



# ANXIETY LEVEL OF FIRST-YEAR MEDICAL STUDENTS IN A PRIVATE UNIVERSITY IN PERU DURING COVID-19

NIVEL DE ANSIEDAD DE ESTUDIANTES DE MEDICINA DE PRIMER AÑO DE UNA UNIVERSIDAD PRIVADA  
DEL PERÚ EN TIEMPOS DE COVID-19

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## ABSTRACT

**Introduction:** The current pandemic due to a new coronavirus (SARS-Cov-2) has claimed many people's health and lives worldwide. This has a negative impact on the mental health of health personnel, which includes medical students. **Objective:** To determine the degree of anxiety present in first-year medical students from a private university, Lima-Peru. **Methods:** The sample consisted of 57 students from a private university in Lima-Peru. The scale was applied to measure Generalized Anxiety Disorder-7 (GAD-7). The data were analyzed using frequency and contingency tables. Also, the bivariate analysis was performed by applying the statistical tests X<sup>2</sup> and Student's t. **Results:** 75.4% of the medical students manifested some degree of anxiety. A statistically significant association was found between female gender and anxiety ( $p = 0.045$ ). Likewise, there was no association between the variables age and anxiety ( $p = 0.058$ ). **Conclusion:** First-year medical students showed high anxiety levels during the current pandemic, with women being among those whose anxiety occurs more frequently. The development of intervention strategies in university centers for health sciences students' mental health is timely.

**Key words:** Mental health; Anxiety; Medical students; Pandemic; Coronavirus infections; Patient health questionnaire (source: MeSH NLM).

## RESUMEN

**Introducción:** La actual pandemia por un nuevo coronavirus (SARS-Cov-2) ha cobrado la salud y la vida de muchas personas mundialmente. Esto genera un impacto negativo en la salud mental del personal de salud, lo cual incluye a estudiantes de medicina. **Objetivo:** Determinar el grado de ansiedad presente en estudiantes de medicina del primer año de una universidad privada, Lima-Perú. **Métodos:** La muestra estuvo conformada por 57 estudiantes de una universidad privada en Lima-Perú. Se aplicó la escala para medir el Desorden de Ansiedad Generalizada-7 (GAD-7). Los datos fueron analizados mediante tablas de frecuencias y de contingencia, además se realizó el análisis bivariado aplicando las pruebas estadísticas X<sup>2</sup> y T de Student. **Resultados:** El 75,4% de los estudiantes de medicina manifestaron algún grado de ansiedad. Se encontró asociación estadísticamente significativa entre el sexo femenino y ansiedad ( $p = 0,045$ ). Así mismo, no hubo asociación entre las variables edad y ansiedad ( $p = 0,058$ ). **Conclusión:** Los estudiantes de medicina de primer año evidenciaron niveles altos de ansiedad durante la actual pandemia, siendo las mujeres entre quienes la ansiedad se presenta con mayor frecuencia. Se hace oportuno el desarrollo de estrategias de intervención en los centros universitarios para el cuidado de la salud mental de los estudiantes de ciencias de la salud.

**Palabras clave:** Salud mental; Ansiedad; Estudiantes de medicina; Pandemia; Infección por coronavirus; Cuestionario de salud del paciente (fuente: DeCS BIREME).

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## INTRODUCTION

The world population is currently experiencing the effects of the global pandemic caused by a highly contagious new coronavirus (SARS-Cov-2), which causes organic damage that can be mild to severe or even fatal. Due to this, on January 30, 2020, the World Health Organization (WHO) declared a state of emergency of international scope, and on March 11 of the same year, COVID-19 was considered a pandemic<sup>(1)</sup>.

According to the World Health Organization (WHO) official figures, 153,517 confirmed cases of COVID-19 in the world as of March 15, 2020<sup>(2)</sup>. This wide scale of infection constituted a catastrophe for public health and put enormous pressure on the Peruvian government and all its attached ministries, mainly the ministries of health and economy.

Due to the seriousness of the world scenario and its implications in the Peruvian territory, since March 16, 2020, restrictive measures such as isolation, quarantine, and mandatory social distancing were implemented to prevent new infections, deaths, and collapse of the Peruvian health system. Despite the application of such measures, infections and deaths from the new coronavirus in the national territory continue to increase, so much so that by the end of July of this year, the number of people infected by COVID-19 was just under half a million cases and deaths, approximately 19,200, according to data provided by the Ministry of Health of Peru (MINSAs)<sup>(3)</sup>.

Although necessary for protecting all Peruvians' organic health, the aforementioned social restriction measures have had an unfavorable impact on citizens' mental health in general, without discrimination of gender, age, or social condition. The isolation measures included promoting education through virtual platforms and the postponement of face-to-face academic activities in colleges and universities, which has confined children, adolescents, and young people to their homes, distancing them from their friends or peers sometimes from loved ones<sup>(4,5)</sup>. This poses a risk for developing psychiatric diseases, especially in young people who are just starting their university training in human medicine<sup>(6)</sup>.

In our country, no study has yet been reported on the state of mental health of university students of the human medicine who face the current COVID-19 pandemic in various ways.

The Generalized Anxiety Disorder measurement7 (GAD-7) has been the most widely used documentary

measurement instrument for the early detection of anxiety disorders in clinical practice and research due to its high reliability and diagnostic efficiency<sup>(7)</sup>. In our country, no study has yet been reported on the state of mental health of university students of the human medicine career who are facing, in various ways, the current pandemic due to COVID-19. Therefore, the students of the first year of human medicine at a private university in Lima - Peru, through the GAD-7 scale adapted to Spanish, make the timely diagnosis and determine the degree of anxiety present in this vulnerable group<sup>(8)</sup>. This will allow the development of intervention strategies at a psychological level that contribute to the control of emotional disturbances in the context of the pandemic and thus avoid, among other things, the dropout from university life.

## METHODS

### Design and study area

An observational, descriptive, and cross-sectional study in university students in the first year of the human medicine career at a private university in Lima-Peru.

### Population and sample

This study's population was made up of all the first-year human medicine students from a private university, Lima-Peru, from April to August 2020, which constituted 78 students. The students who were enrolled in the undergraduate academic activities program corresponding to this year were included. University students who withdrew from the program or who reserved enrollment for a later academic period were excluded. According to the criteria above, 57 human medicine students were included in the study.

The entire study population was accessed; therefore, sampling techniques were not applied. The data collection was carried out according to the students' attendance to the different regular virtual classes corresponding to the curricular plan of the academic school of human medicine.

### Variables and instruments

The main variable was the anxiety present in the first year human medicine students. To evaluate it, the Generalized Anxiety Disorder Measurement Scale - 7 (GAD-7) adapted to Spanish and previously validated in Peru<sup>(9)</sup> was used. This scale consisted of 7 items based on seven main symptoms of this disorder. It evaluated the frequency with which the study participants experienced such symptoms in the last

two weeks before the evaluation. Those evaluated register their symptoms using a 4-item Likert-type rating scale that ranges from 0 (not at all) to 3 (almost every day), so that the total score ranges from 0 to 21. Also, the GAD-7 demonstrated excellent internal consistency with a Cronbach alpha of 0.911<sup>(5)</sup>.

The gender and age variables were evaluated using the data provided in a short student data collection form, which was adequately coded to preserve the procedure's anonymity.

### Procedures

This GAD-7 scale was applied in a virtual format to the medical students that attended the different classes that were part of the curricular plan through the virtual university's platform. Before solving the scale, brief explanations were given to fill out the instrument correctly. Subsequently, the collected data were processed in a Microsoft Excel 2010 spreadsheet.

### Statistical analysis

Frequencies and percentages described the categorical variables. The only quantitative variable was age, which was expressed through the median, due to the data's skewness and interquartile ranges. Likewise, the distributions of the frequencies of each item of the scale were presented by frequencies and percentages. Also, bivariate analysis was performed between the dependent variable (anxiety) and the independent variables (age and sex). The statistical tests applied were X<sup>2</sup> for the study of categorical

variables, and Student's *t*, for the analysis of numerical variables. The statistical package used was SPSS 24.

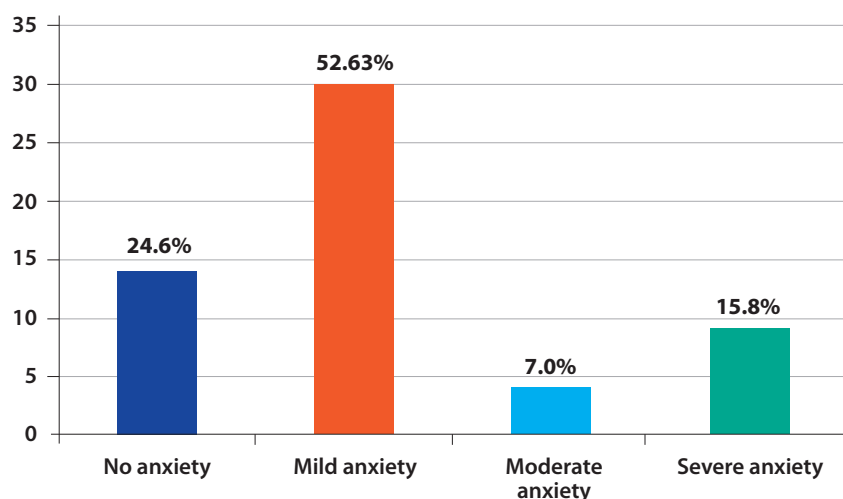
### Ethical aspects

Compliance with ethical principles was guaranteed during the development of the research. Before the administration of the GAD-7 scale, written consent was obtained from each of the study participants. This document was provided virtually after a detailed explanation of the study's implications, guaranteeing the confidentiality of the study units' data.

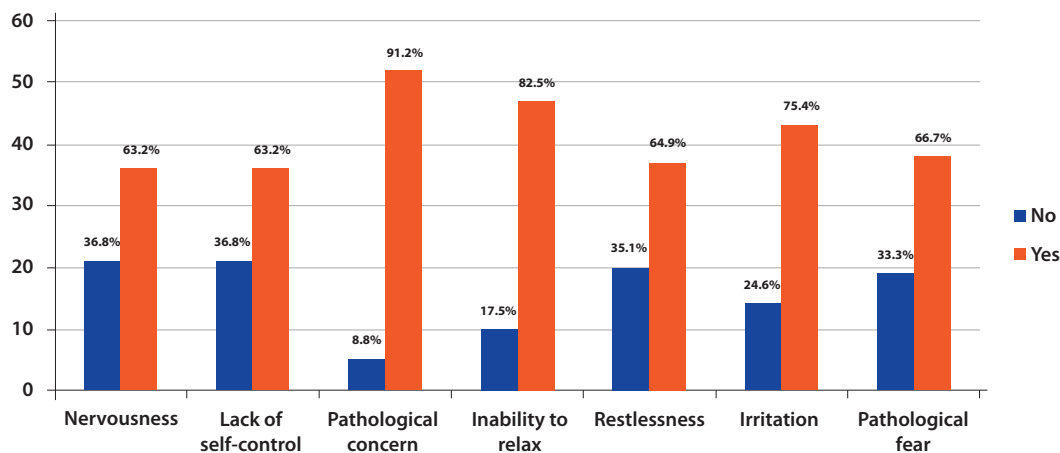
## RESULTS

The Generalized Anxiety Disorder-7 (GAD-7) measurement scale was applied to 57 first-year medical students from a private university in Lima-Peru. 64.9% of the sample studied were women, and 35.1% were men. Also, 50.9% of the university students were under 18 years of age, while 49.1% were over 18 years of age being an average of 17 years. The GAD-7 scale results showed that 75.4% of the students manifested some degree of anxiety during the COVID-19 pandemic; Likewise, Figure 1 shows the degrees of anxiety found in the investigated group.

It is essential to highlight that 91.2% of the participants expressed pathological concern about the current world situation, and 82.5% recognized that they could not relax in the face of such a pressing situation. Figure 2 compares the symptomatology that frequently occurs in students with anxiety disorders.



**Figure 1.** Anxiety levels in first-year medical students from a private university in Lima-Peru, according to the GAD-7 scale.



**Figure 2.** Symptoms of anxiety present in first-year medical students from a private university in Lima-Peru, according to the GAD-7 scale.

In the bivariate analysis, a statistically significant association was found between the female sex and the presence of anxiety with a p-value = 0.045. On

the contrary, there was no evidence of an association between the variables age and anxiety, obtaining a p-value = 0.058.

**Table 1.** The frequencies and the p-values for each of the variables studied.

Variable	Anxiety		p
	NO n(%)	YES n(%)	
<b>Sex</b>			
Female	6 (42.9)	31 (72.1)	0.045
Male	8 (57.1)	12 (27.9)	
<b>Age</b>			
Under 18 years	4 (28.6)	25 (58.1)	0.058
Greater than or equal to 18 years	10 (71.4)	18 (41.9)	

**DISCUSSION**

The present study revealed that the prevalence of anxiety during the pandemic caused by SARS-Cov-2 was 75.4% of a total of 57 first-year medical students from a private university in Lima-Peru. Also, according to the GAD-7 scale, 52.6% of the studied group manifested mild anxiety, and pathological concern was the symptom that predominated in 91.2% of the students, followed by the inability to relax, that was present in 82.5% of the university students. Regarding this, Granados Cernuda<sup>(10)</sup>, in a prevalence study carried out in Mexican university students from different professional schools, including human

medicine, found that the prevalence of anxiety in first-year medical students was 30.4%. In comparison, in students of the last year of medicine, the prevalence was 94.4%. Furthermore, the author maintains that these high percentages of anxiety were due in part to the high academic load and the medical career demands. Our study recorded a higher prevalence of anxiety in first-year medical students. The current COVID-19 pandemic would constitute a possible predisposing factor for developing anxiety in human medicine students, which adds to the career's high demands.

The sociodemographic factors addressed in our

ORIGINAL PAPER



research were: sex and age. Regarding sex, the study showed that of the total number of university students with some degree of anxiety, 72.1% were women. A statistically significant association was found between the variables of sex and anxiety. The study notes the prevalence of this disorder in the female gender and more during the global epidemic by COVID-19. Similarly, a recent study carried out by Luna<sup>(11)</sup> in 161 human medicine students from a university in Mexico showed that 80% of the women presented some degree of anxiety, which supports the results obtained through our study; likewise, the author found a significant association between female sex and anxiety ( $p < 0.001$ ). Similar results were obtained by Santander<sup>(12)</sup>, whose study stated that the highest levels of emotional disorder, including anxiety and depression, were registered among female medical students. These data support the results obtained from our research.

Regarding age, approximately 58.1% of the participants under 18 years of age had mild to severe anxiety. Also, no association was found between this variable and anxiety. According to this, the highest level of anxiety is concentrated in a group of younger college students. Regarding this, González-Jaimes<sup>(13)</sup>, when investigating 664 Mexican university students, reported that 40.3% of the youngest students manifested anxiety to some degree (mild to severe), being mild anxiety what is It occurs more frequently among young people<sup>(14)</sup>. This partially supports what is revealed in the present study.

The university setting deserves special attention as it is a setting for the manifestation of frequent psychiatric disorders such as anxiety, especially in the context of the pandemic caused by SARS-Cov-2. Naturally, young students of human medicine are part of a population vulnerable to developing different mental disorders. This is due to the high demand for which the same career subjects them and the negative impact on young people's mental health due to the consequences of the current pandemic on a global, family, and personal level. This makes young medical students a population with wide possibilities of being intervened. Subsequent studies with larger samples could provide more accurate results by contrasting the realities of groups of students from public and private universities and their influence on mental health in the context of

the global epidemic. Some variables that could be included in future research could be a place of residence, living with parents, family, or personal history of COVID-19 infection, in addition to other emotional disorders related to anxiety such as stress and depression<sup>(5,15)</sup>.

It is necessary to continue studying this population group, characterizing it according to gender and age to generate differentiated intervention strategies to be applied in the university environment, which should have the objective of preserving the mental health of young university students to achieve a healthy and comprehensive professional development of them. Therefore, the authors recommend using the results of this research to develop programs aimed at training university students to take care of their mental health and face situations that could harm emotional stability, such as the one we are now living because of COVID-19.

## CONCLUSION

First-year human medicine students showed high anxiety levels during the current pandemic, which were higher than those previously reported by different authors. From mild to severe, anxiety occurred more frequently in females and is more characteristic among university students under 18 years of age. The development of intervention strategies in universities allows young human medicine students to develop assertive coping techniques applicable to situations that constitute a threat to preserving their mental health.

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