

RESEARCH REPORT

Community Psychology

Editor

Raquel Souza Lobo Guzzo

Conflict of interest

The authors declare that there are no conflicts of interest.

Received

December 15, 2022

Version final






December 1, 2023

Approved

August 26, 2024

Risk factors for medical students psychological problems during the COVID-19 pandemic

Fatores de risco para problemas psicológicos em estudantes de medicina na pandemia de COVID-19

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How to cite this article: Mota, B. B., Cardoso, C. S., Costa, M. J. B., Ferreira, L., & Pereira, F. M. (2025). Risk factors for medical students psychological problems during the COVID-19 pandemic. *Estudos de Psicologia* (Campinas), 42, e220147. <https://doi.org/10.1590/1982-0275202542e210147>

Abstract

Objective

The objective of this study was to evaluate the occurrence of risk factors associated with psychological and psychosocial problems faced by medical students during the Coronavirus Disease 2019 pandemic.

Method

A total of 244 medical students aged 16 years old or over residing in the region of the triple border between Brazil, Paraguay and Argentina were interviewed using an online form.

Results

We could observe the incidence of risk factors for the development of psychological and psychosocial problems in this population. In addition, most of those students reported weight gain and those who had psychological problems in the period prior to the pandemic reported a worsening in their condition.

Conclusion

We thus were able to collect important information about the suffering of medical students during the Coronavirus Disease 2019 pandemic and the results indicate that during that period students reported a worsening of feelings that are generally associated with psychological problems.

Keywords: Emotions; Incidence; Mental health; Observational study; Surveys and questionnaires.

Resumo

Objetivo

Objetivou-se avaliar a ocorrência de fatores de risco associados a problemas psicológicos e psicossociais enfrentados pelos estudantes de medicina no decorrer da pandemia da doença do coronavírus 2019.



Método

Para tanto, através de um formulário online, foram entrevistados 244 estudantes de medicina com idade mínima de 16 anos e que residem na região da tríplice fronteira entre Brasil, Paraguai e Argentina.

Resultados

Com isso, foi possível observar a incidência de fatores de risco para o desenvolvimento de problemas psicológicos e psicossociais nessa população. Além disso, observou-se que a maioria deles relataram ganho de peso e que a maioria dos estudantes que apresentavam problemas psicológicos no período anterior à pandemia relataram uma piora no quadro.

Conclusão

Com este trabalho foi possível obter informações importantes sobre o quadro de sofrimento dos estudantes durante a pandemia da doença do coronavírus 2019, e os resultados indicam que durante este período os estudantes relataram uma piora nos quadros de sentimentos que são geralmente associados a problemas psicológicos.

Palavras-chave: Emoções; Incidência; Saúde mental; Estudo observacional; Inquéritos e questionários.

On December 31, 2019, the World Health Organization (WHO) was alerted to several cases of pneumonia in the city of Wuhan, Hubei Province, in the People's Republic of China. The disease was caused by a new strain (type) of coronavirus that had not been identified in humans before. Subsequently, on January 30, 2020, the WHO classified the outbreak of this new coronavirus as a Public Health Emergency of International Concern. At the same time, the WHO IHR Emergency Committee recommended a set of temporary measures to be implemented by governments to prevent or reduce the global spread of this disease. The new virus spread rapidly around the world, and on March 11, 2020, the WHO officially declared the beginning of the COVID-19 pandemic, meaning that the virus that causes this disease, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), had widely disseminated in several countries around the world (Organização Pan-Americana da Saúde [OPAS], 2022; Sofi et al., 2020).

According to the WHO, the most common symptoms of Coronavirus Disease 2019 (COVID-19) are cough, fever, fatigue, and loss of smell and taste, while less common symptoms are sore throat, diarrhea, skin rashes, and discoloration of the fingers and toes (World Health Organization [WHO], 2023). The clinical manifestations of COVID-19 range from mild to severe, with a small percentage of cases resulting in the death of the patients (Mesquita et al., 2021). In cases of patients with comorbidities such as high blood pressure, diabetes, and asthma, the incidence of severe cases requiring hospitalization and ending in fatalities is higher (Ejaz et al., 2020).

In an attempt to contain the pandemic spread, local governments adopted several measures to mitigate the advance of the SARS-CoV-2 virus, including quarantine and isolation. Although the two terms are used synonymously, they have different meanings and objectives. Isolation is defined as the separation of sick people, infected with a communicable disease, such as COVID-19, from non-sick people; quarantine seeks to separate and restrict the movement of people who have been exposed to a contagious disease, in order to observe whether they will become sick (Wilder-Smith & Freedman, 2020). Another measure widely adopted by governments around the world was the lockdown, a measure that seeks to reduce people's physical contact in order to reduce the spread of the virus (Bennett et al., 2021; Haider et al., 2020). These measures, despite having their degrees of effectiveness in combating the pandemic, contribute to the increase in the occurrence of several psychological disorders, such as anxiety, depression feelings, loneliness and lack of improvement perspective (Santana et al., 2020). In addition, there is the difficulty of facing death of loved ones, since it was not possible to say goodbye in the way the family would have liked. As a result, the feeling of mourning is not fully experienced, thus making it difficult to accept the death (Crepaldi et al., 2020).

According to the WHO, health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. One of the most common psychological disorders in the population is depression, defined as a mental disorder characterized by persistent sadness, loss of interest in activities that are normally pleasurable, and inability to perform daily activities for at least two weeks (Malhi & Mann, 2018; OPAS, 2022; Otte et al., 2016). In extreme cases, depression can even lead the patient to commit suicide (Hawton et al., 2013; Lépine & Briley, 2011). In a survey conducted during the COVID-19 pandemic, it was found that, among 1,210 participants, 53.0% presented moderate or severe psychological sequelae that included depressive symptoms (16.5%), anxiety (28.8%), and moderate to severe stress (8.1%). The greatest impacts were observed in women, students, people with symptoms related to COVID-19 and those who considered their health to be poor (Faro et al., 2020).

A 2018 study of medical students found that they exhibited symptoms of mental disorders (Leão et al., 2018). According to the American Psychological Association, stress levels among medical students increase due to several factors, including the new academic routine, entry into adulthood, and social and financial challenges that are aggravated by not being close to their families and, consequently, a growth of mental suffering occurs. All of these problems, if not monitored, can have long-term consequences, affecting physiological, psychological, and cognitive functions, hindering the interpersonal relationships (Lima et al., 2016).

Data on medical students' mental health during the COVID-19 pandemic are important to understand the effects of the pandemic on that population; however, studies addressing this topic are still scarce in the literature. This information is important to outline support strategies and to help predict psychological weakening of these students before it becomes a public health problem. For this reason, the objective of our study was to evaluate the occurrence of risk factors that may have caused psychological and psychosocial problems which were faced by medical students during the COVID-19 pandemic.

Method

Participants

The sample included 244 medical students aged 16 or over who resided in the region of the triple border between Brazil, Paraguay and Argentina. The sample included 244 medical students, with a minimum 16 years of age. All procedures involving patients, data collection and data analysis were approved by the Research Ethics Committee (Protocol EXPTE10822 of the Comité de Ética en Investigación de la Facultad de Ciencias de la Salud de la Universidad Privada de Este). All participants agreed to the terms of the Free and Informed Consent Form. Furthermore, the authors of the survey have no personal, commercial or financial conflict of interest.

Procedure

The survey was conducted between August and December 2021. Participants were selected randomly and they were invited to participate in the survey through their college groups on their universities' WhatsApp application. An email address for the Google Forms platform was provided and participants answered the investigators' questions online.

Measures

The questionnaire applied included questions aimed at assessing the occurrence of factors associated with psychological pathologies (Table 1).

Results

The questionnaire was answered by the total 244 medical students and the results are reported in Table 1. Participants' age range was between 26 and 35 years (28.5%) and most of them (34.0%) were in their fifth year of medical school. A total of 137 (56.0%) respondents stated they were much more tired now than at the beginning of the pandemic.

Table 1

Questionnaire response data

Questions	Responses data
1 Regarding the triple border, which municipality do you live in?	Foz do Iguaçu (36.9%), Puerto Iguaçu (0.8%), Ciudad del Este (52.9%), Presidente Franco (9.4%).
2 Are you studying Medicine in the Triple Border Region?	Yes (100%), No (0%).
3 What year or period are you in the Medicine course?	1 st year (1 st or 2 nd Period) (16%), 2 nd year (3 rd or 4 th Period) (11.1%) 3 rd year (5 th or 6 th Period) (10.7%), 4 th year (7 th or 8 th Period) (25%) 5 th year (9 th or 10 th Period) (34.4%), 6 th year (11 th or 12 th Period) (2.8%).
4 How old are you?	16-25 (52.5%), 26-35 (29.1%), 36 - 45 (16%), > 45 (2.4%)
5 Do you feel very tired considering the period from the BEGINNING OF THE PANDEMIC TO-DATE?	A lot (56.1%), Not too much (30.3%), A little (8.6%), Not at all (5%)
6 Do you feel that everything you have done DURING THIS PERIOD has been a failure?	Yes (50.8%), No (49.2%)
7 Are you sleep-deprived?	A lot (25%), Not too much (28.3%), A little (22.1%), No at all (24.6%)
8 Have you had difficulty concentrating on your daily activities?	Yes (90.6%), No (9.4%)
9 In the period from the beginning of the pandemic until today, have you gained weight?	Yes (66.4%), No (33.6%)
10 If your answer was "Yes" to the previous question, mark the interval that corresponds to your weight gain:	< 2kg (10.7%), 2-5kg (29.5%), 6-9kg (22.1%), > 10kg (9%), I didn't gain weight (27%)
11 Have you ever felt like taking your own life because you are not in contact with the people you love?	Yes (12.7%), No (87.3%)
12 Did you feel inferior when interacting with the others?	Often (25.8%), Sometimes (43.4%), Once (3.7%), Never (27.7%)
13 During the period ANALYZED, how often did you feel sad, downcast or depressed?	Never (5.7%), Rarely (25.8%), Often (59.8%), Always (8.6%)
14 Has any doctor ever diagnosed you with a mental illness?	Yes (61.5%), No (38.5%)
15 If your answer to the previous question was "Yes", select an alternative below:	Anxiety (27.9%), Depression (9.8%), Panic Syndrome (1.2%) Other (10.7%), Never diagnosed with any mental illness
16 Considering that your answer to question 14 was "Yes", do you consider that the pandemic has worsened your condition?	Yes (36.5%), No (14.3%), I have never been diagnosed with any disorder (49.2%)
17 Did you receive psychological support during the period analyzed?	< 3 months (9.4%), 3 6 months (41%), > 6 months (5.7%), No (76.2%)
18 Have you felt more anxious, nervous, impatient or irritated by irrelevant things?	Often (45.9%), Sometimes (41%), Once (5.7%), Never (7.4%)
19 Do you find that the news makes you more panicked?	Never (13.1%), Few times (43.9%), Many times (32%), Always (11.1%),
20 Have you cared for someone with mental health issues during the pandemic?	Yes (25%), No (75%)
21 During the pandemic, were you able to experience any positive feelings?	No (2%), Few times (41.8%), Many times (48%), Always (8.2%)
22 If you have contracted COVID-19, have you detected any physiological consequences?	Yes (26%) No (26%), I didn't have COVID-19 (47.9%)
23 Considering answer 22 as yes, what physiological change did you detect?	Anterograde Amnesia (8.3%), Obstructive Respiratory Syndrome (3.3%), Loss of Smell (13.3%), Others (23.7%), I did not have Covid-19 (51.5%)
24 Have you been vaccinated against COVID-19?	Yes, only the 1 st dose (45.5%), Yes, 1 st and 2 nd dose (38.1%), Yes, Single dose (2.9%), No (13.5%)
25 With the release of the vaccine, do you expect your mental state to improve?	Yes (67.6%), No (32.4%)
26 Do you feel safe about returning to your work activities?	Yes (58.2%), No (41.8%)
27 Did your psychological signs reflect on physical symptoms?	Yes (65.6%), No (34.4%)
28 If "Yes" to the previous answer, select:	Shortness of breath (13.9%), Tingling in upper limbs (4.5%), Chest pain (11.5%), Others (38.9%), I had no psychological signs (31.1%)

Out of the 244 interviewees, 61 (25.0%) reported having great sleep deprivation, 69 (28.2%) moderate sleep deprivation, and 54 (22.1%) reported little sleep deprivation. Regarding the interviewees mental health, 221 (90.0%) reported having difficulty concentrating on their daily activities, 21 (8.6%) reported being downcast or depressed throughout the period assessed, while 146 (59.8%) reported experiencing this feeling several times during this period. A total of 31 (12.0%) interviewees reported that, at some point in time, they had wanted to take their own life for not being in contact with the people they loved. In addition, 18 (7.3%) of the interviewees reported being anxious, nervous, impatient, and irritable throughout the period assessed, while 112 (45.0%) reported having experienced this feeling several times during this period and 124 (50.8%) believed that everything they did during the pandemic period was a failure.

Regarding pre-existing conditions, 94 (38.5%) interviewees reported having already been diagnosed with some psychological illness during the period prior to the outbreak of the pandemic. Of the total number of the survey respondents, 68 (27.0%) had been diagnosed with anxiety, 24 (9.8%) with depression, 3 (1.2%) with panic syndrome and 26 (10.6%) with other comorbidities. Out of this group, 89 considered that their condition was aggravated by the COVID-19 pandemic. Regarding psychological assistance, 23 (9.4%) interviewees reported having received psychological support during the period for less than 3 months, 17 (6.9%) between 3 and 6 months and 18 (7.3%) for a period longer than 6 months.

Regarding physical health, 162 (66.4%) of the interviewees reported having gained weight during the period, with 72 (29.5%) respondents reporting having gained between 2 and 5 kg, 54 (22.1%) between 6 and 9 kg and 22 (9.0%) more than 10 kg. Participants were also asked if they had contracted COVID-19 and what physiological consequences they observed with the disease. Out of the respondents who had had COVID-19, 63 reported physiological changes while 36 indicated no changes. A total of 32 interviewees reported loss of smell, 20 retrograde amnesia, 8 obstructive respiratory symptoms and 57 reported other different symptoms. Another point raised with the participants was whether they observed that psychological symptoms self-reflected in the form of physical symptoms, a question to which 160 (65.6%) participants gave a positive answer. Specifically, 34 respondents reported shortness of breath, 28 chest pain, 11 tingling in the upper limbs, and 95 reported other symptoms.

Regarding daily life, participants were also asked how they felt about the news: 27 (11.1%) of them reported that the news always caused panic, 78 (32%) reported that it caused panic often, 107 (43.9%) rarely, and 32 (13.1%) never. In addition, 61 (25.0%) participants reported having cared for someone with mental disorders during the pandemic. At the time of the survey, 111 (45.5%) survey participants had been vaccinated with the first dose of the COVID-19 vaccine, 93 (38.1%) with two doses, 7 (2.9%) with a single dose, and 33 (13.5%) had not yet been vaccinated.

Discussion

Risk factors for a given condition, as defined by the WHO in 2009, refer to characteristics, conditions or behaviors that increase the likelihood of a person developing certain pathologies. In psychology, we can cite as examples biological, psychological and behavioral factors that increase the likelihood of anxiety or depression in a given population. A detailed example on the subject can be found in the review carried out by Vink et al. (2007) which provides an overview of these factors that cause the development of anxiety and depression in the elderly population.

The occurrence of psychological and psychosocial issues resulting from the pandemic has been widely reported in the literature (Moreno et al., 2020; Talevi et al., 2020), and the occurrence of factors associated with anxiety and depression are important tools for assessing mental health. Lack of sleep is a factor known to be associated with such psychological pathologies (Nutt et al., 2008; Steiger & Pawlowski, 2019). In the population assessed, we could observe a high incidence of this factor, with a total of 75.3% of respondents reporting feeling sleep-deprived to some extent. Leão et al. (2018), when evaluating the occurrence of insomnia in health science students during the period prior to the pandemic, described an occurrence of this factor in 60% of the population showing signs of depression and 44.0% in the healthy population. In addition, these authors also demonstrated the association of this factor with depression and anxiety.

Another result that draws attention is the large number of interviewees who reported difficulty concentrating on daily activities (90.0%). Aquino et al. (2019), when analyzing medical students at a university in Minas Gerais State in Brasil, reported that 89.3% presented a certain periodicity in their concentration difficulty. On the other hand, Bampi et al. (2013), who evaluated medical students at a university in Brasília, reported that only 52.4% of them reported some problem with concentration, while Son et al. (2020), who evaluated students at a university in the United States during the COVID-19 pandemic, observed that 89.0% of them presented some degree of difficulty in concentration. Many of the interviewees also reported feeling down or being depressed throughout the pandemic or often during this period, results that, together, represents up to 67.5% of the students interviewed. Aquino et al. (2019), reports that 63.6% of the medical students evaluated in their study believed they experienced a state of low self-esteem, 82.6% indicated self-critical thinking, and 90.9% reported tiredness or loss of energy. Bampi et al. (2013) reported that 47.6% of their study's participants who were evaluated considered that they enjoyed life in a kind of unsatisfactory manner or very little, or they did not enjoyed it at all, and that 95.2% of them presented negative feelings (bad mood, despair, anxiety, and depression); 50.0% of them experienced these feelings frequently, very frequently, or always. In the work of Son et al. (2020) the authors indicate that the main factors contributing to depressive thoughts that were observed in their sample were loneliness (33.0%), insecurity or uncertainty (12.0%), helplessness or hopelessness (10.0%), concerns about academic performance (8.0%) and chronic over- thinking (5.0%).

When compared to the results obtained by Bampi et al. (2013), the data of our study suggest that the prevalence of some risk factors for the development of psychological pathologies such as concentration difficulty, lack of sleep disorders and negative feelings increased during the pandemic. However, when we take into account the work of Aquino et al. (2019), an older study, the data suggest a certain stability in the incidence of these factors.

Most respondents diagnosed with psychological pathologies in the pre-pandemic period reported worsening of their clinical condition during the pandemic period. This type of occurrence has been widely reported in the literature (Gobbi et al., 2020; Hao et al., 2020; Robillard et al., 2021). In a very large survey, Gobbi et al. (2020) using an online questionnaire, evaluated 2,734 patients from 12 countries; they also carried out a clinical evaluation of 318 patients from a clinic in the United States. According to these authors, more than half of their psychiatric patients showed a worsening of their condition during the period reviewed. In addition, those authors reported that in the clinical study carried out, more than half of the patients presented new symptoms and required treatment adjustment.

The COVID-19 pandemic has set a series of challenges for treating psychological ill patients. In addition to the physical distancing measures imposed by the authorities, the pandemic lead

people to be concerned of leaving their homes to visit a health care facility. Alternatives such as online care can help overcome these obstacles. It is also interesting to note that our study found that approximately 20.0% of respondents had cared for someone with psychological problems during the pandemic.

Regarding weight gain, most interviewees reported having gained weight during the pandemic period. In a survey conducted using an electronic questionnaire in the city of Araçatuba, São Paulo, which included 162 respondents during the period from 2021/11/1 to 2021/11/2, Aro et al. (2021) also reported that, during the pandemic period, most of their study participants gained weight: 45.3% gained between 1 and 5 kg, 16.8% gained between 5 and 10 kg and 4.3% gained more than 10 kg. Adding together those rates yields a total of 66.4% participants who gained weight. These results are in line with the outcome obtained in our study. According to those authors, during the pandemic an increase in food consumption occurred due to the emotional atmosphere and also due to the people's snacking habit, with a preference for sweets; these are factors that may have contributed to these results. Other data that may help explain this trend come from the work of Verticchio and Verticchio (2020) who interviewed people in the metropolitan region of Belo Horizonte (MG) and observed that 44.0% of them said that the quality of food consumption had worsened and 55% said they were eating more frequently. The authors also observed an increase in the consumption of sweets, soft drinks, alcohol, pasta and bakery items.

Another important point to highlight is the number of people (65.6%) who reported that psychological symptoms reflected in physical symptoms; Jabri et al. (2020) observed an 8.0% increase in cases of stress-associated cardiomyopathy when comparing the pandemic and the pre-pandemic period. In line with such findings, Kir et al. (2021) reported 2 cases of Taktsubo Cardiomyopathy during the COVID-19 pandemic in which both patients reported to have experienced stress levels due to the pandemic. According to those authors, the incidence of stress-related cardiomyopathy has increased as a result of the pandemic in patients who were not infected with SARS-CoV-2. They also suggest that measures should be taken to help the at-risk population (postmenopausal women, patients with psychiatric comorbidities) deal with the ongoing stressors of that period.

As we can see, there have been several reports of students who developed risk factors associated with psychological and psychosocial pathologies. To prevent the occurrence of more severe cases of these pathologies, it is important that this population has access to psychological assistance programs, especially during periods of greater physical distancing, when stressors are more intense. An interesting strategy to be adopted could be the improvement of disciplines and projects that help medical students to cope with their psychosocial and family difficulties, patients deaths, insomnia and anxiety due to the pressure of daily life.

Conclusion

This study provided information about the suffering experienced by medical students living in the triple border region during the COVID-19 pandemic. Although this was a survey study, the results generally indicate that during the COVID-19 pandemic, students reported a worsening of their emotional state which is generally associated with psychological issues; this suggests that there may have been a growth in the incidence of this type of pathology in the group assessed. Future epidemiological studies that assess the development of psychopathologies during the pandemic or that compare the incidence of such pathologies before and after the COVID-19 pandemic may help to better understand the effects of the COVID-19 pandemic on the mental health of this population.

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Acknowledgments

We are grateful to Universidad Privada del Este for their support during the performance of this work.

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