 (9.82)
No (50)		47.74 (2.87)	47.65 (3.11)	10.61 (6.87)
Sport practice				
Yes (52)		47.41 (2.76)	48.13 (3.00)	11.42 (8.47)
No (22)		47.88 (2.13)	48.33 (3.42)	12.30 (7.21)

* $p<0.05$
** Others (n=12): students living in a student housing facility (n=4), with their boyfriend or girlfriend (n=4), their fiancé (n=3), or their husband or wife (n=1).

Participants' mean scores in the T-anxiety and S-anxiety scales were 47.52 and 48.17 points (moderate anxiety in both cases), (SD: 2.66 and SD: 3.13), while the mean score in the BDI was 11.67 (mild depression). Transgender students and those who were beneficiaries of a quota system or social and/or economic support program had higher scores (53.00 and 49.32 points) than the mean score in the S-anxiety scale. A similar finding was observed in these two groups in the BDI (12.00 and 13.99 points) (Table 1); however, these differences were not statistically significant.

With respect to the social life of students, the following was found: all students were engaged in extracurricular activities, mostly related to academia (72.97%); 70.27% (n=52) practiced a sport and spent on average 272 minutes per week in this activity; the average

time spent on leisure activities per week was 317 minutes; and the average of minutes spent on their social media accounts was 131 minutes per day. Furthermore, 79.72% had no parents who were physicians.

Regarding the information related to their mental health, it was found that 40.54% of the students reported they were receiving or had received some type of mental health therapy or used medication to improve their mental health during their training, being the most frequent counseling with a psychologist (53.33%) and a psychiatrist (46.66%). In addition, 36.48% (n=27) had used the mental health services offered by the school of medicine, and 59.25% of them rated it as good. Finally, 63 students (85.13%) reported having sought emotional support with friends from the medical school, and of these, 61.90% did it on a daily basis.

The characteristics of the sample in terms of their social life and mental health are shown in Table 2.

Table 2. Social life and mental health characteristics of the medical students included in the study (n=74).

Variable	n=74 n (%)
Physician parents - Yes	15 (20.27)
Father physician - Yes	8 (10.81)
Mother physician - Yes	7 (9.45)
Account in a social media site - Yes	74 (100.00)
WhatsApp	73 (98.64)
Facebook	59 (79.72)
Instagram	56 (75.67)
X (formerly Twitter)	7 (9.45)
Time spent per day in social media sites Mean (SD)	131 minutes (83.60)
Sport practice - (n=52) *	
Strength training/gym	24 (46.15)
Running/athletics	10 (19.23)
Tennis	5 (9.61)
Time spent per week practicing the sport Mean (SD)	272 minutes (265.82)
Leisure activities (n=64) **	
Watching a movie/listening to music/reading a book	25 (39.06)
Going to the cinema/theater	14 (21.87)
Social interaction with family and friends	13 (20.31)
Time spent per week in leisure activities Mean (SD)	317 minutes (416.51)
Participation in extracurricular activities - Yes	74 (100.00)
Related to academia	54 (72.97)
Related to sports	35 (47.29)
Mental health treatment during medical training- Yes	30 (40.54)
Counselling with a psychologist	16 (53.33)
Counselling with a psychiatrist	14 (46.66)
Use of stimulants	10 (33.33)
Use of antidepressants	8 (26.66)
Use of sleeping pills	3 (10.00)

Table 2. Social life and mental health characteristics of the medical students included in the study (n=74). (Continued)

Variable	n=74 n (%)
Use of mental health services offered by the school of medicine - Yes	27 (36.48)
Rated as good	16 (59.25)
Rated as regular	10 (37.03)
Rated as poor	1 (3.70)
Emotional support (n=74)	
Friends from the school of medicine	63 (85.13)
Frequency with which support was sought	
Daily	39 (61.90)
Weekly	13 (20.63)
Every two weeks	6 (9.52)
Monthly	5 (7.93)
From parents	52 (70.27)
Frequency with which support was sought	
Daily	15 (28.84)
Weekly	18 (34.61)
Every two weeks	9 (17.30)
Monthly	10 (19.23)
From other friends	44 (59.45)
Frequency with which support was sought	
Daily	4 (9.09)
Weekly	15 (34.09)
Every two weeks	11 (25.00)
Monthly	14 (31.81)
From partner	36 (48.64)
Frequency with which support was sought	
Daily	25 (69.44)
Weekly	9 (25.00)
Every two weeks	1 (2.77)
Monthly	1 (2.77)

* Others (n=13): rugby (n=4), soccer (n=3), swimming (n=2), rowing (n=1), karate (n=1), basketball (n=1), softball (n=1).
** Others (n=12): arts (n=7), meditation and yoga (n=5).

Qualitative analysis

Responses to the open question "What was your reason for seeking and using the mental health services offered by the school of medicine?" were organized into two categories: mental support and academic orientation. The mental support category was divided into three issues: anxiety symptoms, depressive symptoms, and stress. The following are some examples of the responses given by the students regarding these issues as reasons for using the school mental health service:

"*Anxiety crisis and social phobia.*"
"Lack of interest and feeling discouraged affect my studies and other activities."
"*I was feeling very stressed.*"

In the academic orientation category, only attention deficit was identified as a motivation for requesting the mental health services offered by the school of medicine. Some examples identified in the students' responses include:

"*Psychological counseling for ADHD.*"

"*I could not concentrate well in the first year due to study overload.*"

Students' responses to the open question "What is your biggest motivation to continue with your medical training?" were organized into two categories: personal satisfaction and altruism, which were further divided into the following issues: knowledge acquisition and money (financial stability), and patient care. The following are some examples of responses in which these aspects were identified as a motivation to continue with medical training.

"*A challenge against the plethora of diseases.*"

"*Financial stability and career development.*"

"*To be able to somehow minimize the suffering of patients.*"

"*The possibility of improving a person's quality of life, even if their illness cannot be cured.*"

The results of the qualitative analysis are presented in Table 3.

Table 3. Results of the qualitative analysis of the students' responses to the open-ended questions.

Questions	Category	Issues	Examples
What was your reason for seeking and using the mental health service offered by the school of medicine?	Mental support	Anxiety symptoms	Anxiety symptoms and panic syndrome.
			Anxiety crisis and social phobia.
		Depressive symptoms	Lack of motivation.
			Anhedonia
			Lack of interest and feeling discouraged affect my studies and other activities.
		Stress	I was feeling very stressed.
	Academic orientation	Attention deficit	Psychological counseling for ADHD.
			I could not concentrate well in the first year due to study overload.
"What is your biggest motivation to continue with your medical training?"	Personal satisfaction	Knowledge	I like the disciplines, the courses, and I like medical practice, especially clinical practice.
			A challenge against the plethora of diseases.
			I like listening to stories, I like listening to people, I like the challenge of investigating health problems, and I love clinical reasoning. What motivates me is my fondness for diversity and medical sciences.
		Money	Financial stability and career development.
			Financial stability related to working in medicine and a good quality of life.
	Altruism	Patient care	To be able to somehow minimize the suffering of patients.
			The possibility of improving a person's quality of life, even if their illness cannot be cured.
			Desire to make a difference in people's lives, helping them to follow their path.

Discussion

The following are the key findings of the present study: participants exhibited moderate (almost high) S-anxiety (mean score: 47.52) and T-anxiety (mean score: 48.17), as well as mild depression (mean score: 11.67); the scores of transgender students and those who were beneficiaries of a quota system or social and/or economic support program were higher than the mean score in the S-anxiety scale (53.00 and 49.32 points) and in the BDI (12.00 and 13.99); 36.48% of the students reported the use of the mental health services offered by the school of medicine and that they did so to seek emotional/mental support and academic orientation; 40.54% informed they were receiving or had received some type of mental health therapy or medication to improve their mental health condition during their training, being the most frequent counseling with a psychologist and a psychiatrist; and 86.13% reported seeking emotional support from friends of the medical school.

In the case of transgender students and those who are beneficiaries of social inclusion and/or economic support programs (e.g., students from vulnerable populations or minority groups such as indigenous peoples), although the differences between their scores in the three scales (S-anxiety, T-anxiety, BDI) and the scores of cisgender students and those who were not beneficiaries of these programs were not significant, it was clear that the severity of anxiety and depression symptoms was greater in transgender students and beneficiaries of affirmative actions, such as racial and social inclusion programs. This is consistent with what has been reported in the literature, as it has been shown that being in these situations has a negative impact on medical student's mental health.[23-26] In fact, transgender students (at both high school and undergraduate level) generally experience more impacts on their expectations and mental health compared to their peers.[27,28] Consequently, further studies are necessary to take a more specific and cautious look at these population groups in the context of medical training.[24,26]

In the present study, participants also showed a moderate level of anxiety, with mean scores on both the S- and T-anxiety scales approaching the high anxiety cut-off point (>49 points). In this regard, concerning medical students, it has been described that living alone is associated with presenting more depression and anxiety symptoms and that this is also the case for those living with authoritarian parents, parents with low expectations for their children's performance at medical school, and parents who are less concerned about their children.[23] Accordingly, only 10.81% of the students in our research were single, whereas over 60% shared a home with their parents.

Another possible cause of the elevated anxiety level found in our sample (2nd-year medical students) may be the emotionally taxing, time-intensive, and academically rigorous expectations associated with medical training.[1,2] As a result, it is likely that the level of anxiety or anxiety symptoms increase as training progresses, considering that other studies indicate that final-year medical students are likely to exhibit higher anxiety and depression levels in comparison to those in the basic and clinical cycles.[23,24,29] A further factor that may contribute to the manifestation of anxiety symptoms in these students is the pressure stemming from societal, medical school, peer, and patient expectations about their future roles as physicians. It has been observed that the expectations imposed by others on medical students concerning their future role as physicians may pose an emotional challenge, since they feel 'judged constantly' about their professionalism.[30,31]

With respect to mental health care and emotional support requirements of the participants, it was found that 36.48% of them used the mental health services offered by the school of medicine for issues such as anxiety, depression, and academic orientation, with almost 60% of them rating it as good. It was also observed that a significant proportion

of students reported seeking professional mental health help outside the school environment during their training, namely, counselling from a psychologist or a psychiatrist (40.54%) or emotional support from their immediate social circle, particularly their medical peers, (85.13%). This suggests that the students participating in our study may feel conflicted about utilizing mental health services at school due to the fear of their emotional problems being exposed to both their peers and the school faculty.[32]

In this sense, medical schools need to design and implement strategies aimed at reducing the stigma that medical students experience when using mental health programs or seeking emotional support from their staff. It was found that students often prefer to rely on friends, family, and external mental health professionals due to concerns that using the school's mental health and support programs may lead to perceptions of weakness among peers and faculty, or worse, feelings of guilt and shame associated with seeking such support.[32] Evidence suggests that the establishment of student mental health support systems and the development of significant relationships with school staff mitigate the obstacles related to medical training, foster healthy educational environments, and reduce the prevalence of emotional maladjustment.[4,33,34]

It has also been demonstrated that engaging in leisure, sporting, and extracurricular activities is useful to mitigate the psychological impact of medical training on students.[35-42] In our study, medical students allocated an average of 317 minutes per week to leisure activities and 271 to practicing a sport. In this regard, it has been reported that engaging in sports and leisure activities is positively correlated to well-being among medical students,[35] and that regular physical activity has beneficial effects for individuals with depressive and/or anxiety symptoms.[36,37] Furthermore, multiple studies have reported that, besides its positive impact on health, physical activity positively influences the counseling practices of both physicians and medical students.[38,39]

On the other hand, engaging in extracurricular activities promotes the development of competencies, skills, and deeper learning. Evidence suggests that the educational environment can influence the mental health and well-being of medical students, provided that professors foster open communication with students and help them identify their weaknesses and the presence of mental health disorders. This will promote collaborative learning and offer medical students a supportive environment, in contrast to the prevailing highly competitive setting they encounter during their training, which is usually characterized by heavy workloads and abusive academic relationships.[40-42]

The present study found that altruism (patient care) and personal satisfaction (knowledge acquisition and money) were the main reasons for students to pursue their medical training. In this sense, it has been reported that the main factors motivating the decision to attend medical school include an interest in science/medicine, social engagement, altruism, status, job security, financial stability, and the possibility of flexible work hours.[43] Altruism was an expected response, as humanistic ideals are among the main reasons for students to pursue health care professions.[43] In the case of the personal satisfaction subcategories identified, it could be said that motivation is mostly driven by external rewards, which may lead to a competitive environment during medical training.

Psychological and social support are essential for medical students to become competent professionals and to reduce the psychological impact to which they are exposed during their training (heavy workloads, emotional stress, competitive academic environments, etc.).[44] However, when offering these services, medical schools should consider their communication channels and the implementation of assertive tools, so that information about these programs can reach students equally, therefore improving their access.[45] The use of popular social media platforms may be regarded as an innovative strategy for

addressing mental health disorders or emotional distress among medical students, as well as for developing new methods for providing psychological support,[44,46,47] as these sites are heavily used by most students. This situation was corroborated by our study, since 100% of the respondents had at least one popular social media account, mostly WhatsApp and Facebook, with an average daily engagement of 131 minutes on these platforms.

Finally, we found that most participants (85.13%) sought emotional support from their peers. Peer-support programs have demonstrated effectiveness in promoting the search for help and reducing psychological distress.[45,48] In extreme situations, such as suicidal ideation, young adults often prefer to talk to a peer rather than a parent, staff member, or professional counselor. However, these peers must be trained adequately, so that they can always provide the most beneficial responses and encourage individuals to seek proper help in times of crisis.[49]

This study has several limitations. Firstly, its cross-sectional design makes it impossible to draw definitive conclusions about the causal relationship between social support, family functioning, and the presence of anxiety and depression symptoms; thus, further longitudinal studies are required to address this topic. Secondly, while the sample size is representative of the second-year medical students at the School of Medicine of the University of São Paulo, its limited size and the fact that all students were from the same medical school may limit the applicability of our findings to students enrolled in other medical schools within the region and across the country; consequently, similar studies should be conducted with larger sample sizes and including medical students from several universities. Lastly, the use of surveys with open-ended questions results in data that lack the richness and nuance of data collected through interviews, which allow for follow-up questions.

Conclusion

The present study found that second-year medical students had mild depression symptoms and moderate levels of S- and T-anxiety; additionally, the mean scores on both anxiety scales were really close to the high anxiety cut-off point. Furthermore, the main reasons for seeking and using the mental health services offered by the medical school were finding psychological support (anxiety symptoms, depressive symptoms, and stress) and academic orientation (attention deficit).

In light of these findings, medical schools should implement actions aimed at reducing the risk of developing depression and anxiety symptoms in this population and provide students with educational counseling and psychological support, thereby encouraging them to use these services to effectively address their mental health issues. Moreover, information about the mental health services offered by the schools needs to be informed through communication channels that successfully reach students.

Conflicts of interest

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