

## THE EFFECTS OF THE CORONAVIRUS PANDEMIC ON THE QUALITY OF LIFE OF MEDICINE STUDENTS IN THE MUNICIPALITY OF ARAGUARI

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**Abstract:** In 2020, with the onset of the Covid-19 pandemic, and with the rules of social isolation instituted, the population's routine was transformed. This study aims to prove that there was a change in the quality of life of medical students at "centro universitário IMEPAC Araguari", evaluating interpersonal relationships, mental health, within the context of general well-being. Data will be obtained using the Short-form-36 questionnaire (SF-36), thus characterizing a field survey. In which a worsening in the quality of life of university students was verified, mainly in the aspects of mental, emotional and vitality during the pandemic in which they were forced to follow safety measures to contain the virus, in which there was damage to interpersonal relationships and changes in life habits.

**Keywords:** Covid-19; students; quality of life

## INTRODUCTION

In 2020, the new coronavirus pandemic began, which extends to the present day in 2021. The planet has already experienced other situations like this, such as the bubonic plague (or black plague) in the 14th century, killing around 137 million people, smallpox, with 300 million deaths from 1896 to 1980, cholera, with hundreds of thousands of deaths from 1817 to 1824, tuberculosis, which reached about 1 billion deaths in the period from 1850 to 1950, the Spanish flu, with 20 million deaths from 1918 to 1919, the measles, with 6 million deaths per year until 1963, among others (MENHORAS, 2020).

In December 2019, a new coronavirus (SARS-CoV-2) emerged, identified in Wuhan, China, whose spread was very high. According to Roberto Moraes Cruz et.al "the high population density per square meter and the sanitary conditions are precarious, facilitating the rapid contamination by COVID-19". By the beginning of 2021, according to the World

Health Organization (W.H.O.), more than 102 million cases and about 2 million deaths have been registered across the globe. (CRUZ et.al 2020).

In addition to the respiratory problems caused by the virus, it is essential to emphasize that other evils came along with the pandemic, affecting thousands of people, such as: the drop in the quality of life of medical students, the impact on interpersonal relationships with the family, with the friends and with affective relationships, and the change in the sleep cycle, due to the lack of routine, these problems being, in general, related to the mental health not only of medical students, but of everyone who lives in this pandemic. (AYOUB et al.)

Entering higher education brings with it a series of fears and anxieties about the responsibility of care, causing illnesses such as anxiety and depression to appear. The social and emotional instability intensified by the pandemic ended up worsening the psychological issues of students, so it is of fundamental importance to have a careful look at the vulnerability of this population in relation to the use of psychoactive substances (BOLSONISILVA; LOUREIRO, 2016).

Based on the information previously exposed, this article was done through field research that aimed to assess the impact that the Covid-19 pandemic had on the lives of medical students. In addition, articles taken from the platforms of the PubMed and Scielo databases were used, for a better analysis and understanding of the subject in question.

In the face of all this, he noted the need to understand the important relationship between the COVID19 pandemic and the quality of life of medical students at Centro Universitário IMEPAC Araguari. The discovery of the coronavirus at the end of 2019, completely transformed the daily life and life habits of students in general, as the

virus, also called SARS-COV 19, had a high susceptibility to spread, since its transmission occurs through contact or through droplets. Therefore, the need to adhere to social isolation was noted in order to avoid increased contamination.

Social isolation caused a series of problems related to sleep, quality of life and interpersonal relationships. As a result, it was necessary to better understand this perspective and understand the relationship between the pandemic and the possible consequences triggered by COVID-19 in the lives of medical students, considering that, "A sudden change in the way classes are held can create deficits in quality of courses, as there is no way to simply transfer what is done in person to virtual classrooms, since this practice requires other skills in the technical, human, political-economic dimensions and different knowledge (KONRATH and BEHAR, 2009)".

In 2013, a study carried out by César Augusto Paro, aimed to compare the quality of life of undergraduates in the health area of a public university, the study had the voluntary participation of 630 students from the courses of nursing, pharmacy, speech therapist and medicine. From the results obtained through the SF-36 data collection, it is concluded that vitality, which concerns the level of energy and fatigue, was the dimension with the lowest average among the researched undergraduates, leading to the conclusion that students have constant feeling of tiredness and exhaustion. It is believed that the fact that the courses have a full-time matrix is a factor for the worst scores in this dimension. Alves investigated the QoL of 192 nursing students from a private college, pointing out that many students slept late and woke up early on weekdays, causing a sleep deficit and, as a consequence, they had difficulty keeping their attention during classes, directly affecting their QoL and learning (Alves EF, 2010).

In addition, by reading the aforementioned article, other problems could be found, which were not part of our study, such as: difficulty in the relationship with teachers, didactic-pedagogical and structural aspects, dissatisfaction with the evaluation system and difficulties in the internship fields, all these are factors, which together with the problems we raised, corroborate to harm thatuality of life for students.

The objective of this work is to verify the existence of changes in the quality of life of medical students and interpersonal relationships along with the quality of the sleep cycle within the context of general well-being.

## **METHODOLOGY**

A cross-sectional study of practical application in the field of the quantitative-qualitative, descriptive type was carried out using the SF-36 questionnaire, validated in Brazil by Ciconelli et al. 1997. Data were obtained through the Google Forms online platform with medical students from the 1st to the 12th period at the Centro Universitário IMEPAC in Araguari (MG). Inclusion criteria correspond to students enrolled in the IMEPAC Araguari Medicine course in the first half of 2021, who considered themselves able to answer the questionnaire and who consented to the Free and Informed Consent Form (TCLE), therefore, those who did not that fit these specifications were excluded.

This study received ethical approval under the number: 44602321.7.0000.8041

## **STATISTICAL ANALYSIS**

The data after the collection period were sent for statistical analysis and the first procedure performed was the Shapiro-Wilk normality test to determine the distribution of continuous data (SF-36 domain scores) and thus select the statistical technique

more relevant to the study. The test result indicated that the data do not follow a normal distribution, therefore, for the descriptive statistics that organized, summarized and presented the data in tables and graphs, the median interval was used as a measure of central tendency and the interval of dispersion. values between the 25th and 75th percentiles to indicate the 50% dispersion of the data closest to the median.

In order to be able to use the SF-36 data, procedures are necessary to ensure the quality of the sample data and its reliability. For the quality of the data, the percentage of missing data and the occurrence of floor and ceiling effect were used. Floor effect is when more than 40% of respondents reach the minimum score of a scale and ceiling effect is when the same percentage reaches the maximum value of the scale, and they were verified using descriptive statistics of the scores of the instrument's domains(BERNSTEIN, IH, 1994; CRAMER; FOR THE ILAE SUBCOMMISSION ON OUTCOME MEASUREMENT IN EPILEPSY (CAROL CAMFIELD, 2002). To assess reliability, the reliability of internal consistency was calculated using Cronbach's alpha coefficient in each of the 8 domains of the SF-36, and a reliable scale is considered when it obtains values above 0.50(CRONBACH, 1951; MCHORNEY et al., 1994; REEVE et al., 2007).

To compare the scores of the SF-36 domains between genders, the Mann-Whitney test was performed and to verify the association between the course period and the HRQoL scores, the Spearman correlation coefficient was used.

The decision level for rejecting the null hypothesis was  $p < 0.05$ .

## RESULTS

Of the total of 924 students enrolled in the 123 periods of the course, 90 participated in the study. The majority were female (76.60%) and the period with the highest number of respondents was the 7th with 23.30% of the total number of respondents. The period with the lowest number of respondents was the 12th with 1.10% of the total number of students surveyed. The aforementioned data are detailed in Table 01.

Sample characteristic	Frequency	Percentage
Gender		
Male	21.00	23.33
Female	69.00	76.67
Period		
1st	5.00	5.56
2nd	6.00	6.67
3rd	8.00	8.89
4th	12.00	13.33
5th	6.00	6.67
6th	5.00	5.56
7th	21.00	23.33
8th	18.00	20.00
9th	1.00	1.11
10th	4.00	4.44
11th	3.00	3.33
12th	1.00	1.11

Table 01 – Characteristics of the studied sample (n=90.00).

Source: The authors

With regard to data quality, only the emotional aspects scale detected a floor effect (60.00%) and no scale detected a ceiling effect, as shown in Table 02. Regarding the reliability of the scales, the values varied between 0.71 and 0.88 (Table 03).

Domain	% floor effect	% Ceiling effect
Physical aspects	0.00	37.80
Limitations due to physical aspects	31.00	31.00
emotional aspects	60.00	12.20
body pain	1.10	26.70
Vitality	2.20	0.00
Mental health	0.00	0.00
Social aspects	4.40	8.90
General health assessment	0.00	2.20

Table 02 - Percentages of the sample's floor and ceiling effect (n=90.00)

Source: The authors

Domain	Alpha
Physical aspects	0.84
Limitations due to physical aspects	0.87
emotional aspects	0.88
body pain	0.80
Vitality	0.87
Mental health	0.86
Social aspects	0.87
General health assessment	0.71

Table 03 – Values of Cronbach's alpha coefficients for the 8 SF-36 domains.

Source: The authors

The score of the SF-36 domain scores had a median variation between 0.00 (emotional aspects) and 95.00 (physical aspects), according to table 04.

Domain	Median	Percentiles	
		25	75
Physical aspects	95.00	80.00	100.00
Limitations due to physical aspects	50.00	0.00	100.00
emotional aspects	0.00	0.00	33.33
body pain	80.00	67.50	100.00
Vitality	42.50	25.00	60.00
Mental health	52.00	32.00	68.00
Social aspects	50.00	37.50	75.00
General health assessment	55.00	40.00	70.00

Table 04 - Median and 22-75th percentiles of the SF-36 domains

Source: The authors

When comparing the scores of the SF-36 domains between the students' gender, significant differences were found in the domains emotional aspects ( $p=0.02$ ), vitality ( $p=0.00$ ) and mental health ( $p=0.00$ ), indicating that students have a worse perception of these domains than their fellow students, as shown in Graph 1.

The correlation analysis between the periods and the scores of the 8 domains of the SF-36 found no significant association.

## DISCUSSION

Reiterating the study carried out by PARO, César Augusto (2013), it is possible to see a worsening of the quality of life of students in the health area over the periods in terms of vitality, which concerns the level of energy and fatigue, which allows us to conclude that students have a constant feeling of tiredness and exhaustion. This academic scenario has deserved international attention due to the fact that this group is the future responsible for the health care of the population. Therefore, comparative studies of health students with other areas have emerged in an attempt to better understand the perspectives that cause this problem.

A census study with accidental sample evaluated and compared the quality of life of medical students in the first and last period of three different colleges. The results found by Ramos-Dias et al. pointed out a statistically significant difference in the psychological domain with lower scores for students in the last period, leading to the belief that medical students suffer psychological stress during their training.

DA SILVA LANTYER, Angélica et al. (2016) used an instrument called STAI to assess anxiety among freshman university students and also assessed quality of life using the SF-36, a questionnaire used as the basis for data collection and construction of

this article. Through this survey of results, it can be concluded that, in general, these studies indicate that university students, and in particular students in the health area, have high levels of stress and anxiety (Baldas-sin et al., 2006; Lyra et al., 2010). In addition, Angélica concluded through this study that university women, regardless of the course, had higher anxiety and worse scores in different domains of measurement of quality of life.

FIEDLER, Patrícia Tempiski (2008) quotes in her thesis:

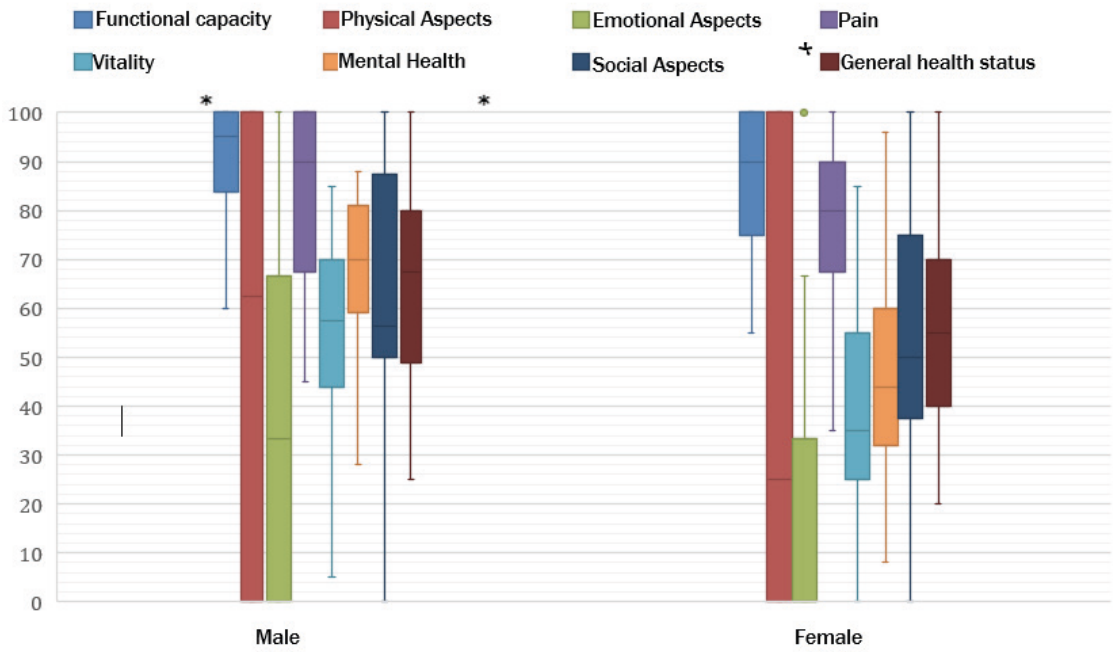
“The medical course is marked by numerous stress-generating factors that can influence the student's quality of life, requiring him to adapt and change his lifestyle.”

This fact can be proven by the numerous articles found demonstrating the decline in the quality of life of university students, especially in courses focused on the health area. High scores of daytime sleepiness (prevalence in females) are associated with a decrease in physical, psychological and environmental WHOQOL scores (Fiedler PT, 2008).

In addition, all the data collected through the analysis and reading of previous articles allowed us to reach the same conclusions that we reached when organizing the discussion and the results through the SF-36 questionnaire that we applied to medical students in the municipality of Araguari : there is a sharp drop in the quality of life levels of these students over the periods, as can be seen in the tables raised during the results.

One of the targets of this study was to explore the mental health of medical students in the context of the Covid-19 pandemic (2020-2021), and its impacts on the lives of the population.

According to the World Health Organization (WHO), mental health is “a well-being in which the individual develops his personal skills, can cope with the stresses of life, works productively and is able to make his



Graph 01 – Comparison of the SF-36 domains between genders.

Source: The authors

Caption: \*It indicates in which domains the difference in scores was significant ( $p < 0.05$ ).

contribution to your community.” (Victorian Health Promotion Foundation, & University of Melbourne, 2004). Several suitability conflicts at the beginning of the course, the progressive awareness of future career challenges. The great pressure to assimilate a lot of content, and the lack of time for social activities contribute to the triggering of emotional disturbances within the population of medical students. During the internship period, these anxieties may intensify. Doubts in the application of acquired knowledge, direct contact with patients and long and exhausting shifts that lead to a decrease in free time and consequent less socialization, are some of the factors that studies most point to as an explanation for indicating the greater presence of deterioration in the mental health of medical students. (ARAGÃO et.al. 2017; Al-Faris et. al., 2012; Benevides-Pereira & Gonçalves, 2009; Costa et. al., 2012; Leão, Martins, Menezes, & Bellodi, 2011; Millan & Arruda, 2008; Yussuf, Issa, Ajiboye, & Buhari, 2013).

When analyzing the data, it can be observed that the mental health of students is an important focus for study. It is noticed that the mental health of female students is slightly lower in the graph, thus demonstrating a worse psychological situation when compared to male students. This fact may suggest that adapting to the requirements of the medical course and the future profession are more easily faced by males. In the context of the Covid-19 pandemic, it can be said that the new adjustments related to the new model of classes, the fear of being contaminated and social distancing, may have caused a significant deterioration in the mental health of students, especially those of gender female (ROBERTO, 2011).

Faced with the scenario presented by covid-19, children and adolescents proved to be a vulnerable group in the

face of the psychosocial complications of the current moment, since they are in a process of developing their understanding and communication skills. According to LINHARES, the isolation measures ended up interrupting the social relationships that children and adolescents had built throughout the academic process and this ended up bringing a certain stress in the family context (LINHARES, 2020).

For ALMEIDA, distancing and social isolation were strategies employed to contain the transmission of the coronavirus and despite these measures being used in favor of collective health, the physical and mental well-being of children suffered negative impacts with confinement, because in addition to harming the interpersonal relationships that young people maintained, the pandemic increased cases of anxiety and depression in the child and adolescent population. This made children more prone to sedentary lifestyle and unbalanced diet (ALMEIDA, 2021).

The SF-36 questionnaire applied to medical students covered physical aspects, limitations due to physical aspects, emotional aspects, body pain, vitality, mental health, social aspects and general health assessment, and among the collected information it was possible to observe that the social aspects did not reach the bottom, as well as the emotional aspects. Soon, it was possible to see that the emotional factor was the most affected by the covid-19 pandemic, as it was the only topic to reach the bottom.

According to MALTA et al., the main changes observed were the increase in the consumption of vegetables and unhealthy foods, such as frozen dishes, chocolates and sweets, a reduction in the consumption of packaged snacks, a reduction in the practice of physical activity and an increase in sedentary behavior. No changes were observed regarding



the use of cigarettes and there was a reduction in alcohol consumption. (MALTA, 2021)

The present study was also able to assess gender differences in the prevalence of impacts generated by the coronavirus pandemic, thus, the results showed significant distinctions with regard to emotional aspects, vitality and mental health, showing that females had a worse perception of these domains in relation to males. Similar to studies carried out in the Middle East and West, the results also showed that women are at greater risk of developing mental health problems and changes in quality of life during COVID-19 (Mazza et al, 2020; Moccia et al, 2020 ; Moghanibashi-Mansourieh, 2020). In view of these observations, the presence of this pattern must be evaluated, since if confirmed, it may show an association between cultural gender roles and the development of mental health problems (CÉNAT et al, 2020).

However, this can be influenced by differences in sampling between the genders, which was composed of 76.6% of female students and only 23.4% of males. Despite this, it is likely that educational, professional, social or romantic difficulties normally experienced by young adults, intensified by lifestyle disruptions and feelings of hopelessness during the pandemic (SHANAHAM et.al, 2020), may have contributed to the negative impact on mental health and quality of life in this sample (GOULART, 2020)

## CONCLUSION

It appears that the pandemic caused by COVID-19 has impacted thousands of lives, due to measures established to combat the virus, such as social isolation, in addition to feelings of anguish, anxiety and sadness, in the

face of changes in lifestyle and interpersonal relationships. In addition, remember that other evils came along with the pandemic, such as a drop-in quality of life, impact on relationships with family, friends and affection, and related to the mental health of the general population.

The axes of discussion in that study indicate that there were changes in the quality of life of medical students at ``centro universitário IMEPAC Araguari``, especially in terms of mental and emotional health and vitality. Justified by studies that show that university students, and in particular students in the health area, have high levels of stress and anxiety, due to stress-generating factors and changes in habits.

These findings indicate that the pandemic has contributed to the worsening of the well-being of academics, in which they are a vulnerable group for the manifestation of emotional disorders and instability in mental health, in the face of factors that require adaptation, dealing with pressure to assimilate a lot of content, the lack of time for social activities, among other factors that harm the well-being of this population.

Another important point evidenced in the research was the impaired interpersonal relationships, due to the distancing and social isolation adopted to contain the spread of the virus, with this relationship with people outside the family were interrupted, and this ended up bringing a certain stress in the family context, contributing to an increase in cases of anxiety and depression. Thus, it is concluded that the pandemic negatively affected the quality of life of medical students at ``centro universitário IMEPAC Araguari``.

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